Environmental Performance Auditing by Supreme Audit Institutions: Progress, Practice and Prospects

By

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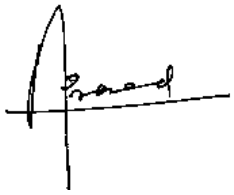
Candidate's declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma at any other university. To the best of the author's knowledge, it contains no material which has been previously published or written by another person, except where due reference is made in the text.



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Abstract

Environment and sustainable development challenges are matters of global concern. Trillions of dollars of mostly public money are invested every year in environment programs to address these challenges. The effectiveness of these programs is critical to environmental sustainability. The effectiveness of governments' programs is examined through evaluations undertaken mostly by the private sector and through performance audits undertaken by independent Auditors General, also known as supreme audit institutions (SAIs). Compared with traditional evaluations, performance audits have a greater capacity to influence the implementation of policies. However, performance auditing in the environment field has received very little academic attention.

To fill this knowledge gap, this thesis establishes the function and nature of environmental performance audit, and then undertakes three empirical investigations:

(1) A longitudinal analysis of two decades (1992-2012) of global environmental performance audit data that also considers some economic data, e.g., gross per-capita national income, to investigate trends;
(2) A global survey of SAIs to investigate their current practices and challenges faced in environmental performance auditing; and
(3) A comparative study of environmental performance auditing in three countries—Australia, Canada and India—to further understand environmental performance auditing.

The results suggest that, globally, environmental performance audits have been growing in number and possibly in complexity. However, the growth has been uneven. About half of SAIs have not produced any environmental performance audit, suggesting capacity gaps. These SAIs are largely concentrated in Africa and Caribbean—two economically poor regions. Both a country's economic development, and its membership of the Working Group on Environmental Auditing (WGEA), are correlated to its output of environmental performance audits.

SAIs, predominantly, select environmental topics for performance auditing using a risk-based structured approach. Performance audits criteria are generally developed in consultation with auditees. Economic factors influence the choice of audit topics and methods. Generally, the developed country SAIs focus on performance auditing of quality of life environmental issues, such as climate change, whereas, the developing country SAIs concentrate on subsistence environmental matters, such as water supply and sanitation. Compared with developing SAIs, developed SAIs generally use more system-oriented approaches and are more consultative. SAIs identify both the lack of sufficient mandate and sufficient resources as constraints to undertaking more environmental performance audits. Institutional arrangements do affect environmental performance auditing. Significant variations in reporting styles of performance audits are a consequence of deficient quality control and an absence of reporting standards.

Key challenges confronting environmental performance auditing relate to: (a) Deficient environmental policy formulation and data & monitoring difficulties (governments responsible); (b) SAIs' mandate & resources (governments responsible); and (c) Audit relationships and communication matters (SAIs responsible).

While environmental performance audits have had positive impacts on the implementation of environmental programs, actions for improvements are necessary to meet the growing challenges of the future, including implementing the new sustainable development goals. These include:

- Capacity building in performance auditing especially in poor countries (donor agencies, governments);
- Addressing deficiencies in environmental policies and mandate & resources of SAIs (governments);
- Working collaboratively with others, e.g., civil society organisations, to develop innovative audit methods; and improving reporting standards & communication (SAIs); and
- Strengthening the WGEA (SAIs).

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Abbreviations

ADB	Asian Development Bank
AFROSAI	African Organization of Supreme Audit Institutions
ANAO	Australian National Audit Office
ARABOSAI	Arab Organization of Supreme Audit Institutions
ADB	Asian Development Bank
AFROSAI	African Organization of Supreme Audit Institutions
ANAO	Australian National Audit Office
ARABOSAI	Arab Organization of Supreme Audit Institutions
ASAE	Australian Standards for Assurance Engagement
ASOSAI	Asian Organization of Supreme Audit Institutions
AUASB	Auditing and Assurance Board of Australia
CAG	Comptroller and Auditor General of India
CAROSAI	Caribbean Organization of Supreme Audit Institutions
EA	Environmental Audit
EEA	European environment Agency
EPA	Environmental Performance Audit
EUROSAI	European Organization of Supreme Audit Institutions
GAO	Government Accountability Office, United States of America
GDP	Gross Domestic Product
GNI	Gross National Income
IAASB	International Auditing and Assurance Standards Board
ICC	International Chamber of Commerce
INCOSAI	International Congress of Supreme Audit Institutions
INTOSAI	International Organization of Supreme Audit Institutions
IOCE	International Organization for Cooperation in Evaluation
ISSAI	International Standards of Supreme Audit Institutions
MDGs	Millennium Development Goals
NAO	National Audit Office of the United Kingdom
NOAA	National Oceanic and Atmospheric Administration of America
OAG	Office of the Auditor General of Canada
OAG-WA	Office of the Auditor General of the Australian State of Western Australia,
OECD	Organisation for Economic Co-operation and Development
OLACEFS	Organization of Latin American and Caribbean Supreme Audit Institutions
PA	Performance Audit
PASAI	Pacific Association of Supreme Audit Institutions
SAI	Supreme Audit Institution (the Highest Public Audit Office of a Country)
SDGs	Sustainable Development Goals
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
US/USA	United States of America
WB	World Bank
WGEA	INTOSAI Working Group on Environmental Auditing

Chapter 1 : Introduction

1.1 Background

Due to several drivers, such as, population growth, industrialisation and globalisation, environmental challenges have been growing and have become matters of global concern. The United Nations Environment Program (UNEP, 2012: 6) observes that impending exceedance of some critical thresholds in natural domain will likely adversely affect life-support functions of the earth with significant adverse implications for human well-being. Governments all over the world are acutely aware of such environmental challenges and are endeavouring to meet them through policy initiatives. The 2030 agenda for sustainable development adopted by world leaders at the United Nations Conference in September 2015 and the new agreement on climate change adopted at the Paris Climate conference in December 2015 are recent examples of such environmental initiatives.

Governments have been taking environmental protection initiatives for several decades. Keene and Pullin (2011) observe that such environmental policy initiatives have been going on at least since 1960s. This was when visible environmental degradation and consequent public pressure for environmental protection and conservation began (Chertow & Esty, 1997; Durant et al., 2004; Fiorino, 2001) and prompted policy interventions by governments the world over—both nationally and internationally. More than 300 multilateral environmental agreements (MEAs) are currently operating to address some of the global environmental challenges (e.g. loss of biodiversity, climate change). Furthermore, hundreds of non-governmental organizations (NGOs) are involved in environmental initiatives. The earlier environmental movement has rapidly transformed into a large, diverse and well-financed endeavour of individuals and organizations working to achieve the common goal of environmental quality (Keene & Pullin, 2011). Trillions of dollars of mostly public money are invested every year in domestic and international programs to maintain and enhance environmental quality. Knowing whether or not such environmental policy and programs are achieving the intended positive outcomes is crucially important as the effectiveness of these programs is critical to environmental sustainability. The effectiveness of programs is assessed by evaluations undertaken mostly by the private sector and academic institutions. Performance auditing undertaken by independent Auditors General (also called supreme audit institutions—SAIs) provides a similar function. Compared with the former, the latter has more influence. However, it has scarcely been studied in the environmental field. This is the focus of this thesis. Following an introduction of evaluation and performance auditing and noting the differences between the two, this chapter establishes the need for a substantive enquiry into the latter in the environmental field and provides an outline of the thesis.

1.2 Evaluation

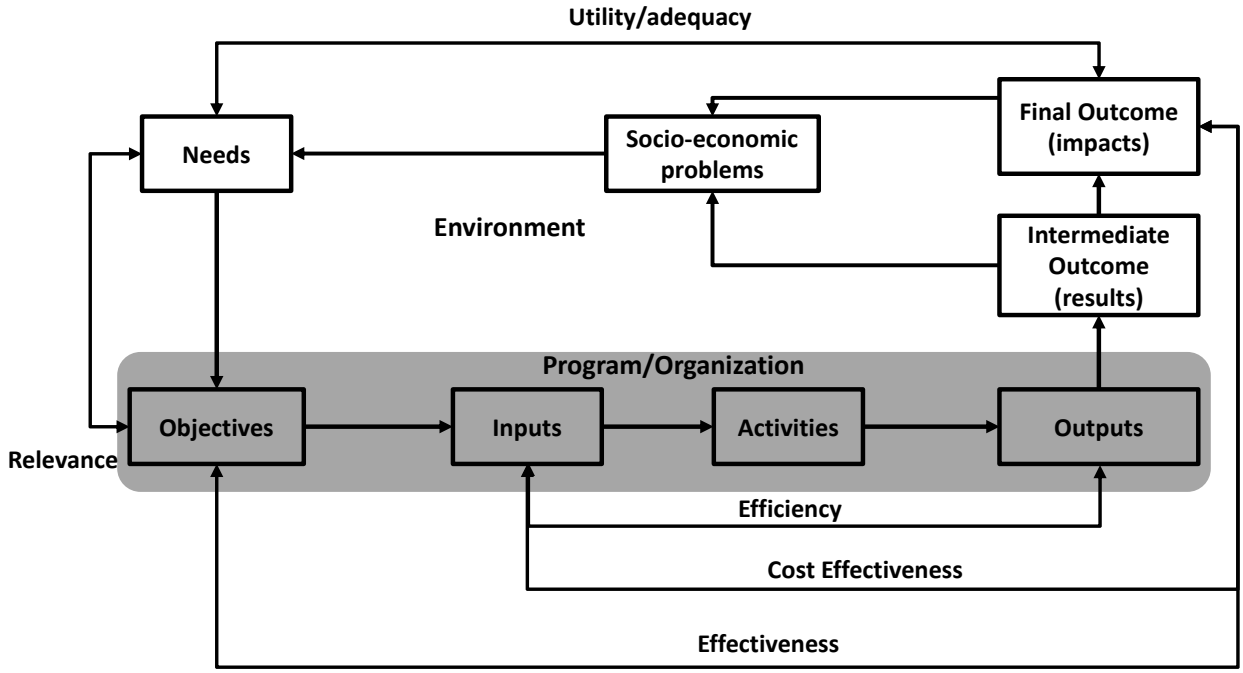
"Evaluation is an applied inquiry process for collecting and synthesizing evidence that culminates in conclusions about the state of affairs, value, merit, worth, significance or quality of a program, product, person, proposal or plan" (Fournier, 2005). The Australian National Audit Office (ANAO, 1997a) provides a comprehensive definition of evaluation that is quite revealing in terms of government processes.

> Evaluation is the systematic assessment of the appropriateness, effectiveness and/or efficiency of a program, or part of a program, and its objectives are to:

- provide a better information base to assist managers in improving program performance;
- assist government decision-making and setting priorities, particularly in the Budget process; and
- contribute to improved accountability to the Parliament and the public.

Key issues related to program evaluation (and performance auditing) are shown in Figure 1-1 (adapted from Pollitt & Summa, 1999). A program has an objective; it transforms input (resources/materials) to outputs that create effect or impact on the world outside the program domain, called environment (note the different meaning of environment). While the program itself is the shaded area (objective, input, activities, output), the elements of the program can only be fully understood when related to the 'outside world' in terms of socio-economic needs that resulted in the program's activity and the outcome of the activity in terms of meeting or not meeting that need (Pollitt & Summa, 1999).

Figure 1-1: An open system model of program and evaluation issues (adapted from Pollitt & Summa, 1999).



Performance auditing generally considers economy, efficiency and effectiveness (see for example, INTOSAI, 2004: 11)—the 3Es. Economy and efficiency are quite related. Economy refers to keeping the input cost to a minimum (spend less) for a given output (product or service of acceptable quality). Efficiency refers to maximizing output for a given input cost (spend well). These two could be measured without going outside the program or organization. However, assessment of effectiveness requires measuring outcomes/impacts that occur in the outside world. Effectiveness refers to the relationship between the intended results (objectives) and actual results. How successfully do the goods/services or other results generated meet the program/policy objectives or operational goals (spend wisely) (NAO, 1987: 5). Cost effectiveness is the (monetary) cost of meeting a single goal/objective producing a single

product or service. It is the ratio of program input cost to the program outcome. It is used to compare alternative options for delivering a program (McDavid et al., 2013: 482).

Utility of a program is about judging whether the overall effect of the measure/program—both intended and unintended, good and bad—has contributed to net increase in social welfare considering a wide range of issues—social, economic, environmental and cultural (EEA, 2000). Relevance is to what extent do the objectives of a program relate to the assessed 'needs' of the issue, problem or government priorities (McDavid et al., 2013: 495). While the above input-output model of program has been criticized for being simplistic in the context of environmental programs (Lehtonen, 2005), it remains useful as an information tool for evaluation (Teirlinck et al., 2013) and performance of programs (Pollitt & summa, 1999).

1.3 Rich literature on evaluation

While still growing, evaluation is a highly developed discipline. There are several theories of evaluation (see for example,Pawson & Tilley, 1997; Scriven, 1998; Shadish, 1998; Shadish et al., 1991). There is rich literature on evaluation theory and practice in numerous text books (e.g. Chen, 2005; McDavid et al., 2013; Mertens & Wilson, 2012) and hundreds of peer reviewed articles published every year in the general science and policy journals (e.g. *Biological Conservation*; *Journal of Environmental Management*; *Environmental Management*;, *Policy and Management);* and evaluation specific journals (*Evaluation*, *Evaluation and Program Planning*; *New Directions for Evaluation*, *American Journal of Evaluation*, *Evaluation Journal of Australasia*). Research in evaluation is so prolific and widespread that a highly respected contributor in the field (Pawson, 2006: 8) observes that evaluation research is a demand-driven cottage industry for hire.

There is an International Organization for Cooperation in Evaluation (IOCE) that is an umbrella organization representing national and regional voluntary organizations of professional evaluators (VOPES). Its mission is "to increase public awareness and globally validate evaluation, and support VOPEs in contributing to good governance, effective decision making and strengthening the role of civil society" (IOCE, 2016a). As of March 2016, there are 206 VOPEs in 168 countries. Of these, 151 organizations verified by IOCE include 13 international, 17 regional, 114 national and 7 subnational originations (IOCE, 2016b).

1.4 Environmental evaluation

Environmental programs typically address "wicked problems" (Rittel & Webber, 1973; Wildavsky, 1979) whose attributes include broad and variable temporal and spatial scales, complexity and uncertainty, multiple causes, lack of clear policy instruments, multiple disciplines and multiple stakeholders (APSC, 2007: 3-4; Dovers, 2005: 44-49). Environmental problems can rarely be solved; they can only be resolved. Permanent solutions to these problems are rare, partly because of their dynamic complexity (Kakoyannis, 2004; Senge, 1990). Much argued 'comprehensive rational analysis' is seldom possible. At best, policy making can evolve only incrementally. At worst, ideology, interest, and institutional behaviour take precedent (Weiss, 1995). There are challenging policies addressing other "wicked problems", such as obesity and indigenous disadvantage (APSC 2007: 4). However, what makes environmental policy

interventions different that they simultaneously involve two systems—human and natural—and often have stakeholders with strongly opposing and sometimes irreconcilable world views (Rowe, 2012).

Notwithstanding the difficulty posed by the specific complexities of the environmental field in applying the tested and refined generic methods of the policy evaluation field (Crabb´e & Leroy, 2008), significant literature on environment policy evaluation has accumulated in books (see for example, Dovers, 2005; Knaap & Kim, 1998) and journal papers in general evaluation and environmental specific journals (see for example, Curtis et al., 1998; Keene & Pullin, 2011; Kleiman et al., 2000; Mickwitz, 2003; Miteva et al., 2012; Rowe, 2012; Vaessen, 2011; Vaessen & Todd, 2008). *New Directions for Evaluation* published a special edition (volume 122) on evaluation of environmental programs that contained ten papers. The Birnbaum and Mickwitz (2009) review paper in this edition notes that specific evaluation challenges in the environmental area belong to the following categories:

1. Differing and frequently long time horizons;
2. Disparities in scaling;
3. Data quality and credibility issues; and
4. The problem of research designs for assessing attribution in environmental policies and programs.

1.5 Evaluation and Performance Auditing

A discipline very close to evaluation is performance auditing. The ANAO (1994) defines a performance audit as:

> An independent, objective and systematic examination of the management of an organization, program or function for the purposes of:
>
> - forming an opinion on:
> - whether the organization, program or function is being managed in an economic, efficient and effective manner; and
> - the adequacy of internal procedures for promoting and monitoring economy, efficiency and effectiveness; and
> - suggesting ways by which management practices, including procedures for monitoring performance, might be improved.

Pollitt and Summa (1999) observe that a performance audit differs from a traditional audit that checks if accounts have been accurately and properly kept. They note that the mandate of a performance audit also known as 'value for money' audit, is very ambitious as it strongly brings together the old tradition of 'audit' and the new concept of 'performance'. In most democratic countries, performance audits are conducted by SAIs that are powerful independent institutions located near the heart of state (Pollitt & Summa, 1999). Large scale performance auditing as a discipline distinct from traditional financial auditing, emerged in late 1970s about the same time governments in Western Europe, North America and Australasia started public management reform (Pollitt & Summa, 1999). Although details of these reforms varied in each country, decentralization and performance management have been central to them (Hood, 1996; OECD, 1995; Pollitt, 1998).

Evaluation and performance auditing are similar in aims, approaches, analytical methodologies and techniques (Barrett, 2001; Pollitt & Summa, 1996). Performance auditing is best considered as a type of

evaluation (Barrett, 2001; Barzelay, 1997: 237). It focuses on improving a program's administrative efficiency and operational effectiveness, both of which are also important features of program evaluation (Barrett, 2001).

Evaluation is not necessarily independent, but performance auditing is always independent (Summa, 1999; Barrett, 2001)). Evaluations are generally commissioned by organizations, whereas performance audits are chosen by SAIs that are statutory bodies and cannot be 'bought in' to undertake a task at the behest behalf of a commissioning authority (Summa, 1999). Performance audits are reported directly to Parliament but evaluations in the public sector are reported to the Minister or Secretary of the Department and is often not made public (Barrett, 2001).

Despite some differences, similarities between performance auditing and evaluation are more important. Both are basic links in the accountability chain; both contribute to better program management and accountability for performance by commenting on a program's 'value for money' though sometimes from different perspectives; and both endeavor to identify better practice (Barrett, 2001). In fact, "audit and evaluation [are] part of a continuum; a progressive development and refinement of the objectives and methodology of a process of examination of the range of operations undertaken by an entity" (Bowden, 1992). Where one finishes and the other begins, is hard to tell except for one distinction. Evaluation can go one step further along the continuum and look at the merit and appropriateness of the policy itself in terms of government priorities and community needs (Barrett, 2001; INTOSAI, 2004: 23). However, as will be discussed in section 1.8, performance audits generally have far more influence on government policies and programs than evaluations.

Stern (2005) observes that the advent of performance auditing has blurred the boundaries between financial and compliance audit and evaluation. Performance audits almost always impact policy issues. Consequently, audit, evaluation, and monitoring must complement each other for achievement of results (Stern, 2005). Performance auditing will be most effective where it complements evaluation and, indeed, may often review it as a meta-evaluation. For example, a performance audit can review whether the performance measurement systems of government programs are efficient and effective; and whether performance indicators measure the right things, and measure the things rightly (Barrett, 2001; INTOSAI 2004: 22).

In summary, performance auditing is essentially an evaluating activity (Furubo, 2011). The differences between evaluation and performance auditing are more due to the institutional framework rather than tools and methods used to carry them out (Pollitt & Summa, 1996).

1.6 Importance of performance auditing for the environment field

Unlike evaluation, performance auditing is almost unique to the public sector (Pollitt, 1999) and intimately related to the concept of public accountability. While some similar external control, like external audit, is exercised in the private sector, it is done on behalf of and in the interests of owners (Summa, 1999), who further observes that:

> Even in narrowly economic terms, both knowing about performance and ensuring that information provided on the level of performance is correct, is more complex in the case of public organizations, the 'production' (or output) of which is often hard to quantify or to measure in money terms. More substantial forms of investigation are needed to measure or control the performance of public organizations, where notions of profit or return on investment do not apply. The development of performance audit is one attempt to ensure control and accountability in the specific conditions of public organizations.

The above observation is highly relevant to environmental programs for two reasons. Firstly, if the phrase 'public organizations' is replaced with 'environment programs', the above observation equally applies. Secondly, environment being a public good, it is the public sector or governments that instigate and execute major environmental policies all over the world, both domestically and internationally.

Following the publication of *Our Common Future* (Brundtland, 1987), the environment is now integrated into the holistic concept of sustainable development. Topfer (2004) observes that by promoting good governance, SAIs play a vital role in informing and supporting efforts to achieve sustainable development as sustainable development cannot be achieved without good governance. Due to their independence, SAIs are in a unique position 'to legitimately and credibly evaluate the efficiency and effectiveness of government policy and obligations' (Topfer, 2004). By holding governments accountable, SAIs play an important role in ensuring that issues of environment sustainability are at the centre of development initiatives (Nombembe, 2007, quoted in WGEA 2007b: 55). "Sustainable development worldwide is only possible if the use of public resources is made more transparent and accountable" (Moser, 2015).

1.7 Growing recognition of the SAIs' work

Along with parliaments, SAIs are at the core of accountability of governments. Their work is universally recognized. The International Organization of SAIs (INTOSAI – currently 192 members) that was established in 1953, as a non-governmental organization—has a special consultative status with the Economic and Social Council of the United Nations (INTOSAI, 2006). The UN resolution A/66/209 in December 2011 has recognized 'the important role SAIs play in promoting the efficiency, accountability and transparency of public administration' and has called for their strengthening to promote good governance. Subsequently the UN resolution A/C.2/69/L.25/Rev1 of 2014 has acknowledged the role of SAIs in fostering governmental accountability for the use of resources and their performance in achieving development goals including internationally agreed developmental goals. The target 16.6 of the sustainable development goals (SDGs) adopted by the UN in September 2015 is to "develop effective, accountable and transparent institutions at all levels" (UN, 2016). SAIs are at the core of effective, accountable and transparent institutions (Hongbo, 2015).

INTOSAI established a Working Group on Environmental Auditing (WGEA) in 1992 with a mission to assist SAIs in better undertaking of environmental auditing, to facilitate the exchange of information and experience between SAIs and to publish guidelines and other information for their use (WGEA, 2012d). Since then, it has been actively pursuing its endeavors and consequently has spread its influence. Its membership grew from 12 in 1992 (Elstein, 2012) to presently 74 (WGEA, 2012d). In addition to facilitating exchange of information and developing guidelines, WGEA (2012, 2012d) promotes joint and coordinated global audits of environmental issues, such as biodiversity and climate change. Recognizing the centrality

of the SAIs to maintaining accountability of the governments, UNEP, the body that provides secretariat support to majority of MEAs, has signed a new agreement with WGEA to track progress towards the implementation of international environmental agreements (UNEP, 2013).

1.8 Underutilisation of evaluations compared with performance audits

Evaluation is now considered part of the policy cycle (Teirlinck et al., 2013). Barring a few exceptions (see for example, Chelimsky, 1997, 1998; Eggers & Chelimsky, 1999), using their findings in policy making is often considered as the main reason for undertaking policy evaluations (Lehtonen, 2005*).* However, there is a significant body of research to show poor utilisation of evaluation work in policy decisions (Feinstein, 2002; Forss et al., 2002; Lehtonen, 2005; Thoenig, 2000). Most evaluations fail to get decision-makers to act on their basis (Scriven, 1998). Under-utilization of evaluation findings is acknowledged in many policy fields (Mackay & Horton 2003). Compared with the evaluation studies, the performance audits by SAIs have a very high level of uptake. For example, ANAO (2015c: 23) reports that more than 90% of its performance audit recommendations are accepted. Due to their statutory position, SAIs reports have audience at the highest possible level in governments, such as ministers, members of parliament and head of government departments. Usually, SAIs directly report their findings to legislatures who hold the governments accountable. SAIs audit reports thus have far greater potential to influence public policies than evaluation studies.

1.9 Limited literature on environmental performance auditing compared to evaluation

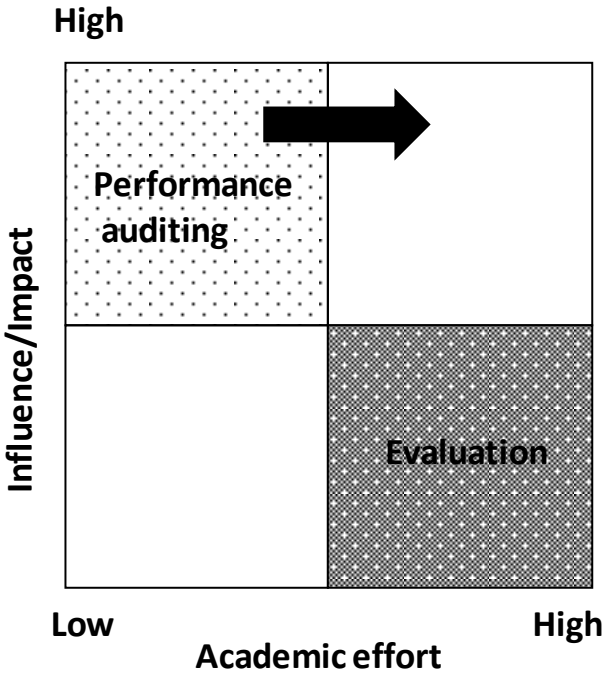
Despite their seemingly greater influence on public policies and their global recognition, performance audits by SAIs have received relatively little academic attention compared to evaluation. Thus academic effort put to research on performance auditing has not been proportional to its influence on public policy (Figure 1-1: The arrow shows the desired direction of academic effort). This is particularly true in the environmental domain as will be seen shortly Compared with the proximate disciplines of evaluation and performance measurement, there has been a lack of academic interest for research into performance auditing generally (e.g. Furubo, 2011; Pollitt & Summa, 1999) and environmental performance auditing particularly. Pollitt and Summa (1999) cite highly technical and apolitical nature of their work, associated lack of news worthiness and publicity shyness of SAIs as reasons for this. Insularity of SAIs, their reluctance to work with others and to open themselves to greater scrutiny by others, perhaps due to their overly-concerned approach to preserving independence (Posner, 2011), can also be considered as other reasons for this. Further, there is also a lack of outlets for research in the field, as Furubo (2011) notes the absence of societies, conferences, and journals dedicated to performance auditing.

Compared with significantly large corpus of environment-related academic literature on evaluation, there is very little academic literature available on environment–related performance auditing as shown in Table 1-1. Some of the relevant lead papers are noted below.

Table 1-1: Results of database searches (early 2014) - literature on environmental performance auditing

Key words	Scopus	Web of Science
“Evaluation” & “environment”	23510	4972
“Performance audit” & “environment”	16	7

Figure 1-2: Academic effort and influence - performance auditing and evaluation (particularly in the environmental domain) and the desired direction (arrow) of academic effort.



Rubenstein (2001) observes that performance auditing is a vital link between stewards of environment and those whom they are accountable. He describes the audits undertaken by the Canadian Commissioner of Environment and the role it can play in empowering the public. Rose (2001) explored the practice and possibilities of auditing the performance of the Australian government's environmental commitments. He also commented on the then debate for establishing a national Commissioner for the Environment for this purpose. Van Leeuwen (2004a) describes the results of the first three WGEA surveys on environmental auditing by SAIs. Van Leeuwen (2004b) discusses the procedural aspects of international cooperation in environmental auditing through the WGEA. She notes the need for future research into the contribution of the environmental audit work of SAIs to the improvement of environmental governance and policy performance; and the advantages of international cooperation between SAIs on audits of international environmental agreements. Rika (2009) investigates environmental auditing by the SAI of Fiji and notes that it is strongly motivated by the UN system including INTOSAI. Martinov-Bennie and Hecimovic (2010) describe the assurance related challenges involved in auditing the performance of regional public sector Natural Resource Management (NRM) bodies, e.g. catchment management agencies by the Natural Resource Commission (NRC) of the Australian State of New South Wales. This study is not about an SAI in that it the NRC is both a judge and advocate of NRM. However, Martinov-Bennie and Hecimovic's suggestion for research into the issues of independence of audit and audit methodology is relevant here. Lima and Magrini (2010) describe the Brazilian Audit Tribunal role in external auditing of environmental management in Brazil. Yusoff (2013) explores the understanding of the public sector auditors about the environmental audit. Wang et al. (2011) and Liu and Xu (2014) discuss environmental performance auditing in China and suggest some measures for improvement. Rika (2014)

examines environmental performance auditing at the SAI of Australia and concludes that environmental performance auditing is essentially used as a tool to manage reputational risk in the public sector.

Other than descriptive individual audit reports and guidelines, there is very limited investigative work available on environmental performance auditing even in professional (non-academic) literature. For example, (a) RPS (2010) discuses environmental performance auditing in China and suggests a few ideas for overcoming some related challenges; (b) INTOSAI (2012a) describes the current and future challenges of environmental auditing; and (c) Reed and Cing-Mars (2014) discuss ways of increasing the impact of environmental performance audits.

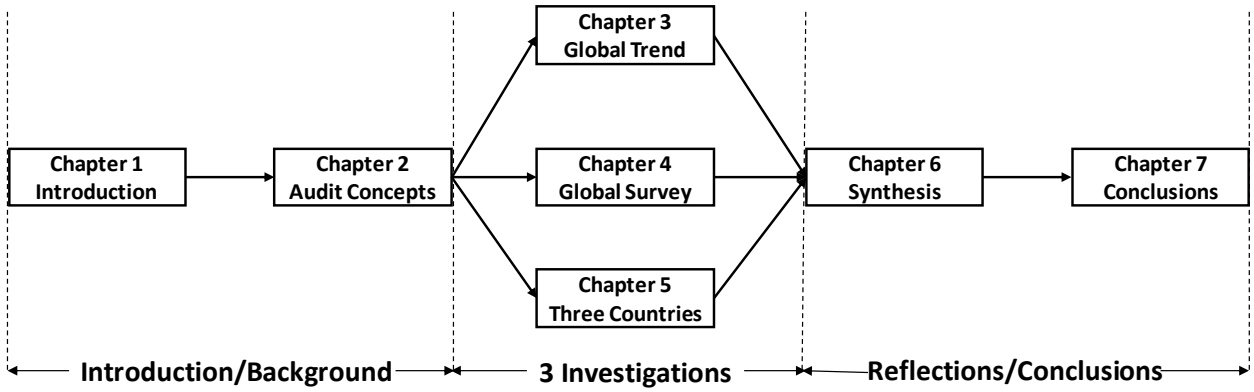
Overall the few academic studies noted above, that have investigated some aspects of environmental performance auditing, point to the need for further research but do not address that need. Some of the related literature is further discussed in Chapter 2.

1.10 Thesis aims, outline and methodology

There is no previous work which has investigated environmental performance auditing undertaken by supreme audit institutions (SAIs) taking a global perspective. This study endeavors to fill this knowledge gap. The three main objectives of this research are: (i) To understand what has been the trend in environmental performance auditing; (ii) To understand how environmental performance auditing is currently practiced; and (iii) To understand issues and challenges in environmental performance auditing. A preparatory objective added to define the field is to understand the conceptual framework of environmental performance auditing by clarifying - what is environmental performance auditing? This is considered necessary as 'environmental auditing' is a convenient label used to denote various types of activities such as management audits, product certification and governmental control measures that have little resemblance to external audit (WGEA, 2012b). The view of environmental auditing in the private sector exemplified by Cook et al. (2016) is totally different from that in the public sector undertaken by the SAIs that is the subject matter of this thesis.

Both qualitative and quantitative techniques are used to investigate the research questions related to the thesis objectives. A schematic layout of the thesis in Figure 1-3 explains the structure of this thesis.

Figure 1-3: Schematic layout of the thesis



Through literature survey, the theoretical and conceptual framework of performances auditing is investigated in Chapter 2. Starting with the origins of audit, its types (financial and performance) are explained, and then this chapter describes the various elements of performances auditing and how it is undertaken. The contemporary debate over the nature of performances audits, such as the effectiveness of process or effectiveness of outcome, is discussed here. The chapter then describes and differentiates the concept of environmental auditing in the private and public sector. It also clarifies the difference between environmental performance auditing and nearby concepts, such as environmental monitoring and state of environment reporting. The conceptual foundational work in Chapter 2 is followed by three parallel but interrelated empirical interrelated investigations, one each in Chapter 3, 4 and 5.

Chapter 3 investigates global trends in environmental performance auditing. This is undertaken through two quantitative analyses: (a) A primary analysis of two decades (1992-2012) of global environmental performance audit data available on the WGEA website; and (b) A secondary analysis of the WGEA survey results on environmental auditing scattered in seven reports. The primary analysis also considers some socio-economic data (such as per capita gross per-capita national income and developmental status of countries) available from the World Bank website to investigate if socio-economic factors influence environmental performance auditing. In addition to discovering trends, the analysis identifies SAIs that have not undertaken environmental performance auditing. The SAIs that have not published any environmental performance audits during the two decades, 1992-2012, are considered as likely not to have undertaken any environmental performance audits. The SAIs having experience in conducting environmental performance audits identified here, can serve as a source of information on the current practice of environmental performance auditing. They form the target group for a global survey of SAIs that is undertaken in Chapter 4.

Through a global survey of SAIs (focused on last 5 years), Chapter 4 quantitatively and qualitatively investigates the current practice (i.e. the state of the craft) in environmental performance auditing, such as, how they select environmental topics for audit; what methods they use for evidence collection; how they frame audit criteria; the standard and guidelines they use for quality assurance of audits; the impact their audits have created; and challenges they face in undertaking environmental performance. Chapter 4 also investigates the benefits of cooperation among SAIs and reasons for lack of interest in environmental performance auditing. In addition to the overall global analysis, results are also analyzed and discussed in terms of developed and developing country SAIs to discern any differences due to the difference in their socio-economic status.

Compared with a macro (global) approach taken in Chapter 3 and 4, Chapter 5 takes a micro (case study) approach and investigates concrete examples of environmental performance auditing in three countries—Australia, Canada and India. Three countries are considered an optimum choice for a comparative study given the constraints of time and resources for the research. Australia, Canada and India have been chosen for this study, because together they possess significant similarity and diversity. In terms of similarity, all three are federations, Westminster type parliamentary democracies; and their SAIs are independent. In terms of diversity, Australia and Canada are developed countries, while India is a developing country. Further, the Australian and Indian SAIs do not have specific powers for auditing environmental matters, while the Canadian SAI does have such powers. All three have been significantly

active in environmental performance auditing, allowing a substantial body of practice and material for analysis. The related institutional frameworks are studied and both trends and current practices in environmental performance auditing of three countries are investigated. In this chapter, for trend analysis, the 1992-2012 period—the same period as that for the global trend analysis—is chosen so as to compare their trends with the corresponding global trends. The current practice is investigated through a content analysis of 5 years of environmental performance audit reports for the period, 2010-2014, available on the WGEA website. Both the trend analysis and current practice investigations thus follow the global investigations to be able to compare them.

Chapter 6 brings together the investigations in earlier chapters. It first revisits the context of environmental performance auditing; and then identifies and discusses the current and emerging challenges arising therefrom. Subsequently, it synthesizes the key underlying issues discovered in investigations presented earlier and discusses their prospects into the future. The chapter also identifies some measures that need to be taken to meet the current and emerging challenges of environmental performance auditing. Finally, Chapter 7 concludes the thesis.

Before going to the next chapter, it would be helpful to recapitulate the thesis objectives and boundaries. These are covered in the two boxes below.

What this thesis is about

This thesis is about performance auditing of the implementation of public sector environmental policies and programs undertaken by Supreme Audit Institutions (SAIs). It aims to investigate: (a) progress (trend); (b) practice (how currently undertaken); and (c) prospects (issues and challenges) in this area. Chapter 1 and 2 provide the necessary background for the three empirical investigations undertaken in Chapters 3, 4 and 5. Through reflections and conclusions on the work undertaken in earlier chapters, the thesis makes original contributions in Chapters 6 and 7.

What this thesis is not about

While covering them as necessary background, this thesis is not about the theoretical debate about performance auditing; neither is it about the comparison between evaluation and performance auditing; nor is it about environmental auditing in general or substantive contribution of performance auditing to the environment.

Methodological and analytical boundaries

Interview with SAIs was considered as a pathway for information gathering but not pursued due to issues related to cost, time and practicality. Further, such a serious undertaking of data gathering and qualitative data interpretation was considered too onerous on the top of the detailed and unprecedented analysis already undertaken in the thesis. The analysis of the global environmental performance audits data is limited to the grouping of SAIs into developed and developing categories and in some cases into geographical regions, e.g. Asia, Africa and Middle East. An alternative grouping such as into INTOSAI regions, while considered, was not pursued as it was determined that it would not add value to the analysis. Further, it would have created communication challenges.

Chapter 2 : Fundamentals of Audit and Review

2.1 Introduction

To address the preparatory objective of the proposed research, this chapter outlines the fundamentals of audit and review and describes key terms and concepts. The focus of the discussion will be on the audit in the public sector. The chapter is divided into three main sections. First, the origin and rationale for audit is presented, followed by a description of different types of audits and reviews in section 2.2. In section 2.3, an overview of performance audit is given. As the debate on the nature of performance audit is far from settled, this section covers different views on the live issues such as whether performance auditing is unique to public sector, whether it is an audit of process or outcome, whether its value/purpose is accountability or learning for improvement. A comparison is made between evaluation and performance auditing, the latter being a particular type of audit.

The subject of this thesis—environmental performance auditing—is performance auditing of the implementation of environmental policies and programs in the public sector. While this is an application of the general discipline of the performance auditing to a specific field, it needs elaboration and clarification at least for two reasons: (1) Environmental audit is a term that is also used in the private sector but is largely used in a context different to the subject of this thesis; and (2) An assessment is appropriate to determine if environmental problems, as belonging to a special class of problems sometimes known as 'wicked problems' (Rittel & Webber, 1973), require special treatment. This aspect is described in section 2.4, which will endeavour to highlight opportunities and challenges related to the audit of environmental problems.

2.2 Origin and rationale for audit

2.2.1 Audit and its origin

Audit is a judgement about 'what is' compared with 'what should be', using the prevalent 'moral, social, political, economic and legal norms' of the relationship between the 'stewards of the human enterprise' and to whom they are accountable, where a 'steward' is one who manages another's property (Rubenstein, 2001). A relationship of accountability is the primary condition for audit, where a duty of acceptable conduct is owed by one party to the other party or parties (Flint, 1988: 23). Stewards are agents, who owe accountability to their principals. However, 'the subject matter of accountability is too remote and too complex and/or of too great significance to be demonstrated without the process of audit' (Flint, 1988: 26). Furubo (2011) considers that while it is possible for a principal (the accountability holder) to scrutinize the steward (the accountability holdee), it is easier to conceive the idea of a third party—the auditor—to conduct this scrutiny. The independence of the third party is considered to be a pre-requisite by Flint.

Rubenstein (2001) considers that audit is the 'third oldest' profession after 'trade' and 'accounting'. While trade was already in place at the end of hunting and gathering phase of human development about ten thousand years ago, record keeping or accounting and auditing were born almost simultaneously during the agricultural phase of development with the creation of the notion of 'wealth and assets' (Rubenstein,

2001). Audit is 'one of the oldest and most venerable state functions' (Pollitt & Summa, 1999) and is as old as civilisation itself (CAG, 2010c: 5; Kells & Hodge, 2009). Large public works, such as, pyramids that contributed to the growth of civilisations were undertaken by central governments with public money collected through taxes or tributes. This required auditing (Rubenstein, 2001), as will be discussed in the next section. Adams (1986: 189) observes that public auditing appeared in 'an embryonic form in the Western Zhou Dynasty of China some 3000 years ago'. Public auditors existed in ancient India (CAG, 2010c: 5), in Persia (Farazmand, 1998; Hodge, 2009), Rome (Burrowes & Persson, 2000: 85) and ancient Greece (Normanton, 1966). Ancient Egypt and Babylon too had embryonic public auditing (Burrowes & Persson, 2000: 85). By the twelfth century, England had a highly centralized administrative kingship that was ruled through centralized auditing and semi-annual account-giving based upon the Domesday Books developed in the eleventh century as the basis for taxation and royal governance (Bovens, 2006: 6), and this became more formal two hundred years later. The UK National Audit Office (NAO) cites its first manifestation in 1314; the French Cour des Comptes traces its origins back to 1318, and the Dutch Algemene Rekenkamer identifies its ancestors back to 1386 (Pollitt & Summa, 1999: 1). Burrowes and Persson (2000: 85) and Jurado-Sánchez (2002) note that Isabella, Queen of Castile, sent an auditor with Columbus to ensure he accounted for the profits from his voyages to the Indies.

2.2.2 Rationale for audit

As 'disease' is the reason for the 'profession of medicine', 'distrust' is the reason for audit (Rubenstein, 2001). The reason why administration is distrusted is that, 'the political and administrative history of all ages' has shown 'without the shadow of doubt' that in all forms of government 'sooner or later there is an abuse of power when external punitive controls are lacking' (Finer, 1965: 179). While this negative dark perception of public administration may be the main reason for audit, Furubo (2011) relates audit also to the positive side of human nature. He refers to the seventy-year-old debate between Car J. Friedrich and Herman Finer on the two contradictory views about public administration and individuals therein. The Friedrich 'good guys' view is that people are willing to loyally perform their duties as intended by their principals and the Finer 'bad guys' view is that people will embezzle or take bribes. Observing that in a debate about auditing, it is not important whether Friedrich or Finer has most valid description about human nature, Furubo (2011) reconciles their views saying that most will accept either of the following:

- While Friedrich description is basically correct, external control is required; either because other moral mechanisms will not work perfectly, or there will be exceptional circumstances or exceptionally bad individuals.
- Finer's view is more realistic. However, a fundamental altruism and willingness is also observed in public administration to fulfil the political intentions using the best technical knowledge. The means that individuals and administration will use new knowledge to improve the social betterment.

Furubo (2011) argues that audit is required in both cases, suggesting that information produced serves different purposes in the two cases. While the 'good guy' audit produces information that enables improvement, the' bad guy' audit provides information to curb the abuse of power. Despite his attempt to balance the two opposing views, it seems however, that he acknowledges that the rationale for audit

is tilted towards the 'bad guy' approach to administration. Accepting that 'flaws in human nature' (the 'bad guy' approach to administration) require auditors to discover, and hopefully, prevent dishonest behaviour in pecuniary matters, he argues for the necessity of widening the scope of auditing to include 'economy, efficiency and effectiveness' (so called performance), as bureaucrats cannot be trusted in these matters. They will not be interested in identifying their 'own shortcomings in order to improve'. Schwartz (1999: 511) summarises this insight by many scholars by observing that 'administrators interests in organisational stability, budget maximisation and the promotion of a favourable image contribute to a general desire to refrain from conducting evaluations which might show agency programs in a bad light'.

Furubo (2011) observes that, "the reason for performance auditing is same as other forms of auditing, that is, scrutiny for accountability and control. Control promotes desirable values and good behaviour in society that in turn leads to better decisions and better use of resources, and thereby increases trust." It is an irony that audit that is 'based on distrust' contributes to 'trust' (Furubo, 2011).

2.2.3 Types of audit

It is clear from the discussion in the previous section that audit originally started as a financial scrutiny and control and subsequently extended to performance. Audit is generally understood as of three types: financial, compliance (with the rules and laws) and performance. However, the international organisation of supreme audit institutions (INTOSAI) financial auditing standards do not differentiate between financial and compliance audits, and consider them together as 'regularity audit' observing that 'full scope of government audit includes regularity and performance audit' (INTOSAI, 2010: 16). As per the standards a regularity audit embraces:

- attestation of financial accountability of accountable actions, involving examination and evaluation of financial records and expression of opinion on financial statement;
- attestation of financial accountability of governing administration;
- audit of financial systems and transactions including an evaluation of compliance with applicable standards and regulations;
- audit of internal control and internal audit functions;
- audit of the probity and propriety of administrative decisions taken within audited entity; and
- report of any other matters arising from or relating to the audit that SAI considers should be disclosed.

The INTOSAI (2004: 11) performance auditing standards note that performance auditing is concerned with the audit of 'economy, efficiency and effectiveness' and embraces:

- audit of economy of administrative activities in accordance with sound administrative principles and practices and management policies;
- audit of the efficient use of human, financial and other resources that include examining information systems, performance measures, monitoring arrangement, and procedures followed by audited entities and remedying identified deficiencies; and
- audit of the effectiveness of performance in relation to the achievement of the objectives of the audited entity, and audit of the actual impact of the activities compared with the intended impact.

INTOSAI (2010) emphasises attestation as the main activity of regularity audit that is clearly different from its definition of performance auditing as "an independent examination of the efficiency and effectiveness of government undertakings, programs or organisations with due regard to economy, and aim of leading to improvement" (INTOSAI, 2004: 11). Financial/regularity and performance auditing also differ in terms of the way they are managed and the degree of standardization they are subjected to. While a financial audit is generally an annual cycle of 'checking of the books', a performance audit is an individually tailored project (Summa, 1999) undertaken on a non-recurring basis (INTOSAI, 2004: 12). Compared to financial auditing, there is a lower level of standardization in performance auditing. Unlike a financial audit, that is a routine exercise, a performance audit is difficult to standardize, as each audit is a project on its own that needs individual design (Summa, 1999). INTOSAI further differentiates between financial and performance auditing noting that "performance auditing does not have its roots in the form of auditing common to the private sector" (INTOSAI, 2004:12).

The differences noted above between the two forms of audit, however, should not be over emphasised. They both are audits and fundamentally exist for the reason of accountability. In government or public auditing, even financial auditing includes audit areas, other than audit of accounts, and performance auditing includes examination of economy (Suzuki, 2004). The difference between the two types of audit sometimes becomes blurred. Suma (1999), for example, notes that the French SAI (Cour des Comptes) 'task of giving discharge for an accountant on the basis of audit of his accounts has nothing to do with assessment of performance, whereas the audit of financial management system (part of a traditional financial audit)' is closer to 'assessing performance'. Suzuki (2004) observes that comprehensive public accountability requires both financial accountability and performance accountability noting a paradigm shift from mere accountability 'for the use of public money' (the domain of traditional financial audit) to 'public accountability' for performance that includes auditing 'economy, efficiency and effectiveness'. Consistent with this reasoning, INTOSAI (2004: 12) cautions against 'undermining collaboration between the two types of auditing'.

2.3 Performance auditing: an overview

2.3.1 Evolution and growth of performance auditing

Compared to the traditional auditing, that is considered to be as old as the history of human civilisation (Kells & Hodge, 2009), performance auditing is a very recent activity. Amid the ongoing debate in the literature on the precise origin of performance auditing, four periods as being the beginning of modern performance auditing are cited: the post-World War II era (Lonsdale, 2000), the 1950s (Shand & Anand, 1996: 58), the 1960s (Adams, 1986: 189) and the 1970s (Pollitt & Summa, 1999). Some authors (e.g. Burrowes & Persson, 2000; Dewar, 1985; Flesher & Zarzeski, 2002; Hamburger, 1989) have claimed that modern performance audits are merely the continuation or re-emergence of a longstanding practice. Kells and Hodge (2009), who trace the chronology and antecedents of modern performance auditing, note that while its temporal origin is unclear, Sweden, Japan, Germany, the US and Canada are all valid spatial origins of modern performance auditing. Modern performance auditing has subsequently spread to other countries in the British Commonwealth (Lapsley & Pong, 2000) and Eastern Europe (Jones, 2008) probably from these origins. Barrett (2015a) considers that the UK has been one of the pioneers of performance

auditing. He further observes that performance auditing started in Australia as efficiency audits in the late 1970s.

Pollitt and Summa (1999) consider that performance auditing is connected to the public sector reform also known as new public management (NPM) that started about the same time as performance auditing in Western Europe, North America and Australasia. Barrett (2015b) notes that performance auditing preceded NPM and NPM only reinforced the increasing focus and use of performance auditing by emphasising a shift from control of input and processes to a new form of control based on measurement of output and outcome (Pollitt, 1999). Compared with the previous system that stressed economy (control of input) and conformance with prescribed rules /processes, Pollitt (1999) observes that NPM allowed flexibility in terms of input and processes ('letting managers manage') in return for a stronger focus on monitoring and evaluating performance (output and outcome). So the monitoring and control system had to shift from assessing conformance (value of regularity and economy) to evaluating performance (efficiency and effectiveness) (Pollitt, 1999). However, performance auditing is not intended to replace regularity auditing. As NPM claims to add managerial efficiency and effectiveness to the traditional public service value of prudence and procedural correctness, so does performance auditing add to the traditional auditing that assesses conformance with the rules (Pollitt, 1999). While the value of regularity auditing is not diminished, performance auditing has tended to occupy the centre stage. As managing for results in the public sector grew in importance so auditing for results (performance auditing) in SAIs became important (OECD, 1997). Thus fundamental ethic of performance auditing is closely intertwined with the public management reform or NPM. Both are conceptualised as being 'about the same business' (Pollitt, 1999).

As all countries have not followed the same trajectory of public sector reform, their level of development of performance auditing varies. Nevertheless, as the public sector does fundamentally similar roles in all counties (even non-democratic ones), the mechanism of their accountability for performance—the performance audit—is similar. Its basic tenets continue to be assessing economy, efficiency and effectiveness (the 3 Es), as will be discussed in the following section.

2.3.2 Identity and nature of performance auditing: a work in progress

The International Congress of Supreme Audit Institutions (INCOSAI), as early as 1986, defined performance audit as an 'audit which is concerned with evaluation of economy, efficiency and effectiveness of public sector management' (INCOSAI, 1986). Notwithstanding the existence of definition of performance audit by a well-respected international organization (INCOSAI) and subsequently adopted in a standard by INTOSAI (2004) as noted above, there continues to be a debate about the identity and nature of the performance audit in the literature. For example, Barzelay (1996: 19) has called performance auditing a misnomer observing that that it is an evaluating activity of particular type, whose name happens to include the word 'auditing'.

Using a heuristic approach, Kells and Hodge (2009) examine the various definitions of performance auditing in the literature, and observe that performance auditing 'has been defined in ways that lack clarity and leave definitional difficulties unresolved'. They conclude that there is there is a need for a new conceptualisation of performance auditing. Despite three Es being a common feature of most

performance auditing definitions, they reject this construct and instead offer a five element framework definition that incorporates independence, authorisation, discovery, synthesis and publication:

> An activity in which outsiders are authorised to discover, synthesise and publish information that would otherwise be confidential.

Notwithstanding the reservations of Kells and Hodge (2009) about the three Es, they remain the dominant focus of performance auditing. Their pivotal place in performance auditing as recognised by an authoritative global body (INCOSAI, 1986; INTOSAI-ISSAI3100, 2004: 1) is not challenged by any author. English et al. (2010) consider that assessment of economy, efficiency and effectiveness is a fundamental building block of performance auditing. Kells and Hodge (2009) themselves find that the three Es appear in 10 out of 11 definitions of performance auditing examined by them.

Noting that performance auditors from backgrounds other than traditional financial auditing prefer to refer themselves as 'evaluators, analysts or preparers of briefing materials' but not as auditors', Furubo (2011) argues that performance auditing is a form of 'conceptual stretching' (Sartori, 1970: 1033). He goes on to say that when audit offices extended their 'traditional territory of financial audit', they legitimised it by calling it 'auditing'. Pointing out the ambiguity in the INTOSAI definition of performance auditing in that it avoids defining the activity of performance auditors as 'auditing 'and instead uses words such as 'examination' and 'analysis', Furubo (2011) observes that this different interpretation is not accidental, rather, deliberate as evident by the following paragraph of the guideline.

> Auditing is normally associated with accountability, but in performance auditing this is not always the case. Auditing accountability can be described as judging how well those responsible at different levels have reached relevant goals and met other requirements for which they are fully accountable, (factors outside the control of the auditees are not expected to influence the outcome). An alternative approach is to focus on understanding and explaining the actual observations that have been made during the audit. Instead of trying to find out who is at fault, it is possible to analyse the factors behind the problems uncovered and to discuss what may be done about these problems. This approach reflects the idea that the overall aim of performance auditing is to promote economy, efficiency and effectiveness. The two approaches represent different ideas to performance auditing; one in which accountability (as in compliance and financial auditing) is at the centre of attention of the audit, while the other – which put emphasis on economy, efficiency and effectiveness – primarily concerns itself with the subject matter of the audit causes of problems observed (INTOSAI, 2004: 28)

It is interesting to note that until recently, the UK NAO has been calling the idea of 'performance auditing' as 'value for money (VFM) examination' rather than audits. However, the recent use of the word 'audit' in this activity underlines its proximity to financial auditing and signifies a desire to bring it closer to the latter (Furubo, 2011). Noting these different interpretations of performance auditing, Furubo (2011) proposes a new definition starting from first principles:

> Performance auditing is an evaluative activity which produces assessments regarding performance or information about performance of such a reliable degree and with such a freedom from investigatory and reporting constraints that they can be used in realm of accountability (emphasis added).

Furobo provides an extensive explanation of his definition. However, it is sufficient to note the five key elements of Furobo's definition of performance auditing that it is: (1) an evaluating activity producing assessment of (2) performance; that is (3) reliable; because of (4) freedom from constraints; hence can be used for (5) accountability. It is notable that Furobo calls performance auditing an 'evaluating' activity in a generic sense to qualify or describe it, rather calling it as a noun 'evaluation' that he recognises as a discipline distinct from audit. This difference will be described later. The INCOSAI (1986) original conceptualisation of performance auditing also uses the word 'evaluation' in a generic sense. This is further supported by the generic use of word 'evaluation' interchangeably for audit in the INTOSAI–UNEP joint publication (UNEP, 2010)*, 'Auditing the Implementation of Multilateral Environmental Agreements (MEAs): A Primer for Auditors'.*

Reliability in performance auditing that makes it fit for use in accountability comes from independence. (Furubo, 2011) observes that independence is not a quality of audit institutions; rather it is a 'part of the definition of what audit is always about'. According to him, independence is part of performance auditing in a 'non-negotiable way'. Independence is about the great degree of freedom from investigatory and reporting constraints that enables the assessment to be used in the context of accountability. Independence includes, not only, the right to choose what to audit, how to audit and report, but also freedom from the fear of punishment if uncomfortable truth is discovered (Furubo, 2011).

The two new definitions almost a quarter century after the one proposed by an authoritative body show that the nature and identity of performance auditing remain a work in progress. Some issues that continue to be debated in relation to the performance auditing are briefly discussed in sections 2.3.3-2.3.6 below.

2.3.3 Performance auditing and evaluation

The similarities and differences between performance auditing and evaluation are explored in a voluminous literature (see for example, Barrett, 2001; Brooks, 1996: 46; Chelimsky, 1996; Davis, 1990; Desautels, 1997; Divorski, 1996; Leeuw, 1996; Lindeberg, 2007; Pollitt & Summa, 1996, 1997; Power, 1999; Wisler, 1996). Notwithstanding the overblown minor differences that characterises this literature (Kells and Hodge, 2009), performance auditing and evaluation have strong methodological overlaps (Lindeberg, 2007 : 349; Lonsdale, 2000). Some view performance auditing and evaluation as two parts of a broader continuum of review activities (Bowden, 1992; GAO, 1978: 6; Lindeberg, 2007: 348; Pollitt, 1995: 136). While performance auditing may be an evaluating activity using some common methods of evaluation, it is distinct from evaluation because of its independence (Summa, 1999a) and its legal position (Ahlneius, 2000). Unlike evaluation, performance auditing is almost unique to the public sector (Pollitt, 1999; Summa, 1999a), where it is carried out generally by a uniquely defined body (Auditor General/SAI). Evaluation on the other hand, can be carried out by a variety of bodies including agency staff, academics and private consultants. There is a clear element of accountability in performance auditing that is not necessarily the case in evaluation. Performance audits can only comment on the extent to which policy or program objectives have been met and the means to achieve those objectives; however, they cannot question the objectives themselves set by political bodies (Ahlenius, 2000). Evaluations on the other hand can question the objectives or policies (Ahlenius, 2000; Barrett, 2001; INTOSAI, 2004: 23). Further, performance auditing and evaluation differ in the manner their findings are disseminated and responded

to. Performance audits are usually presented to parliaments (Barrett, 2001), and concerned departments are required to respond (Ahlenius, 2000). On the other hand, evaluations are reported to the executive (Barrett, 2001)) with no formal requirement to respond.

2.3.4 Policy and politics in performance auditing

On face value, performance auditing may be considered apolitical as it is based on decisions made or goals established by legislature (INTOSAI, 2004: 11). With a few exceptions (e.g. Netherlands), SAIs by convention or legislation are precluded from commenting on the merits of policy (Barrett, 2011a, 2011b, 2012, 2015b; Flesher & Zarzeski, 2002; Stuart Kells & Hodge, 2009; McGee, 2002; Sharkansky, 1988). However, as it takes place in a political context, influences resource choices, and affects the fortunes of political actors, performance auditing is unavoidably political (Everett, 2003; Gomes, 2000; Hopwood, 1982). It has an intimate and complex relationship to politics, as it operates on the borderline between policy and implementation (Furubo, 2011). While commenting on policy is definitely a 'no-go' area for some SAIs, it sometimes is difficult to avoid questioning the relevance or realism of policy objectives when explaining why the observed effectiveness of a program was unsatisfactory (Summa, 1999). The question of policy is so intermingled with performance that Barrett (2015b) observes that 'deficiencies in program performance are often more about policy than its implementation'.

Depending upon their legislative position and political history, SAIs consideration of policy matters in performance audits differ. For example, the Dutch and the UK approaches are opposite to each other. While the Dutch SAI focuses on how ministers should make policy and give account to parliament, paying little attention to management issue, in the UK, management issues are prioritised over the policy evaluation (Put, quoted in Lonsdale et. al., 2011: 314). This is not surprising, as in many Westminster-style democracies, such as the UK, New Zealand and Australia, Auditors General are precluded from commenting on government policy (Barrett, 2012).

There is no doubt that public service/administration is the apparatus of the political system. In an ideal world, where most efficient/best organisation could be found to deliver a policy decision, government can separate administration from policy (Behn, 2001: 41). However, Lane (2000: 28) considers that the philosophical argument for separating the politics (policy) and administration is very weak, as it is not possible to maintain separation between different entities; between ends and means; values and facts, choices and instruments; norms and existence and between directives and reality.

It is interesting to note the comments of a past Chair of WGEA on policy/politics angle in performance auditing in relation to audit of environmental programs.

> Oh yes, I see this risk clearly. According to INTOSAI standards, an auditor's role is not to comment on politics but rather to review institutions' compliance with policies. But what role should an independent auditor take if a certain policy is not sustainable? For example, if a total forest area is 100 hectares and the policy allows you to cut 20 hectares every year, this forest will not be the same after 5 years. I would find it questionable to sign a report saying that everything has been done in the best manner. I have raised these issues in the work of my office and criticized policies against the sustainability criterion. I have observed my colleagues doing the same elsewhere, and I support them in this. Is this interfering with politics? No, to my mind, it isn't. We should see clear differences between interfering in party politics and commenting on

> environmental policy. As an Auditor General, I am not positioned to criticize politics for being right- or left-wing, but I cannot keep silent when a policy is not sustainable or when it comes to analysing environmental, economic, or social values. I believe that SAIs need to be good models in society in these matters, as I cannot see who else would (Oviir, 2012).

While Oviir made these observations in relation to environmental sustainability policies, they may equally apply to other contested areas of public policy. The dilemma in performance auditing concerning the necessity or desirability of commenting on the merits of policy is evident in the conflicting stance of INTOSAI.

> Political decisions and goals established by the legislature are, in general, the frame of reference, which form the basis of the audit criteria used in performance auditing. It is not the role of a SAI to question these decisions and goals. However, a SAI may, as a result of its findings, make critical comments on the goals, for example if they are inconsistent or if it proves impossible to follow up the extent to which they have been achieved. Consequently, a performance audit report may, in fact, question the merits of existing policies or decisions. The goals or objectives may be too vague, in conflict with other objectives, or based on insufficient information. The policy may be inefficient and ineffective, and changes might be required, if existing shortcomings are to be overcome (INTOSAI, 2004: 34).

The politics (policy)-performance auditing relationship seems to be located in a twilight zone with no sharp boundaries.

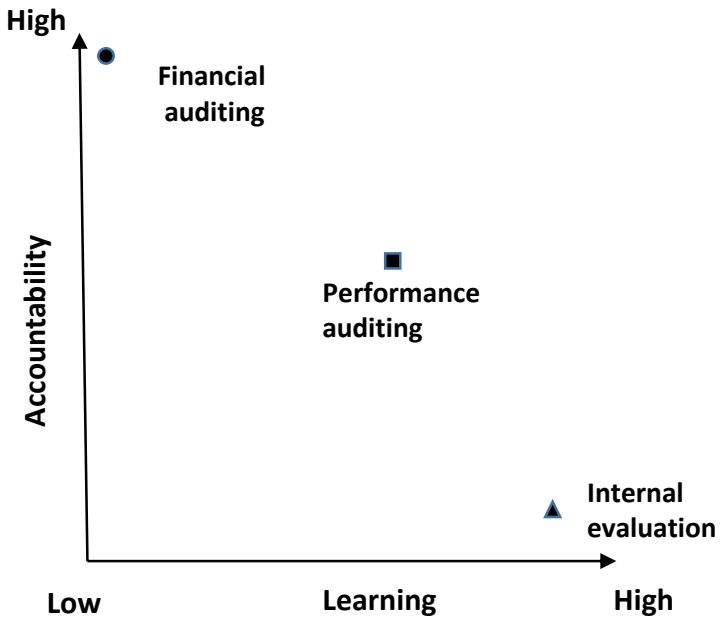
2.3.5 The accountability versus learning contradiction

There are two main purposes of performance audit: accountability and learning for improvement (Barzelay, 1996; Lonsdale, 2000; Pollitt & Summa, 1997). SAIs in conducting performance audits are on a double mission. They provide independent assurance about the performance of the public sector (Barrett, 2012) and make recommendations for improving the performance of audited organisations (Kells, 2011). English et al. (2010) call accountability a 'watch dog' role and learning for improvement a 'sheep dog' role, imploring that performance audits "involve going beyond a 'watchdog' to a 'sheepdog' role", particularly, but not exclusively, in relation to effectiveness. However, there is a tension between the 'watchdog' function (drawing attention to failure) and the 'sheep dog' function (guiding agencies and departments towards better practice as 'watchdogs do not make good sheepdogs' (Ling, 2003: 444). The inherent tension and/or conflict in the dual role has been noted by several others (e.g. Barrett, 2012; Funkhouser, 2011; Loocke & Put, 2011).

Lonsdale and Bemehelmans (2007) differentiate auditing from other forms of evaluative information based upon how they 'stand with regard to accountability and learning'. Based upon their criteria they place (see Figure 2-1) internal evaluation very high on the learning axis and very low on the accountability axis, and financial auditing in an opposite manner—very high on accountability and very low on learning axis. However, they give performance auditing a significant value on both axes—on accountability axis, slightly below financial auditing, and on the learning axis, slightly higher than it (but lower than internal evaluation). They explain significant values for performance auditing on both axes, noting that 'although accountability is the main purpose—with the report likely to be subject of further scrutiny (parliamentary committee, press and so on)—the report will include recommendations for improvements based on

demonstration of weaknesses and may highlight area of learning'. It is important to note that Lonsdale and Bemelmans consider accountability as the main purpose of performance auditing with the learning as a positive side benefit. They argue that other forms of investigative or evaluative activities are more efficient as learning tool than performance auditing. As the learning effect of internal studies can be higher than those undertaken by independent bodies, Furubo (2011) argues if learning was the main purpose, audit institutions should not be independent at all; or conversely, best learning cannot come from an independent body. He thus concludes that performance auditing does not exist because it is considered as a learning tool.

Figure 2-1: Learning and accountability values of internal evaluation, financial auditing and performance auditing (visualization of Lonsdale and Bemelmans, 2007 arguments).



The dilemma in performance auditing comes from its objectives that are based on fundamentally opposite characteristics. The oversight/accountability requires social distance and mistrust, whereas learning requires social proximity and trust (Morin, 2003; Saint-Martin, 2004). Put (2011) considers that SAI's accountability role is a triangular relationship between parliament (principal), auditee (agent) and auditor (SAI) 'premised on mistrust', while its supporting or learning/improvement role is a 'one-to-one' relationship based on trust. Even when an SAI emphasises its improvement mission, it continues to functions in an accountability triangle that is the basis of its mandate. Thus, the knowledge base and culture of performance auditing is highly influenced by financial auditing that is focussed on accountability (see for example, Barzelay, 1997; Morin, 2003; Saint-Martin, 2004). This creates tension between two competing objectives, Put (2011) concludes. Taken to its logical conclusion, the commitment to performance improvement is not consistent with the institutional position of SAIs (Barzelay, 1997; Morin, 2003; Saint-Martin, 2004)

Consistent with the overriding role of SAI, the primary objective of performance auditing is accountability (Barrett, 2012; Lonsdale & Bechberger, 2011). While auditors do not see accountability and learning/advisory roles as a case of 'either-or', the advisory role comes as a by-product or 'spin-off' from their primary accountability role and will always remain secondary (Lonsdale & Bechberger, 2011: 285). The advisory materials, such as, better practice guides (BPGs) that SAIs produce as part of their 'sheepdog' role (English et al., 2010), should come from their areas of 'genuine expertise', rather than as preaching on too-wide a range of topics (Lonsdale & Bechberger: 286). Barrett (2015a) notes that the production of BPGs often also involves subject matter experts from both the private and public sector including those from agencies themselves. While the advisory role of performance auditing has been growing, this has not escaped criticism including from auditors themselves, as having potential to compromise audit independence and because it is perceived as stepping outside the competence of the audit institution (Barrett, 2012). There is a limit to how far auditors can go in helping auditees (Lonsdale & Bechberger, 2011), so as not to compromise their independence that is fundamental to performance auditing (Furubo, 2011).

2.3.6 Substantive review versus administrative review

While the central theme of performance auditing has been to examine economy, efficiency and effectiveness, it is the effectiveness part that has been most intensely debated (see for example, Guthrie & Parker 1999). Economy and efficiency are relatively easy to assess as they relate to inputs and outputs that are within the administrative system. However, assessing outcomes would require going to the wider world outside the administrative system. In the past, SAIs have been more concerned with internal functioning of public organisations (such as management practice) and less about the result of policies. As such, they have been procedural (systemic)/administrative, rather than substantive assessment of performance (Put, 2011). Barrett (2015a) observes there has been significant progress (such as the use of performance indictors) since early days when Pollitt (1999) noted that to assess performance auditors drew on notions of 'good management' that was opaque and as a consequence strict or substantive audit of performance was rare (Summa, 1999). There is little conclusive evidence that suggests a relationship between good management practices and effectiveness of policies or organisations (Put, 2011). An efficiently managed program can be ineffective, such as, a badly designed policy dutifully implemented by 'stoical but despairing public servants or conversely a poorly managed program can sometimes be effective' (Pollitt, 1999: 205). While overall, this argument may be valid, Barrett (2015) suggests that the presence of good management practices is more likely to result in good outcomes than their absence. Assessing a system by applying the test of 'good management' or conformity to defined procedures/standards is close to the traditional auditor's role of verification (Chelimsky, 1985); it does not require complex conceptualisation, sophisticated analytical techniques and associated skill set involved in directly assessing policy or program effectiveness (Pollitt & Mul, 1999). However, systemic audit of good management practice is not a substitute for substantive audit of effectiveness (Pollitt, 1999).

Judging the effectiveness of policies is challenging, not just because it requires more sophisticated methods (Pollitt & Mul, 1999), but it also requires auditors to enter the political domain (Pollitt, 1999)–a point rigorously debated as discussed above. Pollitt and Mul (1999) argue that judging government policies and programs is a conceptually 'mistaken conquest' and observe that:

> "[P]olicies, programs and complex organisations can never be reduced to single objectives, simple formulas or set of measurable standards. That is not their nature. On the contrary, [they] may be seen as agglomerations of aspirations and practices, intentions and resources, inherently multi-faceted and subject to constant shift emphasis between component ideas. Their inherent complexity defies reductionism and instead demands cautious, nuanced multi-criteria judgement [from performance audits]. From this perspective, the audit report is not the 'final word' on a matter rather an independent summary [description] of status quo in terms of both what has been said and what has been done and to offer a judgement whether well-established and widely recognised criteria has been met'.

Pollitt's (1999) description of this 'conservative' position of performance auditing is close to its accountability approach/objective. His vision of 'progressive' future of performance auditing based upon technical sophistication, more causal analysis and more empirically based recommendations is close to the improvement approach objective. This seems to be an aspirational goal, rather than a reality as most performance audits, despite significant progress, continue to be focussed on administrative review (input-output), rather than, specifically on the attainment of policy objectives (outcomes) (Barrett, 2011b), or substantive review.

The reasons are twofold: First is the SAIs' knowledge base and culture. The accountability approach to performance auditing does not require extensive expert knowledge, and fits well with SAIs' traditional mandate to assist parliament in holding government to account; whereas the improvement approach to performance auditing is more challenging as it requires a complex knowledge base such as the ability to assess effectiveness (Put, 2011). But the second, and perhaps more broad reason, is related to the socio-political structure that separates the inseparables—government and administration; policy and implementation—giving rise to inherent dichotomies between accountability and improvement, as will be briefly discussed in the following paragraphs.

In democracies, especially in the Westminster model, a traditional distinction is made between government and administration. The minister who represents the government is considered responsible for policy outcomes and the administration (public service) is responsible for the management or implementation of the policies. This policy-administration dichotomy and its modern equivalent efficiency-effectiveness divide is a barrier to increasing public accountability and marks the limits of evaluating performance evaluation (Di Francesco, 2000). Furubo (2011) notes that performance auditing has expanded during the same period this dichotomy has spread. The SAIs' general stand is that they do not provide opinion on merits of different policies and instead limit themselves to assessing economy, efficiency and effectiveness of implementation. This emanates from the 'black and white' policy-administration dichotomy, and hence, is part of the problem that SAIs face. When ends are not contested (e.g. eradication of poverty), the political consideration is about how to reach the goal. In these situations, separation of politics and administration becomes untenable. This is definitely challenging for performance auditing. Furubo (2011) sums up this dilemma by noting that, to argue that policy is a 'no-go' area for performance auditing, would limit its scope to scrutiny of technical administration. However, to argue for the opposite would undermine its objectivity and suggest that auditor has a political role.

Further, government activities are entering complex areas such as environment and delivered in a way not previously seen, such as government services being delivered fully by private providers under

contracts and partly under public private partnership. This is making public accountability difficult to assess. Some (e.g. Ling, 2007) have questioned if performance auditing and related institutions are being stretched too far. As outcomes are partly shaped by complex systems outside the control of the public service, holding it accountable for matters over which it has no meaningful control, may lead to spurious accountability. Performance audits that do not assess if 'worthwhile outcomes are being achieved' and limit themselves to examining whether public service is 'doing a good job in administering the policy of the government of the day may disappoint their readers' (Lonsdale et al., 2011: 319). Notwithstanding their rhetorical ambition that feeds this expectation, SAIs are having difficulties in handling effectiveness mainly due to the complexity of policy intervention in complex circumstances (Furubo, 2011). Mayne (2006) adopts a normative approach to the matter, and argues that performance audits should avoid assessing effectiveness. Barrett (2015a) on the other hand, observes that examining whether or not identified policy objectives have been met, is not necessarily a political task (about merits of policy) and as such, the challenge need not be exaggerated.

While performance audits do make findings leading to learning and improvement, they are a 'side effect' or by-product of the need for accountability that it delivers as the main product. The challenging nature of performance auditing could be summarised by listing key attributes of its two world views (Table 2-1).

Table 2-1: Summary of the two finely balanced missions of performance auditing (adapted from Put, 2011).

Performance auditing for accountability	**Performance auditing for improvement**
Political approach Delivers information for accountability in principal-agent relationship (citizen-parliament and parliament-government) Based on distrust	*Managerial consumerist approach* Delivers information for improvement of public administration Based on trust
Revealing approach Exposes problems without analysing causes or providing solutions Done in check-list/financial audit manner Avoids going into merits of policy; maintains social distance with auditee; is compatible with SAIs traditional role as independent accountability institution	*Diagnostic performance auditing* Exposes and explains problems with a view to suggesting solution Done in a comprehensive analytical manner to assess effectiveness of policies or programs Requires entry into political domain; requires closer relation with auditee, hence, can compromise independence; and is not compatible with SAIs traditional mandate
'*Official' norms* Checks compliance with government/entity's own promised performance Emphasis on codification Does not require sophisticated methods of analysis	*SAI formulating its definition of performance* Less standardization Requires sophisticated method e.g. benchmarking literature review, stake holder consultation

2.3.7 Supreme audit institutions (SAIs)

A supreme audit institution is the highest public audit body of a country that is responsible for auditing the regularity of government accounts (expenditure and receipts). Moving beyond their traditional role of ensuring financial accountability, they also audit the performance (economy, efficiency and effectiveness) of programs and policies financed by public monies (Van Leeuwen, 2004a). Due to their diverse cultural and political history, there are significant differences among SAIs in terms of their structure, mandate and types of audit they conduct. However, there are three common models of SAIs (WGEA, 2007b: 10):

- Westminster or Anglo-Saxon model also called 'Audit Office';
- Judicial or Napoleonic model also called "Court of Audit" or 'Court of Accounts'; and
- Collegiate model also called 'Board of Audit'.

The 'Audit Offices' are intrinsically related to the legislature (e.g. parliament) through public account committees (PAC) or similar bodies. In many countries, they are independent from the executive arm of the government and headed by a single senior official called Auditor General or Comptroller General. The National Audit Office (NAO) of UK, the Australian National Audit Office (ANAO), the US Government Accountability Office (GAO), the offices of the Comptroller and Audit General (CAG) of India and New Zealand are examples of this model. Strategic and open communication to parliament and the public is critically important in this model (WGEA, 2007b: 10).

The 'Courts of Audit' are an integral part of the judicial system. The top members are judges, one of whom presides the 'Court'. Staff of the Courts are from legal rather than accounting backgrounds. Courts are independent and traditionally have dealt with financial and compliance matters. They hold government officials accountable for public monies and can fine them. Compared with the Audit Offices, they have a lesser relationship with the legislature. However, their reports too can highlight matters that are of interest to the legislature. The French Cour des Comptes is an example of the judicial model of SAIs (WGEA, 2007b: 10).

In the 'Collegiate or Board' model, the SAI is part of the legislature's system of accountability. The 'Boards of Audit' are structured similar to 'Courts'. However, without any judicial power. The 'Boards' are headed by one of its members. Each member has an audit portfolio and possesses significant autonomy WGEA, 2007b: 10). SAIs of Germany is an examples of the 'Collegiate' model (.

An SAI can be a combination of the three basic types and can have judicial functions as well as be related to the legislature at the same time to a varying degree. For example, though SAIs of many developing countries originated under a British/French colonial model ('Audit Office' or 'Court'), have subsequently been modified to incorporate features of other models preferred by donor agencies (WGEA, 2007b: 10).

Due to their structural differences noted above, these models of SAIs do vary in the way their audit findings are communicated and used. However, irrespective of the differences, SAIs generally are mandated to report to the legislature on their audit findings (Bhandari, 2014). All the three models of SAIs

contribute to good governance by holding the government accountable and communicating their findings to the public (WGEA, 2007b: 10).

2.3.8 Guidelines and standards for performance audits

The quality of performance audits is critical to the reputation and credibility of SAIs (Wilkins & Boyle. 2011). Lonsdale and Mayne (2005) describe two aspects of quality of performance audits work: 'the quality of audit process (the ways in which reports are prepared) and the quality of the audit products (the output from the work)'. The key attributes of sound audit processes include independence, fairness and objectivity and well evidenced and careful production from inception to report publication. The key attributes of quality in individual reports include accuracy, sound conclusions and recommendations, clarity, timeliness and impact (Wilkins & Boyle, 2011).

The quality of any work is specified in the relevant standard(s) as the minimum required level of acceptance. Standards are written documents of specific nature, distinct from guidelines that are of generic nature (Bemelmans-Videc, 2005). The application of standards is generally mandatory, whereas the application of guidelines is desirable, optional or discretionary. 'Professional standards are most evident in the area of performance audits and are strongly supported by audit offices' as a means of ensuring their credibility (Mayne & Schwartz, 2005). They are helpful in many ways, such as, in ensuring consistency across different audits, enabling clarity in internal and external communications and assuring the audience of the quality of the audit report. The lack of standards leads to inconsistent approaches that may limit the ability to learn and improve by comparison across audits. This risk of inconsistency and its consequence apply equally to organisations and countries. However, standards may achieve consistency at the cost of innovation and may limit adapting performance audits to specific contexts, especially when they are mandatory (Wilkins & Boyle, 2011).

Acknowledging the diversity in performance audit practices across different countries, INTOSAI (2004) has set the international performance auditing standards (ISSAI 3000 -3100) as non-mandatory guidelines. These guidelines are a set of principles outlining a shared understanding of high quality work. The emphasis here is on judgement and interpretation rather than 'one size fits all'. INTOSAI (2004: 29) cautions against streamlining performance auditing, noting that:

> Advanced performance auditing is complex investigatory work that requires flexibility, imagination and high levels of analytical skills. Streamlined procedures, methods and standards may, in fact, hamper the functioning and the progress of performance auditing. Consequently, standards—as well as quality assurance systems—that are too detailed should be avoided. Progress and practices must be built on learning from experience.

INTOSAI (2004:13) clearly sets performance auditing apart from financial auditing by observing that, "while financial auditing tends to apply relatively fixed standards, performance auditing is more flexible in its choice of subjects, audit objects, methods, and opinions". Unlike traditional auditing, performance auditing 'is not a check-list based auditing' (INTOSAI, 2004:13). Appendices to the INTOSAI (2004) standards provide useful guidance on the matters such as methodology, performance audit criteria,

evidence and documentation quality assurance and tips on performance auditing of specific issues such as information technology and environmental issues.

Rather than calling for uniform global standards for performance auditing, INTOSAI (2004) advocates that each SAI should have its own policy on quality that has regard to INTOSAI standards and other professional standards relevant to their work (INTOSAI-ISSAI, 2004: 1). Accordingly, several countries have their own standards or mandatory guidelines for performance auditing. Wilkins and Boyle (2011) compared the standards of the UK's NAO, US' GAO and Australia's ANAO with INTOSAI standards. Their comparison is summarised in Table 2-2.

Table 2-2: Comparison of performance auditing standards (after Wilkins and Boyle, 2011).

Characteristic	**INTOSAI**	**NAO UK**	**GAO US**	**ANAO Australia**
Basis	Guidance	Own motion	Own motion	Legislation
Mandatory	No	Yes	Yes	Yes
Source	Internal	Internal	Internal	Australian Auditing and Assurance Standard Board (AUSAB)
Objective	Independent, wide-ranging analyses of the economy, efficiency and effectiveness of government programs and agencies made on a non-recurring basis. Should a focus on problems observed and possible causes	To report to parliament on the way public bodies use the resources allocated to them and to conclude on the value for money achieved	Engagement that provide assurance or conclusions based on a valuation of sufficient, appropriate evidence against stated criteria	To express a conclusion aimed at providing assurance to the intended users by reporting on the economy, efficiency or effectiveness of an activity against identified criteria
General principles applied	Using a broad range of investigative and evaluative methods, undertake wide-ranging analyses that are open to judgement, and interpretations	Competence, integrity, rigour, objectivity and independence, accountability, adding value, perseverance, and clear communication	Independence, professional judgement, competence, quality control, and assurance	Integrity, objectivity, professional competence, due care confidentiality, and professional behaviour

Wilkins and Boyle (2011) approach the comparison from two perspectives: (a) assurance and evidence; and (b) recommendations. They note INTOSAI's emphasis on the independence of performance auditing, sufficiency, competency and relevance of evidence required and its difference from traditional auditing and other studies, especially, in terms of methodologies. They then observe that NAO adopts an approach similar to INTOSAI on evidence, while GAO adopts the financial auditing concept. NAO focuses on 'sufficient, relevant and reliable evidence' by discussing the appropriate methodologies and illustrating typical methodologies used in value for money (VFM) audit to answer the questions posed. On the other hand, GAO views performance auditing as providing reasonable assurance that evidence is sufficient and appropriate to support findings and conclusions (i.e. an opinion). In their view, the ANAO standard (AUSAB standard) takes the relationship with financial auditing a step further, with the performance auditing providing two levels of assurance—limited and reasonable. Depending upon the level of risk minimisation, the performance auditing provides a negative (acceptable risk), or positive (low risk) form of conclusion. Given complex and ambiguous nature of performance issues explicitly recognised by INTOSAI and NAO, Wilkins and Boyle (2011) consider this sort of explicit assurance intellectually challenging and suggest a continuum rather than a two state model of assurance.

On recommendations, Wilkins and Boyle (2011) observe that while all reviewed standards acknowledge the importance of recommendations, they provide 'little guidance', and certainly, very few criteria for the assessment of the quality of recommendations.

While a significant milestone in the evolution of performance auditing and lauded for bringing greater discipline to the performance auditing (McPhee, 2010: 7), Wilkins and Boyle 2011) consider that the Australian standard (ASAE, 3500) narrows the purpose of performance auditing to forming a conclusion. This is different from the broad mandate expressed by INTOSAI and also provided by the ANAO legislation. Further, the standard only applies to the conclusion and not to the remaining part of the report. This narrow focus on issuing an opinion originates from financial audit. This is not surprising as ASAE 3500 has its origin in a generic international standard ISAE 3000 issued by International Auditing and Assurance Board (IAASAB) of the International Federation of Accountants. In their critique, Wilkins and Boyle (2011) further observe that ASAE 3500 is intentionally written for organisations other than audit offices, such as, private consultants and internal auditors. This raises the question of independence that is at the heart of performance auditing by SAIs.

Two distinct approaches to standards for performance auditing emerge. One is harder, prescriptive and originates from financial auditing standards and is exemplified by ANAO approach (ASAE 3500). The other is softer, based upon principles and quality thresholds encompassing research and methodological approaches of diverse disciplines and is exemplified by NAO. The latter is more in line with the INTOSAI approach. Following a conclusion by the Performance Audit Subcommittee of INTOSAI that the IAASB concept of performance engagement was of limited relevance to the performance auditing conducted by advanced SAIs (INTOSAI, 2009 quoted by Wilkins & Boyle, 2011), amendments to ISAE 3000 were proposed by IAASB in 2010 to provide more details about the performance auditing type work. Adopted in 2013, these amendments came into effect in 2015 (IAASB, 2016).

On this stark situation, Wilkins and Boyle (2011) observe that the background of individual institutions is a determining factor in the approach adopted to setting standards. While INTOSAI and IAASB are progressing the convergence between the two sets of standards, it remains to be seen how far this convergence is considered useful by SAIs in performance auditing.

Lonsdale et al., (2011: 316-317) note that the pursuit of quality in performance auditing is an integral and challenging part of SAIs work. They observe that while consistent high standards are desirable, codifying everything is not necessarily the best way forward. Lonsdale et al, further note that SAIs should not be overly concerned about the codification; they should be more concerned about being authoritative and independent judges of performance, rather than being authoritative source of evidence of performance. The absence of explicit universal standards is not considered as a barrier to the development of performance auditing (Lonsdale et al., 2011: 316-317).

In relation to the performance auditing of natural resource management (NRM), Martinov-Beneie and Hecimovic (2010) note that it is a challenging new field, where existing standards or guidance on sustainability reporting are inadequate. Their development is complex and requires significant research and innovation (Martinov-Beneie & Hecimovic, 2010).

2.3.9 Other ways of quality assurance in performance auditing

In addition to adopting standards and guidelines, SAIs are using other methods to impure the quality of their work. These include peer review, external reviewing, and self-initiated quality review. In the peer review, one SAI's work is reviewed by a peer or peer group. For example, ANAO has led the peer review of the Office of the Auditor General of Canada (Australia et al., 2010) and the Comptroller and Auditor General of India (Australia et al., 2012) to provide an independent opinion on their quality management system and overall operation of their performance auditing.

For some SAIs e.g. ANAO, external review is mandated in their legislation. For example, an independent auditor reviewed 'Planning and Scoping of Performance Audits' by ANAO in 2011 (ANAO, 2016c). The UK's NAO has been getting its VFM audit reports reviewed by academic specialists since 1993 (Lonsdale and Mayne, 2005; Lonsdale, 2008: 245). Over the years, the ANAO has also had a number of its performance audits peer reviewed by the New South Wales State Auditor-General and by the New Zealand Auditor-General (ANAO, 2010c: 5). These peer reviews have significant 'learning experience providing valuable insights for performance improvement' (Barrett, 2012).

2.3.10 Performance auditing beyond SAIs

While performance auditing is conducted almost entirely within the public sector (Pollitt, 1999: 196), it is not always conducted by an SAI, or a state local government body. Kells and Hodge (2010) observe that the performance auditing space is both crowded and contested. Based upon their conceptualization of the performance auditing in terms of its five necessary elements: independence—authorisation, discovery, synthesis and publication—they consider that the Victorian Auditor General Office, Ombudsman, Victoria, State Services Authority and the Victorian Competition and Efficiency Commission (in the Australian state of Victoria) all conduct performance auditing in their respective domains, sometimes even duplicating efforts. By extending the Kells and Hodge argument to similar federal level

bodies in Australia, the Australian National Audit Office, the federal (Commonwealth) Ombudsman, the Australian Public Service Commission and the Productivity Commission could all be considered to be conducting performance auditing. However, it should be noted that there is a subtle difference between audit offices' performance 'audit' and other bodies' performance 'review'. While an 'audit' provides a reasonable assurance, a 'review' provides only a limited assurance of performance (ASAE, 3500: 7).

Notwithstanding this subtle difference between audit and review, Kells and Hodge's argument is validated by the recent transfer of the performance auditing functions of Australia's erstwhile National Water Commission (NWC) to the Productivity Commission (Baldwin, 2015). It may be noted that the Australian federal *Water Act* 2007 (s 87) assigned the audit of the effectiveness of implementation of the Murray-Darling Basin Plan to the NWC. Under the now repealed *NWC Act* 2004 (s 7), NWC assessed the performance of the Australian states in implementing the 2004 National Water Initiative (NWI)—a national water reform agreement between the Australian federal and state governments that replaced the 1994 Council of Australian Government (COAG) water reform agreement. Under the old agreement, states performance was assessed by the National Competition Council (NCC). Based upon their assessment, states received grants or tranche payments from the federal government for implementing reforms.

Martinove-Bennie and Hecimovic (2010) present a case study of performance auditing in the area of natural resource management (NRM) by a non-SAI body. The Natural Resource Commission of the Australian state of New South Wales (NSW) is a public sector body—established under an act of NSW parliament— with broad investigating and reporting functions for providing advice on NRM.

There is another example of non-SAI performance audit bodies in Australia under the Murray-Darling Basin (MDB) Agreement—an agreement between the five eastern states of Australia and the federal government for the sustainable management of the water, land and other environmental resources of the MDB. The MDB Agreement originally conceived as a water sharing agreement in 1914 has significantly evolved since 1980s to incorporate new policies such as, a Cap on water diversions, salinity management and environmental restoration through recovery of water from consumptive use. The MDB Agreement establishes an independent body known as the Independent Audit Group (IAG) for each policy to audit the performance of each responsible government in implementing these policies. The IAGs are subject specific expert bodies that also sometimes act as advisory bodies.

Until recently (March 2015), the UK's Audit Commission used to conduct the performance or value for money audit (VFM) audit of local government bodies and National Health Service. After the abolition of the Audit Commission in March 2015, its functions were transferred to different bodies such as Public Sector Audit Appointments Limited (management of audit contracts and grant certification), National Audit Office (Code of Audit Practice, Whistle-blowing, National value for money studies) and Cabinet Office (National Fraud Initiative) (UK Government, 2015).

In the United States and the Netherlands, several cities have their own audit offices (Lonsdale, 2011a). Other examples of non-SAI performance audit bodies include French inspectorate, and the parliamentary

organisations of Finland and Sweden and EU Court of Auditors in Luxemburg. There is a long history of performance auditing type practice by non-audit public bodies (Pollitt, 1999: 196).

2.3.11 Other forms of accountability review

Though uniquely placed, performance audits are only part of a bigger landscape of on-going accountability mechanisms that in various ways, review the performance of the public sector. These include the courts, legislative bodies, special public commission of inquiries, social media, press, individual activist citizens and watchdog groups. Performance audits are sometimes triggered by the work of one or more of these other players. Sometimes performance audits cause one or more of these players to focus on an issue. The ANAO (2010b) performance audit of 'Home Insulation Program (HIP)' in Australia has been such an issue. The performance audit followed two inquiries, including the one by a committee of parliament, that were caused by a public outcry in the media due to the death of several workers engaged in installing insulation in houses under the HIP launched by the federal government in early 2009 as a stimulus package to combat the global financial crisis. The audit findings fed into further review by a public commission of inquiry. Similarly, in Canada, an audit of federal government communication contracts seven years earlier led to a public judicial enquiry, criminal prosecutions and further to a commission of inquiry (Fraser, 2007). Based upon their proposed 5 constituent elements of performance auditing, Kells & Hodge (2009) investigate these alternative avenues of performance reviews and conclude that except for the commissions of inquiry, none of them share all the five elements. Several of them fail the 'authorisation' test. Even the commission of inquiry lacks the endurance of the audit bodies (SAIs).

2.3.12 Role of civil society organisations (CSO) in performance auditing

The public audit is now also viewed as a means of community empowerment and agent of social change (see for example, Rubenstein, 2001; Stern, 2005). When democratic governments all over the world are now endeavouring to build citizen centric models of public service, there is a case to engage citizens in the accountability mechanism of public service. As end users of government services, citizens are a rich source of knowledge and information about government performance. The 21st UN/INTOSAI (2011) Symposium on *Effective Practices of Cooperation between Supreme Audit Institutions and Citizens to Enhance Public Accountability* regarded citizens as 'natural partners' of SAIs and stressed the importance of effective cooperation between SAIs and citizens to protect and promote transparency, accountability, and good governance. The 22nd UN/INTOSAI (2013) Symposium on *Audit and Advisory by SAIs: Risks and Opportunities, as well as Possibilities for Engaging Citizens* recalls the UN Resolution A/66/209 that notes that citizens and civil society are as important as addressees of audit reports and recommendations as competent political bodies, and can contribute to effective control through a public debate. The Symposium emphasized the importance of SAIs' communication of its findings and recommendations in promoting awareness of the citizens.

Civil society organisations (CSO), as representatives of citizens, as consumers and users of public services, are in a strong position to mobilise citizens on public accountability as they have networks and expertise to detect malpractice and report them to SAIs. Bhandari (2014) cites several examples of 'best practice models' of CSOs involvement in public audit:

(a) Social audits and public hearing forums: The Mazdoor Kisan Shakti Sangathan (MKSS), an organization of peasants and workers in India conducts social audit and organizes public hearings of local government expenditures in village communities.

(b) Working closely with the legislature: The Public Service Accountability Monitor (PSAM), a research and advocacy organization in South Africa, tracks government agency responses to instances of financial misconduct and corruption identified in the Auditor General's reports.

(c) Conducting participatory audits as a joint undertaking: The Philippines' SAI, (National Commission on Audit (COA)) conducts participatory/joint audit with Concerned Citizens of Abra for Good Government (CCAGG) of infrastructure projects to verify, if they have been executed as per contract norms and determines whether they have achieved anticipated results.

(d) Providing CSOs access to agency documents and seeking their assistance: To test a tool that measures corruption and inefficiency in public procurement, the COA in Philippines is providing a CSO called Procurement Watch Inc. access to procurement documents of audited agencies. The CSO, a specialist in building systems of transparency and accountability in government contracting and procurement, determines the fair-market cost of the procurement. COA then compares it to the cost actually paid by the agency to assess if corruption or inefficiency was involved.

(e) Making use of CSO's work in independent examinations: In Mexico, Fu dar, a research and advocacy organization (CSO), obtained accounting records from the Ministry of Health using under the national freedom of information law and detected large-scale corruption in a contract awarded to a private agency. The finding was subsequently corroborated by an official investigation by the Mexican SAI.

Under the Mexico's 2004 General Law, social audits of development programs are mandatory. To facilitate social audits, the Ministry of Public Administration has developed a tool called SEPAT that in Spanish translates to 'Transparency and Citizen Participation Evaluation System'. This monitors whether municipal agencies have adopted good disclosure policies and provide citizens with access to information. Using this process, program beneficiaries evaluate the performance of the agency and conduct oversight of agency expenditures.

(f) System of citizen audit requests and complaints: The Republic of Korea under its Anti-Corruption Act (2001) has introduced a system of Citizens' Audit Request to the Board of Audit and Inspection (BAI), the SAI. Using this system, citizens can request special audits by BAI of public agencies suspected of corruption or legal transgressions. The inclusion of citizens in audits extends to the local level. Some local governments address citizens' grievances by appointing Citizen Auditors, who are not public officials. The Citizen Auditors review petitions for a certain time period and if necessary, conduct audits and notify the petitioners of the results.

(g) Use of an advisory committee or board comprising a wide range of dignitaries from different sectors of society: The BAI of the Republic of Korea appoints non-governmental experts, particularly university academics, to its Policy Advisory Committee that advises it on the matters related to audit direction and audit policies.

(h) CSO use of civil rights: In Argentina, a human rights organization—La Asociación Civil por la Igualdad y la Justicia (ACIJ)—initiated a legal action against the country's congressional commission that is responsible for reviewing and actioning the SAI audit recommendations, to obtain the minutes of congressional hearing meetings. Subsequently using these records, ACU highlighted lack of action and managed to require corrective action in response to audit recommendations.

While advocating collaboration between SAIs and CSOs, Bhandari (2014) cautions against compromising SAIs independence in the process. However, with more multilateral and complex programs delivery mechanisms (such as in the environment and sustainable development sector) that include several governments and even the private sector (e.g. public private partnerships) in a 'steering' rather than 'rowing' governance, it is logical that, audits too will require partnerships.

2.3.13 Practice (art and craft) of performance auditing

The performance auditing cycle involves several steps that include: (A) Planning (strategic planning and preparatory work); (B) Execution/conduct of audit; and (C) Follow-up activities (INTOSAI, 2004: 43). In addition to the INTOSAI guidelines (2004), usually each SAI would have its own guidelines for performance auditing that cover these matters in detail (see for example, the Australian SAI's Guidelines for the Conduct of Performance Audits (ANAO, 2015d) and the Indian SAI's Performance Audit Guidelines (CAG, 2014a). In addition to these guidelines, some texts also cover the details (see for example, Pollitt et al., 1999; Lonsdale et al., 2011). An abbreviated summary of these matters are given below to provide an overview, rather than details that vary for each SAI. The three phases of performance audit, A (Pre-audit), B (Audit) and C (Post-Audit) as followed by ANAO (2015d) are shown schematically in Figure 2-2.

A1: Strategic planning is the process for determining long-term goals for an SAI. It is used for setting priorities and selecting future audit themes and topics s (INTOSAI, 2004: 47). It is also used internally to determine the development needs (e.g. recruitment education and training) of an SAI. As common with any strategic planning document, an SAI would review its strategic planning at regular intervals.

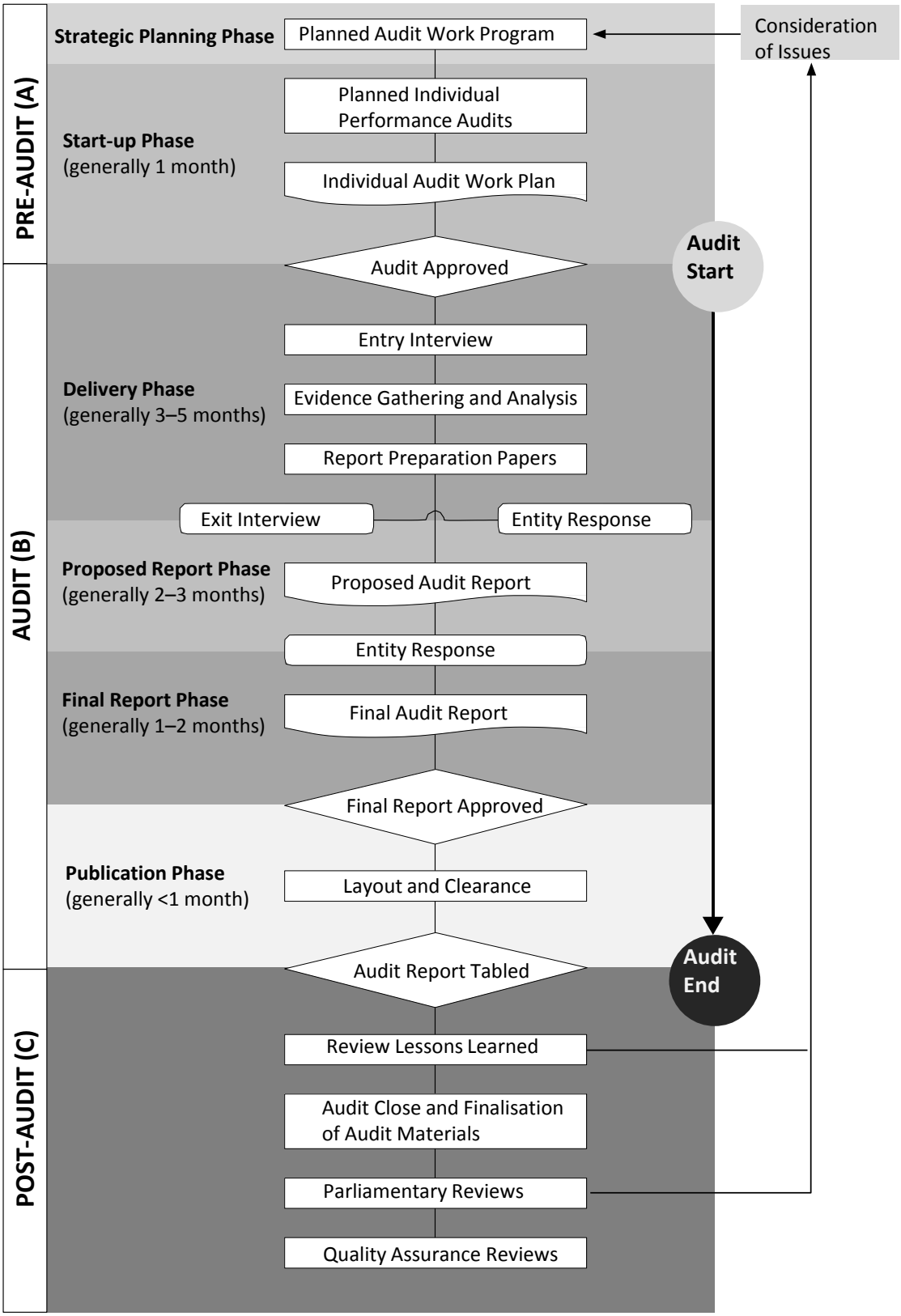
A2: Annual audit plan and selection of topics: Annual audit plan contains the audit topics/subjects to be audited during the year. It typically reflects the balance between the strategic priorities and available audit resources (Barrett, 2012; CAG, 2014a: 21). In view of the limited resources of SAIs compared with the size and complexity of government activities their mandates cover, they usually take a risk-based approach in selecting topics. Depending upon their legal position, they usually consult with their relevant stakeholders including auditees and sometimes do pay heed to their requests for audit. While their independence does not preclude such requests, their acceptance of such requests being discretionary does not undermine their independence (Barrett, 2015a). The following is an indicative list of factors that contribute to the judgement about topics selection (ANAO, 2014a; CAG, 2014a: 22; Put & Turksema, 2011)

- Risks in different areas of public sector, entities and programs;
- Materiality and significance including financial, social and political;
- Salience and public visibility of topics;
- Likely impact and scope for improvement;
- Extent of previous audit and review coverage;

- Legislature interest; and
- Need for follow up audit.

While acknowledging that SAIs do provide information on their approach to topic selection, hence are transparent, Put and Turksema (2011) note the need for more research into topic selection to gain insight into individual organisational and external factors influencing the decision making process. While they suggest participatory research or in-depth interviews as possible techniques to be used in such a research, it seems to be a big ask at this stage in finding a courageous SAI willing to open itself to such a scrutiny, given their legal position of independence, which precisely includes freedom to choose topics. It is interesting to note that international organisations, such as INTOSAI sometimes determine the sectoral audit topics (e.g. WGEA for the environment) through their planning cycle (Rika, 2009).

Figure 2-2: Performance audit phases (adapted from ANAO, 2015d).



A3: Individual audit plan: The final step of the planning phase is the development of an individual audit work plan that defines the scope and objectives and outlines the audit criteria; methods to be used schedule and budget of the audit (ANAO, 2014a). During this step, the audit team develops an understanding of the entity and the program or activity subject to audit that including through preliminary consultation with entity/program officials and other stakeholders, such as industry groups. This enables a detailed plan to be prepared covering including audit scope, criteria and methods and audit schedules and budget.

Audit criteria and methods are significant issues that have attracted a considerable academic attention (see for example, Lonsdale, 1999a; 2011b; Pollitt & Mul, 1999; Put, 2011). The core issue about the criteria or norms used in performance auditing goes to the fundamental debate about the objective of performance auditing: is it 'accountability' or 'learning'? Most audits take the accountability (systemic/administrative) approach and consequently use notionally so-called 'good management' criteria and test if those have been adhered to. Pollitt (1999: 205) observes that such an approach is low risk and is conceptually not different from financial auditing and does not address the substantive issue of effectiveness. He argues that a well/efficiently managed program may not be effective and goes on to say that systemic audit of good management is not a substantive audit of effectiveness. However, that requires venturing into a political territory not necessarily preferred by SAIs. Noting significant developments since Pollitt made that observation, Barrett (2015a) considers that many performance audits go beyond a good management approach. In his view, assessing, if policy objectives are being met economically, efficiently and effectively, does not necessarily always require an entry into the political domain.

Audit criteria/norms are either derived from official sources (e.g. entity's enabling legislation, entity's own policy or definition of performance) or SAIs frame their own definition/standard of performance, such as, using professional literature, expert advice and benchmarking (CAG, 2014a: 29-30; Put, 2011). Put (2011) observes that the official norms are more defensible and cheaper to establish; they serve the accountability paradigm by enabling to check if entities are conforming to their own standard. On the other hand, the second (pluralist) category of norms requires more effort to develop and serve the improvement paradigm better, Put adds. Official norms may be prone to gaming and even be questionable if policy objectives are unrealistic being either too easy or too ambitious (Put, 2011).

Performance auditing is as much an art as is science that uses a broad mandate and a toolbox rich in methodological techniques with ample discretion in approach and focus (Burke & Haynes, 2008). Factors that affect the choice of methods include constraints (of time, cost and evidence expectations) and influences at team, project, organisational and environmental levels (Lonsdale, 2011b: 105-115). While traditional methods such as document examination and interview still dominate, the use of new methods such as expert panels and consultation with others is increasing (Lonsdale, 2011b: 100). Scharaschkin (2011) explains why appropriate use of methods to generate strong audit evidence is necessary, by observing that audit conclusions are like legal judgements that should be able to withstand legal challenge. Legal standard of evidence is also stressed by Bourn (2007). However, INTOSAI (2004: 60) notes that unlike 'conclusive' evidence required for financial audits, 'persuasive' evidence is sufficient for performance audits.

B: Execution/Conduct of audit: While details may vary between SAIs, broadly the following steps are involved.

- **Entry meeting**: Prior to the start of audit, a meeting is held with officials of the audited body to introduce the audit (background, objectives, scope and schedule of the audit), to advise of the information requirements and to resolve any issues relating to the audit.
- **Evidence gathering and analysis**: In this phase evidence is gathered through various methods including document examination, interview with staff, site visits, stakeholders survey and data analysis (see appendix G for further detail).
- **Engagement with entity on preliminary conclusion:** Discussion/issue paper(s) containing preliminary conclusions and potential audit recommendations is prepared and provided to the audited entity for feedback including any substantive and factual matters.
- **Exit interview**: An exit meeting is conducted to discuss with the entity, audit findings, conclusions and potential audit recommendations that have been developed following the feedback.
- **Reporting**: Based on the feedback on issues papers and any further information feedback/provided at the exit interview, a draft report is prepared and sent to the entity for formal comments. The entity's comments are usually included in the final report. This step is quite significant and contentious in that it is effectively a clearance process, in which the entity, if not comfortable with findings, may dispute and obfuscate them, and obstruct and delay the publication of the audit report (Kelly, 1997; Wighton, 1998). The clearance process, thus, influences what actually goes into to the public domain through the final report (Pollitt, 1999: 202). The final report is then submitted either to the parliament or to the body authorising the audit. The report is usually published.

C: Follow up: The follow up facilitates effective implementation of audit recommendations. In parliamentary systems, it typically involves review of audit reports by parliamentary committee(s) and subsequent hearing in some cases. SAIs may also conduct follow up audit to assess an entity's progress in implementing the recommendations of earlier audits.

2.3.14 Impact of performance audits

SAIs place great emphasis on 'having an impact' (Lonsdale, 2000) of their performance audits. These impacts can be of several types (Loocke & Put, 2011):

- Instrumental (work leads to knowledge, and knowledge to policy);
- Conceptual (work gradually permeates policy through different means, e.g. insight change slowly, theories are adopted);
- Interactive (work results in dialogue between different groups participating in decision making process);
- Political legitimization (work is used in political debate, such as by an opposition in parliament to establish that a policy is not effective); and
- Tactical (work is used to influence a decision, for example, a decision can be put off pending further investigation).

As performance auditing raises important issues and contributes to public debates, it is difficult not to feel that this type of auditing adds value (Kells, 2011). Performance audits can and does have an impact though there is limited empirical evidence (Locke & Put, 2011). Most of the evidence of impact has come from SAIs themselves (Lonsdale, 1999b; Morin 2008) who increasingly assess their own performance through indicators such as:

- Implementation of audit recommendations;
- Audited bodies views on the value of SAI's work;
- Number of SAI's reports discussed in parliament;
- Parliament's views on the value of SAIs work;
- Frequency of SAI's coverage in the media; and
- Financial impact of SAI's performance audit

For example, the US Government Accountability Office (GAO) estimated that financial benefits of its 2010 audit were $US 49.9 billion (GAO, 2011a: 2; 2011b: 6). Likewise, the UK's NAO in its 2011 Annual Report noted that "our work in the year led to audited financial impacts of more than £1 billion, improved services to citizens, and increased transparency and accountability" (NAO, 2011: 1).

Notwithstanding the positive claims of SAIs about the impact of performance audits, academics are sceptical about its capacity to contribute to improvement of the public sector (see for example, Blume & Voigt, 2007; Morin, 2001; 2008; Sutherland, 2003). Despite its connection with 'new public management', leading management experts have ignored performance auditing. They consider its impact on the public sector as 'benign' at best and 'malevolent' at worst (Funkhouser, 2008). Behn (2001) has been scathing of performance auditing observing that it continues to be compliance auditing with a slight modification. He goes to observe that these 'institutions of accountability' are 'nit-picking', as they often pounce on 'small errors' and ultimately undermine public trust that enables government function well (Behn, 2001: 202-203). Distilled from three decades of literature, Kells' (2011) seven critiques of performance auditing are on similar lines (Table 2-3).

Table 2-3: Summary of the seven critiques of performance auditing (after, Kells, 2011)

Critique	Summary
Anti-innovation	Performance auditing (PA) may reduce public sector efficiency and effectiveness by impeding innovation in audited agencies.
Nit picking	PA may focus on less important matters, or feature an excessively adversarial approach that reduces the likelihood that auditees will buy-in to recommended improvements.
Expectations gap	The scope and reliability of performance audit findings might be exaggerated, leading people to overestimate the level of assurance provided
Lapdog	Performance auditors may conceal, soften, sugar-coat or under-report adverse findings.
Unnecessary systems	PA may cause auditees to adopt administrative systems and procedures that are unnecessary or even harmful to efficiency and effectiveness

Headline hunting	Performance auditors may seek sensational media coverage for its own sake, rather than in the interests of accountability or performance improvement, and may be drawn into party-political debates.
Hollow ritual	PA may be an ineffectual ritual of comfort or pacification that seeks to fend off calls for greater scrutiny, without an expectation that it can or will generate substantive benefits.

Kells, however, notes that all seven critiques cannot be applicable to all SAIs for all times, for example a 'lapdog SAI cannot simultaneously be a 'nit-picker' or an aggressive headline hunter. Unlike Behn comments, Kells' critiques, however, are aimed at improving performance auditing. Barrett (2012), himself, a previous Australian Auditor General, observes that deficiencies noted by Kells need to be addressed to 'instil greater confidence' in performance auditing. He however, observes that many of them 'have been addressed particularly in the last decade or so'. Lonsdale et al. (2011: 321) conclude that performance audits are having impacts 'though not always or as often as desired'. In addition to being aware of adverse impacts of audit and mitigating them, they suggest focussing attention on the following areas for maximising the impacts: 'quality of auditor-auditee relationship; building advocacy coalition with others; careful topic selection; and putting effort into dissemination of results.' Locke and Put (2011) describe such factors that determine the impact of performance audits.

Performance audits are particularly important for long-term issues such as environment. "SAIs are actually the only actors in the public sector who have adequate independence to be able to look farther into the future, even beyond the lifetime of a ruling government" (Oviir, 2012). This comment about SAIs' involvement in environmental audit is a good segway to the next topic.

2.4 Environmental auditing and environmental performance auditing

2.4.1 Environmental auditing

The origin of environmental auditing is the private sector. Power (1994) noted that environmental auditing emerged in in the 1980s as a result of the so-called an 'audit explosion'. Rose (2001) on the other hand traces the origin of environmental auditing as a named activity in 1970s that was taken up by companies in 1980s due to several factors. These include requirements of government environmental regulations and associated penalties, the need for managing civil liability risks, the opportunities for efficiency gains offered by improved internal management system and the need for a better public image as corporate environmental performance came under increasing public gaze (Rose, 2001).

Environmental audit is considered as a new field of auditing (Yusoff, 2013). There is no generally accepted interpretation of environmental audit (International Audit Practice Committee, 1995). While general understanding of environmental auditing is based on the way environmental issues (Alin et al., 2010), resources (Penini & Carmeli, 2010; Sinclair-Desgagné & Gabel, 1997), or raw material and energy (Mahwar et al., 1997) are managed by organizations, driven by external demands (Pagano & Immordino, 2007), it does not have a universally accepted definition (Hillary, 1998) as the term 'environmental audit' is associated with various forms of activities and programs (Hillary, 1998). Accordingly, the literature provides different views of the matter.

Thompson and Wilson (1994) refer to the environmental audit as the systematic and periodic review of management systems, policies or practices of corporations, institutions and governments, to assess how they affect the environment and suggest possible corrections. Watson and MacKay (2003) consider it as a means of assessing environmental performance. Welford (1994) takes a broader view referring environmental audit as a series of activities initiated by management to evaluate environmental performance, to confirm compliance with environmental legislation and to assess, if systems are in place for delivering environmental responsibilities. Taking a slightly different view, Visvanathan et al. (1998) consider environmental audit as a systematic and documented activity, undertaken periodically and objectively by an organisation to assess its environmental management performance and its responsibility towards the environment, in order to evaluate compliance with its own policy and relevant environmental laws.

Overall, environmental auditing presents a strong concept in which a strategic interdisciplinary overview is synchronized with risk assessment procedures for management improvement (Sinchuen & Ussahawanitchakit, 2009; Speklé et al., 2007) influenced by evolving knowledge and increasing professionalism in the field of environmental auditing (Tangpynioputtkhun & Thammavinyu, 2011). Power (1997) and Viladrich-Grau (2003) found similarities between general and environmental auditing, emphasizing the role of science in the latter, though it was subordinated to accounting procedures in the wider regulatory process. So, environmental auditing is essentially considered an internal practice subject to external verification for voluntary or mandatory certification (Watson & Emery, 2004).

He et al. (2009) compare environmental audit with environmental impact assessment (EIA) in the public sector. They observe that EIA is an ex-ante evaluation undertaken by certified bodies of the proposed development programs or projects with the aim of informing decision-making that enables preventive and precautionary actions to protect the environment. Environmental audit on the other hand is an ex-post evaluation undertaken during or after a development project is implemented, to assess, if or to what extent, the policy goals have been achieved, and in the process, help explain why certain goals have not been achieved. They conclude that EIA and environmental audit can complement each other.

It is not unusual that environmental auditing is confused with the concept of environmental monitoring. Based upon a detailed review of literature Viegas et al. (2013) conclude that confusion results due to six types of relationships between the two: similarities, hierarchy, overlaps, scope, risk issues and timeliness.

While the operational nature of the organization (Stanwick & Stanwick, 2001) affects its definition, environmental audit is considered essentially a systematic, documented, periodic, and objective verification process of a company's environmental performance against some standards and objectives (Hillary, 1992). Further, it is used by the management to communicate to the clients and stakeholders about the organisations' compliance with the environmental laws and regulations. Generally, most of the definitions stress the use of environmental audit as a tool aimed to help management in safeguarding the environment and to comply with relevant laws and regulations.

Hillary (1998) considers that the most accepted definition of environmental audit is that provided by the International Chamber of Commerce (ICC). The ICC (1998) defines environmental audit as, "a

management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of helping to safeguard the environment by: (i) facilitating management control of environmental practices; and (ii) assessing compliance with company policies, which would include meeting regulatory requirements." The ICC definition of environmental audit that is widely accepted by the industry is aimed at private sector, and is not appropriate to the public sector auditing (Rose, 2001).

The US Environmental Protection Agency (EPA) defines the environmental audit as "a systematic, documented, periodic, and objective review of facility operations and practices related to meeting environmental requirements." It has several objectives of:

- "Verifying compliance with environmental requirements;
- Evaluating the effectiveness of in-place environmental management systems; and
- Assessing risks from regulated and unregulated materials and practices" (cited in EPA, 1997: 1-3).

The International Organisation for Standardisation (ISO) defines environmental audit as "a systematic, documented verification process of objectively obtaining and evaluating audit evidence to determine whether specified environmental activities, events, conditions, management systems, or information about these matters, conform with audit criteria, and communicating the results of this process to the client." Based upon this definition, Gray (2000) calls environmental audit a social audit that prioritises reporting of the audit results to the users that are not necessarily internal, but more importantly include external users, about of the organization's success in meeting its responsibility to the environment. Rose (2001) considers that the ISO definition suggests different activities in different circumstances. For example, a one-off project assessment of sediment dredging in port development, or on-going review of organisational performance, such as, of internal management of energy efficiency. Accordingly, the term environmental audit is used to denote a wider range of audit procedures including environmental management system (EMS) audits, compliance audits, site (e.g. contamination) audits, registration/certification audit and Industry audit (e.g. mining, timber sector performance) (Rose, 2001).

Barring a few, most of the views and definitions described above relate to the private sector and suggest that environmental audit is an assessment carried out by organizations themselves for continuous improvement and environmental protection. Environmental audit in the private sector is essentially an internal audit, or internal control mechanism, that assures the management and investors that the organization operation complies with environmental laws and regulations (Quevedo, 1995; Yusoff, 2013). Legal compliance and exercise of due diligence are the main focus of environmental auditing in the private sector.

In contrast to the private sector, environmental audit in the public sector is considered in terms of broader framework of accountability to the ministers, the parliament and ultimately to the public (Rose, 2001). It is an independent external audit (Van Leeuwen, 2004a) to ensure that public resources are used economically, efficiently and effectively and their use achieves the intended results for the environment (Rose, 2001; Yusoff, 2013).

2.4.2 Environmental audit in the public sector

WGEA (2012b) notes that 'environmental auditing' is a convenient label used to denote various types of activities such as management audits, product certification and governmental control measures that have little resemblance to external audit. It clarifies the context of environmental audit undertaken by the SAIs or environmental audit in the public sector, observing that environmental auditing solely refers to 'independent external audit of environmental issues'. Environmental auditing is not different from normal auditing undertaken by SAIs in other fields and may include any combination of three types of audits—financial, compliance and performance (WGEA, 2001: 6). An environmental audit can focus its attention to the disclosure of environmental assets and liabilities, compliance with national and international laws and norms, the implementation of environmental policies and programs, and to measures taken by the audited body to promote economy, efficiency, and effectiveness (Van Leeuwen, 2004a; WGEA, 2001: 6). An environmental audit combining of two or more types of audit is often referred as a comprehensive audit (WGEA, 2007b: 11).

Van Leeuwen (2004a) observes that in regards to performance audits, the three Es of Economy, Effectiveness, and Efficiency can be considered. However, the inclusion of the fourth E of the 'environment,' depends on the SAI's mandate and its government's environmental policy. Sustainable development can be part of the definition of environmental auditing only if it is a part of the government policy and/or program to be audited (Van Leeuwen, 2004a) which is desirable, but not necessary for conducting environmental audit in the public sector (Yusoff, 2013).

Rose (2001) suggested that performance auditing was a more useful form of environmental auditing for the public sector. This has been confirmed by Yusoff (2013) whose survey-based study concluded that public sector auditors had a tendency to consider environmental auditing as performance auditing. As noted earlier in this chapter, the elements of performance auditing continue to be hotly debated and environmental performance auditing is no exception. Yusoff observes that focus of the environmental performance auditing is more on the efficiency and effectiveness rather than economy. He cites a negative relationship between efficiency and economy for this. However, Rose (2001) concludes that the focus is more on economy and efficiency, rather than on effectiveness, in meeting environmental objectives as data and methodologies for assessing economy and efficiency are more readily available. Compared with this, the assessment of effectiveness of environmental performance is hindered by the scarcity of data, and methodological challenges. Often environmental objectives are poorly defined making assessment criteria difficult to formulate. Further, baseline data is rarely available and ecological cause and effect relationships are unknown, thus rendering effectiveness difficult to measure (WGEA, 1993, cited by Rose, 2001). While the scarcity of baseline data and long lead times in achieving environmental outcomes are, no doubt, acknowledged factors broad and unspecific government environmental program objectives that are difficult to measure, a lack focus on achieving outcomes and inadequate collection of performance information during implementation (ANAO, 1997b) are no less responsible for making assessment of effectiveness difficult.

While Rose (2001) has identified internal resource use by the government departments (such as energy efficiency and green procurement) as part of a broader accountability framework for environmental

management, hence, subject of public environmental auditing, this thesis does not consider such a general inclusion of this matter as part of environmental audit, unless there is a specific government program or policy in place. The focus of this thesis is environmental auditing and particularly environmental performance auditing in the sense of auditing and performance auditing of the implementation of government environmental policies and programs.

The concepts of environmental auditing in the private and public sector have been differentiated and the terms, environmental auditing and environmental performance auditing, as will be used in this thesis, have been clarified above. It will be useful to further clarify the concept of environmental auditing in the public sector by differentiating it from a few related concepts that are also used to assess public sector environmental performance.

2.4.3 Environmental auditing is different from the state of environment (SOE) report and environmental impact assessment/statement (EIA/S)

Rose (2001) notes that other methodologies to assess public sector environmental performance—SOE reporting and EIA—are confused with the environmental performance auditing. But they are environmental performance reviews, not performance audits. SOE reports are a scientific "assessments across a wide range of biophysical and ecological elements of the environment, as well as social and cultural aspects of environmental issues". In Australia, SOE reporting occurs both at national and state level (DOE, 2015). SOE is a scientific assessment of the condition of environment, not performance assessment of a government environmental program or policy. Rose (2001) further observes that while SOE reporting is essential to identifying baseline and changes in environment quality indicators, it does not assess economy, efficiency and effectiveness of any specific public sector commitments. The usual methodology of SOE reporting is the 'Pressure-State-Response' model, whereby it describes the pressures on the environment, the drivers of those pressures, its current condition (state) and the management initiatives or response undertaken to address environmental concerns, and the impacts of those initiatives (DOE, 2015). The SOE reporting is, thus, a broad picture of environmental condition at a point in time in a continual process that is necessary to develop environmental commitments (policies and programs) and review them. Unlike environmental auditing it does not judge the implementation of commitments. While it may, indirectly, reflect the effectiveness of several environmental initiatives taken by successive governments over time, it does not assess the performance of particular environmental initiatives (Rose, 2001).

EIA /EIS is required under relevant legislation to be produced by a proponent of a development proposal as a pre-requisite for gaining approval (for example, s66 of the Australian *Environment Protection and Biodiversity Conservation Act* 1999). While EIA required before a project is implemented to estimate the future impact of the proposed action, environmental auditing is undertaken after a project has been implemented, or being implemented to assess the actual impact of the project. So, necessarily, EIA and environmental auditing differ in timing. EIA is on the opposite end of time continuum from the environmental auditing. As noted by He et al. (2009), EIA is an ex-ante assessment; whereas environmental auditing is an ex-post assessment. Environmental auditing can complement an EIA, to assess what impacts actually occurred, and thus, ensure that the actual impact remains within the

predicted level, and the condition of approval was adhered to. Environmental auditing, thus, also assesses the performance (effectiveness) of EIA as a management tool (Buckley, 1989). There is also a difference in terms of actor who undertakes the task. EIA is mostly undertaken by the public or private sector proponents, or their agents, whereas public environmental audit is undertaken by an SAI (or an equivalent public body). However, some SAIs/audit offices do have mandate to undertake an EIA (WGEA, 1993 cited by Rose, 2001).

2.4.4 Is environmental auditing special?

Generally, the people who conduct environmental auditing in the public sector (SAIs) are of the view that environmental auditing is no different from auditing in other fields and could encompass regularity (financial and compliance) and performance audits (Van Leeuwen, 2004a; INTOSAI, 2012a; Yusoff, 2013).

Notwithstanding the similarities between environmental audits and audits in other fields emphasised above, panellists at the training session of the 14th Working Group on Environmental Auditing (WGEA) Assembly in November 2011 identified a number of challenges specific to environmental auditing (INTOSAI, 2012a).

- Environmental data can often be lacking, diffuse, or incomplete at the local, regional, and international levels.
- Environmental problems and policy issues are relatively new.
- Sustainability— a core dimension—is fundamentally difficult to address.
- Environmental problems and abatement evolve over the long-term.
- Materially linking environmental issues to state finances is a challenge.
- Cost-benefit analysis of the long-term benefits of environmental engagements is crucial but difficult.
- Environmental issues are multinational and interdisciplinary.
- Fieldwork requires specific competencies and knowledge.
- Finding audit criteria on the national level is difficult, but it is also difficult to persuade governments to adopt international criteria.
- Auditing generally has a retrospective focus, but environmental issues require vitality in assessing the potential future impact of policies/programs.

WGEA (2012c: 13-14) in its submission to the United Nations Rio+20 conference, identifies 10 governance problems related to the audit of environment and sustainable development:

- Unclear/overlapping responsibilities.
- Lack of coordination between sub-national levels and the national level.
- Absent or deficient policies or strategies.
- Insufficient assessment of the environmental effects of governmental policies and programs.
- Lack of analysis (economic, social, and environmental) supporting decisions.
- Lack of long-term planning to implement environmental policies and programs.
- Inadequate financial management of environmental policies and programs.
- Lack of enforcement of domestic environmental legislation.
- Deficient monitoring and reporting systems.
- Lack of environmental data for decision-making.

Based upon the views of the expert practitioners in the environmental sphere, it can be said that while environmental auditing shares or exhibits the characteristics of an audit, it does have some special characteristics of its own and consequently poses some special challenges. The special place for

environmental auditing is also underlined by the fact that of the nine INTOSAI Working Groups, WGEA is the largest (INTOSAI, 2006).

2.5 Conclusion

This chapter has provided an overview of two related topics, 'audit' and 'environmental audit'. Audit compares 'what is' with 'what should be'. It originated very early in human civilization to hold public officials to account for public money. Performance auditing is a natural progression of accountability for public money to accountability for performance. While 'accountability' and 'learning' for improvement are considered as the two main objectives of performance auditing, there is an inherent tension between them. While the two objectives can and do co-exist comfortably in most cases, when there is a conflict between the two objectives, accountability has to prevail. This is because accountability is the main product of auditing that comes from independence, a fundamental requirement for auditing. Learning on the other hand, is a by-product of performance auditing that is not necessarily best delivered by an independent institution.

'Environmental auditing' is a convenient label used to describe various types of activities such as management audits and product certification that have little to do with an external audit (WGEA, 2012b). This thesis uses the term 'environmental auditing' in the same context used by WGEA (2012b) to refer to 'independent external audit' by SAIs of government programs and policies dealing with 'environmental issues'. Environmental auditing is not different from auditing undertaken by SAIs in other fields and may comprise one or of all three types of audit—financial, compliance and performance. It may consider disclosure of environmental assets and liabilities; assess compliance with national and international environmental laws and conventions; and may also evaluate economy, efficiency, and effectiveness of government's environmental programs and policies. While noting similarity to audits in other fields, SAIs have acknowledged the specific challenges associated with environmental auditing.

To recapitulate, environmental performance auditing that this thesis will investigate in chapters ahead, is performance auditing by SAIs of the implementation of environmental policies and programs in the public sector.

Having introduced the concepts of audit, its types and clarified the term environmental auditing, this chapter has provided the foundation for the research that will be described in subsequent chapters. The next chapter describes the global trend in environmental auditing and especially in environmental performance auditing.

Chapter 3 : Global Trends in Environmental Performance Auditing

3.1 Introduction

This chapter investigates trends in environmental auditing, and particularly in environmental performance auditing, through analyses of data available on the INTOSAI Working Group on Environmental Auditing (WGEA) website. Two types of analyses are undertaken: (a) A primary analysis of raw data on environmental audit reports available in the WGEA database; and (b) A secondary analysis of processed data on environmental auditing contained in seven tri-annual WGEA survey reports. The primary analysis of trends in environmental performance auditing also investigates whether trends are related to economic factors, such as national income and/or developmental status of the parent country of an SAI. The secondary analysis extends the initial analysis of the first 3 WGEA surveys data undertaken by Van Leeuwen (2004a). By bringing together the data from all WGEA surveys in one analysis, this study endeavors to make the WGEA surveys more accessible to the wider community.

The chapter is divided into five further sections. Following an introduction of INTOSAI and WGEA in section 3.2, methodology is described in section 3.3. Subsequently, the results of the primary analysis are presented in section 3.4 and those of the secondary analysis in section 3.5. Finally, conclusions are given in section 3.6.

3.2 INTOSAI and WGEA

3.2.1 INTOSAI

The International Organization of Supreme Audit Institutions (INTOSAI) is the professional organization of supreme audit institutions (SAIs—the highest body of external government auditing in a country, known by different names such as Auditor General or Comptroller General). Established in 1953, INTOSAI is a non-governmental organization with special consultative status with the Economic and Social Council of the United Nations. It provides an institutional framework to SAIs for promoting the development and transfer of knowledge, capacity building and professional enhancement of government auditing worldwide. Its initial membership of 34 has grown to 192 (INTOSAI, 2006).

Within INTOSAI, there are seven regional groups that promote the goals of INTOSAI regionally by providing the members with opportunities of professional and technical cooperation on a regional basis (INTOSAI, 2006). These are:

- OLACEFS Organization of Latin American and Caribbean Supreme Audit Institutions;
- AFROSAI African Organization of Supreme Audit Institutions;
- ARABOSAI Arab Organization of Supreme Audit Institutions;
- ASOSAI Asian Organization of Supreme Audit Institutions;
- PASAI Pacific Association of Supreme Audit Institutions;
- CAROSAI Caribbean Organization of Supreme Audit Institutions; and
- EUROSAI European Organization of Supreme Audit Institutions

While the regional groups, generally, are geographically based, their names are not always intuitive. Additionally, some countries are members of more than one INTOSAI regional group, but prefer to be listed in one region rather than the other. Table 3-1 shows how the countries/SAIs are allocated between the nine world regions and the seven INTOSAI groups. The US and Canada who are not a member of any regional INTOSAI group, constitute the OTHERS group in the table. The WGEA aggregates the survey data (see section 3.3.7) based on these groups.

Table 3-1: World regions and INTOSAI regional groups - distribution of SAIs/countries.

	INTOSAI regional group								
World region	**AFROSAI**	**ARABOSAI**	**ASOSAI**	**CAROSAI**	**EUROSAI**	**OLACEFS**	**OTHERS***	**PASAI**	**Total**
Africa	40	15							55
Asia			27		3				30
Caribbean				19		3			22
Central America				1		7			8
Europe					44				44
Middle East		12	1		3				16
North America							2		2
South America				2		10			12
South Pacific								16	16
Total	40	27	28	22	50	20	2	16	205

*OTHERS comprise US and Canada, who are not a member of any regional INTOSAI group

INTOSAI (2006) also has a number of committees, working groups and task forces. The INTOSAI committees deal with issues of significant, recurring interest to all members of INTOSAI, for example preparing standards and guidelines. Working groups deal with specific themes and publish specific guidance and best practices. As opposed to the committees and working groups, the task forces are established as needed to deal with issues of significant interest to many members SAIs. They operate for a finite period of time and are dissolved when their assigned tasks are complete (INTOSAI, 2006).

3.2.2 WGEA

The INTOSAI Working Groups (currently 9) are established to address specific themes and interests such as privatization and environmental audits (INTOSAI, 2006). The INTOSAI Working Group on Environmental Auditing (WGEA) was established in 1992 with a mission to assist SAIs in better undertaking of environmental auditing, to facilitate the exchange of information and experience between SAIs and to publish guidelines and other information for their use. Its membership has grown from 12 to 74 members (Elstein, 2012). It is the largest of INTOSAI working groups (INTOSAI, 2006). Perhaps its size (popularity) is an indicator of the complexity of the issues it deals with, and its usefulness to members.

Six of the seven INTOSAI regions have a regional Working Group on Environmental Auditing. These are: AFROSAI WGEA, ARABOSAI WGEA, ASOSAI WGEA, EUROSAI WGEA, OLACEFS WGEA, and PASAI WGEA (WGEA, 2012e).

3.2.2.1 The work of WGEA

Since its inception, the WGEA has made enormous contribution to environmental auditing through its activities. These include:

- Publication of studies and guidelines related to environmental auditing;
- 3 yearly global surveys on the status of environmental auditing; and
- Compilation of a database on environmental auditing.

WGEA has produced an extensive set of publications to inform and guide SAIs in undertaking environmental audits. These are considered highly useful by SAIs (see for example, WGEA, 2012a: 34; WGEA, 2009: 23).

WGEA undertakes a tri-annul surveys of all SAIs (not just the WGEA-members) to map global and regional trends in environmental auditing and the challenges SAIs face in undertaking these audits (WGEA, 2012a). The survey results are aggregated based upon the INTOSAI regional groups plus OTHERS (Table 3-1). So far, WGEA has published seven surveys (8th survey complete, by not yet published) as follows: 1st (1993); 2nd (1997); 3rd (2000); 4th (2003); 5th (2007); 6th (2009); and 7th (2012).

WGEA maintains a database on environmental auditing on its website (http://www.environmental-auditing.org). The database contains links to environmental audit reports of different countries.

3.3 Methodology

3.3.1 WGEA database on global environmental audits

The WGEA environmental audit database contains information on environmental audits undertaken since 1992. However, WGEA has collected and categorized data differently before and after 2003. Consequently, data in the database is organized differently for the two periods. The database displays the environmental audit reports information based upon country (Figure 3-1) and issues (Figure 3-2). Under each view, the audit reports are categorized into two groups: one each relating to the period before 2003 and after 2003. In addition to the links to the individual audit reports, the WGEA database provide further information on individual audits, such as, the types of audit (financial, compliance, performance), main and sub-issues audited (e.g. Governance: Domestic funds and subsidies; Ecosystems: Protected areas and natural parks) and main audit objectives (e.g. Compliance with domestic environmental policies; Performance of government environmental policies and programs).

These details would enable several analyses, provided the database could be queried. The WGEA on-line database, however, is quite rudimentary. It only displays (a page of ten rows at time) the details about the audits in a text format without allowing any sorting or grouping. The access to the database is so slow that sometimes the computer gets frozen. It takes about 3-4 minutes to load a page and another 3-4 minutes to apply a filter and display results. Some programming to automate the process was attempted, however, due to the rudimentary nature of the database, it did not work.

Figure 3-1: Truncated view of the environmental audit database: country (Australia) data table

Year	Title	Issue	Type	Main Audit Objective	Report Summary	Report Full Text	Joint Audit Produced By
2012	Management of the National Solar Schools Program	Human activities and sectors: Energy (Show more…)	3	5	English (70 kB)	English (2.1 MB)	
2011	Indigenous Protected Areas	Ecosystems: Protected areas and (Show more…)	3	5	English (44 kB)	English (4.1 MB)	

Pages: 1 2 3 4 Total: 37 Audit(s) View All

Figure 3-2: Truncated view of the environmental audit database: issue (Bio-diversity) data table

Year	Country	Title	Issue	Type	Main Audit Objective	Report Summary	Report Full Text	Joint Audit Produced By
2012	New Zealand	Department of Conservation: Prioritising and partnering to manage biodiversity	Ecosystems: Biodiversity, Ecosystems: (Show more…)	3	5	English (60 kB)	English (959 kB)	2012
2012	Honduras	Environmental sanitation of Roatan Bay Island	Air: Climate change, Ecosystems: (Show more…)	3	4 , 5 , 6 , 7		Spanish (2.4 MB)	2012

Pages: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Total: 190 Audit(s) View All

3.3.2 Data from the WGEA database was manually downloaded

An electronic copy of the database could have resolved the access difficulty. WGEA secretariat was approached to get a copy of this publicly available data. However, data could not be obtained from WGEA. Consequently, the data from the WGEA environmental database was painstakingly downloaded using a tedious manual process briefly described below.

1 The data table for a country (Figure 3-1) or an issue (Figure 3-2) was displayed by clicking the link on the WGEA website. Depending upon its size, a table of data would span over multiple pages. However, only the first page containing the first ten entries would be visible in the first instance. A table was expanded by clicking 'View all'.
2 To fully copy each data entry, the 'Issue' cell had to be expanded by clicking 'Show more'.
3 Following step 1 and 2, each data row was made visible, then data was copied into an Excel spreadsheet.

The steps 1-3 were repeated for each of the below:

(a). Country-based (205 SAIs but data only for 111) data

- Two periods
  - Before 2003
  - After 2003

(b). Issue-wise data

- Approximately 100 issues over the two period

Both the country and issue datasets were downloaded, to confirm whether a consistent data set was available (individual audit reports count from both sets would match if data downloaded was consistent).

The slow access to the WGEA database posed significant logistical challenges. It took almost a three weeks to download one complete data set. However, this time lag created discrepancy between the country and issue dataset. This would happen because the WGEA database is regularly updated. During the time it took to download one complete data set, the database was updated several times, making the country and issues data for several countries inconsistent.

3.3.3 Cut-offs were decided

Through a manual download, it was almost impossible to create a consistent dataset. To get around this challenge, two cut offs were decided: (a) A cut-off year for audit reports; and (b) A cut-off date for the database update. The cut-off year of 2012 was decided for the audit report for three reasons. (1) As in January 2015, when this exercise was being undertaken, data beyond 2012 was not available for majority of countries; (2) A twenty-year period (1992-2012) was considered sufficient for a trend analysis; and (3) It aligned with the publication of the WGEA's 7th survey in 2012. The end of 2014 (31 December) was decided as the cut-off date for the updates for two reasons: (1) It afforded a two-year time lag between the end of the calendar year of an audit and the updated information being available on the WGEA website. This was considered reasonable for the updates; and (2) The need to complete the study in a timely manner.

The cut-offs enabled to create a consistent dataset with manually downloaded data.

3.3.4 A database of environmental audits was developed

With the environmental audit reports data downloaded, a database was developed in Microsoft Access. The environmental audit database was validated with information on the number of environmental audits from other published sources. WGEA (2012c: 5) reports a figure of more than 3200 for the total number of environmental audits during 1993-2011. The environmental audit report database yields a total of 3259 environmental audits for this period. This is close to the former. Further, the total number of environmental audits during 1993-2006 from the environmental audit reports database (2376) and the WGEA fifth survey (2340) are quite comparable. Note that unlike the WGEA fifth (2006) survey, the sixth (2009) and the seventh (2012) surveys do not, separately, report the total of environmental audits. As such, the total number of environmental audits from the database discussed above can only be compared with the survey data up to the fifth (2006) survey.

As the total number of environmental audit reports derived from the environmental audit reports database compares well with other published sources, it is considered that data from the environmental audit reports database (recreated from the WGEA database for this study) is reliable.

3.3.5 Economic data from the World Bank was added to the environmental audits database

To assist the trend analysis, economic data, such as those related to countries' per capita gross domestic product (GDP), per capita gross national income, income-level and developmental-level was downloaded from the World Bank website (http://data.worldbank.org), and added to the database. It is noted that the World Bank annually also categorizes countries into high income, middle income and low income groups. The middle income courtiers are further subdivided into upper middle and lower middle income groups. The high income countries have been traditionally referred to as developed countries and lower and middle income countries together has been referred to as developing countries (World Bank, 2014).

The analysis from the environmental audit database is presented in section 3.4 (except for that in section 3.4.1 on audit mandate).

3.3.6 Information on the SAIs mandate also available on the WGEA website

The 'SAI Contacts and Mandates' section of the WGEA website, as the name suggests also provides information on the mandate of individual SAIs. This information contains detail such as types of audit (financial, compliance, performance) an SAI can undertake and the types of bodies (e.g. national government, state government, private sector organizations), it can audit. This section also details if an SAI has any specific mandate to undertake audit of environmental policies and programs. The analysis of SAIs' mandate is presented in section 3.4.1 as the context for trend analysis on environmental auditing beginning in section 3.4.2.

3.3.7 Data on the WGEA triennial surveys

The WGEA triennial surveys have collected data on environmental auditing around six themes asking about 50 questions each time. The results of the surveys are presented in aggregated form globally and regionally (seven INTOSAI regions plus Other for US and Canada who are not a member of any regional INTOSAI group) under the six themes. While the survey questions have continued to evolve, the six broad themes have remained as follows:

- Auditing mandate;
- Environmental audits;
- The impact of environmental audits;
- Environmental auditing capacity;
- Cooperation between SAIs; and
- WGEA information products.

As expected, the set of countries that responded to each survey has varied between the surveys. For example, the overlap between 6th and 7th survey was 71% (WGEA, 2012a: 38). Further 30 SAIs who took part in the 6th survey did not participate in the 7th survey. In addition to the variable response set, the survey questionnaire has also been evolving. Despite these limitations, the surveys are a valuable source

of useful data. The availability of raw data could open up immense possibilities of re-analysis, to enable new insights beyond those presented in the survey reports. For example, responses of SAIs could be aggregated into developed and developing countries categories to investigate how does the economic conditions affect environmental performance audits. The WGEA secretariat was formally approached for access to the survey data. However, access was not granted, apparently for the concern that it would breach the survey data agreement. As the individual responses were not available, the published aggregated data was relied upon for a limited re-analysis. As the survey questions have evolved, responses are not always comparable. On several matters, judgments have been applied to interpolate values and make approximations. This re-analysis is presented in section 3.5.

3.3.8 The primary analysis gets primacy

The data on the WGEA database/website is evidenced by publicly available documents containing individual details available. Being voluntarily sourced, the data on the database may not be perfect. But the same number of SAIs have been polled each year in the case of data on the database, unlike surveys, where respondents have varied between surveys.

Wherever relevant data is available from both the environmental audit database/website and the environmental audit survey reports, the primary analysis of data from the database/website gets the primacy over the re-analysis of the survey data that is considered as secondary. For example, data on SAIs mandate is available from both the WGEA website and the 2012 survey (section 3.4.1). In this case, the former would get precedence over the latter. The primacy of documentary evidence over the survey data is well established in audit practice (See for example, Pollitt et al, 1999: 129; Lonsdale et al., 2011: 100 and WGEA, 2013c: 56-65).

3.4 Primary analysis of environmental audits data

3.4.1 Audit Mandate

The mandate refers to the powers of the SAIs to conduct the audits. It determines the type of audits (e.g. compliance, performance) an SAI can undertake, and the types of bodies (such as national government, state government, non-government organizations) it can audit. The reach of SAIs (or the level of access to information) to different types of bodies can also determine the audit tools an SAI can use in its work (WGEA, 2012a: 10). The mandate of SAIs varies significantly from one country to another depending upon the type of governing structure (federal, unitary), the type of democracy (parliamentary, presidential) and legal and political history and traditions. The mandate relates to all matters SAIs can audit. However, they are discussed here in the specific context of the audit of environmental matters.

Key statistics of SAIs mandate analysis from the WGEA website and WGEA 7th survey are given in Table 3-2. This table is divided into two sections. Section 1 on the top presents the figures related to the types of audits and section 2 presents figures related to the extent (range of bodies SAIs can audit).

3.4.1.1 Type of audit

The majority of the SAIs can conduct performance audit (92-94%), compliance audit (90-91%) and financial audit (85-88%) in relation to the environmental matters. About one third of the SAIs also have power to

conduct priori audits. About one fifth of SAIs have specific mandate for auditing the environmental matters. For example, the Auditor General of Canada, through the Commissioner of the Environment and Sustainable Development (CESD) reporting to him/her, has a specific mandate for conducting audit of matters related to the environment and sustainable development. Established in 1995, the CESD monitors sustainable development strategies of the Canadian federal departments, oversees the environmental petitions process, and audits the federal government's management of environmental and sustainable development issues. (OAG, 2014d). There are other 26 SAIs that have specific mandate for auditing the environmental matters. Based upon the WGEA website data, the OLACEFS (7) region has the highest number of SAIs having a specific mandate for environmental auditing followed by AFROSAI (6) and EUROSAI (6).

Table 3-2: SAIs mandate analysis. Part 1 of table relates to the types of audits and part 2 to the types of bodies SAIs can audit.

Particular	**WGEA website (% of SAIs)**			**WGEA 7th survey (2012) (%of SAI)**		
Data	N = 131 (64%)			N= 112 (62%)		
1. Mandate: Types of audit						
Financial	85%			88%		
Compliance	90%			91%		
Performance	92%			94%		
Priori	33%			32%		
Specific reference to environment	21%			19%		
2. Mandate: Extent	**Full access (%)**	**Partial access (%)**	**No access (%)**	**Full access (%)**	**Partial access (%)**	**No access (%)**
National government	95%	5%	0%	94%	3%	3%
State/provincial or regional government	70%	18%	12%	70%	17%	13%
Local/municipal or community government	70%	17%	13%	68%	17%	15%
State-owned enterprises	79%	17%	4%	82%	13%	5%
Semi-government organisations	44%	44%	12%	48%	43%	9%
Non-governmental public enterprises or organisations	12%	41%	47%	13%	44%	43%
Private sector organisations	1%	35%	65%	2%	33%	65%

WGEA (2007a: 23) reports that SAIs have been debating whether a specific mandate is needed to undertake environment audits. However, it is of the view that specific environment audit mandate is not considered necessary for undertaking environmental audit (WGEA, 2012a:11; 2007a:23, 2004: ii). Despite this, a small percent of SAIs in their survey responses, consider inadequate mandate as a barrier to the environmental auditing (for example, in the 7th survey WGEA, 2012a: 69, overall 11% report it as a barrier).

While the framework of a specific mandate for environmental auditing has changed very little over time, the volume of environmental auditing has been growing (see for example, WGEA 2007a: 12 and also discussion on the environmental audits in section 3.5.3). This may be due to SAIs becoming more aware of the ways in which they can use their traditional mandate for examining environmental programs and policies (WGEA, 2012a: 8).

3.4.1.2 Mandate: Extent

Table 3-2 shows that most SAIs have full access to the national government (94-95%), provincial or regional government (70%), local/municipal or community government (68-70%); and state-owned enterprises (79-82%). About half (44-48%) have full access to the semi-government organizations. As environmental issues often involve multiple levels of government, they are often audited at multiple levels. The extensive audit mandate of many SAIs gives them the opportunity to assess how all levels of government are working to protect the environment (WGEA, 2007b: 10).

Access to the non-governmental public enterprises or organizations (12-13%) and private sector organizations (1-2%) is limited. The majority of SAIs either have partial, or, no access to these organizations. Partial access in these cases likely mean that SAIs can only inspect the use of public money allotted to these organizations (WGEA, 2012a: 11) in some restricted manner. This may be problematic for some SAIs in undertaking environmental audits, as the mandate would not give access to all bodies involved in the environmental policy. This means that the SAIs would need to get part of the information required for audit from bodies outside their mandate on a voluntary basis. As such information could not be made public, the SAIs in their audit reports would need to limit themselves to the bodies in their mandate, 'thus presenting only a part of the actual situation' (Van Leeuwen, 2004a). Barrett (2015a), however, considers that SAIs could publish such information in a 'non-confidential' aggregate manner.

Limited SAIs access to the non-government and private sector organizations is likely to have growing implications for the environmental auditing in the future. The involvement of the private sector in the provision of public services including the delivery of environmental programs has been growing (see for example, Dobbs & Pretty, 2008; Jellinek et al., 2013; Stobbelaar et al., 2009). Non-governmental organizations (NGOs) are already involved in delivery of environmental programs in several countries. For example, Sulabh International, a NGO is extensively involved in providing sanitation services in India. To ensure transparency and accountability, limited SAIs access to these organizations would need to be addressed in future. The so-called doctrine of 'follow the public money' could be invoked to address this issues.

3.4.2 Environmental audits have been growing

The global total of environmental audit reports and environmental performance audit reports are shown in Figure 3-3. Unlike the data for the performance audits, WGEA has not consistently collected the data for compliance audits. In the period 1992-2002, data is available as regularity audit, which is perhaps a combination of financial and compliance audits, whereas in the post-2003 period, compliance and financial audit are separately reported. A regularity audit report can simultaneously include financial and compliance matters. So the sum of financial and compliance audits will not necessarily equal the total number of audits conducted. As such regularity audit data for the period 1992-2002 is not comparable

with the sum of be financial and compliance data for the period 2003-2012. Therefore, when comparing the growth of performance audit with that of the compliance audit, the shorter period 2003-2012 has been chosen, for which data for both compliance and performance audit are separately available. This comparison is shown in Figure 3-4.

Over the two-decade period (1992-2012), globally SAIs produced 3654 environmental audit reports (about 170 audits per year) (Appendix A: Table A-3). The first decade (1793 or 49%) and the second decade (1861 or 51%) each produced about half of environmental audits. Of 3654 environmental audits, a larger proportion (2372 or 65%) were performance audits (Appendix A: Table A-4). The first decade produced 813 and the second decade 1559 environmental performance audits. The average proportion of environmental performance audits was higher in the second decade (84%) than in the first decade (46%).

Figure 3-3 shows that globally environmental audits peaked at 300 reports per year in 1996. Following some troughs and peaks in the intervening period, it reached another, but a lower peak, of about 270 per year in 2008. After a steep fall from 2008, the growth in environmental audits seems to have plateaued out about 2009. This may be due to several reasons: (1) There has been some real decrease in environmental audits. It is worth noting that this is just after the global financial crisis (GFC) hit the world economy. SAIs, while independent in most cases, still depend upon the governments' budgetary allocation for their functioning, and thus, are not immune to any financial shocks felt by national economies. Figure 3-3 shows that the environmental audits and environmental performance audits are broadly related to global economic conditions, reflected by global average GDP. As the global GDP increases, so do environmental audits and environmental performance audits, and vice versa. The relationship between environmental performance audits and economic factors will further be explored in section 3.4.2.1 and sections 3.4.2.3-3.4.2.8.

(2) There might be a shift from quantity to quality. A shift from regularity audit (e.g. compliance) to performance audit may be an indication of this (Van Leeuwen, 2004a). This issue will be further explored later. (3) Like the WGEA surveys, the WGEA database depend upon the voluntary input from SAIs. Countries may have got tired of reporting to the WGEA (WGEA, 2007a: 5). It is noted however that there might be other causes, for example, SAIs deciding to pay more attention to financial matters.

It can be seen from Figure 3-3 and Figure 3-4 that despite some peaks and troughs and plateauing in later years, there is an increasing trend in environmental audits and in environmental performance audits. The growth in environmental audits is a result of both the increasing number of SAIs undertaking environmental audits each year and the increasing number of audits undertaken by SAIs each year that are already active in environmental auditing. Figure 3-5 shows that the number of SAIs that produced some environmental audit reports in a year has been increasing. The number of SAIs undertaking environmental audits increased from 6 in 1992 to 66 in 2007 and dropped off to 55 in 2012. The number of SAIs doing undertaking environmental performance audits increased from 1 in 1992 to 62 in 2011 dropping to 51 in 2012.

Figure 3-3: Global environmental audits and environmental performance audits during 1992- 2012.

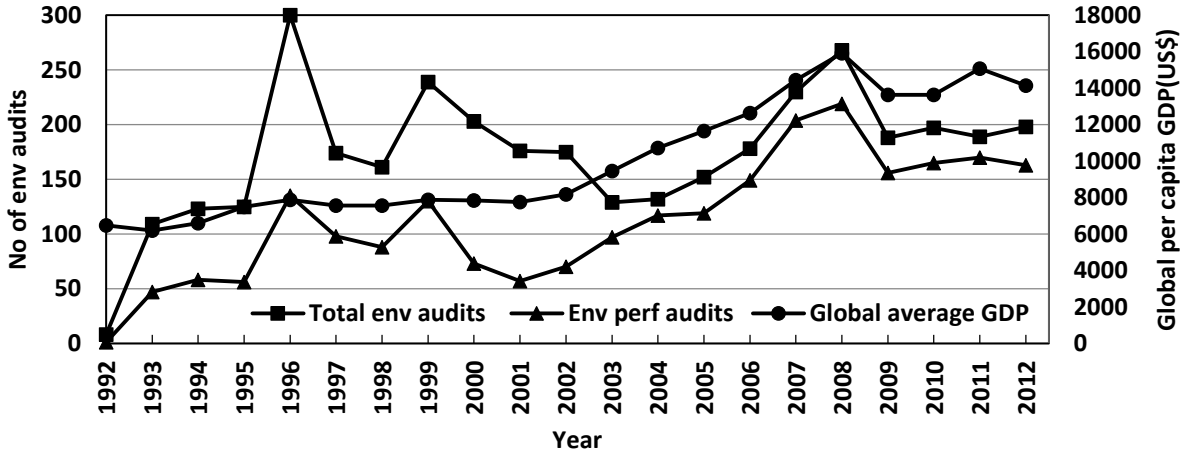
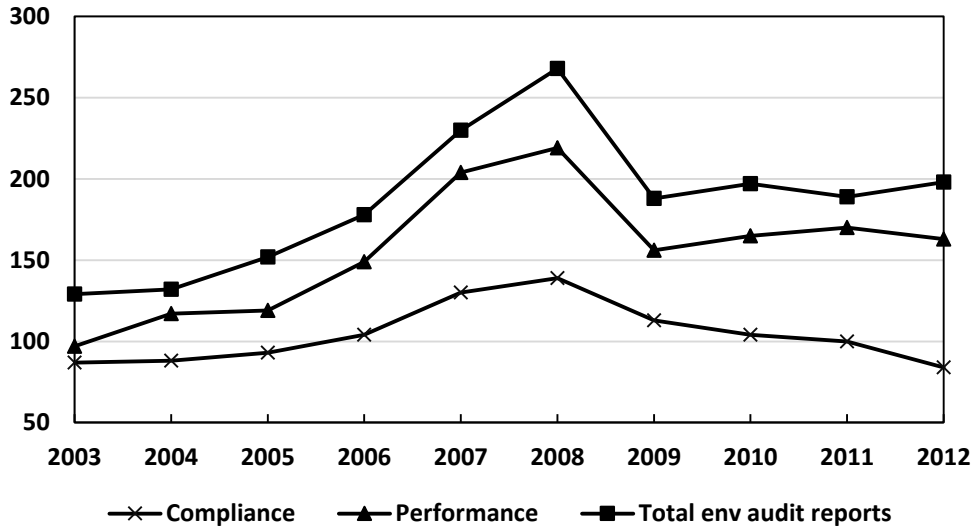


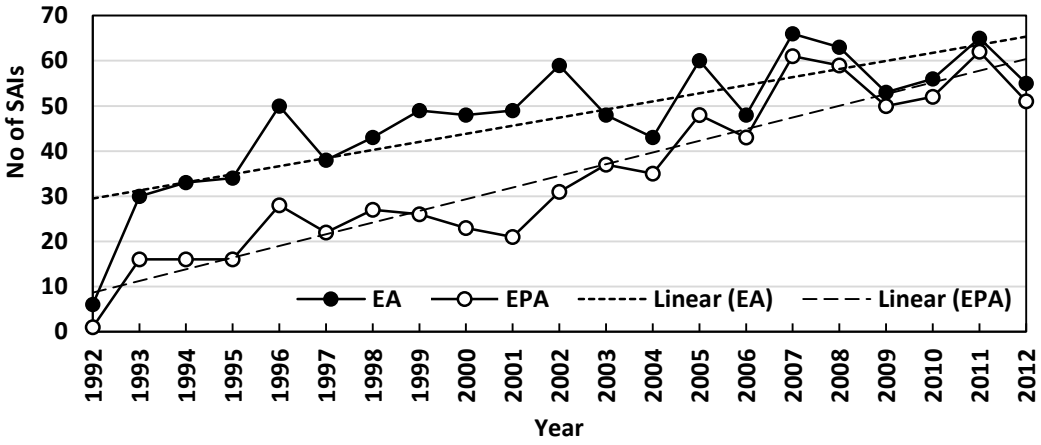
Figure 3-4: Global environmental audits - total, compliance and performance audits during 2003 – 2012



Risks to public and the operation and performance of public administration play a key role in the selection of audit topics by SAIs (Put & Turksema, 2011).The increase in environmental policies and programs (and associated expenditure) globally (Keene & Pullin, 2011) means increase in such risks. It is, therefore, expected that a growing number of SAIs would be prompted to undertake more and more environmental audits.

It is further seen from Figure 3-3 that environmental performance audits closely follow the pattern of total environmental audits. This is expected as will be discussed in section 3.4.2.2 that growing proportion of environmental audits are performance audits.

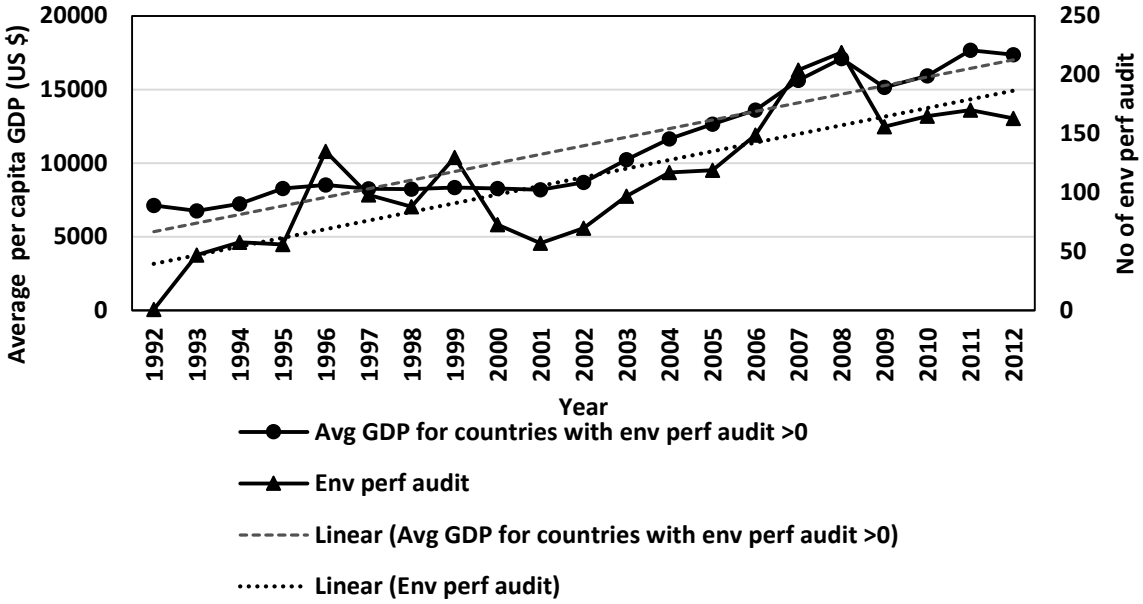
Figure 3-5: The growth in the number of SAIs undertaking environmental audits (EA) and environmental performance audits (EPA) each year.



3.4.2.1 Global growth in environmental performance audit is related to global growth in GDP

As indicated in section 3.4.2, the growth in environmental performance audit seems related to global economic factors. This was further investigated by comparing the trend in annual average GDP of countries that have conducted environmental performance audit and the trend in environmental performance audits during 1992-2012 (see Figure 3-6). The GDP of the countries that did not conduct any performance audits was considered immaterial, so was excluded from this investigation. Figure 3-6 shows that two trend lines are almost parallel. This suggests that the global growth in performance audits is related to the growth in the average GDP. This seem plausible, as growth in annual average GDP is a broad indicator of the global economic conditions that determine the globally averaged capacity to spend on governmental programs generally, on environmental programs particularly and also on the budget of SAIs.

Figure 3-6 Relationship between growth in the average annual per capita GDP and the growth in environmental performance audits.



3.4.2.2 Proportion of environmental compliance and performance audits

Figure 3-7 shows the percentage of environmental performance audits (as a proportion of total environmental audits) for the period 1992-2012 and Figure 3-8 compares the percentage of environmental performance audits with the percentage of environmental compliance audits. Figure 3-7 shows that the percentage of performance audit has been mostly increasing. It increased from 13% in 1992 to 56% in 1996; dropped off to 32% in 2001 and then increased again. It reached a maximum of 89% in 2004 and then slightly decreasing to 82% in 2012. Despite a downturn (during 1999 to 2001), overall, the percentage of performance audit increased by six-fold from 13% to 82%. The sharp dip in the proportion of performance audit during 2000-2002 (Figure 3-7) seems somewhat unusual. This may be related to the change in the WGEA audit classification system (recall that WGEA has different classifications for pre- and post-2003). In anticipation of the new classification system, SAIs might have slowed down reporting (wait and watch) and rather spend some efforts in learning the proposed system.

Figure 3-8 shows that, compared with performance audit, the percentage of compliance audits has been decreasing. Over the period 2003-2012, while the percentage of performance audit increased from 75% to 82%, the percentage of compliance audits dropped from 67% to 42%

The growth in the percentage of performance audits underlines the increasing importance of performance audits in environmental matters. This suggests that economy, efficiency and effectiveness of the implementation of environmental policies and programs are considered increasingly more important than just the compliance with the environmental laws and policies. It is consistent with the long-held view that compliance does not always mean effectiveness (see for example, Faure & Lefevere, 1999).

Figure 3-7: Growth in proportion of environmental performance audits.

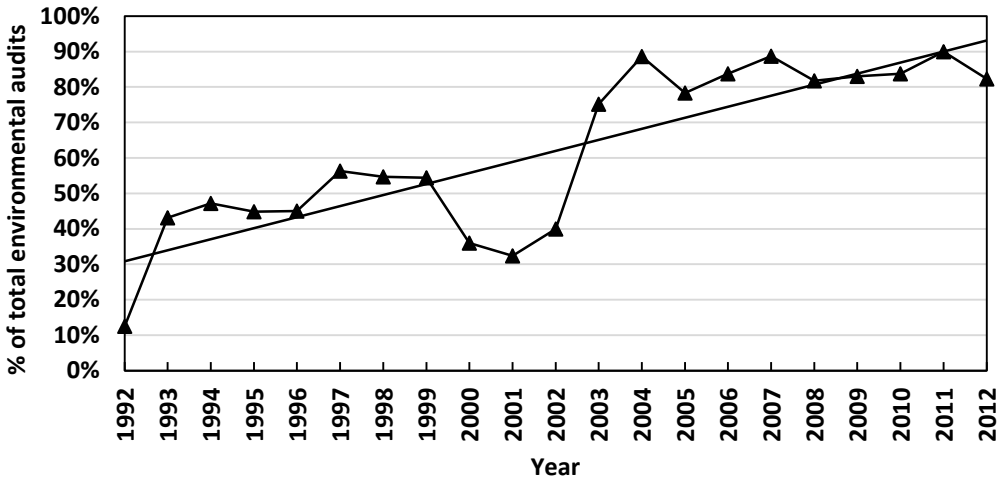
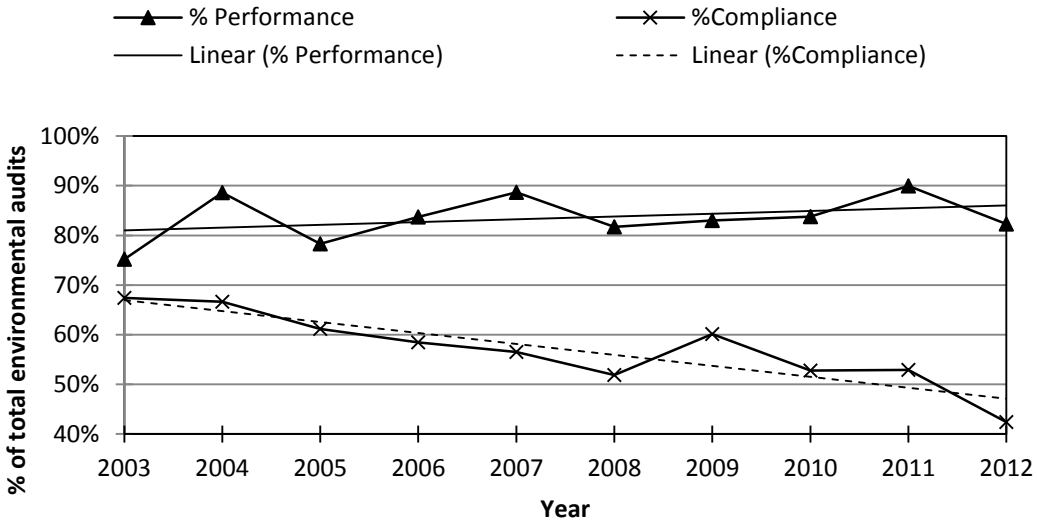


Figure 3-8: Comparisons of proportion of environmental performance and compliance audits



As performance auditing is a much broader concept than regularity auditing, it generally requires more resources (Van Leeuwen, 2004a). Therefore, growth in environmental performance audits would suggest that SAIs are investing more resources in these audits. This matter will further be discussed later.

3.4.2.3 Regional distribution of environmental performance audits shows potential relationship with economic development

The WGEA environmental audits database is organized into nine geographical regions. Table 3-3 shows the distribution of the environmental audits across these regions. This table indicates that Europe (975: 41%) is the largest contributor to the global environmental performance audits followed by South America (369: 16%), Asia (299: 13%) and North America (296: 12%) in the next three spots. Central America (121: 5%), Africa (119: 5%) and Middle East (11: 5%) are on the fifth, sixth and seven spots respectively. South

Pacific with 79 audits (3%) is on the eighth spot while the Caribbean region with 3 environmental performance audits is in the last spot.

The number of SAIs in each region does not explain the volume of environmental performance audits. Africa with the largest share (55: 27%) of global SAIs population, accounts for only 5% volume of the global environmental performance audits, whereas, North America has only 1% of global SAIs population accounts for 12% of global environmental performance audits. It may be noted that North America region comprises only two countries: the United States (US) and Canada that are among the world's wealthiest nations. Naturally, their SAIs would be among the most resourceful. On the other hand, the African region is home to the world's poorest countries with their SAIs likely to have the least resources. The same can also be said about the Caribbean region. The data in Table 3-3 suggests some potential relationship between the SAIs' parent country's economic development and the number of environmental performance audits. The relationship between economic factors and the output of environmental performance audits will be investigated in sections 3.4.2.5-3.4.2.7. it will be seen in section 3.4.2.7 that the highest concentration of SAIs that have not undertaken environmental performance audits over the two-decade period, 1992-2012 is in Africa (38%) followed by in Caribbean (20%).

Table 3-3: Regional distribution of environmental performance audits for the period 1992-2012.

SN	Region	No of countries (SAIs)	Share of global SAI population	No of environmental performance audit (EPA)	Share of total EPA
1	Europe	44	22%	975	41%
2	South America	12	6%	369	16%
3	Asia	30	14%	299	13%
4	North America	2	1%	296	12%
5	Central America	8	4%	121	5%
6	Africa	55	27%	119	5%
7	Middle East	16	8%	111	5%
8	South Pacific	16	8%	79	3%
9	Caribbean	22	11%	3	0%
	Grand Total	**205**	**100%**	**2372**	**100%**

3.4.2.4 Frequency distribution shows unevenness of growth in environmental performance audits

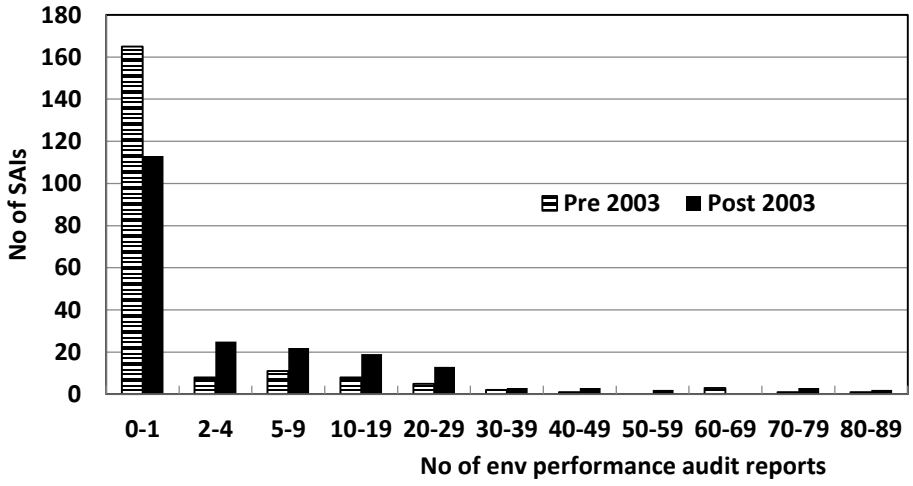
In addition to indicating growth in environmental audits and environmental performance audits, Figure 3-5 also tells something about their distribution among counties/SAIs. Out of 205 SAs (204 countries plus the European Court of Audit), the maximum number that have ever produced an environmental audit (EA) report in a year is 66 (32%) and an environmental performance audit (EPA) report is 62 (30%). This is a quite low participation. However, not every SAIs would conduct or produce an EA or EPA report every

year. So distribution over a larger period may be a better indicator of participation/contribution. Distributions of environmental performance audit (EPA) reports for 1992-2002 (pre 2003) and 2003-12 (post 2003) are shown in Figure 3-9.

The global distribution of performance audit is skewed for both periods (Figure 3-9). For the period 1992-2002, of the 205 SAIs, 154 SAIs (about 3 quarter) produced no EPA reports and 165 SAIs produced 0-1 EPA reports (i.e. 11 SAIs producing 1 EPAs). Eight SAIs produced between 2-4 EPA reports and 11 SAIs produced between 5-9 reports. Only two SAIs produced 70 or more EPA reports. The top two countries (see Table 3-4) conducting environmental performance audits were United States (80) and Argentina (70).

For the period 2003-2012, 102 SAIs (about half) produced no environmental performance audit reports and 113 SAIs produced 0-1 EPA reports (i.e. 11 SAIs produced 1 EPA). Twenty-five SAIs produced between 2-4 EPA reports and 11 SAIs produced between 5-9 reports. Only two SAIs produced 80 or more EPA reports. The top two countries (see Table 3-5) conducting EPAs were Austria (83) and United States (80).

Figure 3-9 Frequency distribution of environmental performance audit (EPA) reports for 1992-2002 and 2003-2012.



The distribution data (Figure 3-9) can be looked at differently in Figure 3-10 that shows cumulative percentage of SAIs on the horizontal axis and cumulative percentage EPA reports on the vertical axis. For the period, 1992-2002, 75% of SAIs (154 countries) contributed little to global environmental performance audits. Cumulatively, about 90% of SAIs (185 countries) produced about 15% of EPAs. About 97% of SAIs (199 counties) produced about half (52%) EPAs; the top 3% of SAIs (6 countries) produced about the remaining half (48%) of the environmental performance audits. The top 2% of countries (4) produced 35% of total EPAs. Along with United States (80) and Argentina (70, Japan (67) and Germany (66) constituted the top 4 countries conducting the largest number of environmental performance audits. The top ten countries conducing environmental performance audits for the period 1992-2002 are listed in Table 3-4. The complete list is given in Appendix A (Table A-1).

Figure 3-10: Cumulative percentage of environmental performance audit (EPA) reports versus cumulative number of SAIs.

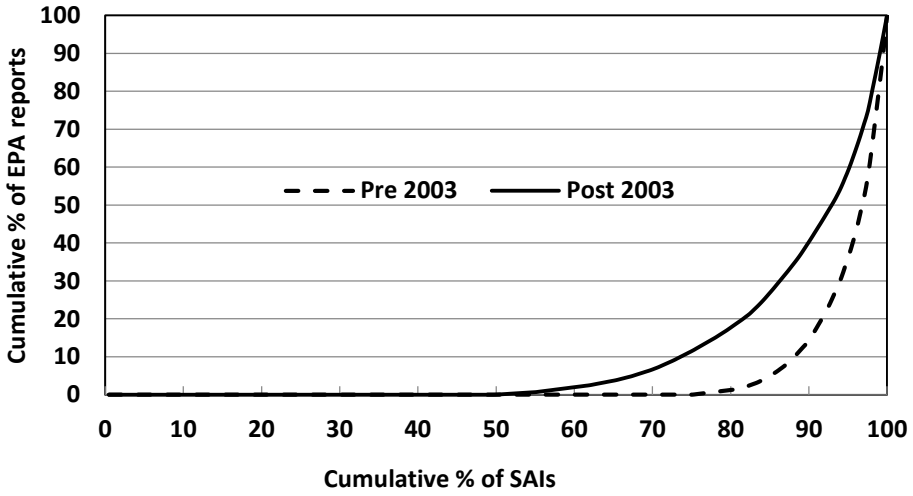


Table 3-4: Top ten countries performing environmental performance audit during 1992-2002.

SN	Country	No of environmental performance audit reports
1	United States	80
2	Argentina	70
3	Japan	67
4	Germany	66
5	Canada	60
6	Poland	45
7	Paraguay	35
8	Bolivia	35
9	Egypt	29
10	United Kingdom	27
	Total of top 10 countries	514
	Grand total for the period, 1992-2002	813

For the period, 2003-2012, 50% of SAIs (102 countries) made nil contribution to global environmental performance audits. Cumulatively about 75% of SAIs (154 countries) produced about 12% of EPAs. About 93% of SAIs (190 counties) produced about half (49%) EPAs; the top 7% of SAIs (15 countries) produced about the remaining half (51%) of the environmental performance audits. The top 2% (4) of countries produced about 20% of total EPAs. Along with Austria (83) and United States (80), Poland (78) and United Kingdom (75) were the top four contributors to the environmental performance audits. The top ten countries conducing environmental performance audits for the period 2003-2012 are listed in Table 3-5. The complete list is given in Appendix A (Table A-2).

Table 3-5: Top ten countries performing environmental performance audit during 2003-2012.

SN	Country	No of environmental performance audit reports
1	Austria	83
2	United States	81
3	Poland	78
4	United Kingdom	75
5	Canada	75
6	Argentina	52
7	Thailand	51
8	Paraguay	47
9	Ukraine	45
10	Ecuador	43
	Total of top 10 countries	630
	Grand total for the period, 2002-2012	1559

Even after 20 years since this record has been maintained, about half (102) of SAIs not contributing to any global environmental performance audits (note the largest concentration of such SAIs is in Africa, followed by Caribbean - see section 3.4.2.7) is a significant issue. This may indicate capacity constraints in SAIs and other barriers such as a lack of environmental policy or programs or at least auditable environmental policy or programs in these countries. The barriers to environmental performance audits have been a key focus of WGEA surveys. This will be discussed in a later section (3.5.5 Environmental auditing capacity).

Notwithstanding a large proportion of SAIs not conducting environmental performance audits, there has been significant progress in this regard. The progress in global environmental performance audits has been both in terms of magnitude and distribution. Compared with the first decade (813) the number of environmental performance audit reports almost doubled (1559) in the second decade. Further, more SAIs conducted environmental performance audits during the second decade than in the first decade. The proportion of SAIs that did not conduct any EPA declined from 75% in the first decade to 50% in the second decade. This implies that about 50 more SAIs conducted an environmental performance audit in the second decade than in the first decade.

The area between the dotted line curve and the solid line curve in Figure 3-10 denotes the additional participation. The increase in participation of SAIs in environmental performance audits is a welcome sign of progress. As an audit requires the involvement of both an auditor and an auditee, this progress reflects progress on the part of both parties. General global progress, including growth in income and standard of living, spread of education, increase in environmental awareness/consciousness and a consequent increase in environmental policies and programs, may be some of the causation factors attributable to the auditees. Increase in awareness and willingness to enhance transparency and the accountability of governments towards the public and increase in the capacity of SAIs to undertake environmental performance audits may be some causation factors attributable to auditors. These causation factors may not be exclusive; rather they may more likely to be common. These factors may be reduced to economic factors, such as capacity of governments to spend on environmental programs and environmental factors

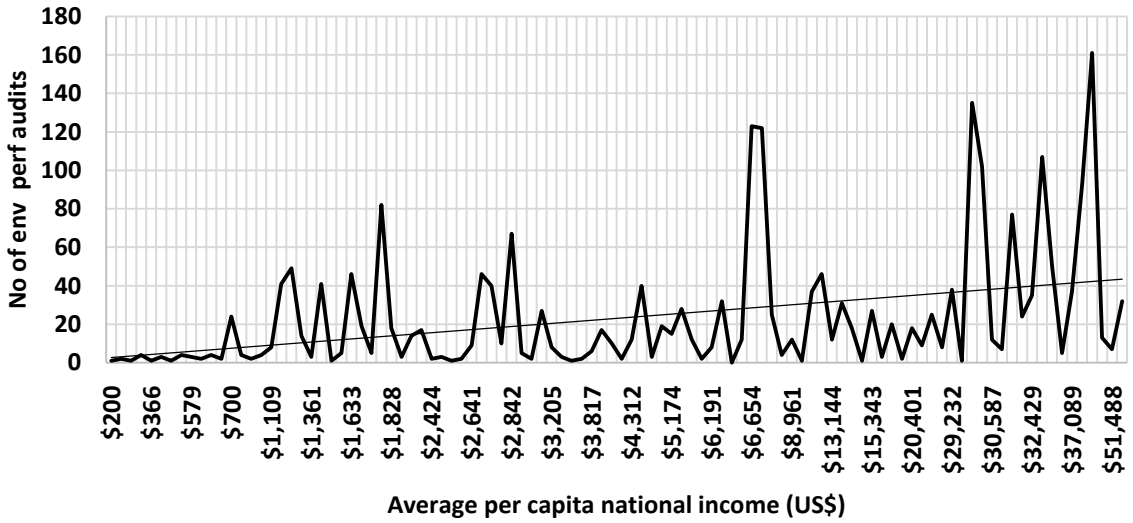
such as environmental awareness in the SAIs. Again, there may not be clear dividing line between economic and environmental factors. For example, the capacity of SAIs to undertake environmental performance audits may be related to both economic (budget) and environmental (skills) factors.

Per capita national income is considered a good indicator of a nation's capacity to spend on programs including on environmental programs. Environmental awareness of SAIs may be inferred by its interaction and association with other SAIs undertaking environmental audits. The membership of WGEA may be conceived as a surrogate for environmental awareness among SAIs. The relationship between environmental performance audits and these two broad indicators will be explored in the following sections.

3.4.2.5 Is there a relationship between environmental performance audits and national income?

Figure 3-11 shows average per capita national income (1992-2012) on the horizontal axis versus number of environmental performance audits on the vertical axis. It seems from this graph that there is a general increasing trend in environmental performance audits with an increase in national income. However, the relationship between the average per capita national income and environmental performance audits is largely variable, i.e. no definite conclusions can be drawn about an individual country's national income and its output of environmental performance audits.

Figure 3-11: Average per capita national income (1992-2012) versus no of environmental performance audits.



As will be seen in Chapter 5, despite being very similar economically (and politically), Australia's (45) and Canada's (135) outputs of environmental performance audits are significantly different. Factors, other than purely economical, might be at play in the conduct of environmental performance audits, making a general conclusion at an individual country level about a country's environmental performance auditing capacity purely based on its national income not possible. However, as seen in sections 3.4.2 and 3.4.2.1 some conclusion at an aggregated higher level is possible. When an aggregation is made at a higher level,

the factors that cause individual differences between similar entitles, are smoothened out (noise supressed) and the dominant characteristics of the aggregated group become prominent (signal). Therefore, countries environmental performance audits will henceforth be investigated aggregated based upon their income level (high, medium, low—the World Bank (2014) grouping).

3.4.2.6 Country's income level and its output of environmental performance audits are related

The relationship between the income level of SAIs' parent country and environmental performance audits is shown in Figure 3-12 (note that the World Bank (2014) considers high-income countries as developed countries and middles and low income countries together as developing countries). This figure shows that middle income countries and high income countries produced higher number of environmental performance audits than the low income counties. As discussed earlier, the environmental performance audits may be related to a Country's capacity to spend on environmental programs as well its SAIs capacity undertake performance audit of those programs. Both these in some way are related to a country's national income. Therefore, it is expected that low income countries would produce less number of performance audit reports than middle and high income countries.

The high income countries initially (up to 1996) have produced more environmental performance audits then the middle income countries. This may be due to: (a) either high income countries producing higher number of environmental performance audit than the middle income countries; or (b) high income countries taking a greater initiative in reporting their environmental audits to the WGEA. The former seems more plausible than the latter as it is highly likely that those income middle countries conducted environmental performance audits before 1996, would by now have reported them to the WGEA.

The middle income countries seem to occasionally overtake the high income countries in undertaking environmental performance audits after 1997. They outperform the high income countries except during some downturn periods, such as a few years, post-1999 and post-2008. Both these periods mark some major economic events—the first is the Asian crisis; and the second is the global financial crisis (GFC). There is also more volatility in the trend of middle income countries, compared with the high income countries. The larger number of middle income countries than the high income countries would suggest that, as a group, they would have larger number of environmental programs than the high income countries (Lonsdale et al. (2011: 313) observe that some of the growth in performance audits generally, in these countries, has been stimulated by donor agencies, such as the World Bank and Asian Development Bank). Unlike low income SAIs, the middle income SAIs may be reasonably resourceful compared with their high income peers. So the middle income SAIs occasionally producing higher number of environmental performance audit than the high income SAIs is not inconsistent with expectations.

The middle income SAIs fall below their high income counterparts in 2009, rise above them in 2011 only to slightly fall below them in 2012. As may be expected the middle income countries would have lesser resilience to weather the global financial crisis of 2008-2009 than the high income countries. It is highly likely that in middle income countries, SAIs would have faced harsher restrictions to their budgets (reducing their capacity to produce environmental performance audits) than their counterparts in high income countries. Lesser resilience in middle income SAIs is further evidenced by the fact that they take two years to turn around/recover post GFC, compared with only one year taken by high income SAIs. The

lesser resilience of middle income SAIs is also borne by the fact that, they were affected almost immediately in 2008 (when the GFC hit), whereas their high income peers were affected 2 years later.

Despite some peaks and troughs, there is an increasing trend in environmental performance audits for both high and middle income countries. This is consistent with the general trend of growth evident in Figure 3-3. However, for low income SAIs, after the initial peak in 1996, there has been a continuous (except for 2006) decreasing trend in environmental performance audits. This may be due to either that low income countries are producing decreasing number of reports every year; or that they are taking lesser interest in reporting to WGEA; or due to both of these causes. This needs further investigation.

The decrease for middle income SAIs post-2011 may be part of normal highs and lows in a generally increasing long-term trend or may be a long-term downward trend. One year of data is too short to conclude either way.

When middle and low income countries are grouped together as developing countries and compared with high income (developed counties) in Figure 3-13, the overall contrast seen between high income and middle income counties in Figure 3-12 continues, and becomes more pronounced. Middle income countries are already outperforming the high income countries. While the low income countries have an overall decreasing trend in environmental performance audits, adding their results to the middle income countries will further increase the existing difference with the high income (developed) countries. Barring some major world economic downturn periods, developing country SAIs, as a group, have a tendency to outperform their developed peers post 1996 for the reason discussed above. However, it should be noted that overall, during the two-decade period, 1992-2012, developed SAIs produced more environmental performance audits (see discussion in paragraph below) than their developing peers, suggesting their superior resourcefulness.

Over the two-decade period, 1992-2012, globally developing country SAIs (1983) produced more environmental audits (Appendix A: Table A-3) than developed country peers (1671). However, during the same period, the former (1140) undertook fewer environmental performance audits (Appendix A: Table A-4) than the latter (1232). Performance auditing being a much broader concept than regularity auditing, it generally requires more resources (Van Leeuwen, 2004a). From this perspective, the data on environmental performance audits (Appendix A: Table A-4) thus suggests that the developing country SAIs as a group, have fewer resources and capacity to undertake environmental performance audits than their developed country peers.

Figure 3-12: Relationship between the income level of the country of SAIs and environmental performance audits.

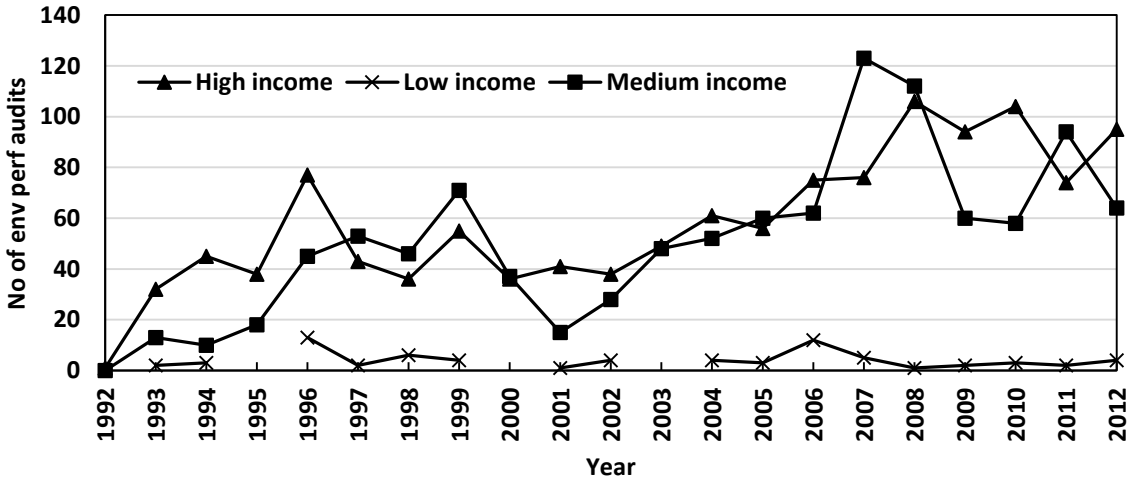
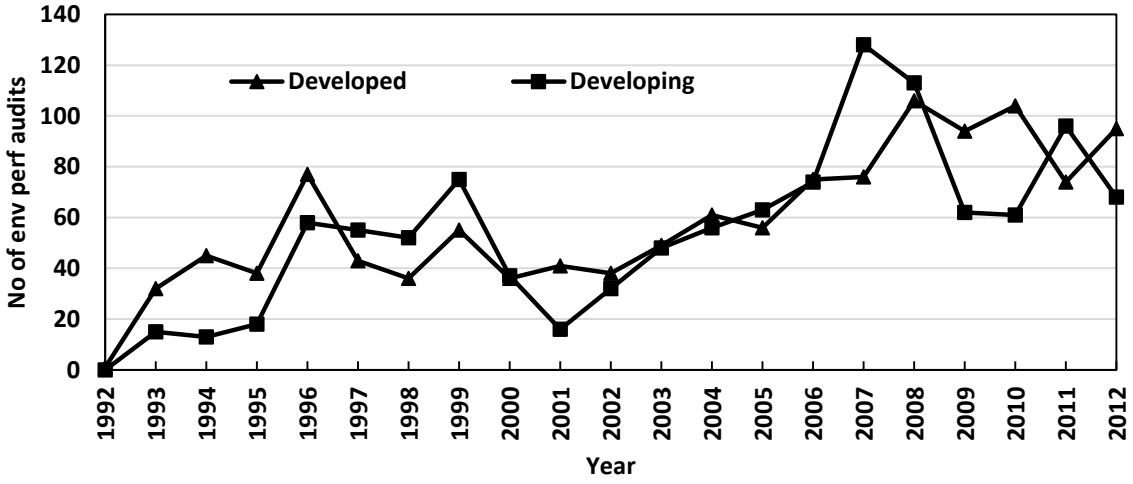


Figure 3-13: Relationship between the development level of the country of SAIs and environmental performance audits.



3.4.2.7 SAIs that did not produce any environmental performance audit reports during the period 1992-2012 are concentrated in certain regions

In regards to the relationship between the income level and environmental performance audits, it is pertinent to consider the regional distribution of SAIs that did not produce any environmental performance audit reports during the period 1992-2012 (Table 3-6).

Table 3-6: Regional distribution of SAIs (number and %) that did not undertake environmental performance audits during 1992-2012.

Region	High income SAIs	Middle income SAIs	Low Income SAIs	Total SAIs not contributing	Percent of SAIs not contributing
Africa	-	13	26	39	38%
Caribbean	7	13	1	21	20%
Asia	2	4	7	13	13%
Europe	5	4		9	9%
Middle East	3	5	1	9	9%
South America	-	4		4	4%
South Pacific	1	3		4	4%
Central America		2	1	3	3%
Total	**18**	**48**	**36**	**102**	**100%**

Globally, 102 SAIs (50% of global population of SAIs of 205) have not produced any environmental performance audits during 1992-2012. Of these, the highest number (39 - 38%) are located in Africa, followed by Caribbean (21 – 20%), and Asia (13). Europe and the Middle East account for 9 SAIs each, while South Pacific and South America account for 4 SAIs each.

In terms of socio-economic development, of the 102 SAIs that did not produce any environmental performance audit, 84 (82%) are developing countries and 18 (18%) are developed countries. The region (Africa) that is most lagging in environmental performance audit also has the highest number of low income countries. In Africa, low income countries outnumber the middle and high income countries. This would suggest that the capacity of SAIs could be considered to be related to its parent country's level of economic development. However, regions other than Africa in Table 3-6, have more countries in high and middle income brackets than in low income brackets. There could be some threshold below which income level becomes the sole determinant of capacity and beyond which other factors (e.g. environmental awareness) also play a role.

From the discussion in sections 3.4.2.5-3.4.2.7, it can be concluded that there is some relationship between per capita national income (and economic developmental level) and a country's output of environmental performance audits. The higher is the national income and the development status of a country, the higher number of environmental performance audits it likely produces. However, as seen earlier, this is not always true. There may be some other factors. This will be investigated shortly in section 3.4.2.9.

3.4.2.8 Proportion of environmental performance audits and development level are also related

The relationship between the developmental-level and proportion of environmental performance audits as a percentage of total environmental audits is shown in Figure 3-14 (as noted earlier in section 3.4.2.2, the unusual dip in the graph may be related to the change in the WGEA audit classification system). The relationship between the developmental level and proportion of environmental compliance audits as a percentage of total environmental audits is shown in Figure 3-15. Figure 3-14 shows that, barring one exception, the proportion of environmental performance audit is higher for developed countries than for the developing countries. This is consistent with earlier discussion that performance audits being more complex generally require more resources (and skills). Compared with the developed countries, developing countries are likely to have lesser resources. There may be another aspect of history and tradition of performance audits contributing to this contrast. Performance auditing may be more mature in developed countries than in developing countries. There has been a long tradition of performance audits in many developed countries. Most of the available literature on performance audits is related to developed nations (see for example articles in two edited books, Pollitt et al., 1999 and Lonsdale et al., 2011). While there is no direct research available, that has compared the growth of performance audits in developed and developing nations, anecdotal evidence and relative scarcity of literature may suggest that performance audit in developing countries as a discipline may be developing as well.

Unlike the environmental performance audit, there is no clear contrast in proportion of environmental compliance audits between developed and developing countries (Figure 3-15). However, largely developing countries proportion of compliance audits is higher than that of developed countries. Compliance audits (the traditional form of audit, also known as regularity audits) has been there for centuries. It is well developed and well understood as a discipline throughout the world. Being more structured and rule-based compliance auditing is more standardized and easier to practice than performance audits. As such, distinction in proportion of compliance audits between developed and developing countries is less likely for the reasons of lack of expertise. Figure 3-15 suggests that the developing countries SAIs continue to see compliance as a greater risk than their developed peers.

Overall, the proportion of environmental performance audit is increasing and the proportion of environmental compliance audit is decreasing, both for developed and developing countries. This is consistent with the respective trends in Figure 3-7 and Figure 3-8.

Figure 3-14: Relationship between the developmental level and proportion of environmental performance audits.

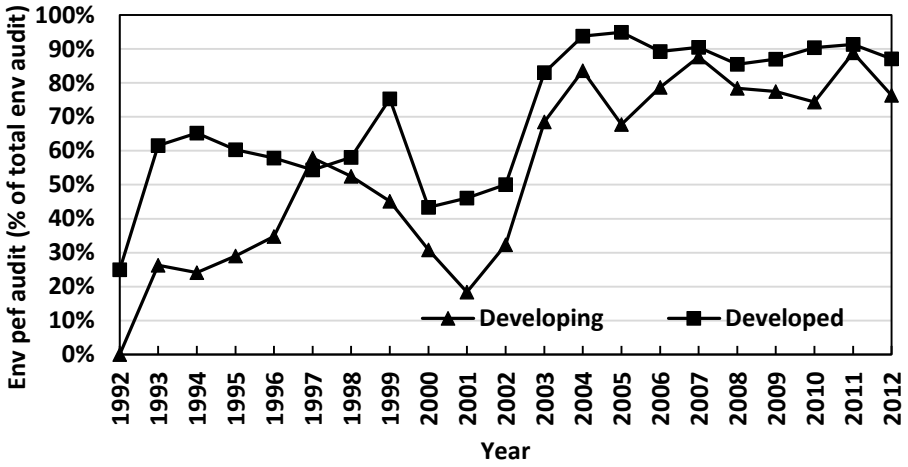
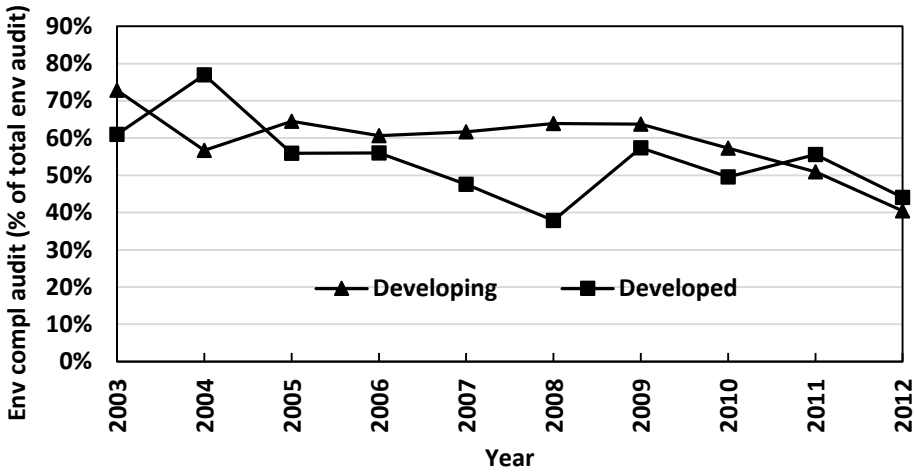


Figure 3-15: Relationship between the developmental level and proportion of environmental compliance audits



3.4.2.9 WGEA membership and the output of environmental performance audits are related

Because of the tremendous contributions WGEA has made, and continues to make towards enhancing the awareness of SAIs about, and their capacity for, environmental auditing, WGEA membership can be considered as a surrogate indicator of environmental factors, including awareness and capacity for

environmental audits. So, it would be worthwhile to explore, if there is a relationship between the WGEA membership and the conduct of environmental performance e audits.

To investigate this question, some results for environmental performance audits will be presented—categorized into WGEA members and non-members. The WGEA membership list available on its website as at October 2014, has been used for this purpose. While it is recognized that all current members have not been members since the beginning, it is considered that they would have been aware of the activities of the WGEA and following them. The WGEA being an active forum, its membership entails some commitments and obligations, including financial commitments, for example, for sending delegates to WGEA meetings and contributing to its research, discussion and guideline papers. WGEA being an international forum, such commitments would normally require approval at the highest level of an organization and sometimes even from the highest level of government. These processes may take years to complete. For example, though formally Australia joined WGEA in 2007, it has been involved with the WGEA much earlier than that (Simpson, 2015). So, rather than having the official joining year of membership, the membership itself is considered a more pertinent measure of association.

Figure 3-16Figure 3-16 shows the data on environmental performance audits (same as in Figure 3-3) grouped into WGEA member and non-member countries. It is seen from Figure 3-16 that WGEA-member countries have always produced more environmental performance audits than non-member countries. It is further evident from this figure that the difference between the WGEA-member counties and non-member countries is increasing post-2003. The WGEA-member countries seem to have recovered from the GFC downturn within a year and continue to increase their environmental performance audits. However, for non-member countries despite a slight recovery, the down turn continues. Other factors responsible for this shift cannot be ruled out. However, a strong correlation between the WGEA membership and counties overall output of environmental performance audit is clearly evident.

The effect of the WGEA membership becomes more revealing when the results for WGEA members and non-members are further subdivided into income categories (see Figure 3-17 and Figure 3-18 and also compare them with Figure 3-12) and development level (see Figure 3-19 and Figure 3-20 and also compare them with Figure 3-13) categories.

In the case of WGEA members (Figure 3-17), post-1996, the middle income countries outperform the high-income counters barring exceptional global down turn periods. However, in the case of WGEA non-members (Figure 3-18), the results are just the opposite—high-income countries (barring a few exceptions) outperform middle income countries. However, the influence of the WGEA member countries (due to their high contribution) is so strong, that when the membership consideration is ignored, the overall results (Figure 3-12) display the same trend as in Figure 3-17 but with less pronounced contrast. The contrast is diminished because of the opposite influence of the non-member SAIs.

The contrast between the output of environmental performance audit of WGEA-member SAIs and non-member SAIs discussed above, becomes more prominent when SAIs are grouped into developed and developing categories. The WGEA-member developing countries mostly outperform their developed peers (Figure 3-19). In contrast to this, barring a few exceptions, developed non-WGEA member countries

outperform their developing peers (Figure 3-20). Again, the WGEA members' countries influence is so strong that, in the overall corresponding result that ignores the membership (Figure 3-13), the trend of Figure 3-19 prevails with less contrast.

The discussion in this section shows that the WGEA membership has a strong influence on the conduct of environmental performance audits. The influence of the membership seems to be so strong that it is able to compensate for, and thus, prevails over the obvious incapacity/barrier caused by economic factors. The association with the WGEA increases the awareness and enhances the skill set of SAIs required to undertake environmental performance audits (see, WGEA, 2012a: 32; and also Chapter 4, section 4.3.11). These factors perhaps have stronger influence on the ultimate output of environmental performance audits than resources alone that may be available because of higher economic level of SAIs. The results here clearly indicate the WGEA (2012b) is succeeding in its objectives of:

- assisting SAIs in acquiring a better understanding of the specific issues involved in environmental auditing;
- facilitating exchange of information and experience among SAIs; and
- publishing guidelines and other informative material for their use.

WGEA (2012d) aims to improve the use of audit mandate and the audit process in the field of environmental protection policies, by both WGEA-member and non-member SAIs. The growth in environmental audits is a measure of its success. However, not surprisingly, member-SAIs seem to have benefitted more than non-member SAIs.

While countries/SAIs that are active in environmental auditing are likely to become members of the WGEA, the membership seems to have a catalytic effect on SAIs in terms of their output of environmental audits. SAIs that are member of the WGEA have more opportunities to network, hence, are more likely to learn from the experience of fellow member SAIs. Thus, they are more likely to undertake environmental audits of emerging issues, knowing how others have done it. Overall, it could be argued that environmental awareness/consciousness of SAIs evident through their activities in environmental auditing, and their membership of the WGEA reinforce each other. Therefore, WGEA members produce more environmental audits than non-members.

Figure 3-16: Environmental performance audit reports for WGEA member and non-member countries.

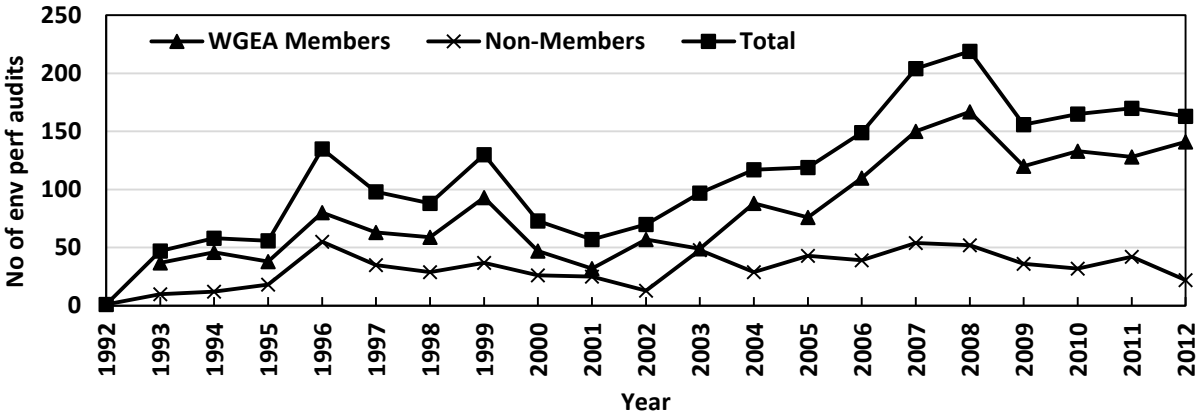


Figure 3-17: Environmental performance audit reports for WGEA member countries grouped into high middle and low income countries.

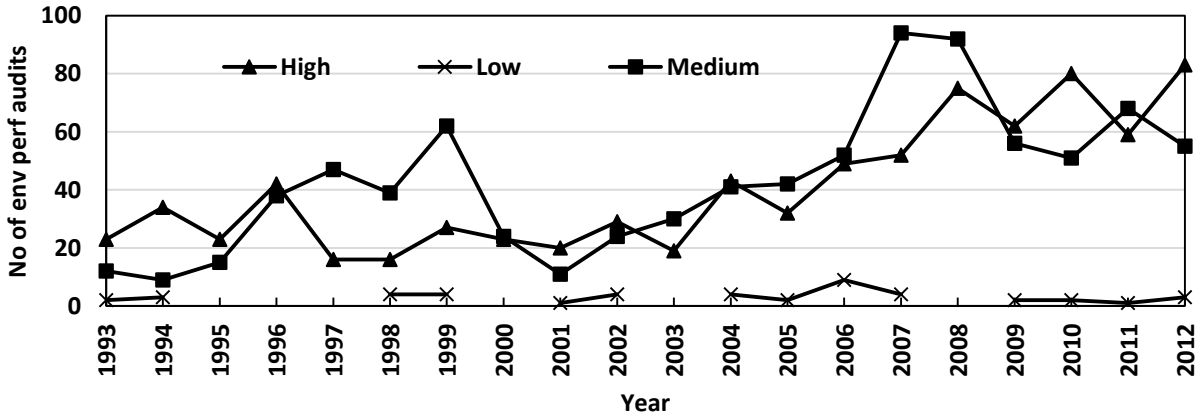


Figure 3-18: Environmental performance audit reports for non-WGEA member countries grouped into high middle and low income countries.

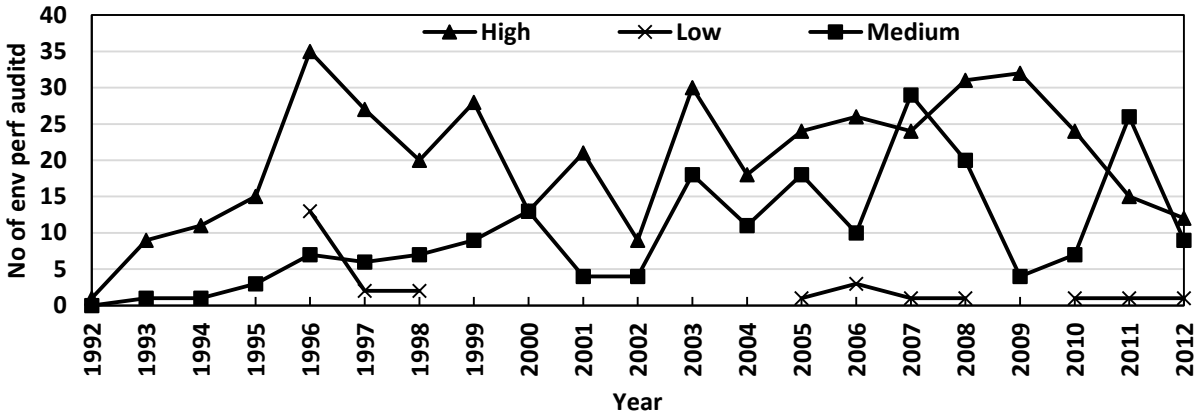


Figure 3-19: Environmental performance audit reports for WGEA member countries grouped into developed (19 SAIs) and developing (58 SAIs) countries.

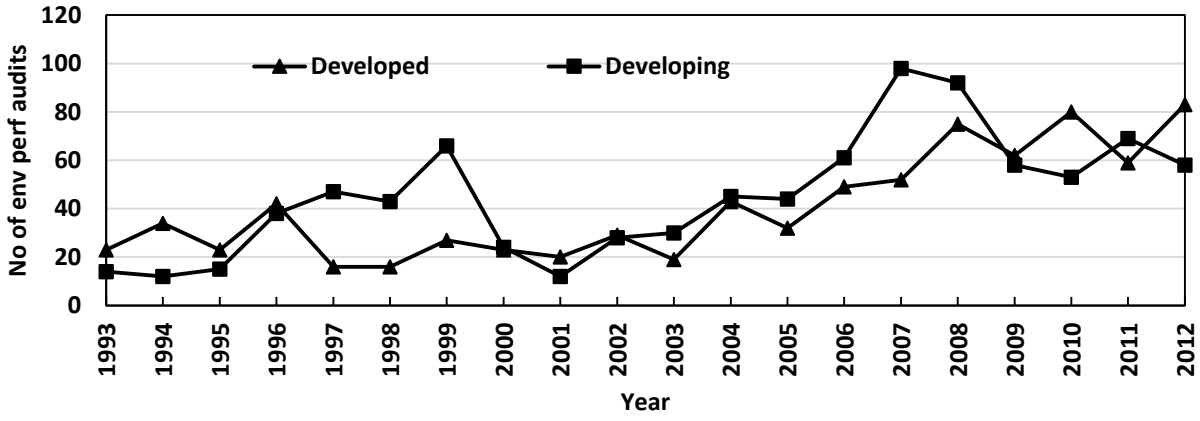
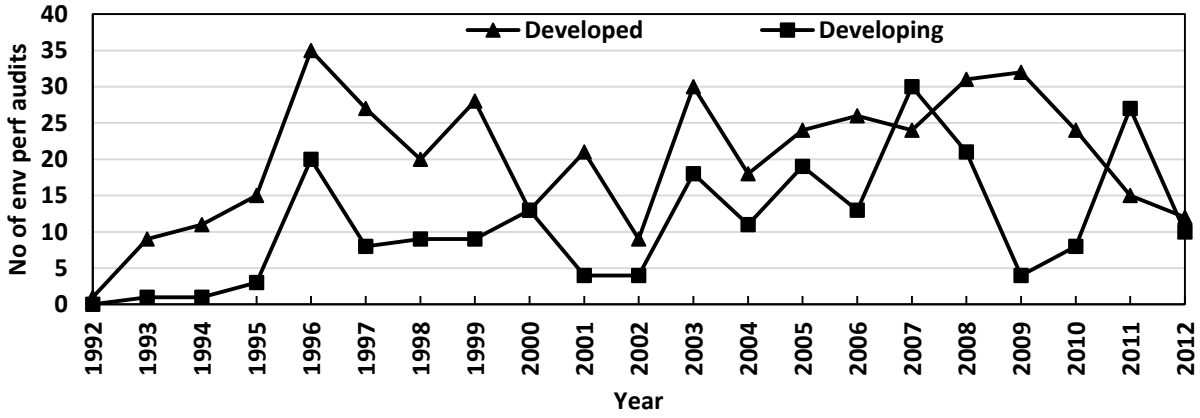


Figure 3-20: Environmental performance audit reports by year for non-WGEA member countries grouped into developed (30 SAIs) and developing (98 SAIs) countries.



3.4.2.10 Issues in global environmental performance audits

The environmental policies and programs cover a broad range of issues. Accordingly, environmental performance audits cover a wide range of issues. WGEA has categorized issues in pre- and post-2003 environmental audits differently. So the results will be presented separately for pre- and post-2003. However, as issue categorization is more structured and comprehensive for post-2003, discussion in this section will be mainly based upon post-2003 issue analysis.

3.4.2.10.1 Issues in pre-2003 environmental performance audits

The pre-2003 environmental audits have been catalogued into 22 environmental issues. The coverage of these issues is shown in Table 3-7. This table shows that the top three issues in pre-2003 environmental

performance audits, globally, were fresh water, internal management of internal environmental programs and environment & human health. The top 10 issues account for 72% of coverage and bottom 10 issues account for 20%. The two median issues, air pollution and Industrial pollution account for 8% of total coverage. Altogether 1573 issues were covered in 813 environmental performance audit report. This represents about 2 issues per performance audit report.

Table 3-7: Coverage of issues in global environmental performance audits during 1992-2002.

Ranks	Issues (WGEA Categories)	Env perf audits	%
1	Fresh water: drinking water - water quality - rivers - lakes - fresh water - fresh water fish	158	10%
2	Internal environmental management by public authorities or departments	157	10%
3	Environment & human health	141	9%
4	Waste: waste in general - hazardous - non-hazardous - waste processing & landfills	138	9%
5	Agriculture - pesticides - land development - forestry	127	8%
6	Nature & recreation: conservation & improvement of natural and/or cultural heritage - management of national parks & forests - recreation & tourism	112	7%
7	Other subjects*	82	5%
8	Ecosystems: biodiversity - ecological infrastructure - ecosystem management	74	5%
9	Disaster management - emergency preparedness	68	4%
10	Pollution prevention	68	4%
11	Air pollution	65	4%
12	Industrial pollution	62	4%
13	Soil pollution - contaminated sites	57	4%
14	Traffic - mobility - transport	45	3%
15	Energy	37	2%
16	Salt water - marine pollution: salt water - salt water fish	34	2%
17	Climate change - ozone layers depletion	29	2%
18	Minerals - natural resources (mining - gas - oil - etc.)	29	2%
19	Radioactivity	28	2%
20	Noise reduction	27	2%
21	Fish	27	2%
22	Acidification	8	1%
	Grand total	1573	100%

* The WGEA 'Other subjects' classification includes issues not fitting in the 21 listed categories.

3.4.2.10.2 Issues in post-2003 environmental performance audits

WGEA has catalogued the post-2003 environmental audits into 8 main issues and 77 sub issues. The main issues and some key sub-issues covered in environmental performance audits are listed in Table 3-8. The complete list is given in Appendix B (Table B-1).

Table 3-8: Main issues and key sub issues in global environmental performance audits during 2003-12.

Main issue	Key sub issues (WGEA Categories))	Env. perf audits
Air		**365**
	Climate change	142
	Local air quality, such as smog, particulates, SO2, NOx, CO2	105
	Toxic air pollutants, such as organic POPs, dioxins, furans	45
Ecosystem		**893**
	Biodiversity	162
	Protected areas and natural parks	158
	Ecosystem management and ecosystem changes	139
Governance		**1388**
	Environmental management system	323
	Domestic funds and subsidies	284
	Environmental impact assessment	225
	Sustainable development	186
Human activities and sectors		**1318**
	Environment and human health	197
	Energy and energy efficiency	175
	Infrastructure	174
Natural resources		**338**
	Forestry and timber resources	118
	Fisheries (freshwater and marine)	84
Waste		**660**
	Municipal, solid, non-hazardous waste	146
	General waste	141
	Hazardous waste	134
Water		**739**
	Pollution of water bodies (such as by industry and agriculture)	183
	Wastewater treatment	149
	Drinking water - quality and supply	142
Other		**116**
Grand total		**5817**

In the main issues category, governance (1388), human activities and sectors (1318) and ecosystem (893) emerge as the top three main issues, followed by water (739), waste (660) and air (365).

Many of the main category issues may not be independent. Some of them, for example, governance may be a cross cutting issue. Some issues, like, human activities and sectors may have overlap with some other main issues. For example, agriculture and pesticide may overlap the water sub issue, pollution of water

bodies (such as by industry and agriculture). The issues overlap is evidenced by the fact that in 1559 environmental performance audit reports post-2003, 5817 issues are covered. This gives an average of about 4 issues per environmental performance audits. Compared to the 1992-2002 period (about 2 issues per performance audit), the issue coverage has almost doubled. This indicates an increase in complexity and comprehensiveness of environmental performance audits that has significant implications for capacity and capability of SAIs. However, it should be noted that two periods use different classification of issues. Given the developments in performance auditing, it is possible that complexity of environmental performance audits would have grown. However, it remains a hypothesis that needs to be tested by analyzing the complexity within the same period.

Governance emerges as the top most category of main issues, with 1388 environmental performance audits. This should not be surprising as performance audit, despite some reservations (see for example, Kells and Hodge, 2009) is about economy, efficiency and effectiveness of public policy implementation (INTOSAI-ISSAI 31000, 2004: 1) and governance lie in the centre of these matters. As such, governance may be a cross cutting theme across the performance audit of most of other environmental issues, such as ecosystem, air, water and waste. Therefore, it gets the highest count of performance audits. This argument may also apply to the second highest main category of issue, human activities and sectors, due to its potential overlap with other issues such as air, water and waste.

Physical environmental issues such as water (739), waste (660), biodiversity (162) and climate change (142) appear to be quite popular issues among SAIs. These matters are of significant public importance, due, either, to their critical nature (e.g. water and waste), or, to enhanced public concern, because of their salience and topicality resulting from greater awareness (e.g. climate change and biodiversity). As these matters attract greater attention of public policies and resultant public investments, they become issues of interests to SAIs. Additionally, in several countries, executive or legislature government (such USA) may request their SAI to conduct performance audit of matters important to them. Therefore, the matters that have more public importance, get more attention of SAIs than the matters that are of less interest to the public or their representatives. WGEA (2012f) has made some of these matters of high public importance focus of its activities and produced guidelines to help SAIs conduct performance audits.

The results on issues emerging from the analysis here, of the database of environmental audit reports, are broadly supported by the results emerging from the WGEA surveys.

3.4.2.11 Top 20 issues in environmental performance audits during 2003-12

Table 3-9 lists the top 20 individual issues covered in environmental performance audits globally during 2003-12. These (3477 issues) account for about 60% of total coverage of issues (5817 in Table 3-8). The governance related issues (mostly socioeconomic development), such as, environmental management system (323), domestic funds and subsidies (284) and environmental impact assessment (225) have got the highest attention. As noted above, these are cross cutting issues, so get attention in more audits than other individual issues. Apart from financial matters (domestic funds and subsidies), the presence of environmental management system, and environmental impact assessment among the top three issues, underlines the importance of environmental governance, including monitoring, reporting and accountability systems. SAIs selection of audit topics generally reflects the governments' and

communities' priorities and concerns. They might be different for each country. However, a trend in globally aggregated values does indicate that environmental governance is globally highly important.

The next three individual issues are environment and human health (197), sustainable development (186) and pollution of water bodies (183). Climate change (142) ranks 14th on global ranking of issues, though a related issue, energy and energy efficiency (175) at 7th position, is much higher in ranking.

Table 3-9: Top 20 issues in global environmental performance audits (EPAs) during 2003-12.

Rank	Issue type	Issue (WGEA Categories)	EPAs
1	Governance	Environmental management system	323
2	Governance	Domestic funds and subsidies	284
3	Governance	Environmental impact assessment	225
4	Human activities and sectors	Environment and human health	197
5	Governance	Sustainable development	186
6	Water	Pollution of water bodies (such as by industry and agriculture)	183
7	Human activities and sectors	Energy and energy efficiency	175
8	Human activities and sectors	Infrastructure	174
9	Ecosystems	Biodiversity	162
10	Ecosystems	Protected areas and natural parks	158
11	Governance	Other governance issues	157
12	Water	Wastewater treatment	149
13	Waste	Municipal, solid, non-hazardous waste	146
14	Air	Climate change	142
15	Water	Drinking water - quality and supply	142
16	Waste	General waste	141
17	Ecosystems	Ecosystem management and ecosystem changes	139
18	Human activities and sectors	Agriculture	136
19	Waste	Hazardous waste	134
20	Ecosystems	Rivers and lakes	124
	Total		**3477**

The emergence of sustainable development as fifth top most global issue is interesting. The concept of "development that meets the needs of the present generation without compromising the ability for future generations to meet their own needs" was put forward in late 1980s (Brundtland, 1987 report). Gradually, it has gained acceptance and currency in public and private sector. It is now a major consideration in government planning and policy making (WGEA, 2007a: 15). About a quarter of SAIs reported in the fifth survey (WGEA 2007a: 15) that they were conducting audit of sustainable development.

3.4.2.12 Temporal variation of top 20 WGEA category of issues in global environmental performance audits during 2003-12

Figure 3-21 to Figure 3-25 show temporal variation of top 20 issues (for clarity, only 4 issues in each graph are shown) in global environmental performance audits during 2003-12. It is observed from these figures that despite some peaks and troughs, there is a growing trend in all of them. Further, for most of the issues, there is a peak during the period 2006-08. However, peaks in domestic fund and subsidies (2010), energy and energy efficiency (2012), other government issues (2010) and climate change (2009) appear to be exceptions. Barring these exceptions, the pattern in the top issues is consistent with the overall pattern for environmental performance audits seen in Figure 3-3 and Figure 3-4. Some global events, such as, the debate over carbon accounting (Barrett, 2015) may have influenced auditing of other environmental issues. However, this matter needs further investigation.

Figure 3-21: Temporal variation of 1st- 4th top issues in global environmental performance audits during 2003-12.

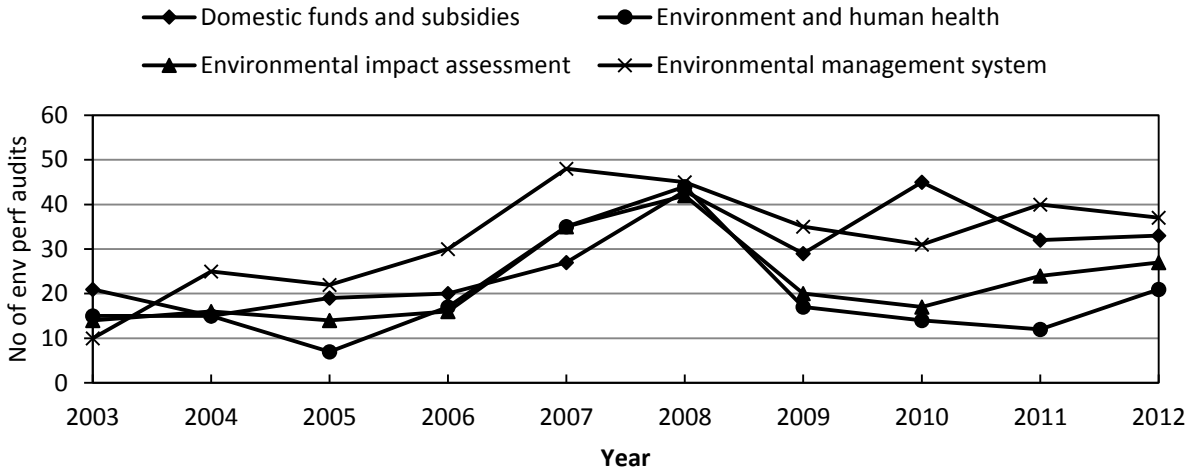


Figure 3-22: Temporal variation of 5th- 8th top issues in global environmental performance audits during 2003-12.

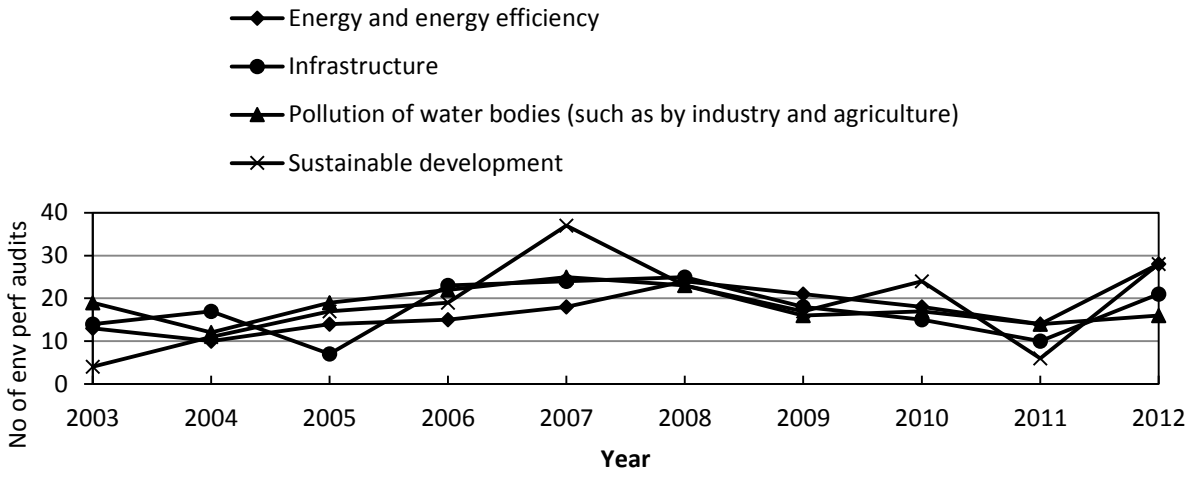


Figure 3-23: Temporal variation of 9th- 12th top issues in global environmental performance audits during 2003-12.

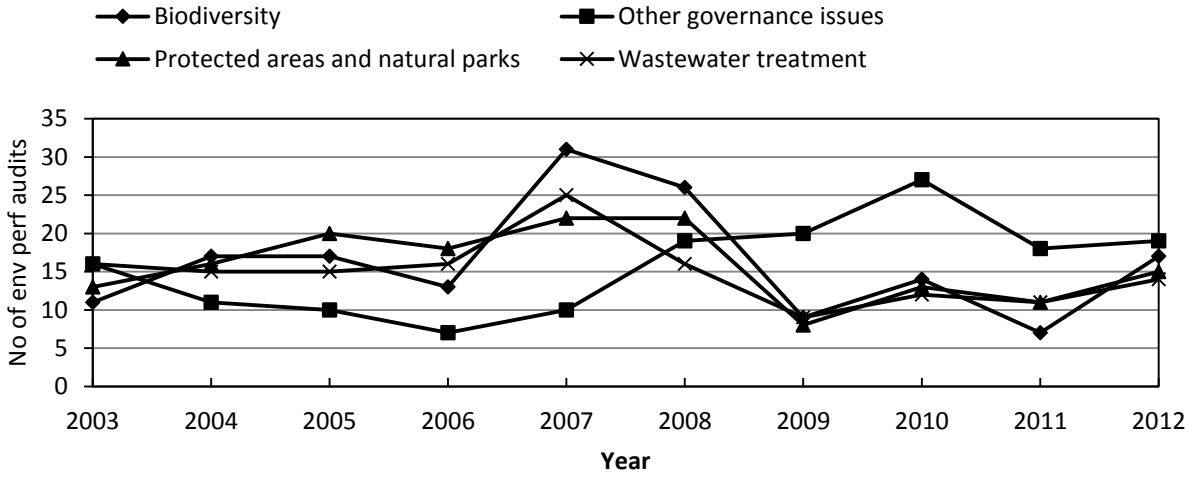


Figure 3-24: Temporal variation of 13th- 16th top issues in global environmental performance audits during 2003-12.

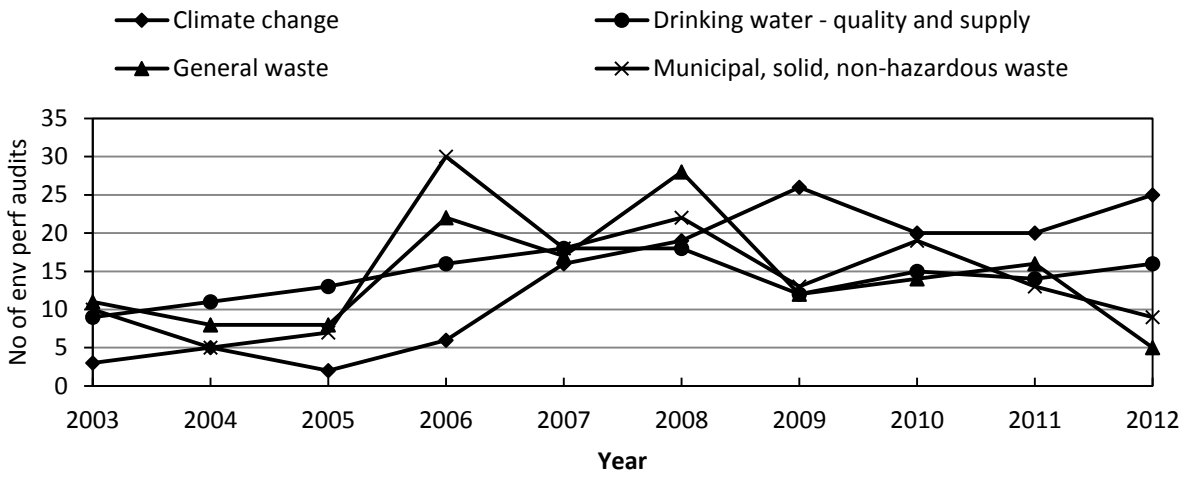
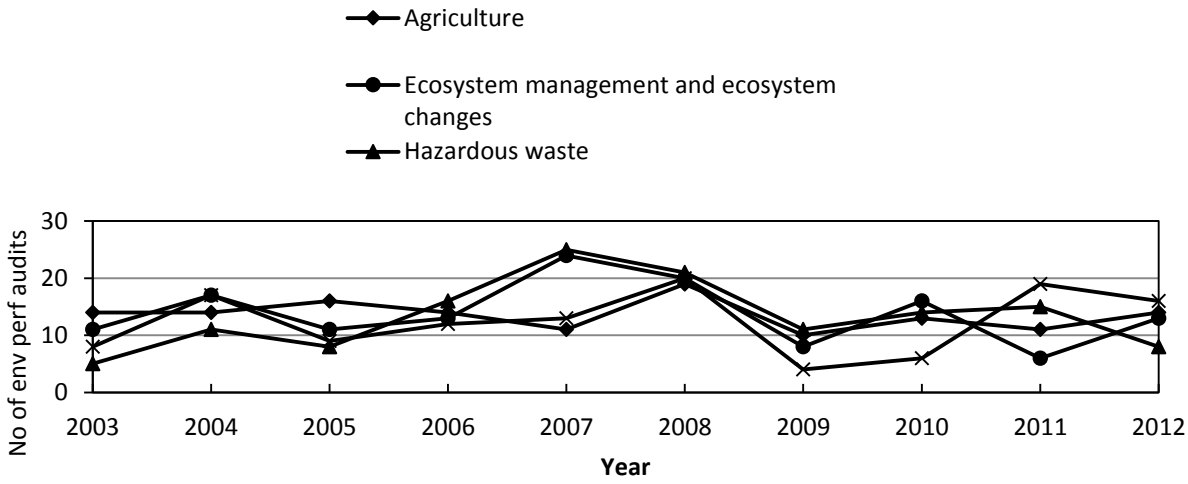


Figure 3-25: Temporal variation of 17th-20th top issues in global environmental performance audits during 2003-12.



3.4.2.13 Is the coverage of issues related to country's economic development?

To explore this question, the issue converge in environmental performance audits post-2003 was collated into income and development level and then compared. The main 8 categories of issues are presented in Table 3-10 for high income countries; in Table 3-11 for middle income countries and in Table 3-12 for low income countries. It is seen from these tables that there is very little difference between high and middle income countries in terms of converge of main- category issues. The order of main-category issues is identical except for air and natural resources. The main-category, air, ranks higher than natural resource for high income countries and vice versa for the middle income countries. The air category includes issues, like, air quality and climate change, whereas natural resource includes issues like fisheries, forestry and

mineral (mining gas and oil). It is expected that, for middle income countries (part of developing counties), natural resources issues, that provide impetus to economic development, would rank higher than air issue that are mostly related to environmental protection. This contrast becomes sharper in the case of low income countries. For them, the life's basics, like waste and water related issues, come ahead of all other issues. The human activities and sectors category that includes sustenance and development issues, like agriculture, humanitarian aid, infrastructure and land development come next. Other sustenance and development related issues, like, ecosystem and natural resources precede air in order of ranking. As expected, being part of the developing group, these countries in their lower positions (6 and 7 in Table 3-12) maintain the order of the development-related main-category issue (natural resources) ahead of the environmental quality-related main-category issue (air) like that of the middle income countries (Table 3-11).

Table 3-10: Coverage of main WGEA category of issues in post-2003 environmental performance audits for high-income countries.

Ranking	Issue type/category	No of environmental performance audits
1	Governance	777
2	Human activities and sectors	704
3	Ecosystems	482
4	Water	352
5	Waste	305
6	Air	275
7	Natural resources	154
8	Other	68
	Grand Total	**3117**

Table 3-11: Coverage of main WGEA category of issues in post-2003 in environmental performance audits for middle-income countries.

Ranking	Issue type/category	No of environmental performance audits
1	Governance	788
2	Human activities and sectors	640
3	Ecosystems	483
4	Water	444
5	Waste	369
6	Natural resources	202
7	Air	151
8	Other	55
	Grand Total	**3132**

Table 3-12: Coverage of main WGEA category of issues in in post-2003 environmental performance audits for low-income countries.

Ranking	Issue type/category	No of environmental performance audits
1	Waste	23
2	Water	19
3	Human activities and sectors	19
4	Ecosystems	14
5	Governance	12
6	Natural resources	10
7	Air	2
8	Other	2
	Grand Total	**101**

To further understand the relationship between the coverage of issues and economic development level, the top ten individual issues were identified for the three income levels. These are presented in Table 3-13 for high income countries; in Table 3-14 for middle income countries and in Table 3-15 for low income countries.

For the high income countries (Table 3-13), the top three issues were: domestic funds and subsidies, environmental management system and energy and energy efficiency, in that order. Climate change was the fourth most important issue; sustainable development took the fifth spot before infrastructure and environment and human health; and ecosystem management and ecosystem changes took the tenth spot.

For the middle income countries (Table 3-14), environmental management system, environmental impact assessment and pollution of water bodies (such as by industry and agriculture) emerge as the top three important issues. Domestic funds and subsidies is the next most important issue; environment and human health at the fifth spot and sustainable development at the sixth spot lead protected areas and natural parks as well as wastewater treatment. The last two spots are taken by general waste, and municipal, solid and non-hazardous waste. Interestingly climate change does not find a place in the top ten issues.

For the low income countries (Table 3-14), municipal solid (non-hazardous) waste, forestry and timber resources and drinking water emerge as the three most important issues. Hazardous waste on, the fourth place, comes ahead of Infrastructure; sustainable development is on the sixth place followed by yet another waste issue—general waste. Water quantity management or management of watersheds takes the tenth spot (note that agriculture and biodiversity also have identical number of reports). Again, climate change does not figure in the top ten issues.

A pattern in the issues of importance is discernible here. The lower the income/economic development level, the development and sustenance issues become more important, and quality issues such governance and air quality slide down in importance and vice versa. Domestic funds and subsidies that is the top issue for high-income countries, is the fourth issue of importance for the middle income countries but does not find a place in the top ten issues for the low income countries. Municipal solid (non-hazardous) waste is the top issue for low income countries, whereas it is the last issue for the middle income-country SAIs and does not appear in the most important 10 issues for high income SAIs. This finding may be significant for INTOSAI when considering assistance for capacity building (e.g. training) to middle and low income (developing) countries.

Table 3-13: Top 10 issues in post-2003 environment performance audits for high-income countries.

Ranking	Issue type/category (WGEA Categories)	Issue (WGEA Categories)	No of env perf audits
1	Governance	Domestic funds and subsidies	206
2	Governance	Environmental management system	155
3	Human activities and sectors	Energy and energy efficiency	148
4	Air	Climate change	134
5	Governance	Sustainable development	99
6	Human activities and sectors	Infrastructure	98
7	Governance	Other governance issues	96
8	Human activities and sectors	Environment and human health	89
9	Ecosystems	Biodiversity	88
10	Ecosystems	Ecosystem management and ecosystem changes	82

Table 3-14: Top 10 issues in in post-2003 environment performance audits for middle-income countries.

Ranking	Issue type/category (WGEA Categories)	Issue (WGEA Categories)	No of env perf audits
1	Governance	Environmental management system	200
2	Governance	Environmental impact assessment	156
3	Water	Pollution of water bodies (such as by industry and agriculture)	118
4	Governance	Domestic funds and subsidies	109
5	Human activities and sectors	Environment and human health	108
6	Governance	Sustainable development	107
7	Ecosystems	Protected areas and natural parks	98
8	Water	Wastewater treatment	93
9	Waste	General waste	91
10	Waste	Municipal, solid, non-hazardous waste	88

Table 3-15: Top 10 issues in in post-2003 environment performance audits for low-income countries.

Ranking	Issue type/category (WGEA Categories)	Issue (WGEA Categories)	No of env perf audits
1	Waste	Municipal, solid, non-hazardous waste	9
2	Natural resources	Forestry and timber resources	8
3	Water	Drinking water - quality and supply	8
4	Waste	Hazardous waste	7
5	Human activities and sectors	Infrastructure	5
6	Governance	Sustainable development	4
7	Waste	General waste	4
8	Governance	Agriculture	3
9	Ecosystems	Biodiversity	3
10	Water	Water quantity management or management of watersheds	3

When the issues are analyzed for the combined group of middle and low income (developing) country SAIs, the issue ranking similar to that for the middle income SAIs appear (compare Table 3-16 and Table 3-14). There are only two differences for the combined group (Table 3-16). The first difference is that, the order of the fifth issue (environment and human health) is interchanged with the sixth issue (sustainable development); and the second difference is that, the order of the eighth issue, wastewater treatment and the tenth issue, municipal solid (non-hazardous waste) are interchanged. Due to the higher number of performance audits carried out by middle income countries, the combined group predominantly exhibits the priority of the middle income countries.

Table 3-16: Top 10 issues in in post-2003 environment performance audits for developing countries.

Ranking	Issue type/category (WGEA Categories)	Issue (WGEA Categories)	No of env perf audits
1	Governance	Environmental management system	203
2	Governance	Environmental impact assessment	158
3	Water	Pollution of water bodies (such as by industry and agriculture)	121
4	Governance	Domestic funds and subsidies	111
5	Governance	Sustainable development	111
6	Human activities and sectors	Environment and human health	109
7	Ecosystems	Protected areas and natural parks	100
8	Waste	Municipal, solid, non-hazardous waste	97
9	Waste	General waste	95
10	Water	Wastewater treatment	94

3.4.2.14 Objectives of environmental performance audits

Performance audit is a broad concept (Van Leeuwen, 2004a). It examines a government entity's economy, efficiency and effectiveness in performing its functions and activities, not excluding the entity's compliance with applicable laws and regulations. As such, the objective (s) of an environmental performance audit may encompass a range of government responsibilities, including compliance with the relevant environmental laws (policies and agreements) as well as performance of audited entitles in implementing the government's environmental policies and program, the so called three Es, economy, efficiency and effectiveness. INTOSAI (2004: 131) identifies at least five different types of objectives for environmental performance audits:

- Compliance with environmental laws;
- Performance of government environmental programs;
- Environmental impact of non- environmental programs;
- Environmental management systems; and
- Evaluation of proposed environmental programs.

This section discusses the objectives of environmental performance audits. Because of different categorization of objectives in pre- and post-2003 periods, the related results are separately presented.

3.4.2.14.1 Objectives of pre-2003 environmental performance audits

The WGEA database catalogues the objectives of pre-2003 environmental audits into the following 8 categories (abbreviated in bracket to fit on a graph).

- Performance audit of environmental policies (PA env policy);
- Performance audit of the implementation of environmental programs (PA env prog);
- Evaluate impacts or effects of existing national environmental programs (Eval env prog);
- Evaluate impacts or effects of proposed national environmental programs (Eval prop prog);
- Audit environmental effects of non-environmental programs (Env effect of non-env);
- Audit compliance with national environmental laws and regulations by government departments ministries and/or other bodies (Comp nat env laws);
- Audit compliance by the government with international obligations and commitments which the government has signed (Comp int env laws); and
- Audit government environmental management systems (Env mgmt sys).

Table 3-17 shows the number of pre-2003 performance audits having each objective. The data in the table shows that 813 performance audits had 1498 objectives giving a ratio of about 2 (1.8) objectives per performance audit. Of the 813 performance audits, 482 audits—the largest proportion (59%)—have performance audit of the implementation of environmental program as an objective, followed by 254 audits (31%) that have compliance with national environmental laws and regulation as an objective. Audit of government environmental management systems takes the third place, appearing in 225 (28%) audits followed by evaluating impacts of existing national environmental programs that appears in 195 audits (24%). Performance audit of environmental policies appearing in 107 audits (13%); audit of environmental effects of non-environmental programs in 92 audits (11%) and audit of compliance with international obligations in 86 audits (11%) take the next three spots. Evaluating impacts or effects of proposed national environmental programs appears as an objective in the least number of audits, 57 (7%).

The coverage of objectives in performance audits demonstrates their relative importance to SAIs. As the audit type itself is a performance audit, performance examination of some sort is expected more than any other objective. However, it is interesting to note that not all environmental performance audits have this objective. In the pre-2003 period, performance audit of environmental policies was considered as a separate objective. Even when this is separately accounted for, except in 1992, not all performance audits have examination of performance as an objective.

Identifying or defining suitable audit criteria for performance examination of environmental programs and policies and associated systems and processes is a challenging endeavour. Despite some headway, it remains a work in progress. The period being considered is the very beginning of environmental performance auditing. So, a lesser proportion of performance audits (amid growing volume), not having some sort of performance examination, is quite reasonable. As the aggregated data does not indicate

where (which region, which income group) it was happening, it may need further investigation to unpack the causes

Figure 3-26 depicts the temporal variation of performance objectives. It is seen from this figure that all objectives broadly follow the pattern of performance audits. This is expected as objectives are a subset of performance audits. As performance audit increases, the number of each objective increases and vice versa. As expected, performance audit of the implementation of environmental program as an objective always appears in more audits than any other objective. The trend in performance audit of the implementation of environmental program audit objective after 2001 is interesting. It does not follow the increasing trend in performance audit after 2001. Existence of a similar but a separate objective—performance audit of environmental policies—may partly explain for decreasing trend.

When the proportion of the performance audits having this objective is considered (Figure 3-27), the performance audit of the implementation of environmental program audit objective is seen having a decreasing trend, even after ignoring the initialization effect (starting in 1 out of 1 audit). While existence of a similar objective (performance audit of environmental policies) might partly explain this decreasing trend, it is possible to have other explanations. This may also suggest that SAIs had a bit of catch up to do. While more performance audits were being conducted and more had performance audit of the implementation of environmental program audit as an objective, lesser proportion of them were having this objective. It is possible that newer SAIs that were adding to the growing volume of performance audits more, were not yet including performance examination as an objective.

Table 3-17: Objectives of pre-2003 global environmental performance audits (Total performance audits, A = 813; Total objectives, B = 1498)

Year	Audit compliance by the government with international obligation	Audit compliance with national environmental laws and regulation	Audit environmental effects of non-environmental programs	Audit government environmental management systems	Evaluate impacts or effects of existing national environmental program	Evaluate impacts or effects of proposed national environmental programs	Performance audit of environmental policies	Performance audit of the implement. of environmental program
1992								1
1993	7	6	6	6	19	3	9	35
1994	4	5	6	4	22	7	11	43
1995	3	14		13	17	6	7	39
1996	17	38	8	30	31	15	17	87
1997	11	42	18	34	23	6	15	54
1998	6	25	16	27	13	4	9	46
1999	15	39	14	55	24	5	13	77
2000	3	28	4	25	22	7	8	45
2001	10	18	4	10	10	2	5	33
2002	10	39	16	21	14	2	13	22
Total	86	254	92	225	195	57	107	482
% of A	11%	31%	11%	28%	24%	7%	13%	59%

Figure 3-26: Temporal variation of objectives of pre-2003 global environmental performance audits.

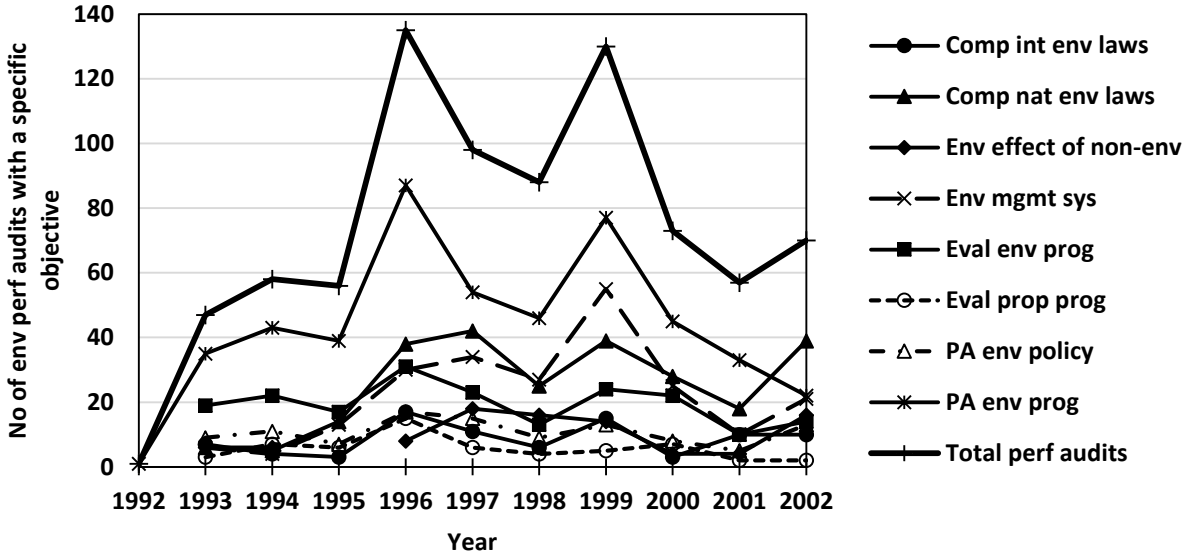
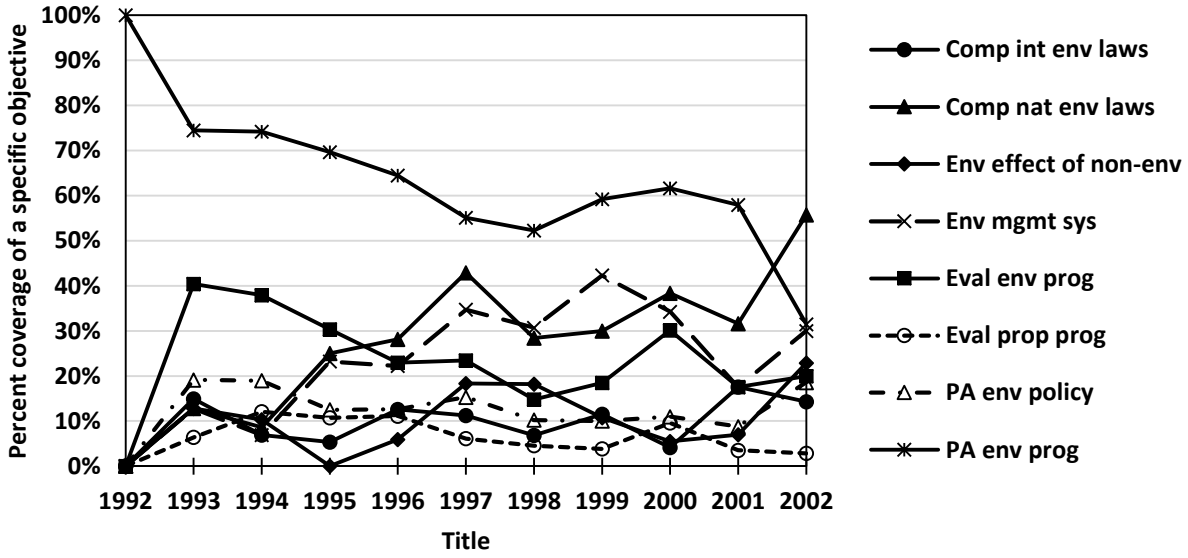


Figure 3-27: Temporal variation of proportion of each objective in pre-2003 global environmental performance audits.



3.4.2.14.2 Objectives of post-2003 environmental performance audits

The objectives of post-2003 environmental audits are catalogued into the following 7 categories:

- Fair presentation of financial statements and expenditures (Fin audit);
- Compliance with international environmental agreements (Comp int laws);
- Compliance with domestic environmental legislation (Comp dom leg);
- Compliance with domestic environmental policies (Comp dom pol);
- Performance of government environmental policies and programs (PA env pol&prog);
- Environmental impacts of non-environmental government programs (Env imp of non-env); and
- Evaluate environmental impacts of proposed environmental policies and programs (Eval prop prog).

Table 3-18 shows the number of post-2003 performance audits having each objective. This data indicates that 1559 performance audits had 3698 objectives giving a ratio of more than 2 (2.4) objectives per performance audit. The increase in this ratio compared with the pre-2003 period (1.8, see caption of Table 3-17), suggests an increase in the complexity and sophistication of environmental performance audits.

Of the 1559 performance audits, 1058 audits—the largest proportion (68%)—have performance of government environmental policies and programs as an objective, followed by 906 audits (65%) that have compliance with domestic environmental legislation as an objective. Compliance with domestic environmental policies takes the third place, appearing in 813 (58%) audits followed by compliance with international environmental agreements that appears in 287 audits (18%). Evaluating environmental impacts of proposed environmental policies and programs appearing in 244 audits (16%) and environmental impacts of non-environmental government programs in 197 audits (13%) take the next two spots. Fair presentation of financial statements and expenditures appearing in 193 audits (12%) takes the last spot.

Compared with the pre-2003 period, the coverage of all comparable objectives has increased as shown in the last two rows of Table 3-18 (that depict the coverage of all comparable objectives of pre-2003 and post 2003 period objectives). The performance of government environmental policies and programs that were separate objective pre-2003 were merged together by the WGEA post-2003, while compliance with environmental laws and regulations that was a single objective pre-2003 was split into two objectives—compliance with domestic environmental legislation and compliance with domestic environmental policies. Fair presentation of financial statements and expenditures was added, while audit of environmental management systems was dropped. With the exception of these changes, the coverage of all comparable objectives has increased post-2003 compared with pre-2003 period. Overall, this possibly suggests increasing complexity of performance audits in the post-2003 period.

Figure 3-28 shows the temporal variation of performance audit objectives. As expected, objectives being subsets of performance audits, broadly follow the pattern of performance audits.

Table 3-18: Objectives of post-2003 global environmental performance audits (Total audits, A = 1559)

Year	Compliance with domestic environmental legislation	Compliance with domestic environmental policies	Compliance with international environmental agreements	Environmental impacts of non-environmental government programs	Evaluate environmental impacts of proposed environmental policies	Fair presentation of financial statements and expenditures	Performance of government environmental policies and programs	Total objectives in total audits (1559)
2003	65	52	15	21	17	19	74	263
2004	74	57	28	17	17	12	79	284
2005	66	65	25	20	20	13	80	289
2006	85	87	22	20	27	14	114	369
2007	128	101	38	36	49	31	145	528
2008	131	119	39	21	28	32	126	496
2009	96	85	30	18	22	23	104	378
2010	82	83	30	8	24	23	111	361
2011	95	92	32	13	19	17	109	377
2012	84	72	28	23	21	9	116	353
Total	906	813	287	197	244	193	1058	3698
% of total audits	58%	52%	18%	13%	16%	12%	68%	
Pre-2003	31%	-	11%	11%	7%	-	59%	

Figure 3-28: Temporal variation of objectives of post-2003 global environmental performance audits.

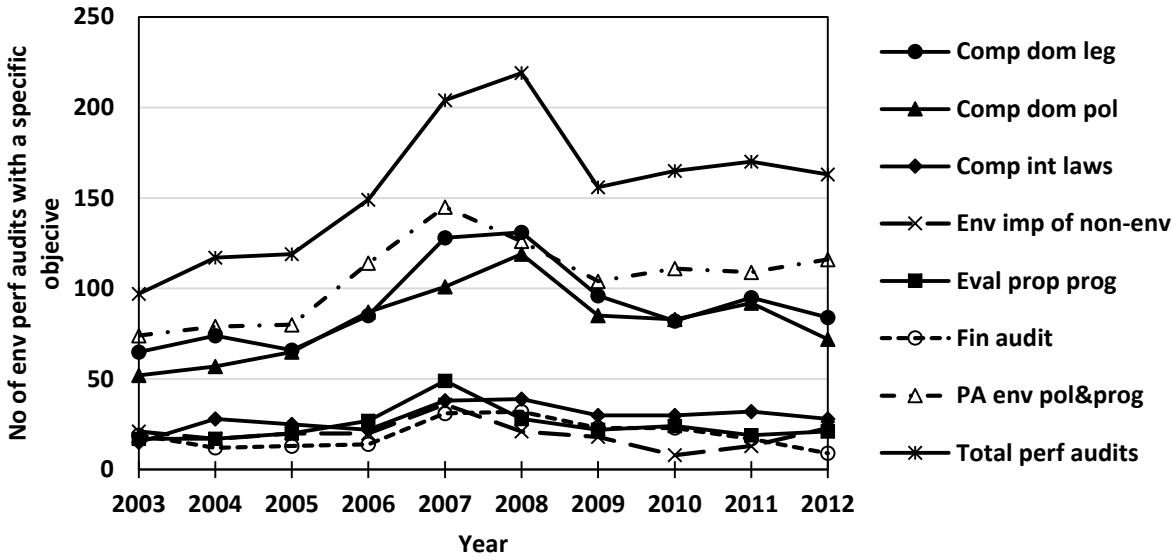
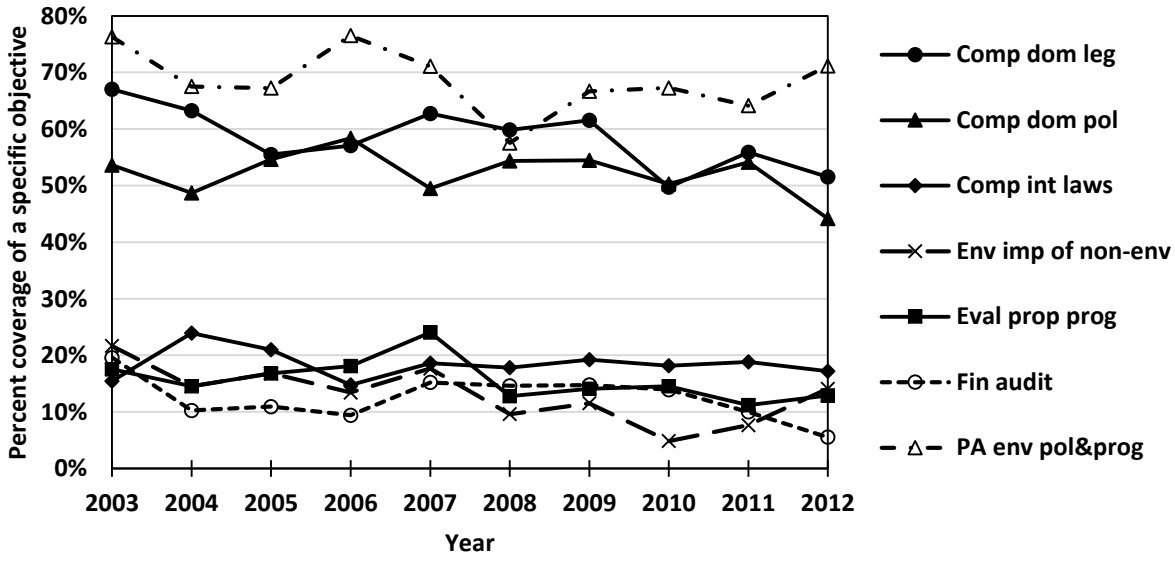


Figure 3-29: Temporal variation of proportion of each objective in post-2003 global environmental performance audits.



The temporal variation of proportion of objectives of performance audits is shown in Figure 3-29. When this is compared with pre-2003 variation in Figure 3-27, some contrasts are noted. The contrast between the two groups of objectives, performance of domestic policies and programs and compliance with domestic environmental legislation on the one hand, and evaluating environmental impacts of proposed environmental programs and non-environmental policies and programs on the other, is sharper in post-

2003 period than in the pre-2003 period. While in the later part of pre-2003 period, the coverages of these two groups of objectives are very close to each other, they are wide apart throughout the post-2003 period. This shows that SAIs have settled for a greater focus on performance and compliance objectives in post- 2003 than on evaluation of impacts objectives.

The pre-2003 declining trend in the proportion of the performance of government environmental policies and programs objective has drastically changed. Compared with a 43 points decline in the coverage of this objective from 74% in 1993 to 31% in 2002 (ignoring the high initial value of 1992) in pre-2003 period, there is only a decline of 5 point from 76% in 2003 to 71% in 2012. If the initial value of 2003 is ignored, there is an increase of 3 points from 68% in 2004 to 71% in 2012. Merging of two similar objectives of performance of environmental program, and that of policies might explain some differences. However, the trend suggests that that there is some basic shift in the coverage of performance objective. The merging of two similar objectives in itself is significant in that it underlines the challenges in separating the examination of performance (effectiveness) of environmental program implementation from the effectiveness of performance of policies. The debate in the performance audit literature about the examination of effectiveness of outcome of policies versus the examination of effectiveness of processes of implementation of policies is far from settled (as noted in Chapter 2). Notwithstanding this merger of policies and programs effectiveness and the related debate, the increase in the coverage of performance objective compared to the pre-2003 period and steady to increasing trend post-2003, indicates a marked shift. Post 2003, a high proportion of about 70% (and higher than pre-2003 period of about 60%) of performance audits are examining the performance of environmental policies and programs. This also shows growing confidence and maturity of SAIs in not only conducting performance audits but also developing tools and techniques for examining performance environmental policies and programs.

3.4.2.14.3 Comparison with the WGEA survey data on the performance objective

The WGEA surveys have collected the data on objectives of environmental audits. The survey data generally have quoted the percentage of SAIs who have chosen 'yes' to a particular audit objective. The percentage of SAIs choosing a particular objective is not directly comparable with annual percentage of coverage of audit objective in performance audit reports, as not all SAIs have conducted equal number of environmental audits. However, the average of all surveys for a particular objective may be comparable with the average coverage of the same objective in environmental audits over the same period; as both are global averages over comparable periods. The average percentage of SAIs, indicating between the fourth (2003) and the seventh (2012) surveys that, they have included the performance of government environmental policies/programs in environmental audits, is about 63%. This compares with about 60% coverage of this objective in environmental audit reports for the period 2003-2012, available on the WGEA database (as in December 2014, section 3.3.3). Note that the 60% coverage relates to all environmental audits, while that shown in Table 3-18 relates to the coverage only in environmental performance audits.

3.4.2.15 Joint/cooperative audits

Encouraging joint auditing by SAIs is part of the WGEA mission (WGEA, 2012d). Such audits are helpful especially for the audit of cross border environmental issues and policies, and the audit of international environmental agreements. Through these audits SAIs can exchange information, train each other, build

capacity, and network with each other. They can also compare (benchmark) results and audit findings with other countries making their audit reports more strong. Benchmarking is particularly appealing to parliamentarians, who like to know how the laws and policies they make, perform compared with those of other countries (WGEA, 2007a: 16). While cooperation between SAIs occurs on a range of matters, cooperation on the audit of implementation of multilateral environmental agreements (MEAs) and audit of trans-boundary issues are key matters. Before discussing the results on these audits, it would be helpful to get familiarized with some key concepts about these audits.

WGEA (1998: 10-16) describes three types of cooperative audits: concurrent (parallel), joint and coordinated audits. In concurrent audits, SAIs choose a common audit topic and exchange ideas and experiences. However, they simultaneously do their own audits with separate audit teams, and produce their own report for their respective legislature/government. In a joint audit, SAIs form a single team of auditors from all the participating countries; conduct the audit together; and produce a joint audit report, that is published in all the participating countries. The coordinated audit may be a joint audit with separate reports (as in concurrent audit), or concurrent audits with a joint report in addition to separate national reports.

The results discussed below include all three forms of cooperative audits. For ease of reference these three types of audits together have been referred as joint audits.

3.4.2.15.1 Trends in joint/cooperative environmental audits

Key information from WGEA audit report database on joint/cooperative environmental audit report is presented in Table 3-19. This table shows that during 2002-2012, a total of 46 joint environmental audits were conducted by a total 201 participant countries (note that these are not 201 individual countries, but a grand total of total number of countries that participated in joint audits each year). This gives an average of 4 countries per joint/cooperative audit.

Table 3-19: Key information on joint environmental audits during 2002-2012.

		Number of participating countries			
Year	**Joint audits**	**High income countries**	**Middle income countries**	**Low income countries**	**Total countries**
2002	1	6	1		7
2003	3	1	5		6
2005	3	4	8		12
2006	4	3	6		9
2007	9	5	16		21
2008	8	30	14		44
2009	3	13	8		21
2010	5	13	11		24
2011	5	4	23	1	28
2012	5	17	11	1	29
Total	**46**	**96**	**103**	**2**	**201**
Percent (%)		**48%**	**51%**	**1%**	**100%**

However, the average needs to be considered carefully. There is a large variation in the number of countries participating in a cooperative joint audit. The minimum number of participant countries in a cooperative audit is obviously 2. The maximum number of SAIs that have ever participated in a cooperative audit is 17. In 2008, Austria, Bulgaria, Czech Republic, Finland, Hungary, Italy, Latvia, Malta, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain, United Kingdom, Lithuania and European Court of Auditors cooperatively produced "Report on the Parallel Audit of the Performance of Structural Funds programs in the areas of employment and /or the environment by the Working Group on the Structural Funds."

Sixty-four Individual countries participated in these cooperative audits. A frequency distribution of individual countries that participated in such cooperative audits is shown in Table 3-20. Fifty-two countries were involved in 1-4 joint audits; 8 countries were involved in of 5-8 joint audits, 1 country was involved in 9-12 joint audits, and in 13-16 joint audits and only 2 countries were involved in 17-20 joint audits.

Table 3-20: Frequency distribution of countries who participated in cooperative audits.

No of joint audits	No of countries
1-4	52
5-8	8
9-12	1
13-16	1
17-20	2
Total	64

The Russian federation (18) has participated in the maximum number of joint audits followed by Poland (17); Ukraine (15); Norway; (9) and Slovak Republic (8). It is interesting to note that most of these top performing countries are either from, or were aligned with, the former Union of Soviet Socialist Republic (USSR). In terms of income and developmental levels, 48% of participants in cooperative audits are high income SAIs; 51% are middle income SAIs and only 1% are low income SAIs (48% developed and 52% developing country SAIs). As with the individual audits, this again reflect the severe limitations, the low income SAIs face, in conducting cooperative environmental audits. The higher participation of middle income SAIs in cooperative audits is consistent with their higher activities in environmental audits (as discussed earlier).

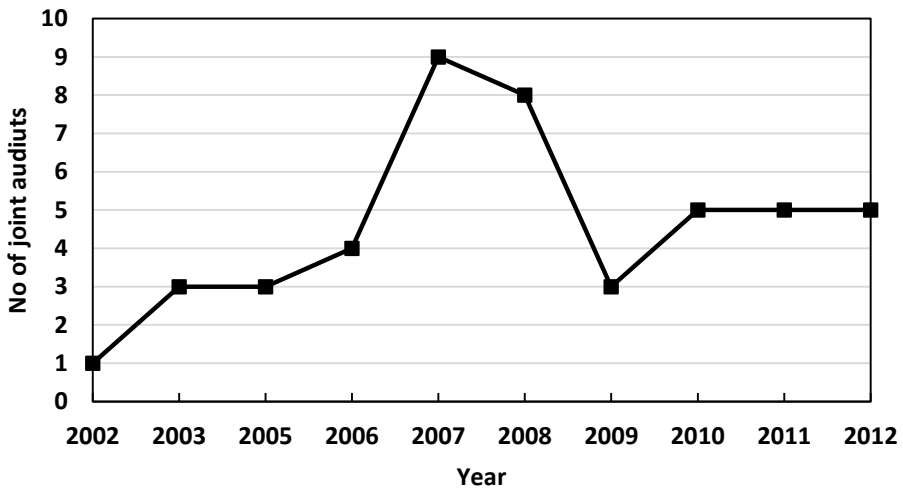
In terms of geographical regions (Table 3-21), most of the participating countries came from Europe (75%) and South Pacific (9%). The regional dominance of Europe is partly explained by the continued historical cooperation between the former Soviet Republics. Further, Europe has been more active than other regions in terms of regional and global cooperation on environmental initiatives.

Table 3-21: Regional distribution of countries participating inn joint audits.

Region	Participating countries (no)	Percent (of total)
Europe	150	75%
South Pacific	18	9%
South America	10	5%
Asia	8	4%
Central America	6	3%
Middle East	6	3%
North America	2	1%
Africa	1	0%
Grand Total	201	100%

The temporal variation of cooperative audits is shown Figure 3-30. The number of cooperative audits rapidly increased from 1 per year in 2002 to a maximum of 9 per year in 2007 then decreased and stabilized at 5 per year by 2010. The cooperative audits are a highly complex exercise and depend on several factors to achieve their objectives. These factors are discussed in section 3.5.6.

Figure 3-30: Temporal variation of cooperative/joint audits for the period 2002-2012.

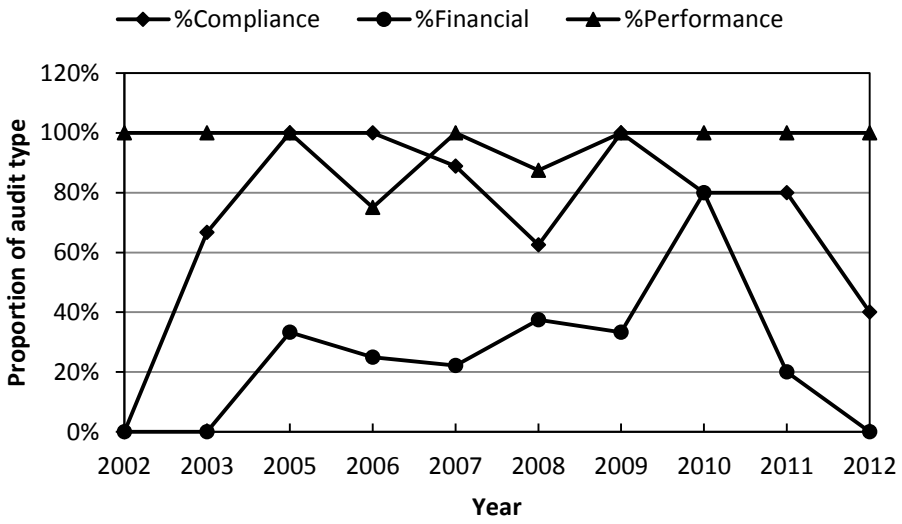


3.4.2.15.2 Types of audit in cooperative joint audits

Figure 3-31 shows the proportion of the types (performance, compliance, financial) of joint/cooperative audits. It is seen from this figure that except for two years (2006 and 2008), joint audits were always performance audits. Overall 96% (44 of 46) of joint environmental audits were performance audits, 76% were compliance audits and only 28% were financial audits (as an audit can simultaneously be of more than one type, their total % may exceed 100). As discussed earlier, joint audits mostly concern with audit of implementation of multilateral environmental agreements or trans-boundary issues. These matters would intuitively be expected to be more concerned with compliance. However, the results indicate that the performance of governments, for example, in achieving targets is considered more important than

just complying with the rules. If the effect of initialization (start with a very low initial value in 2002 and then growth) between 2002 and 2003 is ignored, the overall trend in compliance audit is downwards. This is consistent with the trend in individual audits discussed earlier. The decreasing trend in compliance audit should not be interpreted as a decrease in interest in compliance. SAIs choose audit topics and types of audit largely based upon risks. The decrease in compliance audits only means that SAIs see compliance as a lesser risk than, for example, performance that is invariably considered having a higher level risk.

Figure 3-31: Types of joint/cooperative audits.



3.4.2.15.3 Issues in joint/cooperative audits

Altogether, 229 issues (see Appendix B, Table B-2) were covered in 46 audits. This is an average of 5 issues per audit report. Compared with the coverage of issues in individual audits (4), issue coverage of joint audit is higher. When several SAIs work together on a joint audit, it is possible that more issues would need to be considered so that everybody's need is served.

In terms of the main categories of issues (Appendix B, Table B-2), governance comes on the top with its coverage in 62 audit reports followed by ecosystems (56), water (38) and waste (19). Of the main categories of issues, air (14) is covered in the least number of audits, trailing human activities and sectors (18) and natural resources (15). As discussed earlier, the highest coverage of governance issues is due to their cross cutting nature. The ecosystem-related issues, such as biodiversity, coastal areas, protection of marine habitat, rivers and lakes and wetlands have resulted in greater cooperation amongst SAIs, than air-related issues, such as, climate change and acid precipitation. Of the ten top most individual issues (see Table 3-22), the top four of them, **e**nvironmental management system (17), ecosystem management and ecosystem changes (13), protected areas and natural parks (11) and biodiversity (11) are ecosystem-related issues.

While air-related issues are also trans-boundary, there are more global and regional treaties and agreements on ecosystems-related matters than for air-related matters. This can also be said about water-

related issues such as marine pollution. Perhaps also, issues related to eco-system, water, waste (such as municipal and solid waste), human activities and sectors (such as agriculture and natural disaster management) and natural resources (e.g. fisheries, forestry and timber resources) are more immediate issues, attracting public attention hence of currency and importance to SAIs than air-related issues. Therefore, these issues appear in greater number of cooperative audits.

Table 3-22: The ten top most individual issues in cooperative/joint audits.

SN	Issues in cooperative audit	Main category	Audits
1	Environmental management system	Ecosystems	17
2	Ecosystem management and ecosystem changes	Ecosystems	13
3	Protected areas and natural parks	Ecosystems	11
4	Biodiversity	Ecosystems	11
5	Pollution of water bodies (such as by industry and agriculture)	Water	10
6	Domestic funds and subsidies	Governance	9
7	Fisheries (freshwater and marine)	Natural resources	9
8	Drinking water - quality and supply	Water	8
9	Wastewater treatment	Water	8
10	Sustainable development	Governance	8

3.4.2.15.4 Objectives of joint/cooperative audits

The objectives of cooperative/joint audit are listed Table 3-23. It is seen from this table that compliance with domestic environmental legislation (80%) is equally important as compliance with international environmental agreements (80%). it may seem counter intuitive in that cooperative audits are about matters of mutual interest to all participating SAIs. So joint/international matters should get prominence over domestic matters. However, it is not inconsistent with actual practice. Generally, countries enact domestic legislation to implement international environmental agreements and treaties. So compliance with an enabling domestic legislation will result in compliance with the relevant international agreement. The next most prominent objective is performance of government environmental policies and programs (78%). This shows that performance (e.g. achievements of targets and systems and processes associated with them) is very high on the priority list of SAIs. This is a very encouraging sign for international environmental infinitives.

Table 3-23: Objectives of cooperative/joint audits during 2002-2012.

Year	Compliance with domestic environmental legislation	Compliance with domestic environmental policies	Compliance with international environmental agreements	Environmental impacts of non-environmental government programs	Evaluate environmental impacts of proposed environmental policies	Fair presentation of financial statements and expenditures	Performance of government environmental policies and programs	Total joint audit reports
2002	-	-	1		-	-	1	1
2003	3	3	3	2	1	1	2	3
2005	3	1	3		1	1	2	3
2006	4	2	3		1	1	3	4
2007	7	6	8	3	3	2	5	9
2008	7	6	6	1	3	5	7	8
2009	3	3	3		1		2	3
2010	3	3	3		2	5	4	5
2011	3	3	4	-	-	-	5	5
2012	4	5	3	-	-	-	5	5
Total	37	32	37	6	12	15	36	46
Percent of total audit	80%	70%	80%	13%	26%	33%	78%	100%

3.5 Secondary analysis of the WGEA Survey data

3.5.1 Survey response

The response of seven surveys is graphically presented in Figure 3-32. The lowest response (48%) was in the first survey (1993) and highest (64%) in the fifth survey in 2006. Except for the first survey, response has consistently been 50% or greater. The survey response can thus be considered very good and data gathered could be considered representative.

While the percentage response has dropped in some surveys compared to the previous surveys, the total number of response has always been increasing. The number of survey response has increased from 83 in 1993 to 137 in 2012. So despite some variation in percentage response, the representativeness of the survey data has been increasing.

In addition to the INTOSAI regions, WGEA reported the survey response categorized into the income level of countries between the second survey (1997) and the fifth survey (2006). This is shown in Figure 3-33. The survey response increased according to the income level. The responses of high and middle income countries were higher than that of the low income countries, and response of high income countries was higher than that of the middle income countries. This is consistent with general expectations. Responding to the WGEA surveys costs time and money to the SAIs, but it is voluntary. It is therefore, highly likely that SAIs of low income countries would have lesser capacity to bear the costs of surveys compared to the SAIs of middle and high income level countries. The results of the surveys, thus, represent the situation of SAIs having average or more resources (Van Leeuwen, 2004a).

Response of each income group has generally increased over time. This is consistent with the overall increasing trend observed in Figure 3-32. The 2003 and 2006 surveys reported survey responses in one more income category, 'unknown'. This may be due to the income level of some countries not being known. Response rate from this category was 40% in the fourth survey and 50% in the fifth survey. This may have caused flattening of responses in individual income categories between the 2003 and 2006 surveys, despite an increasing overall trend.

Figure 3-32: WGEA survey response (number and percent).

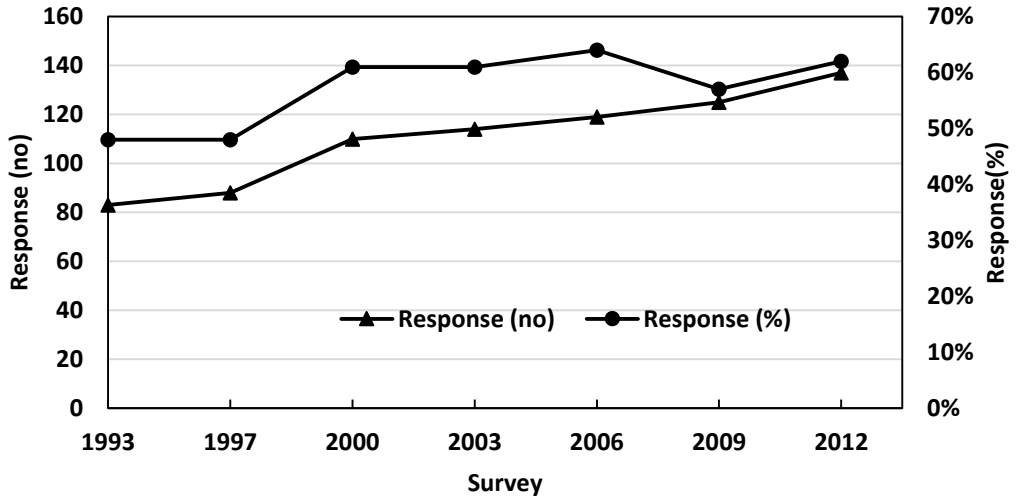
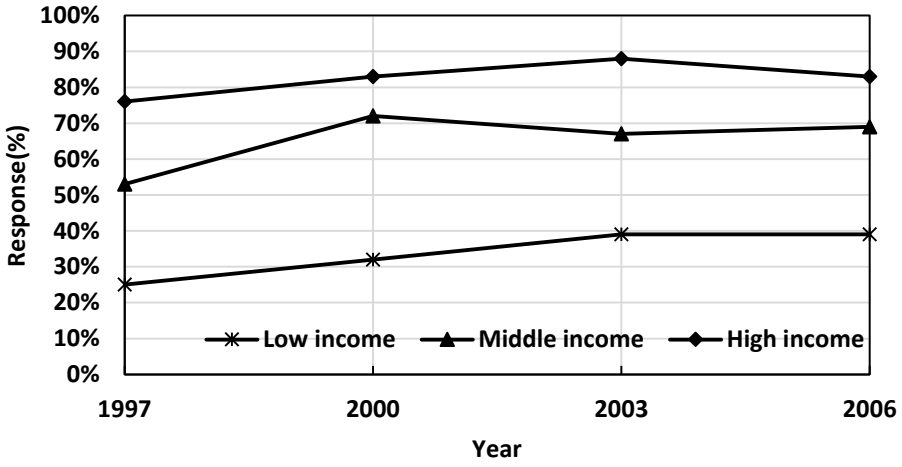


Figure 3-33: Income level and WGEA survey response (%)

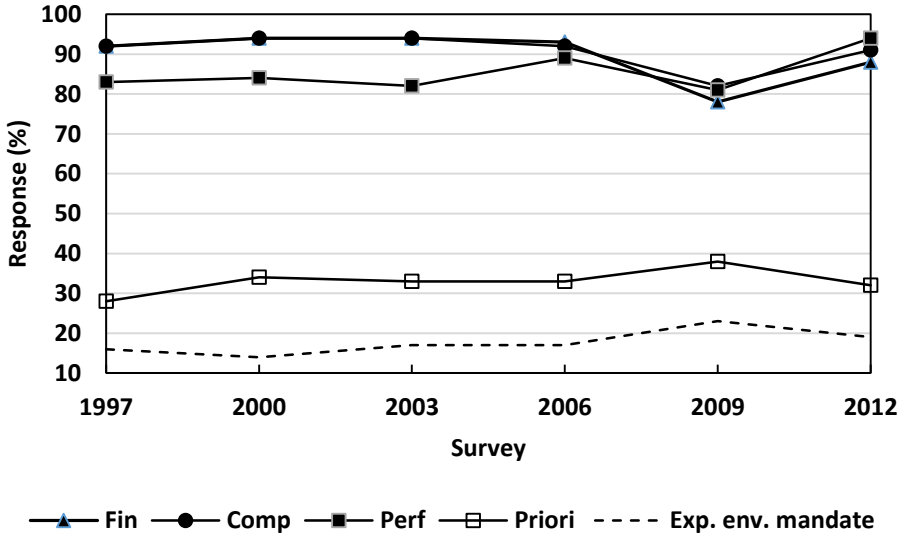


3.5.2 Change in audit mandate

Different types of auditing mandate reported in six WGEA surveys between 1997 and 2012 are shown in Figure 3-34. This figure shows that there has been very little change to the SAIs' mandate over the period 1997-2012. Financial audit and compliance audit mandates seem to have been slightly reduced (from about 94% to 90%) and performance audit mandate seem to have slightly increased (from 83 to 94%). Further, there has been a minor increase (from 16% to 19%) in the percentage of SAIs reporting having specific mandate for environmental auditing. Interestingly the percentage of SAIs reporting having financial, compliance and performance audit mandates have all decreased in the 2009 survey. However, the percentage of SAIs having a priori audit and specific environmental mandate has increased in this

survey. This may be due to the difference in response between the surveys—a different set of SAIs responding to the question, and difference in perception of the SAIs how they can use the different existing mandates to audit environmental matters.

Figure 3-34: Audit mandate reported in different surveys.



Percentage of SAIs reporting change in their mandate is declining. Compared to the high proportion of SAI reporting change in their mandate in early surveys (1997 (23%) and 2000 (14%), only a very small percent (5%) of SAIs reported a change in their mandate in 2006 and 2012 surveys. The change (27%) reported in 2009 survey seems to be an exception. While some real change might have happened, the high value of change may also be due to the difference in response coverage by SAIs or different set of SAIs responding to the particular question.

In most cases, where SAIs have reported a change, their mandates have been extended. For example, of the six SAIs that reported a mandate change in the 2012 survey, one gained an explicit mandate for environmental auditing; three gained a mandate for performance audits; and one got access to state-owned enterprises and companies. Only one SAI lost its mandate to review public sector revenue (WGEA, 2012a: 11).

Barring some minor decline (noting the exception of 2009 survey), SAIs mandate seems quite stable over the long-term. This is consistent with the institutional nature of SAIs. SAIs are generally apolitical, enduring institutions generally established through statutes (including the constitution in some countries, such as India) or consensus-based executive decisions. Thus, frequent changes in their mandate is not very likely. However, the use of the existing mandate to audit governments' initiatives in environmental areas is quite recent, compared to centuries-old history of these institutions. Some minor changes to the SAIs mandates to suit the environmental topic or otherwise, might have occurred globally. However, it is not unlikely that interpretation, or the perception of the mandate (by different individuals responding to different

surveys from within the same SAIs), will vary between the surveys. This may explain some of the changes in the traditional mandate visible in Figure 3-34.

3.5.2.1 Non-audit role of SAIs: Help to government on environmental matters

SAIs do perform roles other than auditing, such as assisting governments through offering management and policy advice as a byproduct of audits. For example, SAI of Australia issues Better Practice Guides (BPGs) to improve public administration on a range of matters including procurement and policy implementation (ANAO, 2016b. Note, however, some rethinking is taking place in the ANAO on BPGs (Hehir, 2016)). Thus SAIs can have additional environmental roles not related to audit. Their mandate may include environmental petition processes or reviews of their government's sustainable development strategies (WGEA 2007a: 25), for example, in Canada.

While there is no information available on the WGEA website on non-audit (advisory/assistance) mandate of SAIs, the WGEA surveys up to 2006, reported data on the SAIs advice/help to governments on matters, such as formulation of environmental legislation, policies and programs and development of environmental indicators, performance measures and monitoring systems. The available survey data on the matter is given in Appendix C (Tables C-1 – C-3). The 2006 survey that also categorized this data based on income levels, reported that some SAIs—mainly from low and medium income (developing) countries—have a mandate to help their governments on such matters. Compared with their developing peers, a lesser proportion of SAIs in high income (developed) countries help their governments on policy matters. As discussed in Chapter 2, getting involved in policy matters is not considered conducive to the independence of SAIs—the fundamental premise of a public audit. The survey data thus suggests that developed SAIs have a higher degree of independence than their developing peers.

Van Leeuwen (2004a) who presented the analysis of 3 initial surveys (up to 2000), observed that advisory role of the SAIs was growing. The growing trend continues in some aspects of help (such as, 'helping government evaluate their capacity to develop and implement environmental policies or programs': 18% (2000), 20% (2003) and 24% (2006)). However, in some other aspects, there is a declining trend ('helping government produce their environmental reports': 2000 (15%), 2003 (10%), 2006 (6%)). Overall, there is a mixed trend in SAIs help to governments. Nevertheless, a significant proportion of SAIs, especially in low and medium level countries, continue to advise and help their governments on environmental matters.

While SAIs have some useful expertise to offer to their respective governments, they need to be careful about maintaining their position of independence. They should avoid conflict of interest resulting from their involvement in setting standards and auditing against them (Van Leeuwen, 2004a). Concerns have been raised over the conflict between SAIs performance audit and advisory roles. They could bring SAIs too close to the executive to cause loss of independence (see for example, Kells, 2011; Kells and Hodge 2009; Gendron et al., 2001; Skærbæk 2009; English, 2007).

3.5.3 Environmental policies

Van Leeuwen (2004a) observes that policy of the government (e.g. program statements and objectives) is the starting point of audit by an SAI, as they generally serve as the source of audit criteria. If there is no environmental policy, there is nothing to audit against. In other words, auditing becomes difficult in the

absence of an environmental policy (Van Leeuwen, 2004a). WGEA has collected data on environmental policies until the 4th survey (2003) using a very broad definition of 'environmental policy'. It can be "a comprehensive green plan, environmental or sustainable development policies, programs or a collection of statutes and regulations governing the environment" (WGEA, 2000: 24; WGEA, 2004: 6). The available survey data is shown in Table 3-24. Most of the participating countries in each survey indicated that they had an environmental policy. By the 2003 survey, 93% SAIs indicated that their country had an environmental policy. Regarding the content of the environmental policy, in the 2003 survey 88% of SAIs indicated that their country's policies stated the objectives to be achieved; and 81% indicated that the policies specified the instruments to be used. However, comparatively a lesser proportion of SAIs indicated that policies contained specific targets to be met in specified years (61%) or explained how the achievements would be monitored and reported (63 %).

The four descriptors (elements) of policy in Table 3-24 may be grouped into two for better understanding: (1) intent (objective); and (2) effort (instrument, targets and monitoring and reporting). It is interesting to note that the policy intent is not matched by the level of effort required to achieve the intent as indicated by the lower response percentage for the 'effort' group than 'intent' group.

Compared to the previous surveys, there seems to be a decreasing trend in the specification of policies content. However, caution is required in interpreting the results. Firstly, despite decreasing percentage, increasing (absolute) number of SAIs have indicated a positive response for each policy content descriptor. It is rare (due to legislative changes) that once an environmental policy has these descriptors in place, they will disappear. Secondly, WGEA notes that the same group of SAIs have not answered the surveys in 1997, 2000 and 2003. There was a higher representation of low-income countries in the 2003 survey than in earlier surveys. It is likely that environmental policies of these countries do not have the specific details discussed here (WGEA, 2004: 6).

Table 3-24: Information on government policy (Source WGEA, 2004:6-7).

Survey matter	**1993 (N=58)**	**1997 (N=73)**	**2000 (N=104)**	**2003 (N=114)**
The government has an environmental policy (Yes %)	83%	91%	93%	93%
The environmental policy describes any of the following: (Yes %)				
The objectives to be achieved	N/A	92%	90%	88%
The instruments to be used	N/A	79%	78%	81%
The targets to be met in specified years	N/A	66%	68%	61%
How achievements will be monitored & reported	N/A	71%	67%	63%

N/A: Not available

The environment being a public good, it is generally looked after by government (public sector). The governments make decisions such as legislation, policies formulation and implementation and investment for the environment. Given its importance, WGEA initially (until the 2003 survey) collected data on

decision making in the environment sector (shown in Table 3-25). It is evident from the data that in most countries (85%), the national government makes decisions on environmental matters. However, in more than half of the countries (61%), local, regional, provincial, or state governments also make policy decisions on the environment. About in one third of countries, non-governmental public bodies (such as semi-governmental organizations and quasi-autonomous non-governmental organizations) are also involved in environmental decision making including policy and program implementation. As environmental issues, in most cases, transcend political boundaries, involvement of multiple bodies—including non-governmental bodies—in environmental policy and program implementation is not unusual. A country's constitution, governing structure and tradition determine how power/jurisdiction is delineated and shared between different layers of government on different matters including the environment. However, given the nature of the environmental problems, involvement of multiple actors is likely to be a norm rather than exception. While multiplicity of actors may improve the support for environmental initiatives, this creates challenges for assigning accountability. This has significant implications for SAIs in undertaking environmental audit especially performance audits. These audits become more complex, especially when roles, responsibilities and tasks are not cleanly delineated (Van Leeuwen, 2004a).

Table 3-25: Environmental decision making body (Source, WGEA, 2004: 7).

Environmental decision making body	**1997 (N=79) (%)**	**2000 (N=107) (%)**	**2003 (N=114) (%)**
National government	97%	99%	85%
Local, regional, provincial, or federal state governments	53%	61%	61%
Non-governmental public bodies (including semi-governmental organisations and quasi-autonomous non-governmental organisations or quasi and environmental regulators)	22%	28%	29%
A shared responsibility#	-	-	26%
Others	6%	12%	4%

This question was not asked in 1997 and 2000 surveys. Note percentage will not add to 100%, as they are not exclusive.

Drawing upon two decades of experience of member SAIs in conducting environmental audit and a survey of 52 countries conducted in 2011, the WGEA (2012c: 13) identified top 10 issues consistently faced by SAIs in environmental audits around the world. The top three issues relate to the unclear role/responsibilities, lack of coordination between the different levels of government and deficiency in environmental policies. In this report, that formed the basis of the INTOSAI submission to the United Nations Conference on Sustainable Development, 2012 (Rio+20) WGEA (2012c: 13) observes that:

> … [T]here is a lack of clarity regarding the specific role each one of those entities plays and what they are responsible for, resulting in overlapping responsibilities across agencies and departments. These overlaps compromise the effectiveness of policy coordination and duplicate efforts…..

> … [E]nvironmental problems occur at all levels, from local to global, and involve municipal, regional, and national governments. Governments need to improve the integration and coordination of their work at different levels.…
>
> …[S]ome governments have not yet created effective policy tools and systems to govern environment and sustainable development. Some have not improved public policy tools and processes as recommended. Targets, objectives, or commitments may be in place for some policies, but they are not always supported by comprehensive and specific national, regional, or sectoral strategies and plans….

From Table 3-25, it appears that compared with the previous surveys, the percentage of countries where environmental policies are decided by national government has dropped and that where they are decided by local or state governments and non-governmental public bodies has increased. However, this may be due the different composition of survey respondents, rather any actual change. Compared to the results of previous surveys, more low-income countries responded to the 2003 survey (WGEA, 2004: 7).

It seems that the understanding of the environmental policy issues, including the jurisdictional boundaries, has reached maturity from the perspective of audit. Consequently, these issues are not likely to change much with time. This may have prompted the WGEA to discontinue collecting data on these matters.

3.5.4 Impact of environmental performance audits

As discussed in Chapter 2, improving performance along with ensuring accountability are two main purposes of performance audits (Barzelay 1996; Kells, 2011; Lonsdale, 2000; Pollitt & Summa, 1997). Therefore, assessing the impact of performance audits (i.e. what improvement) has been an area of interest for long time (see for example, Lonsdale, 1999b). Assessing the impact of performance audit is a formidable task (Lonsdale, 1999b) that becomes more challenging for an area like environment that is quite complex. While it remains a contested area (Lonsdale, 2011a), many SAIs put considerable efforts in measuring and publishing the impact of their performance audits. For example, the UK National Audit Office (NAO) and the US Government Accountability Office (GAO) estimate financial benefits of their performance audits and publish them in their annual reports. The NAO (2011: 1) reported annual financial benefits of more than £1 billion in improved services to citizens, and increased transparency and accountability; while GAO (2011a: 2) reported annual financial benefits of its audits at $US 49.9 billion.

Consistent with the general premise of performance auditing, the main purpose of the environmental performance auditing is to ensure that audits lead to positive impacts on the environment and on the use of public resources for environmental purposes (WGEA, 2012a: 21). Due to growing emphasis on demonstrating the value of audits, WGEA has started collecting data on the impacts of environmental audits since 2006 survey. However, most detailed information is only available in the 2012 survey. As the survey has been evolving—new questions are asked, or question asked in a different way to better capture the data—very limited comparable data is available.

As seen earlier, about 84% of global environmental audit were performance audits during 2003-12. So from the data on the impact of environmental audit collected by the WGEA, some good idea about the impact of environmental performance audits can be gained.

3.5.4.1 Measuring impacts of the environmental audits

WGEA (2012a: 21) notes that establishing a direct relationship between environmental audits and their impacts is challenging due to the complexity of the subject matter. Deficient environmental data, untimely or non-implementation of audit recommendations and a lack of know-how in SAIs are regarded as the main factors complicating the assessment of audit impacts. Despite these challenges, the percentage of SAIs who measure the impact of their environment audits is growing. It increased from 56% in 2006 survey to 88% in the 2012 survey (WGEA (2012a: 21).

Table 3-26 lists the ways SAIs measure the impact of impact of their environmental audits. As discussed earlier, due to variable respondents, caution is required in interpreting any trend in data. So comparison of key matters within a survey may yield better information than comparing corresponding matters between the surveys. The average across surveys may be helpful in this situation.

Table 3-26: The ways, SAIs (%) measure the impact of impact environmental audits (Source, WGEA).

No	Means of measuring the impact of audits	2006 (N=88)	2009 (N =59)	2012 (N=112)	Average
1	Government response to audit recommendations	73%	66%	66%	68%
2	Follow up audit	66%	64%	63%	64%
3	Parliamentary hearings	43%	34%	43%	40%
4	Media coverage	36%	39%	46%	40%
5	Monitor the fulfilment of proposals made in audit reports (e.g. letter, interview)	-	51%	57%	54%
6	Other	7%	15%	4%	9%
7	Do not measure the impact of environmental audits	14%	42%	4%	20%
8	N/A		2%	14%	8%

Note: The 2006 response to 6 has been collected differently from 2009 and 2012.

Table 3-26 shows that there are five identified ways by which SAIs measure the impacts of their environmental audits. The most preferred ways (68%) of measuring the impacts is observing the government response to audit recommendations. This generally happens (e.g. SAIs of Australia, and Canada) generally happens at the conclusion of the audit process, when the government indicates how many of audit recommendation it has agreed to (see from example, Barrett, 2012). This is also generally reported in the audit report itself. Audit recommendations are mostly aimed at the governments departments. As such, their implementation depends upon the government agreement and actions. Therefore, most SAIs would monitor the response to their recommendations by the government as a de-facto measure of impact. While it is expected that 'agreed' recommendations would be implemented in a timely manner, it is not always the case (Barrett, 2012).

The second most favored way (64%) of measuring of impact is 'follow up' audit. This comes in a similar category to the first one but is more involved. Follow up audit is a formal audit requiring more resources than observing government response to audit recommendation. The third most favored way is to monitor the fulfilment of proposals made in audit reports. In this case, SAIs would either correspond with the relevant government agency or interview appropriate personnel to monitor how the agreed actions were

implemented. They may follow-up on audit recommendations, including through any 'observer' status on audited body's internal audit committees that monitor the implementation of SAIs recommendations.

Generally, parliament's committees, e.g. public account committee (PAC), follow up on the SAIs recommendations. SAIs monitor parliamentary hearings of their audit reports as a way of monitoring the impact of their audits. This is the fourth frequently used means of measuring impact of environmental audits by SAIs. While they are more effective in follow up actions, as they have more sway over governments, than any follow up action by SAIs themselves, parliamentary committees' capacity is limited in taking such follow up actions (Barrett, 2012).

Many SAIs do press releases of their audit reports. They further monitor media coverage of their audit reports as a way of measuring the impact of audits (Lonsdale, 1999b). About 40% of SAIs use this method to assess the impact of their Environmental audits. 'Headline hunting' is seen as undesirable by some (Morin 2008: 718). However, others (e.g. Kells, 2011) are quite comfortable with it observing that "press coverage of audit reports can help spread the improvement messages sent by the auditors, pressure agencies to make meritorious changes, and benefit accountability and democracy."

WGEA surveys also provide regional distribution of responses. Of all the seven INTOSAI regions, it was interesting to note that PASAI region registered highest percentage to all means of monitoring the impacts of environmental audits in the 2006 survey (when the data collection started). However, no SAI of the PASAI region responded to the 2009 survey. Their response percentage to different means of monitoring the impacts in the 2012 survey was mixed. While the 2006 PASAI response would have been possible, this may also suggest some issues with the data. As such, its 2012 data could be taken as more realistic. Based upon the score of 2012 survey, all the seven INTOSAI regions were ranked for each means of measuring impact. This is given in Table 3-27.

Table 3-27: Ranking of means of measuring impact of environmental audits based upon the 2012 survey. One means a higher and 7 means a lower rank. A higher rank implies a higher proportion of SAIs use the particular means and vice versa. A higher sum of ranks means the overall rank is lower.

	Relative ranking of different means of measuring impact				
INTOSAI Region	**Parliamentary hearings**	**Follow-up audit**	**Monitor the implementation of recommendations/audit findings (e.g. letter, interview, survey)**	**Media coverage**	**Sum of ranks**
PASAI	1	5	5	2	13
EUROSAI	2	2	1	1	6
ASOSAI	3	4	2	4	13
AFROSAI	3	6	6	3	18
ARABOSAI	5	1	4	6	16
OLACEFS	6	3	3	5	17
CAROSAI	7	7	7	7	28

Note: Unlike 5 categories in Table 3-27, there are only 4 categories in this table, as government response to audit recommendations and monitoring their fulfillment are considered similar, based upon the 2012 survey responses these rankings relate to. The relative ranking of regions remains unchanged with, or, without the fifth category.

It is seen from this table that:

- PASAI ranks first in measuring impact of environmental audit through parliamentary hearings. It ranks fifth in follow up audit, fifth in monitoring the fulfilment of proposals, and second in media coverage;
- EUROSAI ranks second in parliamentary hearings, second in follow up audit, first in monitoring the fulfilment of proposals and first in media coverage;
- ASOSAI ranks third in parliamentary hearings, fourth in follow up audit, second in monitoring the fulfilment of proposals and fourth in media coverage;
- AFROSAI ranks fourth in parliamentary hearings, sixth in follow up audit, sixth in monitoring the fulfilment of proposals and third in media coverage;
- ARABOSAI ranks fifth in parliamentary hearings, first in follow up audit, fourth in monitoring the fulfilment of proposals and sixth in media coverage;
- OLACEFS ranks sixth in parliamentary hearings, third in follow up audit, third in monitoring the fulfilment of proposals and fifth in media coverage; and
- CAROSAI ranks seventh in parliamentary hearings, seventh in follow up audit, seventh in monitoring the fulfilment of proposals and seventh in media coverage.

Based upon the overall score (sum of rank), EUORSAI emerges as the leader in measuring the impact of environmental audit, while CAROSAI comes last. As US and Canada are not included in the INTOSAI regions, they have not been ranked. If included together, they would come ahead of EUORSAI. The regional ranking reflects the overall relative strength of their democratic accountability institutions of which SAIs are a part.

3.5.4.2 The level of impact

The 2009 and 2012 WGEA surveys collected data on level of impact environmental audit was making, or the degree to which audit was helping governments in improving their performance in different aspects of environmental management, including, policy making and processes for implementation of those policies. This is given in Table 3-28. A few adjustments to the original data has been done. The full impact of 2009 is considered comparable with the high impact of the 2012 survey. The medium and low impact scores of the 2012 survey together is considered comparable with the partial impact score of the 2009 survey. The average of the comparable scores of 2009 and 2012 survey has then been considered for discussion. For brevity, the high and medium impacts are discussed together a group distinct from no impact.

Table 3-28: Level of impact of impact (% of SAIs) of environmental audits in helping government (Source, WGEA).

Help government to:	2009 (N=106)	2012 (N=112)	Average
improve the functioning of policies and programs			
High/full	-	19%	19%
Medium/partial	-	61%	61%
No impact	-	4%	4%
N/A	-	16%	16%
formulate environmental legislation or environmental policies and programs			
High/full	11%	15%	13%
Medium/partial	51%	57%	54%
No impact	25%	10%	18
N/A	13%	18%	16%
evaluate their capacity to develop and implement environmental policies or programs			
High/full	18%	14%	16%
Medium/partial	49%	65%	57%
No impact	20%	4%	12%
N/A	13%	18%	16%
generate their environmental indicators, performance measures, monitoring systems, or other policy information to evaluate environmental policy			
High/full	14%	13%	14%
Medium/partial	44%	58%	51%
No impact	28%	13%	21%
N/A	13%	16%	15%
develop their environmental management systems			
High/full	13%	12%	13%
Medium/partial	50%	59%	55%
No impact	24%	12%	18%
N/A	13%	18%	16%
produce their environmental reports			
High/full	9%	8%	9%
Medium/partial	34%	54%	44%
No impact	42%	21%	32%
N/A	14%	18%	16%

It is seen from Table 3-28 that most of SAIs (about 80%) consider that their environmental audits are having either high or medium impact in helping governments improve the functioning of policies and programs. A considerably high proportion (73%) consider similar (high or medium) strong impact in relation to helping governments evaluate their capacity to develop and implement environmental policies

or programs. Helping governments with formulation of environmental legislation or policies and programs (67%), development of their environmental management systems (67%) and monitoring and evaluating systems (65%) are considered other significant impacts by a larger proportion of SAIs. A lesser proportion (53%) consider their audits having major impacts on helping government produce environmental reports. Less impact was sensed in the case of the environmental management systems and environmental reports.

Table 3-28, further, shows that the proportion of SAIs having a view that their audits have no impact is decreasing for all matters. This should be treated with caution noting the change in methodology between the 2009 and 2012 surveys (WGEA, 2012a: 22).

3.5.4.3 Increasing the impacts of environmental audits

WGEA (2012a: 22) reports that SAIs, generally, consider good communication with auditees, the most effective way of increasing the impact of audits. Publishing audit results, monitoring the implementation of audit recommendations and communicating with parliament are considered other ways of increasing the impacts of environmental audits (WGEA, 2012a: 22). Due to their independence, there may be some constraints for SAIs in communicating with their auditees. However, their independence gives them greater freedom in communicating and disseminating their audits findings. There are several ways in which SAIs communicate the results of their environmental audits these days. Those reported in the 2012 survey and their ranking, based upon response percentage, is given in Table 3-29. The most 3 popular means for communicating the results of environmental audits are publishing full audit reports online (55%), distributing printed versions of audit reports (53%) and issuing press releases (47%). A very low proportion of SAIs (6%) indicate that their reports are not made public. The other means of communicating environmental result include publication of audit results in the SAIs annual reports, or in the reports of their respective parliaments (WGEA, 2012a: 22).

Table 3-29: Means of communicating results (% of SAIs) of environmental audits (Source WGEA, 2012a).

Rank	The way SAI communicate results of environmental audits	SAI response (N= 112)
1	Full audit report made public on the web	55%
2	Distribution of a printed version of audit report	53%
3	Press releases	47%
4	Briefings of journalists	28%
5	Radio/TV appearances	27%
6	Articles in printed media (by the SAI)	18%
7	Only audit summary made public on the web	16%
8	Booklet with audit results	14%
9	Audit reports obtainable upon request	11%
10	Audit reports published in social networks	6%
11	No parts of audit reports are made public	6%
12	Other	20%
13	N/A	14%

The SAIs were quite upbeat about the positive impact of the communication of their audit results. A very high proportion (79%) of SAIs assessed that communicating the results of audits had increased impact either significantly or to some extent (WGEA, 2012a: 22).

3.5.5 Environmental auditing capacity

Environmental auditing generally and environmental performance auditing particularly are interdisciplinary endeavours. (WGEA, 2012a: 25) notes that they involve multiple stakeholders, complex policy tools and new knowledge and consequently are quite challenging even to the experienced auditors. The key to meeting this challenge and successfully conduct environmental auditing is an SAI's human resources – the knowledge and skills of its employees (WGEA, 2012a: 25). As the capacity of the SAIs is central to its ability to undertake environmental performance auditing, the SAIs that have not produced any environmental performance audit during 1992-2012 (recall the discussion in section 3.4.2.7) should be the focus of attention for the INTOSAI and donor agencies when considering efforts to build capacity for environmental performance auditing.

Due to its importance to the environmental auditing, WGEA has collected data on environmental auditing capacity in all its surveys. While questions have varied somewhat between surveys, they could broadly be grouped into two categories related to: (1) resources for environmental auditing; and (2) barriers to environmental auditing.

3.5.5.1 Resources for environmental auditing

The WGEA surveys have not collected data on resources for environmental auditing in a consistent manner. The questions related to the resources in most surveys were put in a slightly different manner. Some questions were asked in only one survey. As such, data is not comparable with each other for most surveys. Some data on SAIs staff resources that is comparable between 2009 and 2012 surveys are presented in Table 3-30 and Table 3-31, while one-off data from surveys, are quoted through reference to those reports. They will be drawn together in discussion in this section.

Table 3-30: Number of auditors (% of SAIs) involved in environmental auditing (Source, WGEA).

1.Percent of employees working full or part time on environmental audits	**2009 (N=106)**	**2012 (N=112)**	**Average (%)**
0%	9%	22%	16%
1-4%	54%	50%	52%
5-9%	19%	13%	16%
Greater than 10%	9%	8%	9%
N/A	9%	7%	8%%
2. Specific environmental audit dept.	**40**%	**35**%	**38**

As discussed earlier, due to the variable set of respondents, trends in data should be viewed with extreme caution. Further, two data points are too insignificant to suggest any trend. As such, it would be better to talk in terms of averages, or focus the overall pattern within a survey rather than between them.

Table 3-30 shows that 35-40% of SAIs reported in 2009 and 2012 surveys that they had a separate department working on environmental auditing. The 2006 survey (WGEA, 2007a: 28) reported a similar proportion (35%) having a separate environmental department. Among the INTOSAI regions, OLACEFS has the highest proportion of SAIs (79% (2006), 71% (2009) and 67% (2012)) having a separate environmental audit unit, while no SAI in the CAROSAI region has a dedicated environmental audit unit.

Table 3-30 further shows that, in about half of SAIs, 1-4% of auditors work on environmental audits; in about 1/6 of SAIs, 5-9% of auditors work on environmental audit, and in less than 10% of SAIs, more than 10% of auditors work on environmental audits. The 2012 survey (WGEA, 2012a: 26) further clarified the sharing of SAIs resources between environmental and other audits. About 50% of SAIs conduct environmental audits along with other audits, (i.e. auditors work part time on environmental audits) while 40% of them have auditors devoted full time to environmental audits (WGEA, 2012a: 26). This is consistent with data on separate environmental auditing unit in Table 3-30.

Table 3-31: Change in employee resources (% of SAIs) (Source, WGEA).

Change in the share of environmental auditors	2009 (N=106)	2012 (N=112)	Average (%)
Decreased	7%	4%	6%
Remained same	58%	66%	62%
Increased	33%	29%	31%
N/A	2%	1%	2%

In the 2003 (WGEA, 2003) and 2006 (WGEA, 2007a) surveys, it was reported that on average, SAIs spent about 2.5% of their budget on environmental auditing. The budget percentage for each INTOSAI region reported in the 2006 survey (WGEA, 2007a: 27) with their proportional contribution to the global environmental performance audit for the period, 1992-2012 is shown in Table 3-32.

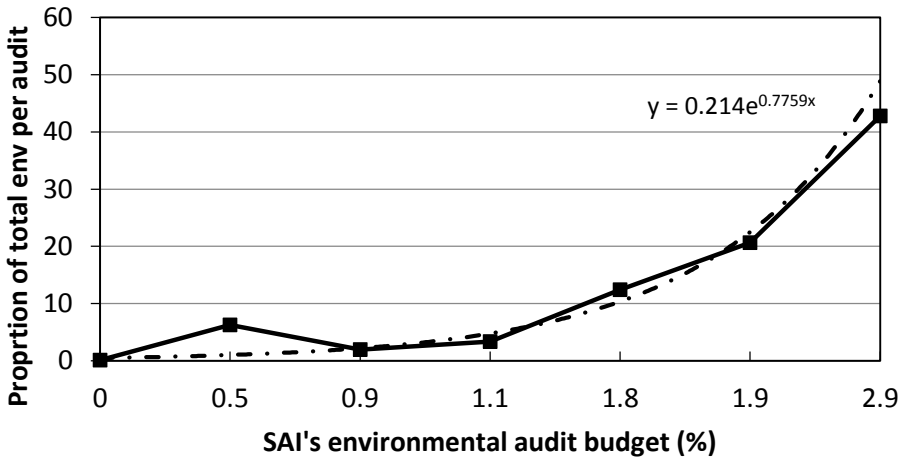
Table 3-32: Proportion of SAIs environmental audit budget and their contribution to global output of environmental performance audit (Budget source, WGEA, 2012a: 27).

INTOSAI Region	Env. audit budget (%)	No of env. perf. audits	Env. perf audits (%)
CAROSAI	0	3	0
ARABOSAI	0.5	148	6
AFROSAI	0.9	46	2
PASAI	1.1	79	3
ASOSAI	1.8	295	12
OLACEFS	1.9	490	21
EUROSAI	2.9	1015	43
Other	-	296	12
Total	**2.4**	**2372**	**100**

This table shows that, of all the INTOSAI regions, Europe (2.9%) was the highest spender and CAROSAI (0%) was the lowest spender on environmental auditing.

The SAIs budget may be considered as a broad indicator of its environmental audit capacity. It is recognized that SAIs budget has varied. However, to test the relationship between SAIs budgets (capacity) and their environmental performance audit output, it was assumed that the budget for regional SAIs groups remained constant at the known level. The relationship between the INTOSAI regional group percentage budget and its share of environmental performance audit output is shown in Figure 3-35. This figure indicates that with the exception of ARABOSAI region, there is almost an exponential relationship between the proportion SAI budget spent on environmental auditing and environmental performance audit output. As the percent budget increases, there is proportionally greater increase in its contribution to environmental performance audit. This is consistent with the expectation. Environmental performance audit requires more resources. More environmental audit budget allocation, thus, should result in more environmental performance audits. However, the budgetary effect is nonlinear, which means there may be some sort of feedback loop causing this multiplier effect. The increased SAI budget may enhance SAI capacity in more than one way. For example, it may provide for additional staff, their training and capacity building, data collection, physical resources such as computer, internet and software packages, exchange of information and knowledge sharing through cooperation with other SAIs. These multiple benefits more likely create manifold increase in effective capacity; hence enhanced SAI environmental audit budget creates non-linear increase in the output of environmental performance audit output. It would be interesting to investigate this matter with more data.

Figure 3-35: Relationship between budget (capacity) and environmental performance audit output.



In the vast majority of SAIs (about 95%), the share of employees working on environmental audits has either stabilized or is increasing (Table 3-31). Only in a very small proportion (about 5%) of SAIs the share of employees working on environmental audits is decreasing. In the 2012 survey, 66% of SAIs reported that there was no change in the share of employees working on environmental audits; 29% reported an increase in share; and only 4% reported a decrease in the share of environmental auditors. In this survey, 61% of SAIs also indicated plans to increase the number of environmental auditors in the next three years. Most SAIs of CAROSAI (100%), AFROSAI (90%) and ARABOSAI (89%) regions were planning to increase the number of environmental auditors (WGEA, 2012a: 68). It is encouraging to note that the SAIs in regions

that generally had lower capacity (budget) in the past, were planning to increase the number of environmental auditors.

From the discussion above, it could be concluded that, while environmental auditing may be small proportion of the overall activities of the SAIs, it is now well recognized as a discipline and resources allocated to it are either stable or increasing, but certainly not decreasing in the vast majority of SAIs.

3.5.5.2 Background and competencies of environmental auditors

The 2012 survey reported that, in 50% of the SAIs environmental auditors had a degree in an environment-related field, while, in 47% SAIs, at least one auditor had previously worked in the environmental sector. In terms of competencies and experience of environmental auditors, performance auditing (76%) emerged on the top, followed by compliance auditing (73%). Other competencies reported were financial auditing (69%), public administration and management (66%), finance such as accounting, taxation, financial analysis (62%) and law (57%). Other competencies (13%) comprised mostly of engineering. Despite the wide range of experience and competencies of people engaged in environmental auditing, their lack of skills and knowledge of the discipline remains an issue for consideration in terms of capacity building (WGEA, 2012a: 28). This is evidenced by barriers to environmental auditing that will be discussed in the next section.

3.5.5.3 Barriers to environmental auditing

The following most common barriers to environmental auditing have been identified by the WGEA and questions related to these have been asked in most surveys. In order to fit them in a table and graph, these barriers have been abbreviated as given in the bracket.

- Lack of skills or expertise within the SAI (Skills);
- Insufficient data on the state of the environment (Data);
- Insufficient monitoring and reporting systems (Mon & rep);
- Insufficient formulation of government environmental policy, such as goals that are not measurable, absence of a strategy, or insufficient regulatory framework (Policy);
- Insufficient established environmental norms and standards (Norms & stds);
- Inadequate SAI mandate (Mandate); and
- Other.

The following three additional factors were identified in the 2012 survey.

- Lack of human resources (Resources);
- Lack of environmental programs (Programs); and
- Lack of technical resources (e.g. insufficient equipment, poor Internet connection etc.) (Technical)

While it may be argued that lack of human resources may be considered part of skills factors, WGEA has considered it worthy of a separate factor, as this may be related to the sheer number of people available within the SAIs. Identification of lack of environmental programs to audit is an interesting factor to note. It may not in itself reflect any deficiency in SAIs. However, when it comes to measuring and reporting their outputs in terms of environmental audits as compared to their peers, it becomes an issue.

Table 3-33 summarizes the response of SAIs in different surveys related to these factors that act as barriers to environmental auditing. The table also lists the response to the three new factors that were raised for the first time in the 2012 survey. Some caution is required in interpreting trends in the survey data, as respondents vary between surveys (There was an overlap of 71% between the 2009 and 2012 surveys (WGEA, 2012c: 38); and of 79% between the 2003 and 2006 surveys (WGEA, 2007a:60-61); however, the response percentage of core set of countries that participated in all surveys is indeterminate due to unavailability of individual responses). Due to these limitations, only some general and qualitative observations can be made about any trend.

Table 3-33: Most common barriers to environmental auditing (% of SAIs 'yes' response). The barriers are abbreviated and shows a lack of or deficiency in the abbreviated item (Source, WGEA).

Barriers	1997 (N=79)	2000 (N=105)	2003 (N=114)	2006 (N=79)	2009 (N=106)	2012 (N=112)	Average
Skills	-	50%	58%	56%	58%	59%	56%
Data	41%	37%	40%	51%	62%	66%	51%
Mon & rep	51%	39%	40%	41%	68%	65%	51%
Policy	-	26%	31%	40%	52%	57%	41%
Norms & stds	49%	35%	40%	35%	52%	37%	40%
Mandate	22%	26%	25%	22%	21%	11%	21%
Other	30%	11%	9%	6%	30%	12%	14%
Resources	-	-	-	-	-	65%	65%
Programs	-	-	-	-	-	30%	30%
Technical	-	-	-	-	-	29%	29%

Table 3-33 shows that a lack of skills or expertise within SAIs, insufficient data on the state of the environment and insufficient monitoring and reporting systems have been consistently identified by SAIs as the three most frequently encountered barriers to environmental auditing. Assuming that an SAI has a mandate to audit, and there is some environmental program to audit, these three factors form the basic questions about the audit: (i) does the SAI has necessary skill/expertise to undertake the audit (including the capacity to engage with auditees); (ii) is there sufficient information available to audit; and (iii) are there sufficient systems and processes in place to get data and information on an on-going basis? As environmental policies and programs, generally, are long-term endeavours, their audit generally would require long-term monitoring. The latter two questions that relate to this, are within the purview of auditees—not SAIs.

Concern about the audit barriers in INTOSAI regions was analyzed based on the average of 3 surveys (2006, 2009 and 2012) scores for each barrier in each region. Each barrier was then ranked 1-7 among the seven INTOSAI regions with 1 being the highest rank and 7 being the lowest rank. The higher rank (i.e. lower rank score) thus shows higher concern about barriers. This ranking is given in Table 3-34.

Table 3-34: Ranking of barriers to environmental auditing amongst INTOSAI regions (1 means higher rank and shows comparatively higher concerns, 7 shows comparatively lower concerns amongst INTOSAI regions).

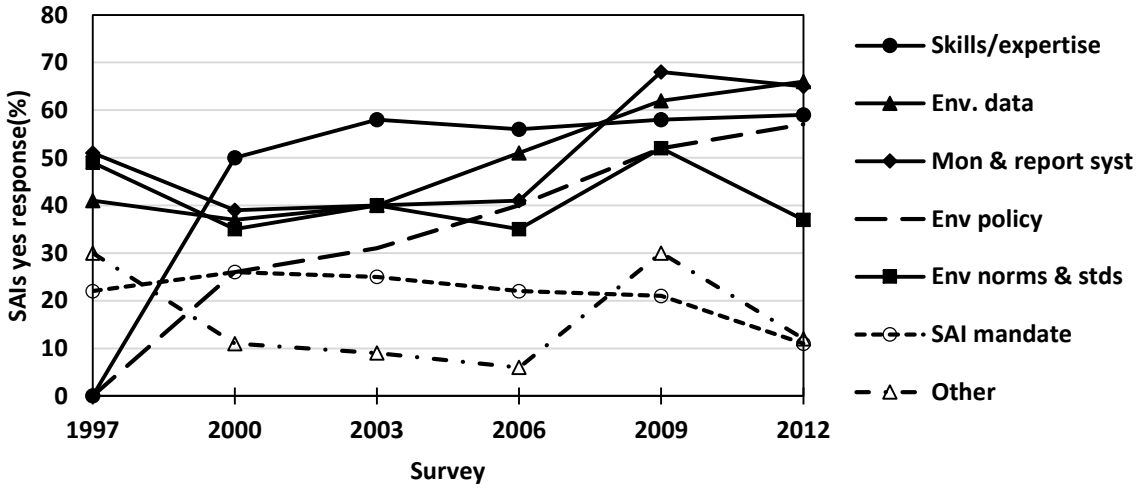
INJTOSAI Region	Skills/expertise	Env. data	Mon & report syst	Env policy	Env norms & stds	SAI mandate	Overall sum	Overall rank
ARABOSAI	1	2	2	6	1	2	14	1
OLACEFS	2	1	1	1	4	6	15	2
PASAI	5	3	4	2	2	3	19	3
ASOSAI	4	4	5	3	5	4	25	4
AFROSAI	6	5	3	4	3	5	26	5
CAROSAI	3	7	7	7	7	1	32	6
EUROSAI	7	6	6	5	6	7	37	7

Note: Data for OTHERS available only for 2009 and 2012 surveys

In terms of INTOSAI regions, concerns about the top three barriers are higher in OLACEFS and ARBOSAI than in other regions; and are lower in CAROSAI and EUROSAI than in other regions.

In terms of temporal trend (Figure 3-36), the skills factor is almost static, whereas data and monitoring & reporting factors show increasing trend. This suggests that while concerns about the lack of skills/expertise as a barrier to environmental remain high, concerns about the data and monitoring is growing. Even in pretty developed regions, Europe and Northern America, where concerns about a lack of skills as a barrier are quite low, SAIs' concerns about insufficient data on the state of the environment and inadequate monitoring and reporting systems are growing.

Figure 3-36: Temporal variation of global barriers to environmental auditing (Nil values in 1997 indicate an absence of related data rather than an absence of certain barriers).



The next most frequently faced barrier is a lack of details in environmental policies. It is not uncommon that environmental policies are insufficiently formulated, with the result that they have vague all-

encompassing aspirational goals that cannot be measured; they lack a strategy for implementation; have unclear roles and responsibilities and they do not sufficiently specify regulatory framework. There may be reasons for this so called 'constructive ambiguity'. Environmental problems being socioeconomic involve a large number of stakeholders, who sometimes hold diametrically opposing views. In order to bring the maximum number of stakeholders on board and move forward, sometimes governments have to craft environmental policies in a quite ambivalent way. Perhaps having an imperfect and insufficiently detailed policy is considered a better alternative than no policy at all. Democratic governments all over the world face this sort of stark choice in contentious policy areas such as the environment. While this explains the reasons for insufficiently detailed environmental policies, this does make the work of SAIs harder when it comes to auditing the implementation of those policies. As auditing involves comparing what 'should be' with 'what is', not knowing from the policy what 'should be' makes it harder to audit.

Concerns about the details of environmental policies (Table 3-34) are higher in OLACEFS and PASAI and lower in CAROSAI and EUROSAI than in other regions. Surprisingly, SAIs of US and Canada, too are highly concerned about this factor. In terms of temporal trend, globally increasing numbers of SAIs are reporting that insufficiently detailed environmental policies is a barrier to environmental auditing.

The environmental norms and standards reflect the social values about the environment codified in some professional or even legal documents. They also guide the SAIs in formulating the criteria for environmental audits. The mandate is the power of an SAI to conduct the audit.

On average, a smaller proportion of SAIs consider environmental norms & standards and mandate as barriers to environmental auditing (Table 3-34). These two factors also exhibit temporally decreasing trend (Figure 3-36). Environmental norms and standards are a matter of higher concern in ARBOSAI and PASAI and of lower concern in CAROSAI and EUROSAI than in other regions. Surprisingly, either Canada or US is also concerned about environmental norms and standards and considers it a barrier to environmental auditing. WGEA has consistently maintained that SAIs existing mandate are considered sufficient to undertake environmental audits. Despite this, a significantly large proportion of SAIs in CAROSAI and AROSAI regions still consider it as barrier to environmental auditing.

Of the newly identified factors barriers (Table 3-33), the lack of human resources is considered as a barrier to environmental auditing by about two thirds of SAIs. This is as high as concern for inadequate monitoring and reporting systems. The majority of SAIs in all regions except Europe (46%) consider it a barrier to environmental auditing. The concern for this factor is higher in PASAI (89%), CAROSAI (83%) and OLACEFS (80%) than in other regions. Surprisingly, either USA or Canada is also concerned about this matter.

About one third of SAIs (Table 3-33) consider the lack of environmental programs (30%) and lack of technical resources (29%) as barriers to environmental auditing. The concern for a lack of environmental programs is higher in ARBOSAI (56%) and PASAI (56%) is higher than in other regions. For some regions (e.g. EUORSAI, CAROSAI) either it is not a concern, or a concern to a very low proportion of SAIs. This is also not a concern either to US or Canada. About half of SAIs in AFROSAI (52%) and PASAI (44%) perhaps lack physical resources such as equipment and internet; therefore, consider them as barriers to environmental auditing. The low or middle income status of the majority of the countries in these regions

explain the dearth of physical resources there, and hence, their concern for these as barriers to environmental auditing.

All the above barriers to environmental auditing are more so for environmental performance auditing as this form of auditing is more resource intensive both in terms of skills and data.

In its fifth survey, WGEA (2007a: 32) specially reported on the most frequent barriers for the countries that have not conducted environmental audits and compared with the previous survey. It found that the barriers were in the following order—top to bottom.

Table 3-35: Most common barriers for SAIs (% of SAIs) that have never conducted environmental audits (Source WGEA, 2007a).

Barriers	2003 (N=37-40)	2006 (N=31)
Lack of skills or expertise within the SAI	83%	65%
Inadequate SAI mandate	40%	35%
Insufficient data on the state of the environment	35%	29%
Insufficient established environmental norms and standards	53%	26%
Insufficient formulation of government environmental policy	48%	23%
Insufficient monitoring and reporting systems	38%	23%
No barriers	16%	3%
Other	8%	3%

Compared with barriers for the overall group (Table 3-33), the top most barrier, lack of skills is the same for this group. So it can be said that a lack of skills is the universally most significant barrier. The two of the top three barriers for this group in 2003 (skills and norms and standards), and in 2006 (skills and data) are common with the overall group. However, significant change is observed between these two surveys in relation to concerns for inadequate mandate (note the change in rank). Relatively, more of SAIs that were not conducting environmental audits, considered that inadequate mandate was a barrier in 2003 than in 2006. This matter is on the sixth rank on overall average priority for the overall group (Table 3-33). In terms of regions, this was a matter of higher concern for SAIs in CAROSAI**,** ARBOSAI and PASAI (Table 3-34).

3.5.5.4 Measures for overcoming barriers

In the 2006, 2009 and 2012 WGEA surveys, SAIs were asked to select from a list of 8 measures that they had taken to overcome the barriers. Three additional measures were added to the list in 2012. Percent of SAIs selecting each measure in each survey is shown in Table 3-36. This table shows that training staff is the most popular measure taken by SAIs to overcome barriers to environmental auditing. The ranking of other measures has changed. For example, direct environmental data collection was reported as the second most popular measure in the 2006 and 2012 surveys, whereas using international organization environmental standards for audit work was considered as the second most popular in the 2009 survey. Working with the Regional Working Group on Environmental Auditing that was the third most popular measure in the 2006 survey, came fourth, in both the 2009, and 2012 surveys. Based on the average score

of the surveys, the ranking of measures is as shown in Table 3-36. About 30% of SAIs have been cooperating with universities or research institutes and 20% of them have been developing performance indicators to overcome barriers to environmental auditing. Initiating amendment to their mandate is among the least popular measures.

Significantly, a high proportion of SAIs reported in the 2012 survey (Table 3-36) that they had taken the newly identified measures, agreeing on performance criteria with audited bodies (39%), engaging subject matter experts (35%) and benchmarking with international/other countries standards (34%). If the measures reported in 2012 were ranked in themselves, these three would rank at fourth, fifth and sixth place ahead of working with the Regional WGEA.

These new measures are interesting and especially useful for the environmental performance audits. Environmental programs generally address long-term issues, such as, biodiversity conservation and environmental sustainability that are not easy to firstly, quantity, and, secondly, to achieve in the short-term. How to quantify and assess outcomes in the short-term for such long-term initiatives is a key issue when undertaking performance audit of such programs. It is not uncommon to hear arguments from program managers that 'short-term' quantification of outcome is unrealistic or not possible. Such a view would make auditing long-term environmental programs even more problematic. Developing some intermediate outcomes for such long-term programs has been suggested as a possible way out (Barrett, 2015b; NAO, 2009; ANAO, 2004) to gather useful performance information for auditing purposes. The performance audit can assess availability and suitability of performance information, and subsequently can judge the extent to which required performance has been achieved. It is not the auditor's responsibility to determine more suitable measures and auditing performance against them (Barrett, 2012), as this may compromise independence. However, agreeing on performance criteria with audited bodies will be helpful in conducting the audit and subsequently getting the audit report finalized.

Table 3-36: Measures taken for overcoming barriers (% of SAIs taking the measure) (Source, WGEA).

SN	Measures taken for overcoming barriers	2006 (N=98)	2009 (N=94)	2012 (N=112)	Av
1	Training SAI staff	47%	67%	67%	60%
2	Collection of environmental data from the field directly	36%	53%	53%	47%
3	Using international organization environmental standards	29%	56%	35%	40%
4	Working with the Regional WGEA	34%	47%	31%	37%
5	Cooperation with universities or research institute	19%	37%	24%	27%
6	Developing performance indicators	19%	28%	23%	23%
7	Modification of SAI's mandate	7%	18%	5%	10%
8	Others	11%	26%	8%	15%
9	Agreement of performance criteria with audited bodies	-	-	39%	39%
10	Engaging subject matter experts	-	-	35%	35%
11	Benchmarking with international /other countries standards	-	-	34%	34

The environment is a vast, diverse and complex discipline. As it is not always possible to have expert knowledge in-house on every topic of audit (e.g. environment), engaging external experts in such

situations is an effective way to overcome such capacity constraints becoming a barrier to environmental auditing.

Through international benchmarking, an SAI compares its country's programs, methods and processes with those of other countries considered leaders in the subject field of audit or with any available international standards. SAIs use "benchmarking to: (1) prompt an objective review of processes, practices, and systems; (2) develop criteria and identify potentially better ways of operating; or (3) lend more credibility to audit recommendations" (WGEA, 2013c: 64). It is very encouraging to see SAIs using these measures to overcome barrier to environmental auditing.

The SAIs that have never conducted environmental audits reported in the 2006 survey on the measures taken (same list of measures as in Table 3-36). Training of staff (33%), other measures (21%) and working with the Regional WGEA (13%) were the top three measures. Their order of measures was similar to the larger group, except for cooperation with universities and research institutes that came at the bottom with no SAI reporting taking this measures. For these SAIs that generally also lack staff and other resources, working with universities and research bodies may not be possible, as engaging in such activities itself, requires resources.

On overcoming the barrier for SAIs that have never conducted environmental audits, the 2003 survey had asked the question somewhat differently. Instead of asking for the list of actions taken, the survey asked about the conditions that would help these SAI undertake environmental audits. Among the common questions, the issue of staff training (75%) was on the top and SAI mandate (17%) was at the bottom. Two other conditions helping these SAIs reported were: availability of guidance and environmental standards (28%); and environmental policies or legislation being put in place, against which audits could be conducted. It is interesting to note that the lack of environmental policies/programs is now considered as a general barrier to environmental auditing not just for SAIs who have not undertaken such audits. This is evidenced by inclusion of this matter in the list of barriers in the 2012 survey (see Table 3-33).

3.5.6 Cooperation between SAIs

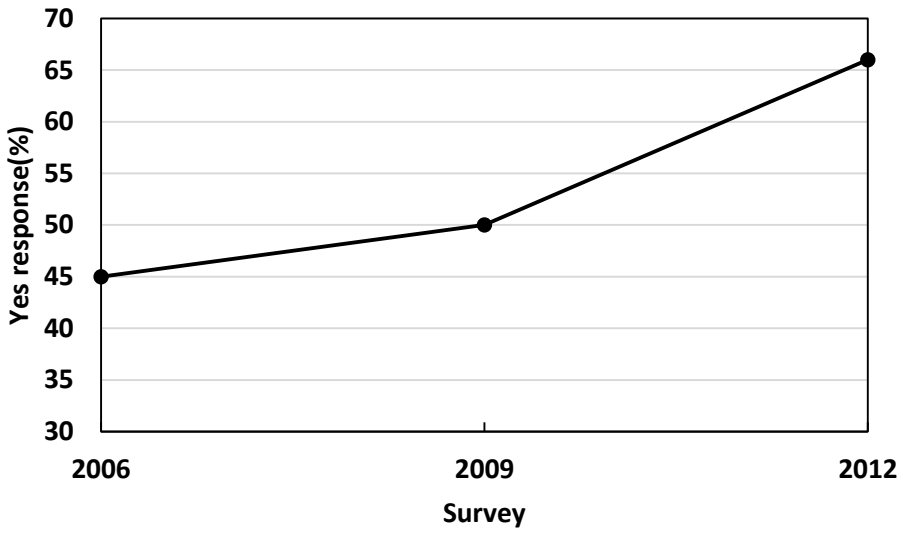
Enhancing cooperation between the SAIs is implicit in the mission and objectives of the WGEA. It facilitates exchange of information and experience among SAIs and pays special attention to cooperation activities such as joint auditing by SAIs of cross border environmental issues and policies, and the audit of international environmental accords (WGEA, 2012d). There are several benefits of cooperation between SAIs. These include:

- exchange of information on audit methodology and comparison of results;
- training each other and capacity building; and
- enhancing impact of audit findings on the government network (WGEA, 2007a:16).

Noting that as with other parts of the WGEA surveys, questions related to the cooperation has also been evolving. As such, data on cooperation is variously available. Some adjustment was considered necessary to derive comparable data.

The information on the proportion of SAIs that said they had cooperated with another SAI on environmental audit matters, is available in the 2006, 2009 and 2012 surveys. This is shown in Figure 3-37. For this graph, the 2006 data has been derived by taking the average of SAIs' percentage response that reported 'no barrier' to cooperation and of those reporting the highest percentage to exchange of information, as the type of cooperation. Noting this caution about data, it is seen from Figure 3-37 that the cooperation between SAIs has been growing. In the 2006 survey about 45% SAIs reported that they had cooperated with another SAI environmental auditing issues. This has grown to 66% in the 2012 survey.

Figure 3-37: Growth in cooperation between SAIs (percent of SAIs who said they had cooperated with another SAI on environmental audit matters).



SAIs cooperate with each other in several ways. These are listed in Table 3-37, with the percentage of SAIs choosing each type of cooperation, in each of the five surveys during 2000-2012, noted. It has already been observed that cooperation between SAIs is increasing. Therefore, rather than looking for a temporal trend in each type of cooperation, it will be more helpful to consider the average of survey responses to determine which type of cooperation is more popular.

Table 3-37 shows that, of the four types of cooperation between SAJs, exchange of audit information or environmental auditing experiences is most popular, followed by cooperation on audit of an international environmental accord. Cooperation on an environmental audit, other than of an agreement or treaty, is the third most popular. Significant cooperation is occurring on the trans-boundary environmental issue. However, as data for this type of cooperation is available only for the 2012 survey, it is too early to say that this type of cooperation is more popular than the third type of cooperation listed in the table.

Table 3-37: Types of cooperation between SAIs (% of SAIs who cooperated) (Source, WGEA).

No	Type of cooperation	2000 (N=104-105)	2003 (N=114)	2006 (N=108-111)	2009 (N=53)	2012 (N=74)	Avera-ge
1	Exchange of audit information or environmental auditing experiences	38%	40%	52%	87%	74%	58%
2	Cooperation with another SAI on an audit related to an international environmental accord	23%	46%	19%	55%	66%	42%
3	Cooperation with another SAI on an audit of an environmental subject, but not on an agreement or treaty	10%	18%	22%	51%	46%	29%
4	Cooperation with another SAI on a trans-boundary environmental issue	-	-	-	-	39%	39%

An overwhelmingly large proportion of SAIs indicate (96% (N= 53) in the 2009 survey and 97% (N=74) in the 2012 survey) that cooperation has been useful. Despite its acknowledged benefits, cooperation is not always occurring, as many SAIs face several barriers. These are listed in Table 3-38 with percentage of SAIs indicating in each survey why they have not engaged in cooperative activities. Again, it is considered more useful to focus on averages, to rank the reasons rather than on temporal trend.

Table 3-38: Reasons cooperation did not occur (%of SAIs) (Source, WGEA).

No	Reasons of cooperation not occurring	2006 (N=119)	2009 (N=52)	2012 (N=37)	Average
1	Lack of resources	45%	31%	62%	46%
2	Lack of skills or expertise within SAI	35%	33%	51%	40%
3	Lack of partners	19%	21%	27%	22%
4	Inadequate SAI mandate	22%	15%	14%	17%
5	Lack of interest in SAI	8%	2%	5%	5%
6	No perceived need for cooperation	-	-	14%	14%
7	N/A or others	8%	4%	24%	12%

Table 3-38 shows that that lack of resources, lack of skills within the SAI and lack of partners for cooperation are the three top reasons cited by SAIs why they are unable to engage in cooperative activities. Lack of resources, including lack of expertise, is the most frequently encountered barrier to environmental auditing (Table 3-33). This becomes more acute in case of cooperation with other SAIs, as resources are required to coordinate and facilitate the cooperation activity, in addition to undertaking an audit. Other reasons for cooperation not occurring are, inadequate SAIs mandate and lack of interest in SAIs. The 2012 survey listed another reason, no perceived need for cooperation.

The ranking (based upon average) of the top three barriers in the INTOSAI regions are shown in Table 3-39. This table shows that EUROSAI ranks lowest for two of the three top barriers, whereas in the one

(topmost, lack of resources) it ranks fourth; and PASAI ranks highest in two of three barriers and third in the other (topmost, lack of resources).

Table 3-39: Ranking of top three barriers to cooperation in INTOSAI regions (1 means highest and 7 means lowest rank).

	Top three barriers to cooperation among SAIs		
INTOSAI region	**Lack of resources**	**Lack of skill or expertise within SAI**	**Lack of partners**
OLACEFS	1	6	4
CAROSAI	2	2	2
PASAI	3	1	1
EUROSAI	4	7	7
AFROSAI	5	5	3
ASOSAI	6	3	6
ARABOSAI	7	4	5

Some overall conclusions that can be drawn from this table are that:

- compared with the other regions, the SAIs in EUORSAI region perceive lesser barriers to cooperation;
- compared with the other regions, the SAIs in PASAI region perceive greater barriers to cooperation; and
- CAROSAI is the next region after PASAI that perceives greater barriers to cooperation.

The WGEA provides a forum for cooperation among SAIs, in addition to promoting environmental auditing through other means such as developing guidelines for auditing different issues. As such, involvement with the activities of the WGEA has issues similar to those with the international cooperation amongst SAIs. While a very large proportion (76%) were involved in the activities of a regional working group, as with the cooperation, a general lack of resources is considered the main reason for not interacting with the regional working group (WGEA, 2012a: 32).

3.6 Conclusion

This chapter has investigated trends in environmental auditing particularly environmental performance auditing through a primary analysis of data on the WGEA website (audit mandate and environmental audit report database) and a secondary analysis of data available in seven WGEA survey reports. Key conclusions include the following.

- Most SAIs have full access to the national government and majority of them have access to provincial or regional government local/municipal or community government and state-owned enterprises. However, access to the non-governmental public enterprises and private sector organizations is limited.
- The number and possibly complexity of environmental performance audits have been growing since WGEA has started keeping record. Over a two-decade period, 1992-2012, globally, about

3600 environmental audits were conducted. About two thirds of them were environmental performance audits. While each decade produced about half of the total environmental audits, the second decade produced almost double the number of environmental performance audit than the first decade.

- The proportion of environmental performance audits has been growing, while the proportion of environmental compliance audits has been declining.
- Growth in environmental performance audits has been both due to more audits being produced by countries (SAIs) that are already active in environmental auditing and the growing number of countries producing environmental audits each year. The growth in environmental performance seems related to the growth in global per capita GDP.
- Distribution of environmental performance audit is skewed. The top ten countries produced about half of the environmental performance audits. Even after 20 years of the record being maintained, about half of the SAIs (most of them in poor regions, such as, Africa and Caribbean) are not producing any environmental performance audits, suggesting capacity gaps.
- There is some relationship between a country's per capita national income and its SAIs' capacity to produce environmental performance audits.
- The production of environmental audit is directly related to the SAIs resources and consequent capacities. SAIs of developed regions such as those of Europe and North America produce significantly larger number of environmental performance audits than SAIs of less developed regions such Africa and Caribbean that have the largest concentration of SAIs not conducing environmental audits.
- Developing countries (generally middle income countries, noting however they are more in number than developed countries), as a group, have a tendency to outperform the developed countries in producing environmental performance audits. However, developed country SAIs, overall, produced more environmental performance audits than their developing country peers over the two decades.
- The proportion of environmental performance audit is generally higher for the developed countries compared with the developing countries. The proportion of environmental compliance audits is generally higher for the developing countries compared with the developed countries.
- The WGEA membership has a strong influence on the output of environmental performance audits. The WGEA-member countries have produced more environmental performance audits than the WGEA non-member countries. Among the WGEA-member countries, the developing (mostly middle income) countries generally outperform the developed countries in producing environmental performance audits. Among the non-WGEA members, the opposite is the case—developed countries generally outperform the developing countries in producing environmental audits and environmental performance audits.
- There is a strong correlation between the proportion of environmental audit budget of SAIs and their contribution to the global environmental performance audits.
- The matters audited in environmental performance audits are related to the developmental level of countries. The development and sustenance issues e.g. drinking water, agriculture are more

important to developing countries and life quality issues such governance transparency are more important to developed countries.

- The performance of government environmental policies/programs is most frequently used objective in environmental audits (higher than any other objective).
- About 50 joint/cooperative environmental audits have been undertaken by about 60 countries. Most of the countries participating in these audits are European countries and majority of the most active countries either belong to the erstwhile Soviet bloc.
- Overwhelming majority of the SAIs measure the impact of their environmental audits. Monitoring the government response to audit recommendations, follow up audit, parliamentary hearings, media coverage are four main ways in which SAIs measure the impacts of their environmental audits on government environmental management activities including programs and policies. Environmental audits are having high or medium impact in helping governments improve the functioning of policies and programs. Good communication with auditees is considered by SAIs the most effective way of increasing the impact of audits. Publishing audit results, monitoring the implementation of audit recommendations and communicating with parliament are considered other ways of increasing the impacts of environmental audits.
- By 2012, most of SAIs had between 1-4% of auditors working on environmental audits and about 40% of SAIs had specific environmental audit department.
- The top three barriers to environmental audit are, lack of skills or expertise within the SAI, insufficient data on the state of the environment, and insufficient monitoring and reporting systems. Other barriers include insufficient formulation of government environmental policy and insufficient established environmental norms and standards. SAIs of ARABOSAI region face higher barriers to environmental audit, and SAIs of EUROSAI facing lower barriers, compared with SAIs in other INTOSAI regions.
- Training staff, collection of environmental data from the field directly, using international organizations' environmental standards, and working with the Regional Working Group on Environmental Auditing are considered four most effective means of overcoming barriers to environmental auditing.
- Notwithstanding the growth in environmental audits, the continued existence of same barriers, even after 20 years, suggests that further and sustained effort is needed to overcome them.
- While cooperating with other SAIs is considered beneficial, many SAIs face several barriers to cooperation. These include lack of resources, lack of expertise within SAI and lack of partners. Compared with the SAIs in other regions, the SAIs in EUORSAI region perceive lesser barriers to cooperation and SAIs in PASAI region perceive greater barriers to cooperation.
- The WGEA is a forum for cooperation among SAIs. Involvement with the activities of the WGEA faces barriers similar to those with the international cooperation amongst SAIs. A general lack of resources is considered the main reason for not interacting with the WGEA and its regional working groups.

Having considered the theoretical foundations in the previous chapter and trends in environmental performance auditing here, the next chapter will investigate current practices in environmental performance auditing.

Chapter 4 : Current Practice in Environmental Performance Auditing - A Global Perspective

4.1 Introduction

The discussions in Chapter 2 and Chapter 3 raised a number of operational level issues regarding environmental performance auditing, such as how environmental policies/programs are selected for audit; how audit criteria are developed; and what methods are used to collect evidence. These invited further investigation. This investigation was undertaken through a global survey of the SAIs that have undertaken environmental performance audits. This chapter presents the results of the global survey. The chapter is divided into 3 further sections. A description of the survey methodology and response is given in section 4.2. Subsequently, the survey results are presented and discussed in section 4.3 and conclusions are given in section 4.4.

4.2 Global Survey of SAIs on environmental performance auditing

4.2.1 Methodology

A questionnaire was developed to explore the operational aspects of environmental performance auditing. Care was taken not to duplicate, to the extent possible, related questions asked by the WGEA in its triennial surveys. In addition to a review by the supervisory panel, the draft questionnaire was reviewed by a senior auditor from the Australian National Audit Office (ANAO) and two retired Auditors General of Australia. The questionnaire (Appendix D) was put into an online survey service, SurveyMonkey.®

The target participant group was made up of the 103 SAIs (72 developing and 31 developed countries), that have undertaken environmental performance audits during the 2-decades period, 1992-2012. These SAIs were identified by the analysis of global data on environmental audit reports on the WGEA website, earlier reported in Chapter 3.

On request, the WGEA agreed to distribute the survey to SAIs. The survey was deployed by the WGEA in late November 2015, via an email to SAIs containing the web link to the survey. The WGEA, however, sent the survey to about 200 SAIs on its contact list. The survey remained open for 10 weeks until early February 2016. During, this period, two reminders for completion were also sent.

4.2.2 Response to the survey

Four SAIs expressed inability to participate in the survey. Two of them were from the target group. A total of 52 responses were received. This contained duplicate responses from three SAIs. A decision on which response to consider for analysis was taken in consultation with the relevant SAIs. The three duplicates were removed from the quantitative analysis. However, their responses to the open-ended questions have been retained as they all represent valid practitioner views on environmental performance audit.

Of the remaining 49 survey responses, 5 were from SAIs outside the targeted list. One SAI clearly indicated in its response that it did not have much experience in environmental performance auditing.

Consequently, it did not answer any substantive questions. So, this response being not relevant was also removed from the analysis. Thus, 48 valid responses remained for consideration for analysis.

The responses of the remaining four SAIs (outside the target list) demonstrated their significant experience in conducting environmental performance audits. In correspondence, two of them confirmed their experience in conducting environmental performance audits. One SAI had already some financial and compliance environmental audit reports available (for the period 1992-2012) on the WGEA website, while one did not respond. Even if none of their environmental performance audit reports is available for the period 1992-2012 on the WGEA website (criteria for the target group), it was reasonable to assume that the remaining four SAIs would have conducted some environmental performance audits in the last 5 years, the time period survey referred to. So these four SAIs were included in the expanded target group and their responses considered in analysis. As only four SAIs outside the original target group of about 100 SAIs responded, demonstrating their experience in conducting environmental performance audits, the criteria for forming the target group is validated. This also extends the conclusion (earlier reached in Chapter 3 based upon an analysis of environmental audit data for the period 1992-2012) to 2016 that about 50% SAIs are not contributing to the global corpus of environmental performance audits.

The revised targeted group, thus, constituted 107 SAIs, comprising 75 developing country SAIs (70%) and 32 developed country SAIs (30%) (Figure 4-1). Forty-eight SAIs that responded included 30 of the former (62%) and 18 of the latter (38%). This corresponds to an overall response rate of 45%, which is considered to be adequate for the purpose of this study, given the time constraint. Generally, SAIs are busy workplaces that have to prioritise the use of their resources. An SAI that did not respond to the survey wrote, “your research project seems very interesting, but due to our current and future heavy workload we have unfortunately no possibility to respond to your survey.” This succinctly captures the operating environment of most SAIs. Getting a response to the survey, from SAIs that operate in such a busy work environment, was always going to be a challenge. From this perspective, the response rate of 45% is considered to be a notable achievement, given the unofficial status of the survey.

Compared with their 30% share of target, the developed SAIs share of response is higher (38%). This reflects the higher proportion (56%) of developed SAIs responding to the survey compared with that of the developing SAIs (40%). Responding to a survey consumes their resources without any immediate tangible benefit to SAIs. Therefore, SAIs that have more resources, are more likely to respond, compared with those that have less resources. The developed countries’ SAIs generally would have more resources than the developing countries SAIs. This explains the former’s higher (56%) participation rate than that of latter (40%). This is also consistent with experience of the earlier WGEA surveys (section 3.5.1, Chapter 3), when the WGEA used to report the response rate based on the developed and developing SAIs categories.

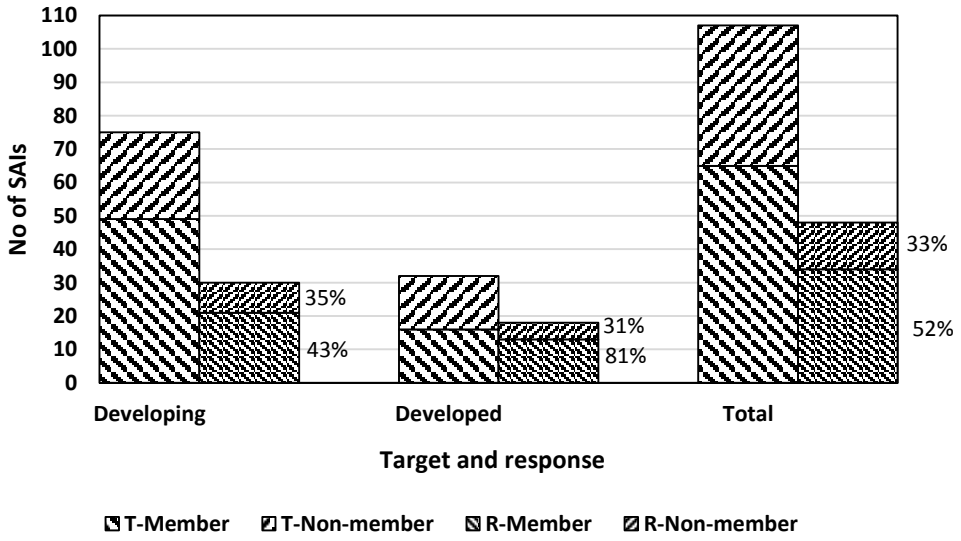
It is also interesting to note that the survey response rate was higher among the WGEA-member SAIs (52%) compared with that of the non-member SAIs (33%). This is true for both the developing SAIs (43% WGEA-members versus 35% non-members response) and developed SAIs (81% WGEA-members versus 31% non-members response). The participation rate for the non-member developed SAIs is even lower

than that of the non-member developing SAIs. Compared with the non-member SAIs, the higher participation rate of the WGEA-member SAIs can only be attributed to the WGEA membership.

The response to the survey is a product of several factors including awareness, interest/willingness, ability/resources and sharing of group (WGEA) values (solidarity). As the target SAIs have all undertaken performance auditing, they can all be considered to be aware of the issues being examined by the survey. The ability factor may also be considered being similar among SAIs belonging to each target group (developed and developing). However, the shared group values (solidarity/obligation) and the consequent interest in the research is considered to be profoundly impacted by the WGEA membership factor. In circulating the survey, the WGEA is considered to perceive some value in this research in advancing the field of environmental auditing. This value is likely to be more shared by the WGEA-member SAIs than by the non-member SAIs. This seems to be a plausible explanation for the higher participation rate of the WGEA member SAIs compared with the non-member SAIs.

The observations above reinforce the earlier conclusions in Chapter 3 that the membership of the WGEA has a positive influence on the SAIs output of environmental performance audits.

Figure 4-1: The target (T) and respondent (R) SAIs to the global survey. The left column in each group is the number of target SAIs and the right column is the number of respondent SAIs. The bottom block in each stack represents the WGEA member SAIs and the top block represents WGEA non-member SAIs. The % figures written on the right side of each group is the proportion, the respondent SAIs (right block) represent, as the percentage of the respective target (left block) SAIs.



4.3 Results of the Global Survey

Three sets of analysis of the survey data were undertaken: (a) the complete set of 48 SAIs; (b) 30 developing SAIs; and (c) 18 developed SAIs. The two additional analyses were based on the development level of SAIs in order to understand how the development level of SAIs affects different operational aspects of environmental performance auditing. This was considered necessary as the analysis of the

global data on environmental performance audit in Chapter 3 has shown that the development level of SAIs has a significant bearing on environmental performance auditing.

The results of the analyses are presented in graphical form and discussed here. The related survey question is given as the caption of each graph with the number (N) of respondents from each group of SAIs (total, developing and developed) noted for each question in the caption. For the ease of cross-referencing, question numbers are shown in the caption of graphs. Questions have been grouped into sections for the purpose of discussion here. As a consequence, the order of some of the questions have changed from the original questionnaire. The graphs show the percentages of SAIs from each of the 3 groups that selected a particular option in response to a question. The percentages for options for each group (e.g. developing, developed and total SAIs) have been calculated within that group, rather than the percentage of total. For example, percentage for the developing SAIs shows the proportion of developing SAIs that selected that option for a question, to the total number of developing SAIs who answered that question. The statistical significance of small differences was tested. Wherever a judgement has been made about the significance of small differences, it is noted in the text.

Results for some questions (e.g. Q9 related to methods for evidence collection; Q14 related to sufficiency of skill base; and Q28 and Q31 related to impact of cooperation among SAIs) have been summarised using a weighting approach. Weights assigned to different options are noted in the caption of the relevant figures (Figure 4-11; Figure 4-25; Figure 4-30; and Figure 4-31). Weighting of response options was considered necessary to summarise a large number of data points to enable their succinct presentation in a graph. For example, results for Q9 had 225 data points (15 methods x 5 types of use x 3 groups (developing, developed, total)). These were condensed into a manageable set of 45 data points (15 methods and 3 groups) using the weight for five categories of use as follows: (1) Mostly/always (90% or more of time) - 1; (2) Very often (50-89% of time) – 0.75; (3) Often (30-49% of time) - 0.5; (4) Occasionally (10-29% of time) – 0.25; and (5) Rarely/never (less than 10% of time) - 0.10. While these weights are subjective, as they have been consistently applied for a question, it is considered they provide a true picture of relative response to different items (e.g. use of different methods for evidence collection in Q9).

4.3.1 Strategic audit planning and selection of environmental matters for performance audit

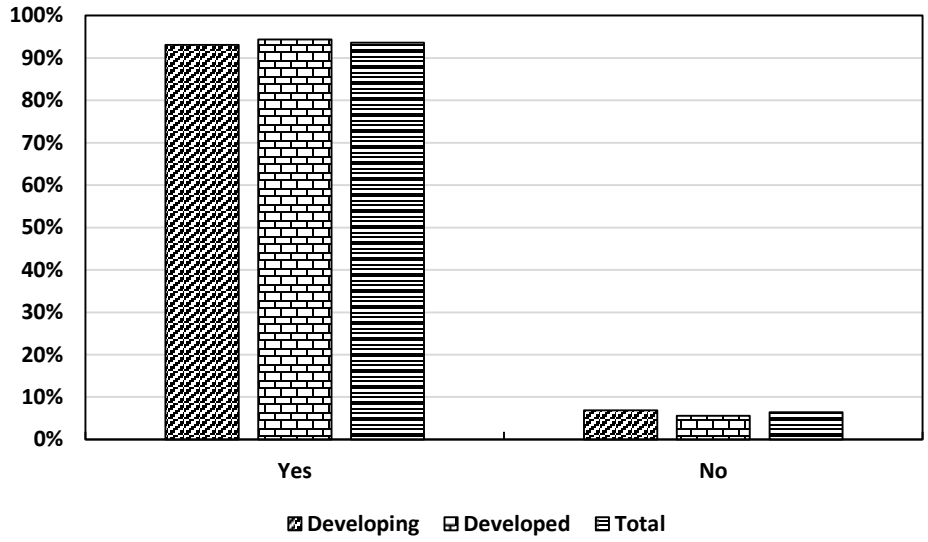
4.3.1.1 Environmental matters in strategic planning

As discussed in Chapter 2, strategic audit planning and annual audit planning (or selection of topics for performance audit) are two steps of the preparatory work that precede the planning for individual performance audit. While strategic or long-term planning is used to set priorities and selection of future audit topics (INTOSAI, 2004: 47), the annual audit planning involves selection of topics/subjects to be audited during the year.

The overwhelming majority (94%) of SAIs indicate (Figure 4-2) that environmental matters feature in their strategic planning. There is little difference between the developing SAIs (93%) and developed SAIs (94%) in relation to the consideration of environmental matters in their strategic planning. This suggests that environmental audit can be considered being in the mainstream of performance auditing at least in the strategic sense. Whether or not this strategic intent is translated into real audits would depend upon many

factors including immediate priority vis-a-vis available audit resources. These issues will be investigated later.

Figure 4-2: Q5 - Do environmental matters feature in your strategic audit planning? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



4.3.1.2 Consideration of WGEA's 3-yearly work plan in strategic planning

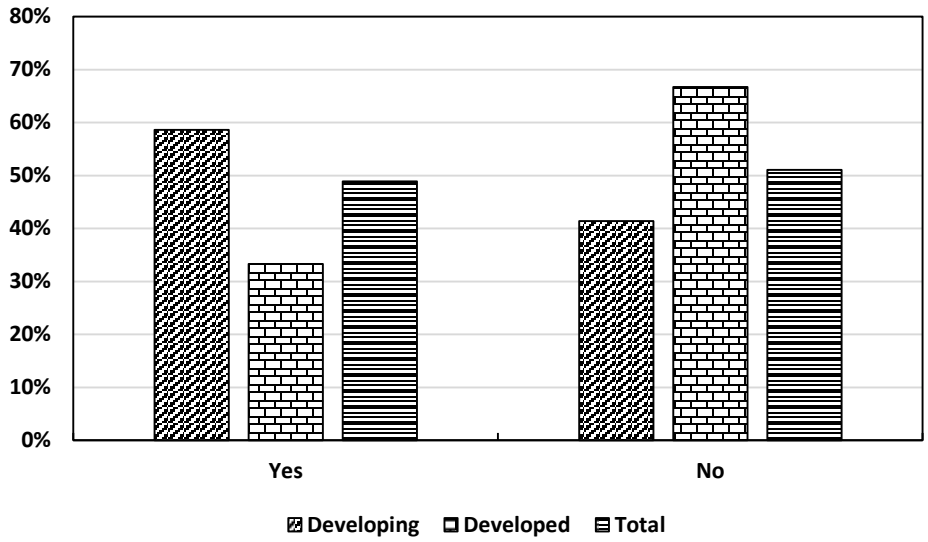
As discussed in Chapter 3, with its aim to improve the use of audit mandate in the field of environmental protection policies, the WGEA has been playing a very important role in developing environmental performance auditing. It operates according to a three-year work plan that sets its strategic direction. Amongst others, the work plan identifies research on environmental audit topics to be taken during the period (WGEA, 2012g). The work plan thus may act as a catalyst for these topics to be audited by SAIs.

About half (49%) of SAIs indicate (Figure 4-3) that their choice of environmental audit topics is influenced by the WGEA 3-yearly work plan. In this respect, the difference in response between the developing SAIs and developed SAIs is notable. Compared with the developed SAIs (33%), a higher proportion of developing SAIs (59%) indicate that their choice of environmental topics is influenced by the WGEA 3-yearly work plan. This perhaps is an indication of WGEA acting as a source of guidance, more so for the developing SAIs than for the developed SAIs. This is consistent with Rika's (2009) observation that international bodies such, as UN and WGEA, exert more influence on developing countries. The WGEA's 3-year work plan is a product of active deliberation among the WGEA members. More developing SAIs than developed SAIs benefiting from it, suggests that, the developing SAIs as a group is the net receiver of benefits of the WGEA 3-year planning. This is a positive sign of influence of the WGEA.

Just above half (51%) of SAIs indicate (Figure 4-3) that their choice of environmental topic is not influenced by the WGEA's 3-yearly work plan. This is also an indication of the independence of the SAIs. Through its resolution A/66/209 of 22 December 2011, the United Nations General Assembly recognized that SAIs could accomplish their tasks objectively and effectively only if they were independent of audited entities

and protected from outside influence. Thus, the majority of the SAIs indicating not being influenced in their choice of environmental topics by the WGEA's 3-yearly work plan may be just a reaffirmation of their independence.

Figure 4-3: Q6 - Does the INTOSAI Working Group on Environmental Auditing (WGEA) 3-yearly work plan affect the choice of environmental topics you audit? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



4.3.1.3 Topic selection

As discussed in Chapter 2 (Section 2.3.13), audit topics/subjects to be audited during the year are selected by an annual audit planning process that typically reflects achieving a realistic balance between the strategic priorities and available audit resources (CAG, 2014a: 21; Barrett, 2011b). As discussed in Chapter 3, WGEA has consistently maintained that the absence of a specific mandate is not a barrier to environmental auditing (see for example, WGEA, 2004: ii; 2007a: 23; 2012a: 11). This survey also reaffirms that view (see section 4.3.8). However, whether or not environmental matters are selected for performance audit is influenced by the mandate of the SAIs, as will be seen in Chapter 5 (section 5.5.1). For this reason, the question, as to how environmental matters are selected for performance audit was posed slightly differently to the two groups of SAIs: (1) with specific mandate; and (2) without specific mandate for environmental audit. The first group was asked how they selected which environmental topic to audit. Alternatively, the second group of SAIs was asked how they selected the environmental matters for performance audit from among all other matters (e.g. health, education). The following response options were common to both groups.

(a). a structured approach considering issues such as:

- risks involved in different environmental entities and programs;
- materiality and significance including financial, social and political; and
- salience and public visibility of topics; or

(b). request by legislature or other stakeholders; or

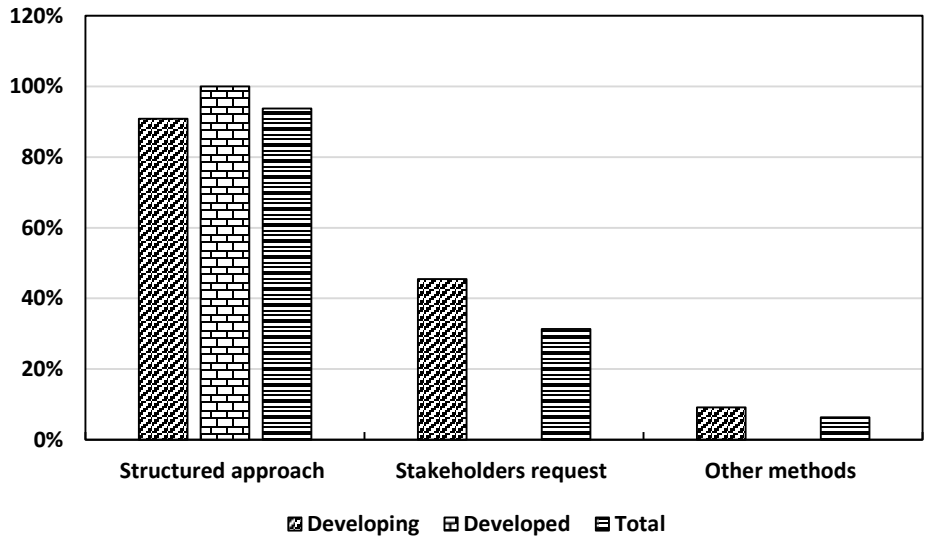
(c). any other method.

An additional option was provided to the second group (SAIs without specific environmental audit mandate) as follows.

(d). a sectoral approach in which environmental matters will be picked up as per their relative importance.

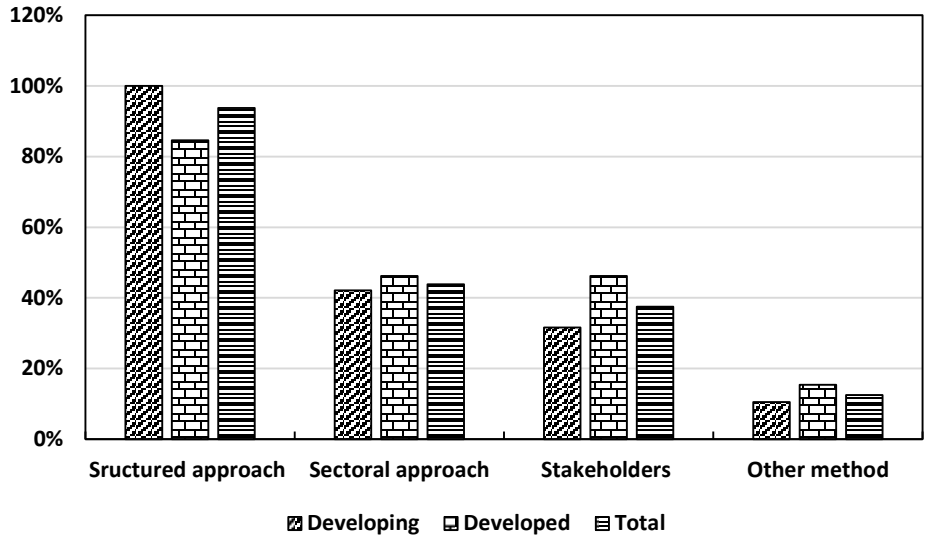
The survey response for the SAIs with a specific mandate for environmental audit is shown in Figure 4-4, while that for the SAIs without a specific mandate for environmental audits is shown in Figure 4-5. In both groups, an overwhelmingly large proportion (94%) of SAIs indicate using a structured approach to choosing a topic for performance audit. Obviously, the choice for the first group is limited to amongst different environmental topics; however, the choice for the second group is from across all areas of government endeavor. Not surprisingly, in the second group, a large proportion (44%) also indicate taking a sectoral approach, where environmental matters are selected as per their relative importance. In both groups, about a third or more SAIs indicate selecting an environmental audit topic based upon request by stakeholders (e.g. parliamentarians, government). This is consistent with expectations. While SAIs are generally independent in the choice of audit topics, they do consider stakeholders' requests in the selection of audit topics. Independence does not preclude consideration of stakeholders' requests. As will be seen in Chapter 5, taking stakeholder views into consideration in selecting topics for performance audits is, in fact, a norm. However, SAIs independence means that they are not bound by such views. A small proportion (6-13%) of SALs indicated using methods other than those specified as options. These other methods included approaches such as: (i) balancing between small and larger audits, new and follow up audits and consideration of auditing resources; and (ii) selecting audits mandated by law.

Figure 4-4: Q2(a) - How do you select, which environmental topic to audit: (a) Structured approach; (b) Stakeholders Request; (c) Other methods? Response (%) of SAIs that have specific mandate for environmental audit - Developing SAIs (N= 11); Developed SAIs (N = 5); Total SAIs (N= 16).



There are noticeable, though, minor differences between the developing and developed SAIs in the use of different methods for audit topics selection in both groups (those with and without specific mandate for environmental audit). In the first group (Figure 4-4), a lesser proportion of developing SAIs (91%) choose audit topics using a structured approach than the developed SAIs (100%), while a greater proportion (46%) choose through stakeholders' request than the developed SAIs (0%). While the higher use of stakeholders' request by developing SAIs than developed SAIs is not unusual, the absence of use of this method by developed SAIs does seem unusual. It is quite possible that developed SAIs did not get any such requests in the recent past.

Figure 4-5: Q2(b) - How do you select the environmental matters for performance audit from among all other matters (e.g. health, education): (a) Structured approach; (b) Sectoral approach: (c) Stakeholders request; and(d) Other methods? Response (%) of SAIs that have do not have specific mandate for environmental audit - Developing SAIs (N= 19); Developed SAIs (N = 13); Total SAIs (N= 32).



In the second group, (SAI without specific environmental audit mandate, Figure 4-5), the distribution of the use of different methods of topic selection between developing and developed SAIs is opposite to the first group that is, a higher proportion of the use of a structured approach and a lower proportion of the use of stakeholders' request by the developing SAIs than the developed SAIs. The lower proportion of the use of structured approach (85%) seems to be compensated by a higher proportion of the use of sectoral approach, stakeholders' requests and other methods by the developed SAIs. A higher use of stakeholders' requests by developed SAIs than the developing SAIs in this group is consistent with expectation of a more consultative governance in developed countries than in the developing countries. As SAIs reflect the prevailing norm within the state machinery of their country (Pollitt & Summa, 1997), this would mean that developed SAIs would be more consultative than their developing peers.

4.3.1.4 SAIs observation on topic selection

Almost half of SAIs also provided their opinion on the selection of topics. The opinions of SAIs broadly reflect the quantitative response discussed above. Some common phrases used to describe the topic

selection by both groups of SAIs (with and without explicit environmental audit mandate) are: 'multi-year strategic planning', 'risk analysis of key domains of government activities', 'relevance', 'likely impact', 'previous audit findings', 'auditability', 'stakeholder (mainly legislative authorities) interest', 'materiality', 'complexity', 'significance', 'visibility (media, legislation and citizen)', 'past coverage, 'cross sectoral' and 'public interest'. Some SAIs note that the environment is one of their 'priority' areas. One SAI observes that most of its environmental audits are in 'response to requests from the legislature' and some are 'mandated by law'. The following two observations of SAIs—one from each group (with and without explicit environmental audit mandate)—aptly summarize the process of topic selection.

> (1) We perform a systematic evaluation on risk areas annually. Relevant topics for audits are based on risk and materiality (economic and other). All of the departments (Performance/Financial) at all levels in the organization is involved in this process. Our mandate also opens [us] to perform audits based on request from the Parliament, but such requests are very rarely received.
>
> (2) We have a multiannual audit strategy, combined with annual priorities. Topics are selected following a structured approach based on such issues as our assessment of risk, relevance, likely impact, previous audit findings, auditability, and stakeholder (mainly legislative authorities) interest. Potential audit tasks are subject to a quality review by a central service of [our SAI] which compares the proposal with [our SAI's] strategy and annual priorities. We also consider available audit resources.

4.3.1.5 Proportion of Environmental Audits

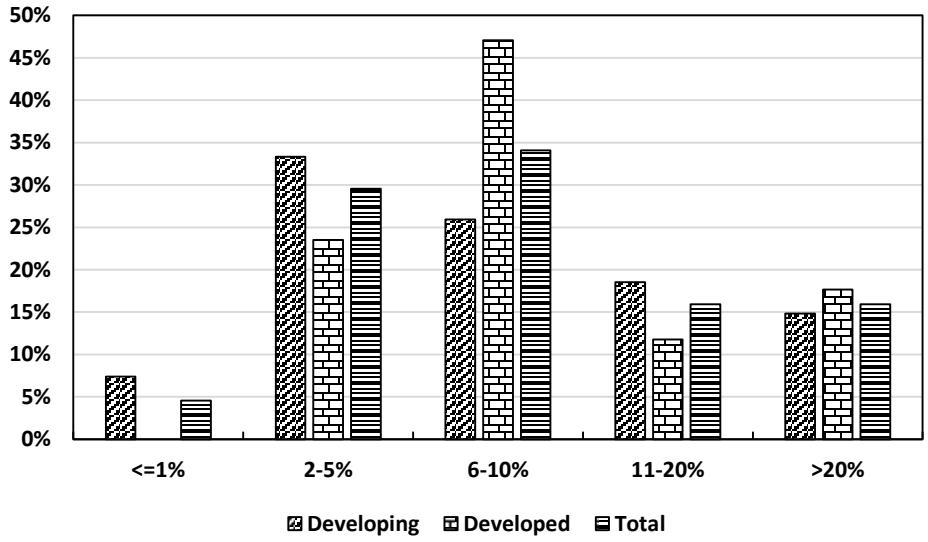
The percentage of environmental performance audits as a proportion of total performance audits can indicate the relative importance of an SAI's environmental performance audit work. This was assessed through an open-ended question, where SAIs were asked to nominate a percent their environmental audits comprised of the total audits. A frequency distribution of percentage of environmental audits nominated by SAIs is shown Figure 4-6.

A little more than two thirds of SAIs indicate that environmental performance audit work is 10% or less of their total performance audit work, while the remaining (about one third of SAIs) indicate it is 11% or more. The largest proportion of SAIs (34%) indicate that environmental performance audits comprise between 6-10% of their total performance audit work, whereas the second largest (30%) proportion of SAIs indicate it is between 2-5%. Only a small proportion (5%) of SAIs indicate that their environmental performance audit work is 1% or less of their total performance audit work. On the higher side, 16% of SAIs indicate that their environmental performance audit work is between 11-20% and another 16% indicate that it is 20% or more. The overall message emerging from the results is that environmental performance audit is significant but still a small (10% or less) proportion of the total performance audit work for more than two third of SAIs.

As was seen in Chapter 3, developed SAIs, overall, undertook more environmental performance audits than the developing SAIs. Expectedly, no developed SAIs is represented in the lowest class (1% or less) and a larger proportion (41%) of the developing SAIs is represented in the lower end of distribution (5% or less) than the developed SAIs (24%). However, the higher end of distribution (11% or more) is also represented by more developing SAIs (33%) than developed SAIs (29%). Only in two classes, the median class (6-10%) and the highest class (20% or more), is the developed SAIs' representation more than the

developing SAIs'. While not implausible, this seems anomalous, as developed SAIs are expected to be represented in more number of higher classes.

Figure 4-6: Q7 - On average, what percentage did environmental audits comprise of the total number of audits (excluding financial audits) conducted by your SAI in the last five years? Response (%) - Developing SAIs (N= 27; Developed SAIs (N = 17); Total SAIs (N= 44).



On further investigation, it was found that the ratio of the WGEA-member SAIs to the total SAIs that responded to this question in both developing (70.4%) and developed SAIs (70.6%) groups - was almost identical. It was also found in Chapter 3 that, in the WGEA-member category, the developing SAIs undertook more environmental performance audits than the developed SAIs. Therefore, a higher representation of developing SAIs in a higher class is not inconsistent. As developing WGEA member SAIs—as a group—are producing more environmental performance audits, it is quite likely that, relatively, they are also producing more environmental performance audits as a proportion of their total audits.

4.3.2 Criteria for environmental performance audits

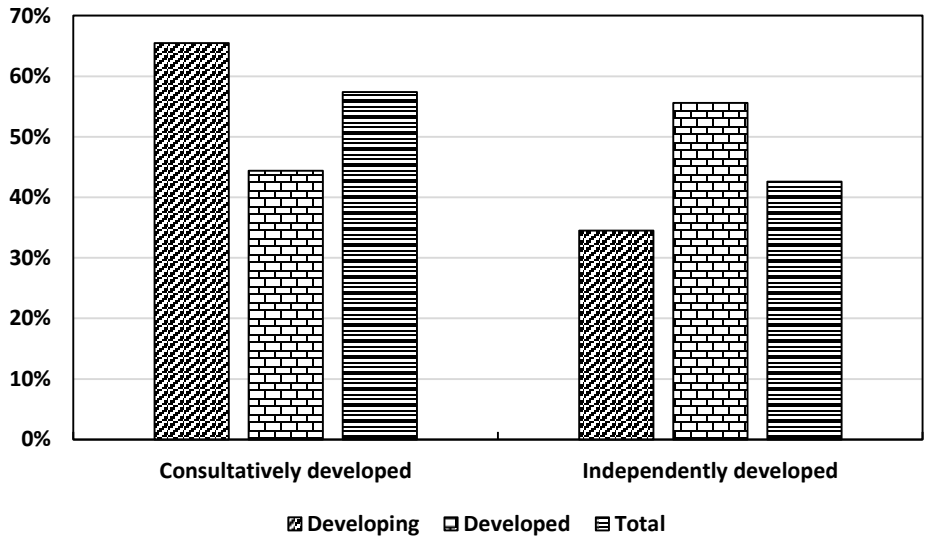
According to INTOSAI standards (2004:103), audit criteria are reasonable and attainable standards of performance against which the economy, efficiency and effectiveness of activities or operations are assessed. When these normative ideal or 'what should be' model of performance are compared with 'what actually exists', audit findings are generated (INTOSAI, 2004: 103). Criteria can be explicitly specified, or implicitly understood (Pollitt & Mul, 1999). They can be derived from official/authoritative sources (e.g. policy, legislation) or non-authoritative sources (INTOSAI, 2004: 135) – i.e. developed by an SAI on its own by research of relevant literature or using international norms (Put, 2011). INTOSAI (2004: 104) considers it useful to get input from auditee(s) in developing criteria. However, recognising that disagreements may exist, it suggests their identification, and resolution if possible (INTOSAI, 2004: 104). SAIs' independence would suggest that some of them might frame audit criteria without any consultation with the auditees.

4.3.2.1 Consultation with auditee in developing audit criteria

The majority of SAIs (57%) indicate (Figure 4-7) that they develop criteria for environmental performance audit in consultation with auditees. However, audit criteria are also developed independently and auditees are only informed by a large proportion (43%) of SAIs.

A higher proportion of developing SAIs (65%) than the developed SAIs (44%) appear to be constructing criteria for environmental performance audit in consultation with auditees. Conversely, a higher proportion of developed SAIs (56%) than the developing SAIs (35%) seem to develop audit criteria independently of auditees. This appears somewhat inconsistent with expectation, as compared with the developing countries, SAIs in developed countries are expected to be more consultative reflecting the broader trend of governance (Pollitt & Summa, 1997), that is more consultative. It is possible that given the challenges in developing criteria for environmental programs, developing SAIs find it helpful to consult auditees. Developed SAIs, possessing more resources and/or more expertise and experience in conducting performance audit, may not consider it necessary to consult auditees.

Figure 4-7: Q10 (a) - How the audit criteria you use for environmental performance audits are: developed: (a) Consultatively; and (b) Independently? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



4.3.2.2 Explicit versus implicit audit criteria

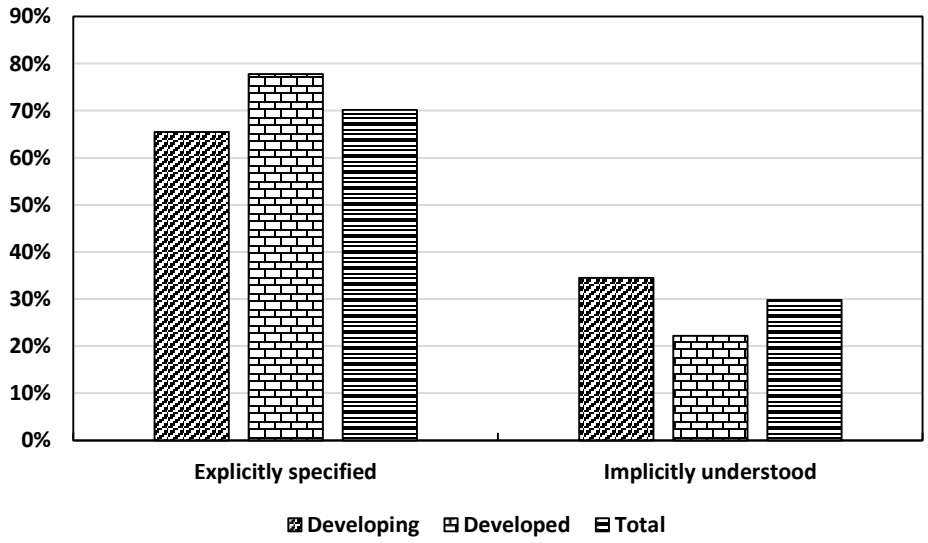
The criteria for environmental performance audits are specified: (a) explicitly by a little more than two thirds of SAIs (Figure 4-8); and (b) conveyed or understood implicitly by about one third of SAIs.

A larger proportion of developed SAIs (78%) than the developing SAIs (66%) specify audit criteria explicitly. Consistent with expectation, this suggests more expertise and experience in developed SAIs compared with developing SAIs in undertaking environmental performance audit. However, in both groups, a large majority of SAIs specify audit criteria explicitly. This is notable given that developing criteria for

environmental performance audits in itself is considered challenging, expressing them explicitly would be more so.

Many environmental programs' attributes include broad and variable temporal and spatial scales, complexity and uncertainty, multiple causes, lack of clear policy instruments, multiple disciplines and multiple stakeholders (APSC, 2007: 3-4; Dovers, 2005: 44-49). Consequently, many environmental policies and programs have aspirational rather concrete goals, such as optimizing economic, social and environmental outcomes (e.g. Australia's federal *Water Act*, 2007). These goals sometimes may be even conflicting. In these circumstances, a large majority of both developed and developing SAIs being able to explicitly express audit criteria for environmental performance audits is considered to be an admirable achievement.

Figure 4-8: Q10 (b) - How the audit criteria you use for environmental performance audits are specified: (a) Explicitly; or (b) Implicitly? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



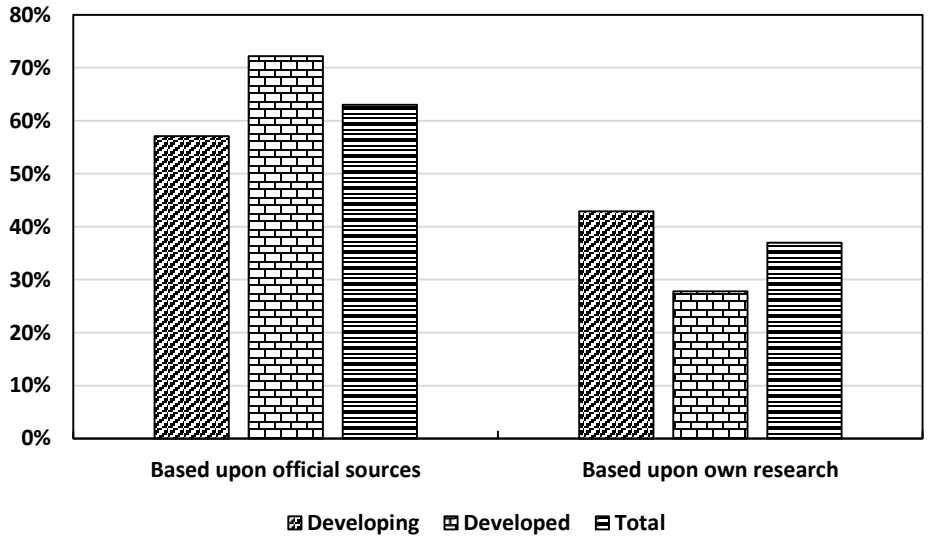
4.3.2.3 Source of audit criteria

About two thirds of SAIs (Figure 4-9) derive the criteria for environmental performance audits from official sources (such as targets in legislation, policy, and auditees' own plan) and about one third develop them through their own research. This likely suggests that, while a majority of environmental policies and programs may have clearly defined objectives to enable constructing audit criteria based upon them, a significantly large proportion (one third) may have unclear or vague goals that could not be translated into audit criteria. Hence SAIs, in these cases, would have to develop criteria through their own research, such as, literature survey and international benchmarking.

Compared with developing SAIs (57%), a higher proportion of developed SAIs (72%) seem to be deriving the criteria for environmental performance audits from official sources. This likely suggests that, compared with the developing countries, environmental policies and programs in developed countries

have more clearly defined objectives. This is consistent with the expectation as developed countries being early leaders in the environmental policy domain and generally having a more accountable governance framework than the developing countries, are likely to be more articulate in crafting their environmental policies and programs than their developing peers.

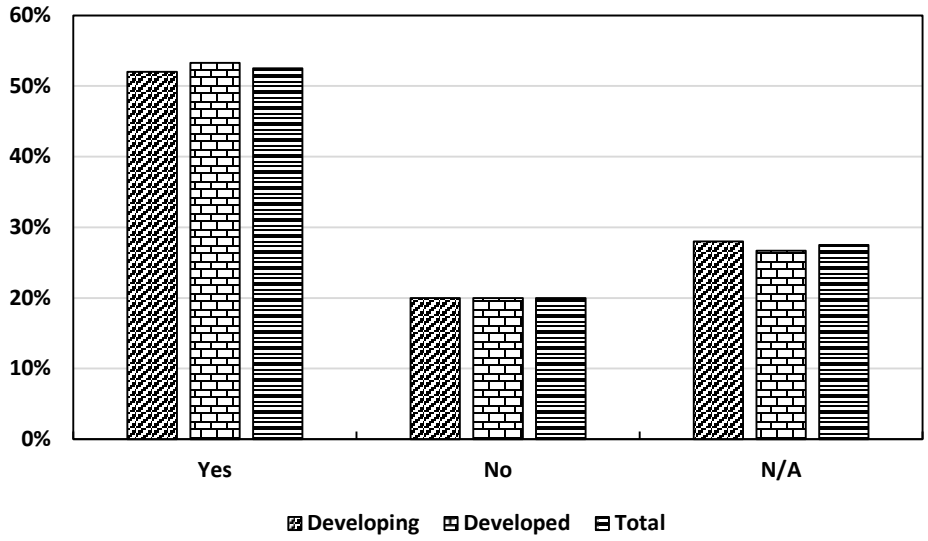
Figure 4-9: Q10(c) - How are the audit criteria you use for environmental performance audits sourced: (a) Official sources; or (b) Own research? Response (%) - Developing SAIs (N= 28); Developed SAIs (N = 18); Total SAIs (N= 46).



4.3.2.4 Reliability of official sources

Of the SAIs (about two third in Figure 4-9) that use official sources (e.g. auditee's own performance indicators) for deriving audit criteria, only about half of them (Figure 4-10) consider that they are adequate, realistic and/or fair (20% specifically indicating in the negative). This suggests a high degree of skepticism about the reliability of official sources. This is not surprising, as public administration officials are known to have developed performance targets that will portray them in good light (Pollitt, 2013). SAIs maintaining a skeptical view of public administration is not a bad thing in itself. This, in fact, is the essence of public auditing. Public auditors' professional skepticism, their critical approach to the information provided and their objective distance from it, are considered vital for audit (CAG, 2014a: 15). In view of this, it is not surprising that, SAIs irrespective of their developmental status, have a fairly similar view of the matter. There is very little difference between the developing SAIs and developed SAIs on how they perceive the official sources of information (Figure 4-10).

Figure 4-10: Q11 - If you rely upon official criteria (e.g. auditee's own performance indicators for the program) do you think they are adequate, realistic and/or fair (i.e. not easily gamed by the department)? Response (%) - Developing SAIs (N= 25); Developed SAIs (N = 15); Total SAIs (N= 40).



4.3.2.5 SAIs observations on audit criteria

About half of the SAIs also commented on the development and use of criteria for environmental performance audits. Almost all of them indicate that 'audit criteria are based on a number of sources' that include both 'official guidance' 'if available' and their own 'research for best practice' in 'audit literature and standards' 'as well as standards set under international conventions'. The views of SAIs on this matter are succinctly captured in one SAI's observation:

> We always set criteria to determine the audit test required to answer audit questions. To the extent possible these criteria will be based on clear standards and agreed with the auditee. Sometimes the criteria are set in legislation or in management plans, but often not. Where there is a lack of official criteria, and we develop to some extent our own, we still validate these based on available international best practice, our experience with comparable audits, or expert advice. The lack of official criteria can already indicate a potential audit finding i.e. if the auditee cannot assess its own performance, it is unlikely to be effective or efficient. We always discuss audit criteria with the auditee as part of our audit planning.

Only a few SAIs seemingly have full confidence in official criteria. One such SAI notes that "they are adequate because we assume that their development is guided by the international standards and best practice where applicable." While others that do not discount the value of official criteria, express reservations about them, such as: (1) "Most of the used criteria come from official documents but they can be too easy to reach (not ambitious enough). If they are so, we sometimes criticize the definition of their criteria;" (2) "The auditees' criteria are not always adequate to measure performance. So, we critically examine them;" (3) "Sometimes official criteria are realistic and measurable and sometimes [they are] not;" (4) "The auditees own criteria are often biased or not relevant for answering the audit questions;" and (5) "The indicators do not measure the level of implementation of the goals." These comments are consistent with the discussion noted in section 4.3.2.4 above.

4.3.3 Methods used for evidence collection

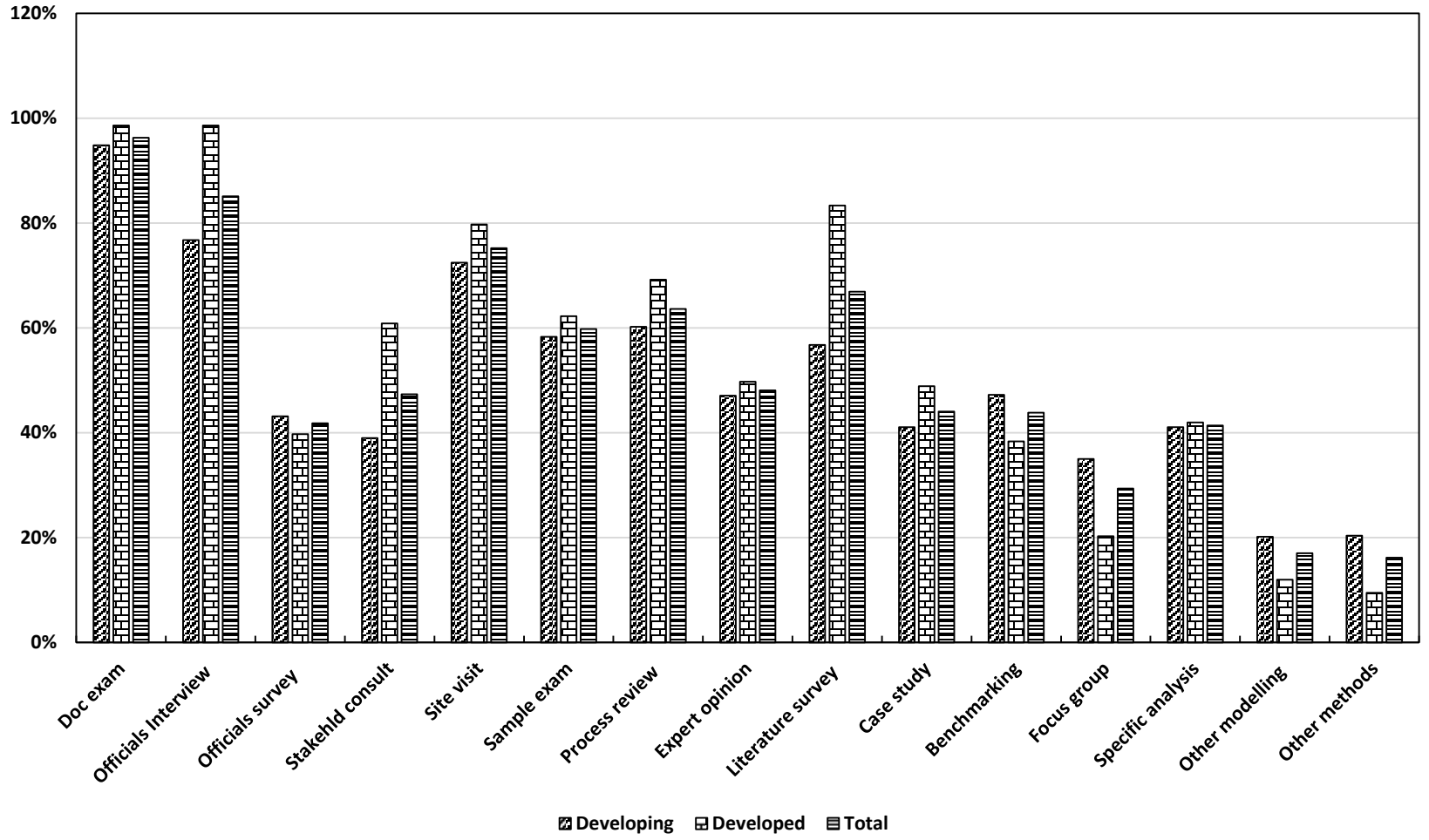
SAIs use different methods of evidence collection for performance auditing and often use more than one method. While mostly self-explanatory, the methods are briefly explained in Appendix G. The use of these methods by SAIs is presented in Figure 4-11. As noted in section 4.3, this graph has been derived using a weighting approach. Methods achieving a score of about 50% or more may be considered more commonly used than those getting less.

Methods for evidence collection more frequently used by SAIs in environmental performance auditing, in the order of their popularity, appear to be: (1) Document examination (96%); (2) Officials interview (85%); (3) Site visit (75%), (4) Literature survey (67%); (5) System/Process review (64%); (6) Sample examination (60%), (7) Expert opinion (48%); and (8) Stakeholders consultation (47%). On the other hand, (9) Case study (44%); (10) Benchmarking (44%); (11) Officials survey (42%); (12) Specific economic/statistical analysis (41%); (13) Focus group (29%); (14) Other modelling (such as hydrological/ ecological (17%); and (15) Other methods (16%) in that order, appear to be less popular or less frequently used. Note that these percentages are relative (weighted). However, data inspection for the five most popular methods shows that these percentages closely reflect the sum of the percentages of response for: (a) 'mostly/always' used; and (b) 'very often' used options. If these sums were used to order the popularity of the methods, only the order of System/Process review and Literature survey would have been swapped. Further, if the percentage score of the option (c) 'often' used was also added, the order of five most popular methods would have remained identical. This indicates that the weighting method used for summarising the data is valid.

The data inspection also shows that only document examination and officials' interview could be considered as almost always used. A WGEA (2013c: 52-54) study related to audit of water issues found that document examination was used 95% of times, whereas interview of officials was used 90% of times. Site visit with 60% of use, came third in that study.

Except for the five less commonly used methods—(i) Officials survey; (ii) Benchmarking; (iii) Focus groups; (iv) Other modelling; and one unspecified, (v) Other methods—the developed SAIs seem to be using all methods more frequently than the developing SAIs. The largest difference in the use between the two groups is for three methods: (a) Literature survey (27%); (b) Officials interview (22%); and (c) Stakeholders consultation (22%). Compared with the developing SAIs, the higher use of literature survey (more time and resources required), and stakeholders' consultation (reflects more consultative governance) by the developed SAIs is consistent with expectations. However, the higher use of interview of officials by developed SAIs is not intuitive and needs explanation. The lower use of this method by the developing SAIs is a better characterisation of this issue. One explanation could be that, in addition to the document examination, the developing SAIs may be relying more upon indirect interactions such as officials survey and some other secondary information to make conclusions. It may be considered as an extension of less consultative approach to performance auditing by the developing SAIs than used by the developed SAIs. There is some anecdotal evidence (McPhee, 2016) to this effect.

Figure 4-11: Q9 - If environmental matters were audited for performance by your SAIs in the last 5 years, what methods were used for evidence gathering? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47) weighted as follows: (1) Mostly/always (90% or more of time) - 1; (2) Very often (50-89% of time) – 0.75; (3) Often (30-49% of time) 0.5; (4) Occasionally (10-29% of time) – 0.25 ; and (5) Rarely/never (less than 10% of time) - 0.10.



Another explanation could be that the developing SAIs' lower use of most methods is balanced by somewhat higher use of less frequently used methods such as (i) Officials survey, (ii) Benchmarking, and (iii) Focus groups. The focus group seems to be 15% more prominently used by developing SAIs than the developed SAIs. Difficulty in developing audit criteria (CAG, 2014: 28; McPhee, 2016)—more so for environmental performance audits—could be encouraging developing SAIs to engage more in focus groups, to get the audit going, compared with the developed SAIs that may be better experienced in developing them. On the face of it, this appears to be more consultative. However, this may also suggest a lower degree of productive relationship between the SAIs and public administration officials in developing SAIs than in the developed SAIs. This is corroborated for one developing SAI by the study described in Chapter 5.

The overall lesser use of most methods by the developing SAIs, however, is not completely balanced by the higher use of some less frequently used methods. The overall deficit of 60% (or average of 4% per method) is more than could be attributed to any statistical error. This seems to point to some systemic difference between the two groups of SAIs. Using a 50% threshold as an approximation for a method being frequently used, it is observed that, on average, developed SAIs (8) are using more methods than the developing SAIs (6). This is a conjecture, which is partly validated as will be seen in Chapter 5. Using more methods consumes more resources. Therefore, developed SAIs generally having more resources are likely to use more methods.

4.3.3.1 Considerations in the decision of methods for evidence collection

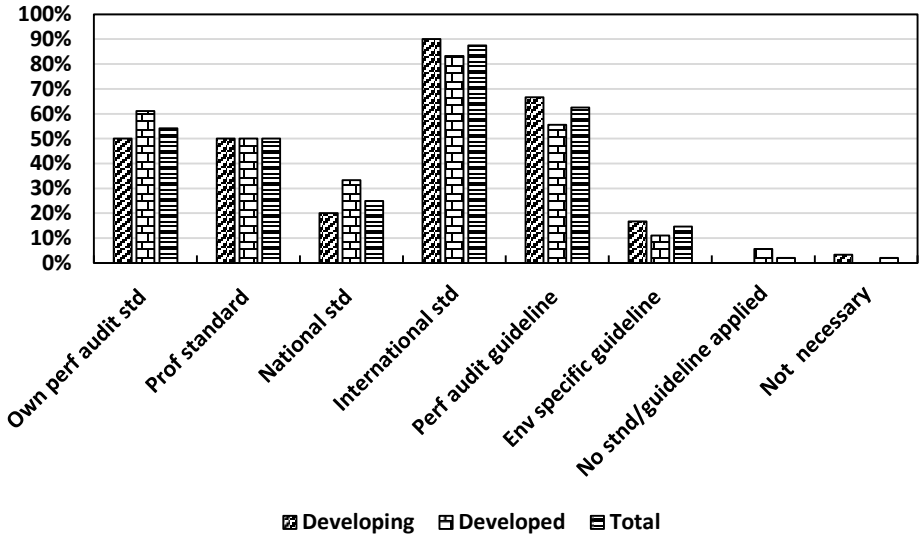
As indicated in their comments, SAIs consider various factors in deciding which methods to use for evidence collection. These include: (1) 'the complexity of the topic;' (2) 'objectives' and 'scope of the audit (economy/ efficiency/effectiveness);' (3) resources - 'budgetary constraints' and 'availability of staff' 'in house and external experts'. To decide methods, sometimes they also undertake some further analysis such as, 'problem-tree analysis, process mapping' and 'risk analysis that consider the likelihood of deviations and possible impact of such deviations' on the results to identify 'the weaker controls'. The following three observations describe the essence of the method selection.

> (1) Audit methodology is highly dependent on the best sources of available information upon which to quickly gain an accurate understanding of the audit matter and provide a sound base for our audit findings, conclusions and recommendations.
>
> (2) Audit methodology is determined by the nature and extent of evidence required to enable us to conclude on our audit questions based on the audit criteria. We endeavor to obtain corroborative evidence from different sources. Any limitations on available evidence may also determine to some extent the audit question i.e. we may not attempt to answer a very general or highly technical question. Where we do not have expertise in-house to address an audit question, we will either procure the expertise; hire experts on a short term basis; use focus groups; or consult with recognized experts.
>
> (3) We mainly consider the methods we can apply by ourselves because in the times of the economic recession our financial resources to hire external experts were very limited. We always try to gather as many information as possible from auditees and also from different other relevant sources.

4.3.4 Standards and guidelines

As discussed in Chapter 2, several types of standards and guidelines are used in performance auditing for the purpose of quality assurance. The highest proportion (88%) of SAIs use international standard or equivalent guideline for performance audit (Figure 4-12) in undertaking environmental performance audits, followed by their own performance audit guidelines (63%); their own standards for performance audit (54%), and professional standards for performance audit (50%). About a quarter of SAIs use their national standard for performance audit and a small proportion (15%) use their own specific guideline for environmental performance audit. Only a miniscule proportion (2%) of SAIs either do not use any standard or guideline or do not consider them necessary. It is noteworthy that the overwhelming majority of SAIs use some standard or guideline in undertaking environmental performance audits as a means of quality assurance. It is to be noted that percentages quoted here are not exclusive and hence not additive. SAIs were asked to select multiple standards and guidelines they use in environmental performance audits.

Figure 4-12: Q8 - Do you use any standard or guideline in conducting environmental performance audit? Multiple response (%) - Developing SAIs (N= 30); Developed SAIs (N = 18); Total SAIs (N= 48).



It is notable that a higher proportion of developing SAIs use: (a) international (INTOSAI, 2004) standards (90%); (b) their own performance audit guideline (67%); and (c) their own environment specific guideline (17%) for performance audit than their respective use by the developed SAIs: (a) 83%; (b) 56%; and (c) 11%. On the other hand, a higher proportion of the developed SAIs use: (d) their own performance audit standard (61%); and (e) national standard (33%) compared with the respective use of these by the developing SAIs: (d) 50%; and (e) 20%. It is noted that, compared with developed SAIs, a higher use of the former three standards or guidelines by the developing SAIs is almost balanced by their lower use of the latter two. It is considered that developing one's own standards or a national standard (highly likely that an SAI would play a key role there) requires more effort (and hence resources) than using the international (INTOSAI) standards, or developing and using one's own performance audit guideline. This explains why more resourceful developed SAIs have a higher use of their own standard or national standard compared

with the developing SAIs. However, considering that developing environment specific guideline for performance audit also requires effort and resources, a higher use of them by developing SAIs compared with developed SAIs is not intuitive and needs explanation. It is conceivable that such specific guidelines might either have been influenced by or developed in collaboration with WGEA and/or its Regional Groups. For example, ASOSAI, whose majority of members comprise developing SAIs, has developed a specific 'Guidance for Environmental Auditing' (ASOSAI, 2009). Due to cost effectiveness involved, developing SAIs are more likely to follow international leads on such matters than developed SAIs. This seem to be a plausible explanation of higher use of environment specific guideline for performance auditing by developing SAIs than by developed SAIs.

A higher proportion of developed SAIs (6%) than developing SAIs (0%) do not use any standard or guideline. On the other hand, a higher proportion (3%) of developing SAIs than developed SAIs (0%) consider that the use of standard or guideline is not necessary. Both of these matters are similar (and percentages involved very low) and the difference is statistically significant, however and are considered an exception rather than a norm.

4.3.5 Data and information

Data forms a critical component of evidence for performance auditing. It is rarely possible to get all information required for performance auditing, as data might be inadequate, inaccurate or conflicting (INTOSAI, 2004: 114). This is more so for environmental matters, where problems with data availability and credibility challenges are known to exist (see for example, OCED, 1998: 16; Uitto, 2014). INTOSAI (2004: 114) considers that it is better to be 'vaguely right than exactly wrong' and suggests ways to get around the problem of inadequate data. Less accurate data together with logical deduction and some other relevant information might be sufficient in some cases, for example, to show trends. Agreeing with auditees and stakeholders to use less accurate data for analysis is another option (INTOSAI, 2004: 114). Figure 4-13 and Figure 4-14 show the survey results on the data issues just discussed. Figure 4-15 shows the results on a related matter of the use of environmental performance indicators.

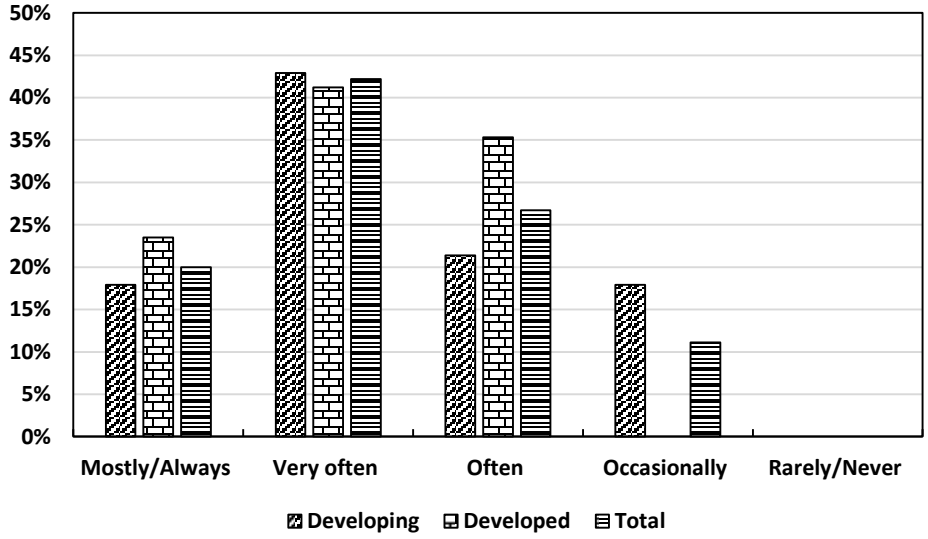
4.3.5.1 Adequacy of data

Only one fifth of SAIs indicate (Figure 4-13) that data related to environmental policies and programs has 'mostly/always' been adequate to make conclusions about their performance; a large proportion (about two fifths) of SAIs consider data has 'very often' been adequate; about a quarter say it has 'often' been adequate; and about one tenth of SAIs say data has only 'occasionally' been adequate. It is notable that about 90% of SAIs consider that data has 'often' to 'always' been adequate and no SAI considers it has 'never' been adequate.

Data collection requires resources. As such, developed countries are more likely to have better data than developing countries. Consistent with this expectation, more developed SAIs (24%) than the developing SAIs (18%) report that data related to environmental policies and programs have been 'mostly adequate'. Compared with the developing SAIs (21%), a higher proportion of the developed SAIs (35%) also report data being 'often adequate'. However, almost a similar proportion of developing (43%) and developed (41%) SAIs report as data being 'very often' adequate. Overall, while all of the developed SAIs consider

data as being 'mostly adequate' to 'often adequate'; only four fifths of the developing SAIs do so (about one fifth of them consider data being only 'occasionally adequate').

Figure 4-13: Q18 - How often in the last 5 years, has the data (other than financial data) related to environmental policies and programs either publicly available or sourced from auditees or other agencies, been adequate to make conclusions about their performance – (a) Mostly/Always (90% or more of time); (b) Very often (50-89% of time); (c) Often (30-49% of time); (d) Occasionally (10-29% of time); and (e) Rarely/Never (Less than 10% of time)? Response (%) - Developing SAIs (N= 28); Developed SAIs (N = 17); Total SAIs (N= 45).



4.3.5.2 Environmental record keeping - data collection, storage, analysis and dissemination

About 60% of the SAIs that responded to the data question in Figure 4-13 also commented on the governance of the environmental record keeping. Consistent with the response discussed in section 4.3.5.1 above, a large majority of SAIs acknowledge either 'weaknesses in the availability of data'; or 'problems regarding reliability and quality of environmental data from official sources'; or the 'need for greater consistency of environmental data to compare like with like'. "Often the audited entities do not collect [data] in an organized and systematic manner." "On many occasions, data is fragmented and not comprehensive. Moreover, there is limited information related to outcomes of environmental programs." One SAI notes that "record keeping is poor especially relating to scientific measures from both the operators of the systems that affect the environment and the regulators that are supposed to ensure that the operators are within the set standards." Another SAI observes that, "data availability has been a problem because it is not the culture of record keeping in most government agencies (mostly the local government)." Due to its poor quality, yet another SAI had 'to mine data from varied sources to provide audit assurance.' "In almost all our reports on environmental audits, we have a series of findings and conclusions about unreliability and incompleteness of official environmental data," observes one SAI.

Some SAIs that consider data is usually available, still note the need for improvements such as: (1) "The storage systems need to improve as [d]ata is stored on paper and rarely kept on an electronic database;"

(2) “Problem is to select the useful ones and work them to get what you want;” and (3) “[While we have] been able to draw conclusions about the achievement of audit objectives for environmental audits, on occasions, these conclusions identify a lack of adequate data or insufficient performance measures to make definitive findings on the extent to which environmental programs have achieved their objectives.”

Of the SAIs that consider data collection is adequate, one reports of a data governance system that may be considered a good practice. Writing about its National System for Environmental Monitoring managed by an environmental agency (EA), the SAI observes:

> The system provides information on the elements of the environment and factors affecting it, on which base analysis, assessments and forecasts are performed to support the activities of preserving and protecting the environment from harmful effects. All measurements and observations are carried out by the [EA] in common, unified methods for sampling and analysis in accordance with the procedures ensuring the quality of measurements and data. All [EA] laboratories are accredited under the BS EN ISO/IEC 17025 – General requirements for competence in testing and calibration. EA maintains databases at national and regional level. Databases at national and regional level are structured in components of the environment and using common nomenclatures. The results from the monitoring and the managed public registers are available on the internet site of the [EA].

Based upon this monitoring, different environment-related ministries and departments publish ‘reports, projects, analyses with information about indicators for the environmental status’ on their websites, adds the SAI.

4.3.5.3 Measures taken in case of inadequacy of data

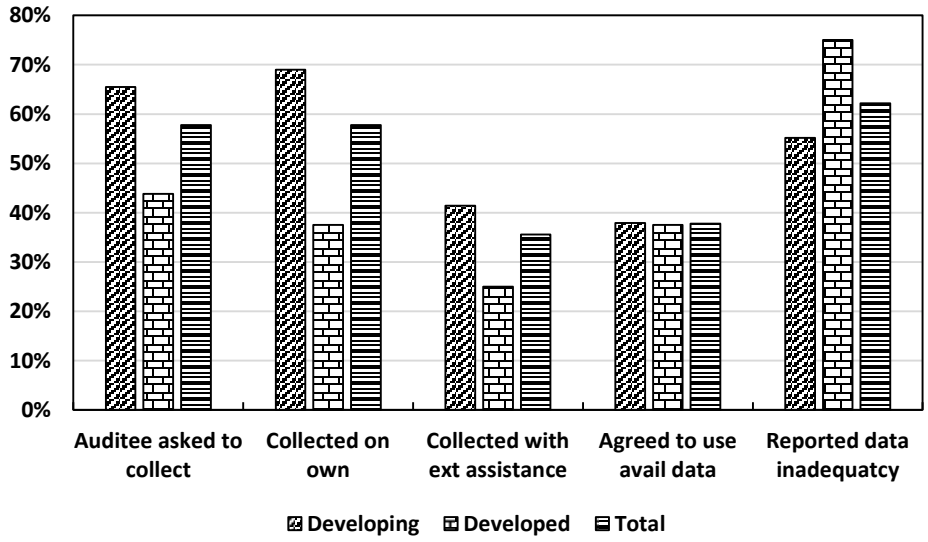
During performance audits, when data related to environmental policies and programs has not been adequate to make conclusions about their performance, about 60% of SAIs (Figure 4-14) seem to have taken one, or all, of the following three measures: (1) asked the audited body to collect/generate data; (2) collected or generated data on their own; and (3) reported that data held by the audited body had not been adequate. However, the third option (62%) has been taken by more SAIs than the previous two options (58%). More than one third of the SAIs either: (4) collected data with external assistance; or (5) agreed with stakeholders to use the available data.

The higher emphasis on reporting of the inadequacy of data underlines the emphasis on transparency of the audit process. Further, as this recognizes the problem and brings it into the public domain, it is also likely to result in improved data collection efforts by auditees.

Except for reporting on the inadequacy of data, a higher proportion of the developing SAIs than the developed SAIs took some, or all, of the measures to gather sufficient information to come to a conclusion. The largest difference in this regard between the developing and developed SAIs’ endeavors is for: (a) collecting data on their own (32%); followed by (b) asking auditees to collect data (22%); and (c) collecting data with external assistance (16%). There is no difference between the developing and developed SAIs in agreeing with the stakeholders to use the available data. On the other hand, 20% more developed SAIs than the developing SAIs report the inadequacy of data. This may suggest that developed SAIs are perhaps

taking a more pragmatic view of the matter (i.e. letting the problem being recognized and be solved by others) than the developing SAI who are trying to solve the data problem on their own.

Figure 4-14: Q19 - When data related to environmental policies and programs has not been adequate to make conclusions about their performance, what did you do to gather sufficient information to come to a conclusion? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 16); Total SAIs (N= 45).

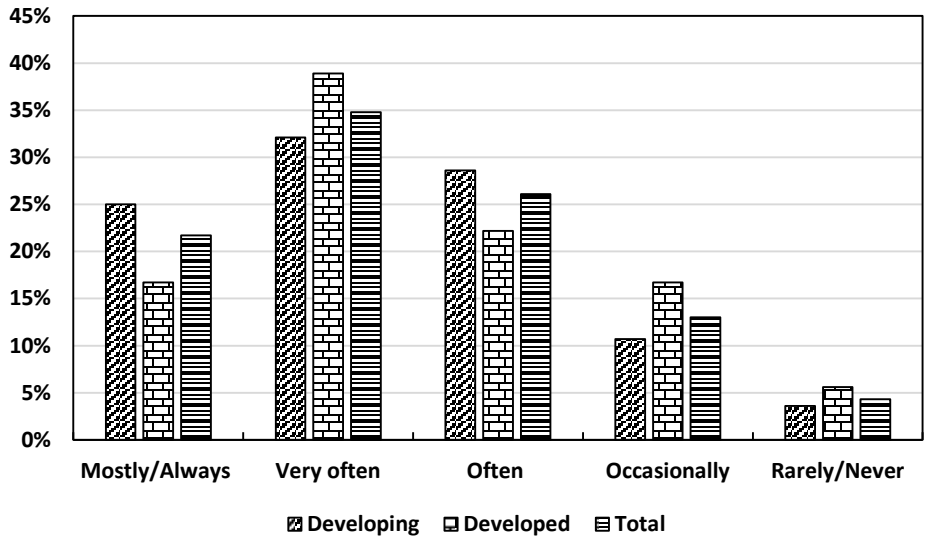


4.3.5.4 Use of environmental performance indicators

The use of environmental performance indicators seems to be quite popular among SAIs (Figure 4-15). Over four fifths of SAIs seem to be 'often' to 'always' using them. About one seventh of SAIs occasionally use environmental performance indicators, while only 4% of SAIs never use them. As "environmental indicators are increasingly seen today as necessary tools for helping to chart and track the course towards a sustainable future" (OECD, 1994: 8), it is quite encouraging to see their widespread use by the SAIs in their performance audits.

Overall, there seems to be little difference in the use of environmental performance indicators between the developing and developed SAIs. However, it is interesting to note that a higher proportion of developing SAIs than the developed SAIs seem to be 'always', or 'often' (two of the first three categories) using environmental performance indicators. The 'very often' and 'occasional' use by developed SAIs seem to be more than that of developing SAIs. Does this difference (somewhat higher use by developing SAIs than the developed SAIs) suggest any thing? It is very difficult to conclude definitely. However, on the balance of probabilities (as seen in section 4.3.3 and as will also be seen in Chapter 5), it might be hypothesized that the developed SAIs may be more relying on assessing 'system and processes' to achieve performance than assessing physical measures of performance (related to environmental performance indicators). However, this matter warrants further investigation in future research.

Figure 4-15: Q20 - How often did you use environmental performance indicators (excluding financial indicators) in environmental performance audit – (a) Mostly/Always (90% or more of time); (b) Very often (50-89% of time); (c) Often (30-49% of time); (d) Occasionally (10-29% of time); and (e) Rarely/Never (Less than 10% of time)? Response (%) - Developing SAIs (N= 28); Developed SAIs (N = 18); Total SAIs (N= 45).



4.3.5.5 Matters to be specified in environmental policies to assess their performance

All 19 SAIs that commented on this matter, suggested that environmental policies and programs should have 'clear objectives' and targets' and specify 'adequate, realistic and fair' 'measures' or indicators of 'performance' to enable assessment of their performance. In 'most of the cases there are only process indicators, not outcome indicators'. 'A combination of outcomes-based, outputs-based, activity-based and input-based [key performance indicators] KPIs or measures' are considered appropriate to audit performance. While only a few SAIs cite the use of indicators indicating their unavailability, all of them consider their use desirable. The following two comments capture the essence of the points raised by the SAIs on the matters that should ideally be specified in environmental policies and programs to facilitate assessment of their performance.

> (1) Environmental policies, as with other public policies, should have RACER indicators (Relevant, Acceptable, Credible, Easy, Robust). The policies should be translated into clearly defined actions whose execution can be managed and measured (whether these actions are "stand alone" or integrated into other public policies). Responsibilities and funding for the actions should be clearly established. Coordination between stakeholders (public and private) is vital given the cross cutting nature of environmental policies - economic and social issues are usually also involved. Environmental policies and programs must be integrated into other public policy areas, especially those higher profile policies which may receive more direct public funding. There should be a long term, though evolving, strategy so that sustainability and environmental issues can be addressed in a coherent way. There should be a well thought out, though not necessarily complex, reporting system which includes procedures to check the accuracy / completeness of underlying data.

(2) When elaborating policies and programs, indicators for assessment of their performance should be clearly defined. Distinguishing between indicators for output/performed activity, for result and for impact is a precondition for carrying out an effective monitoring during their implementation, assessment of the benefits and the effect for the society. The inclusion of interim indicators is necessary condition to trace the progress of the different stages of program implementation thus ensuring opportunity for timely identification of problems and taking concrete and appropriate management decisions.

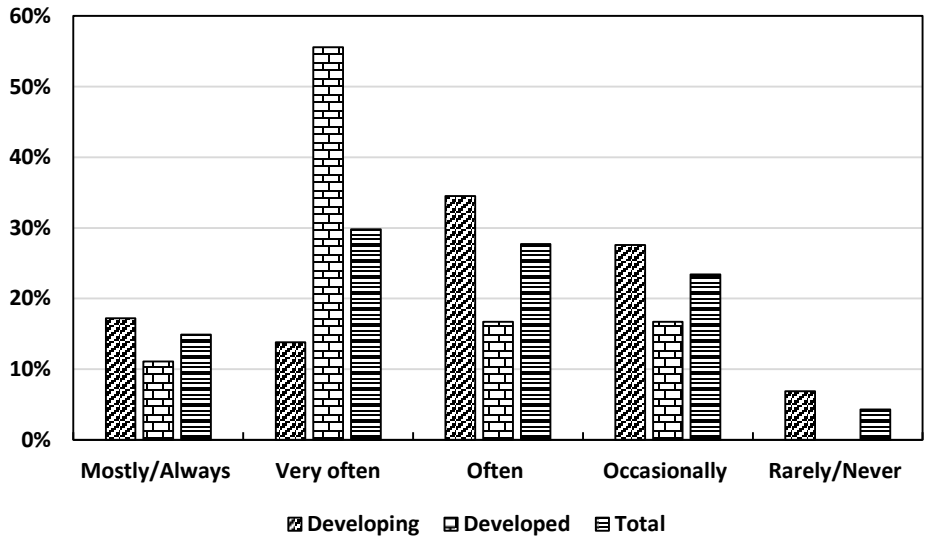
4.3.6 Effectiveness reporting and auditing

4.3.6.1 Measurement and reporting of effectiveness

SAIs rely heavily on information produced by auditees (as seen earlier in section 4.3.3 regarding heavy reliance on document examination) to undertake performance auditing. Reporting by the administration on the effectiveness of the environmental policies and programs they implement would logically be considered a highly desirable input to environmental performance auditing.

Measurement and reporting on effectiveness seem to be highly prevalent. Close to three fourths of SAIs indicate (Figure 4-16) that auditees 'often' to 'always' measure and report on the effectiveness (impact or outcome) of the environmental policies and programs they implement. Less than a quarter of SAIs indicate that auditees 'occasionally' do so; while a very small proportion (4%) indicate that auditee rarely or never measure and report on effectiveness. The two most frequent assessments by SAIs of measurement and reporting of effectiveness are: (a) 'very often' (30%) and (b) 'often' (28%). The proportion of these two assessments together, is quite high (close to 60%), leading to a conclusion that measurement and reporting of effectiveness is highly prevalent. Given the ongoing debate in the performance audit literature about the effectiveness of policy versus the effectiveness of administration or implementation (see section 2.3.6 of Chapter 4), this comes as a surprise. McPhee (2016) observes that SAIs' assessments of auditees' effectiveness reporting may be somewhat generous.

Figure 4-16: Q21 - To what extent do auditees measure and report on the effectiveness (impact or outcome) of the environmental policies and programs they implement - - (a) Mostly/Always (90% or more of time); (b) Very often (50-89% of time); (c) Often (30-49% of time); (d) Occasionally (10-29% of time); and (e) Rarely/Never (Less than 10% of time)? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



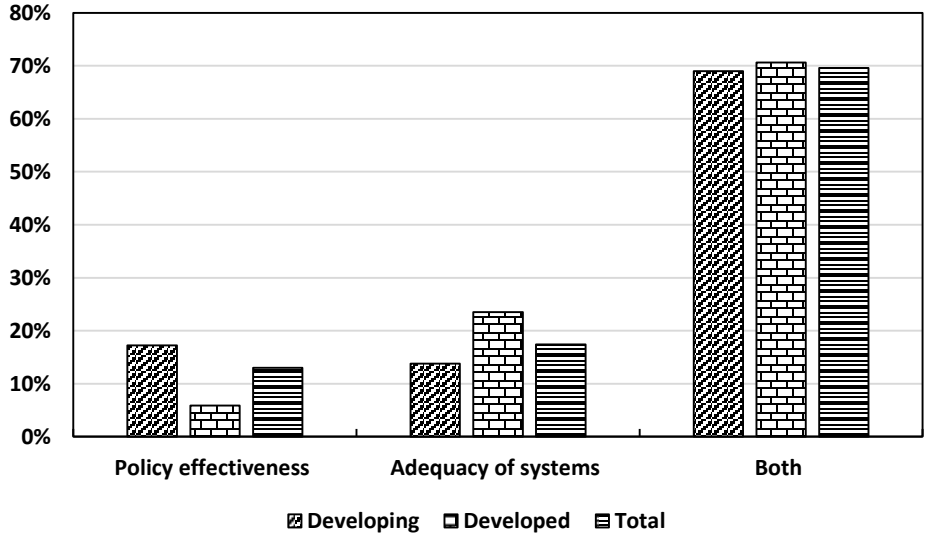
However, the relative prevalence of measurement and reporting of the effectiveness in the developing and developed countries is consistent with expectation. More than four fifths of the developed SAIs, compared with about two thirds of the developing SAIs, report that their auditees measure and report on the effectiveness of the environmental policies and programs they implement. The relatively higher proportion of measurement and reporting of effectiveness reflect relatively more accountable administration in developed countries than in developing countries. While not inconceivable, a higher proportional representation of the developing SAIs than the developed SAIs in the 'mostly/always' class, seems to be an exception.

4.3.6.2 Auditing of effectiveness

As noted in Chapter 2 (section 2.3.6), the concept of effectiveness is a contentious matter in that if it should refer to substantive/policy effectiveness (actual impact or outcome), or administrative effectiveness of systems and process (output versus input). Auditing the former is more challenging than the latter. Not surprisingly, only a small proportion SAIs (13%) seem to audit the effectiveness of policy (Figure 4-17); and a slightly larger proportion (17%) audit the adequacy of systems and processes. However, more than two thirds of SAIs indicating that they audit both the policy (substantive) and system/process (administrative) effectiveness comes as a surprise. Together with the high prevalence of measurement and reporting of effectiveness (as discussed in the previous section), the auditing of both substantive and administrative effectiveness by SAIs, suggests that perhaps there is a disconnect between academics and practitioners on the matter—with the former stressing the 'purity' of concept while the latter taking a more pragmatic view.

Compared with the developed SAIs, about 10% more developing SAIs endeavor to audit the effectiveness of policy and, about a similar less proportion of developing SAIs endeavor to audit the effectiveness of system and processes (such as, the existence of key performance indicators). This is consistent with expectation, as compared with their developed peers, the developing SAIs continue to have a higher focus directly on results rather than system and processes to achieve them (also observed in other matters, such as, the use of environmental indicators in section 4.3.5.4 above). However, it is interesting to note that the difference between the developing and developed SAIs ends there. Irrespective of their development status, more than two thirds of both developing and developed SAIs indicate auditing both substantive and administrative effectiveness. As noted in the previous paragraph, this suggests that some conceptual differences between academics and practitioners exist on the idea of effectiveness.

Figure 4-17: Q22 - Whether or not auditees report on the effectiveness of the environmental policies and programs they implement, do you assess: (a) policy effectiveness; (b) system and processes; (c) both (a) and (b)? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 17); Total SAIs (N= 46).



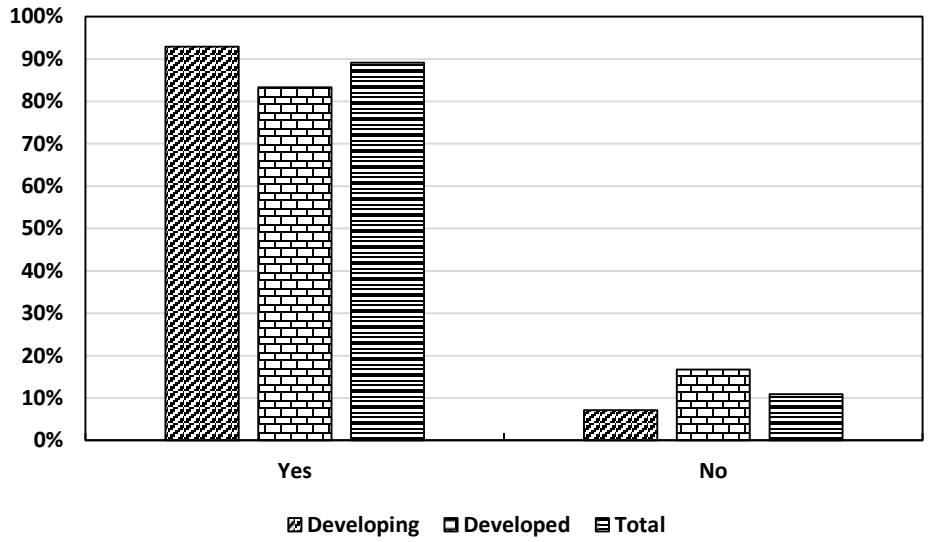
4.3.6.3 Long-term nature of environmental policies and programs

As noted in Chapter 2, notwithstanding their views that environmental audit is no different from audits in other fields (INTOSAI, 2012a; Van Leeuwen, 2004a; Yusoff, 2013), SAIs do identify a number of challenges specific to environmental auditing (INTOSAI, 2012a). One such challenge is the long-term nature of environmental problems and associated initiatives to respond to them.

An overwhelming majority (about 90%) of SAIs agree (Figure 4-18) that the long-term nature of some environmental programs/policies pose particular challenges to performance audit. Only a minority (about 10%) of SAIs disagree. About 10% more developing SAIs than the developed SAIs (83%) agree that the long-term nature of some environmental policies pose challenges to performance audit. Developed SAIs due to their comparatively more resources, expertise and experience in undertaking performance audit of environmental matters, are less likely to consider them posing specific challenges. The difference between their responses is consistent with expectation. The more notable point here is that, an

overwhelming majority of SAIs do recognise the long-term nature of some environmental initiatives posing challenges to performance auditing. Barrett (2016) notes however, that it is not a problem unique to the environment sector.

Figure 4-18: Q23 - Does the long-term nature of the outcome of some environmental programs/policies pose particular challenges to the performance audit, for example in assessing effectiveness? Response (%) - Developing SAIs (N= 28); Developed SAIs (N = 18); Total SAIs (N= 46).



4.3.6.4 Issues in assessment of effectiveness of environmental policies and program

On issues related to the assessment of effectiveness of environmental program and policies, SAIs resonate with their response discussed in section 4.3.6.3 above. They acknowledge that 'while impacts [of policies] may be qualitative or quantitative', due to their 'long-term effects' they are 'difficult to determine'. Difficulties are acknowledged in both measuring the environmental outcomes and attributing them to specific policies. "Most of times the environmental policy's outcomes are hard to measure or even identify; and when you identify an outcome, [it] is harder to evaluate the weight of the environmental policy to achieve it." Assessing the 'long term effectiveness of environmental policies is difficult because of many assumptions upon which outcomes were planned [that can] change by the end of planned period', for example 'climate change programs [are] challenging to assess [their] effectiveness', as it is not certain how the audited output 'will accumulate to make the intended long term outcome'. Further, attribution of outcome to a policy is not certain as one SAI notes that 'reduction in greenhouse gas emissions meets its commitments under the [United Nations Framework Convention on Climate Change] UNFCCC', but it is not clear 'to what extent is this the result of the climate change policies put in place, rather than the side effects of the economic crisis that started in 2009'. Another example cited is the audit of implementing groundwater policies, where it may 'take 20 to 100 years before the effects of policies on the 'status of groundwater' are visible.

Some SAIs consider that many 'programs and policies are not designed according to the country's environmental, economic and social realities', consequently they are 'without clear objectives; have

neither institutions to fulfil their mandate, nor, have a specific timeframe for implementation'. Some 'policies are not clear to [even] auditees'. To overcome the difficulties in assessment related to the vagueness and 'long-term nature of environmental policies, some SAIs suggest 'interim' or 'intermediate' performance measures to assess their 'partial fulfilment'. For example, one SAI notes that, "in the cases where programs have long-term outcomes, audited agencies should also develop intermediate output and outcome KPIs or explore the use of proxy measures that are measurable in the short to medium term that would give stakeholders confidence that the audited agency is on the path to achieving the long-term outcomes."

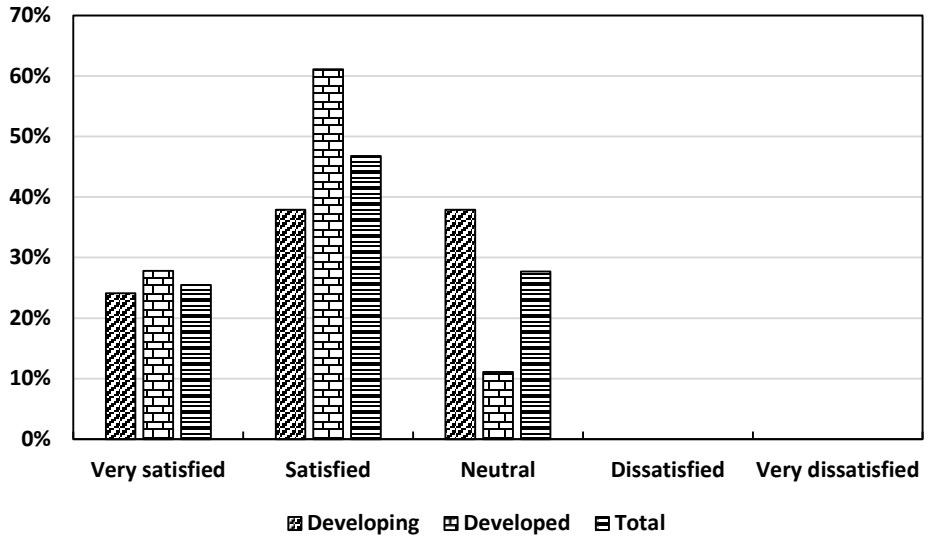
4.3.7 Clearance process for performance audits

Receiving formal comments on draft performance audit reports and incorporating them into final reports is more than a benign process of auditees' feedback. As noted in Chapter 2 (section 2.3.13), effectively it is a clearance process that may be contentious. The auditees, if not comfortable with findings, may dispute and obfuscate them and obstruct the publication of the audit report (Kelly, 1997; Wighton, 1998). However, it is noted that in some countries, for example Australia, there is a statutory time limit within which, auditees must provide their comments on draft audit reports.

An overwhelmingly large proportion (72%) of SAIs seem to be either 'very satisfied' or 'satisfied' with clearance process (Figure 4-19), whereas a significant proportion (28%) seem to be 'neutral' – neither satisfied nor dissatisfied with the report clearance process. No SAI seem to be 'dissatisfied' or 'very dissatisfied'. This suggests a good engagement by SAIs with the auditees – a sign of healthy professional relationship, perhaps in contrast with a traditional impression of distrust between auditors and auditees.

The SAIs response on the clearance process reflecting on their relationship with the auditees becomes clearer by the contrast between developing and developed SAIs. Compared with about 60% of developing SAIs, close to 90% of developed SAIs seem to be either 'very satisfied' or 'satisfied' with clearance process. More consultative and less adversarial relationship between SAIs and auditees is more likely in developed countries than developing countries. There are anecdotal (McPhee, 2016) as well as documented evidence (as noted in Chapter 5) to this effect.

Figure 4-19: Q24 - How satisfied you are with the clearance process for environmental performance audits with the auditees? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



4.3.7.1 SAIs observation on the clearance process

Notwithstanding some challenges involved, a general satisfaction among SAIs on the clearance process for environmental performance audits is also evident from their observations. It is noted however that "the issues are not different from any [other] audit. Once the audited entity accepts that the audit was fair, objective and accept the findings they proceed to effect the recommendations." Some SAIs indicate specific time frame for response, others observe that "discussions with auditees take a long time." While not dissimilar to other audits, challenges 'depend on problems and [auditees]'. "The challenges may come when [some] auditees are not serious when the report is sent to them for comments and factual clearance and would want some of the audit findings and conclusions be modified or removed in the last minute." Some SAIs indicate that due to their mandate they are not dependent on [auditees'] consent. One such SAI observes that while 'clearance is not an applicable concept', "we strive to achieve a common understanding on the central elements of the audit (criteria, major findings etc.) in order for the audit to add maximum value."

4.3.8 Constraints in undertaking more environmental performance audits

4.3.8.1 Insufficiency of mandate and resources

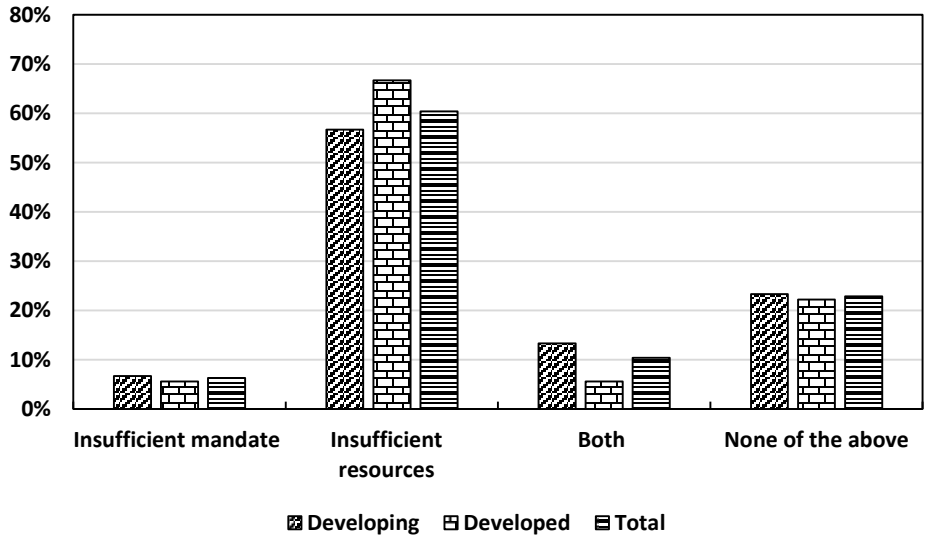
WGEA has long held a view that the absence of a specific mandate is not a barrier to environmental auditing (see for example, WGEA 2012a; 11, 2007a: 23, 2004: ii)). However, insufficient mandate continues to be considered as a barrier to environmental auditing by a significant proportion of SAIs (WGEA, 2012a: 28). It will further be seen in Chapter 5 that mandate does play a significant role in environmental performance auditing. It was considered therefore appropriate to investigate how SAIs view this and insufficient audit resources (including financial and human) as constraints to undertaking more environmental performance audits.

Only a small proportion (6%) of SAIs consider (Figure 4-20) 'insufficient mandate' (by itself) as a constraint or barrier to undertaking more environmental performance audits, whereas, a large majority (60%) of SAIs consider 'insufficient resources' as a constraint. This compares with about 59% of SAIs identifying skills (65% for total human resources) as a barrier to conducting environmental audits, during 2009-2011 (WGEA, 2012a; 28). A tenth of SAIs consider both 'insufficient mandate' and 'insufficient resources' as constraints, whereas just over 20% consider none of them as a constraint to undertaking more environmental performance audits.

There seems to be very little difference between the developing and developed SAIs that consider: (i) insufficient mandate as a constraint; and (b) neither 'mandate' nor 'resources' as a constraint. Surprisingly, 10% more developed SAIs than the developing SAIs (57%) consider insufficient resources as a constraint. This suggests that, compared with developing SAIs, perhaps there is a greater desire in developed SAIs to undertake more environmental performance audits, with only the resources preventing them to do so. This is consistent with the expectation due to their early leadership on environmental matters. However, taken together with those that identify either or both 'insufficient mandate' and 'insufficient resources' as a constraint, the difference between developed SAIs and developing SAIs is very little (1-2%).

The point to note here is that, irrespective of their developmental status, an overwhelming majority (close to 80%) of SAIs identify insufficiency of either 'mandate' or 'resources' or 'both' as constraints to undertaking more performance audits of environmental policies and programs.

Figure 4-20: Q1 - Which of the following is a constraint in undertaking more performance audits of environmental policies and programs: (a) Insufficient mandate; (b) Insufficient resources (including financial and human); (c) Both; and (d) None? Response (%) - Developing SAIs (N= 30); Developed SAIs (N = 18); Total SAIs (N= 48).



4.3.8.2 SAIs observations on constraints

About 50% of SAIs that responded to the question related to constraints (see the caption of Figure 4-20 above) also commented on the matter. Consistent with the response discussed in section 4.3.8.1 above, most of these comments point to 'insufficient resources' generally and to a 'lack of human resources' particularly, as a constraint in undertaking more performance audits of environmental policies and programs. The following observation of an SAI succinctly captures most of SAIs' views on the matter:

> [O]ur SAI faces lacks in having highly qualified auditors with both knowledge in performance auditing skills on one hand and environmental knowledge or skills. Some audit topics may require to have a very accurate and specific knowledge of the subject matter. Equally, some audits might include high costs such as outsourcing a subject matter expert, making specific analysis of some data collected, etc.

While lack of resources is a constraint in performance auditing, another SAI observes that "this problem is common to all matters, not only regarding to environmental matters." Yet another SAI, echoes the same sentiment, "resources do act as a constraint for all our audit work, including performance audits of environmental policies and programs. [However, it is not], an undue constraint on audits of environmental policies and programs specifically, given that we cover the whole of government."

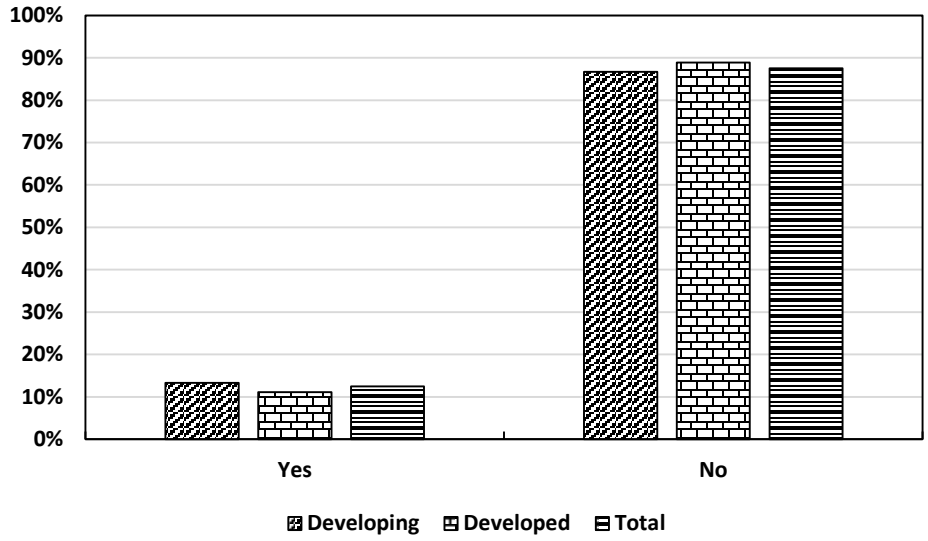
One SAI makes an apt observation that "environmental topics compete with other topics for attention on our work program." Though made by a developed SAI, it applies to all SAIs without a specific environmental audit mandate and consequently has implications for environmental auditing in developing countries. A developing SAI notes, "environmental issues are not a big priority in most developing countries. More efforts are made to auditing financial issues of programs."

4.3.8.3 Impact of lack of human resources (skills)

As discussed in Chapter 2 (section 2.4.4) SAIs acknowledge that environmental auditing poses some specific challenges. One such challenge is possessing the specific skills (competencies and knowledge) required to undertake fieldwork for such audits.

An overwhelming majority (close to 90%) of SAIs seem not to lack in-house skills (Figure 4-21) to undertake environmental performance audit, as they did not have to abandon a proposal to undertake such an audit. There is very little difference between the developing and developed SAIs on this matter. While expected, about 2% more developing SAI than the developed SAIs (11%) indicating that a lack of in-house skills is an issue is not considered a significant difference. The overall message is that, irrespective of their development status, an overwhelming majority of SAIs do not consider a lack of in-house skills as an issue, as it has not caused them to drop any proposal to undertake an environmental performance audit in the last 5 years. In other words, lack of in-house skills is not a constraint in undertaking environmental performance audit. This seems, prima facie, to be inconsistent with the message emerging from the previous section (Figure 4-20).

Figure 4-21: Q12 - Has your SAI ever not undertaken an environmental performance audit (in the last 5 years) because your SAI lacked in-house skill/capacity to undertake such an audit? Response (%) - Developing SAIs (N= 30); Developed SAIs (N = 18); Total SAIs (N= 48).

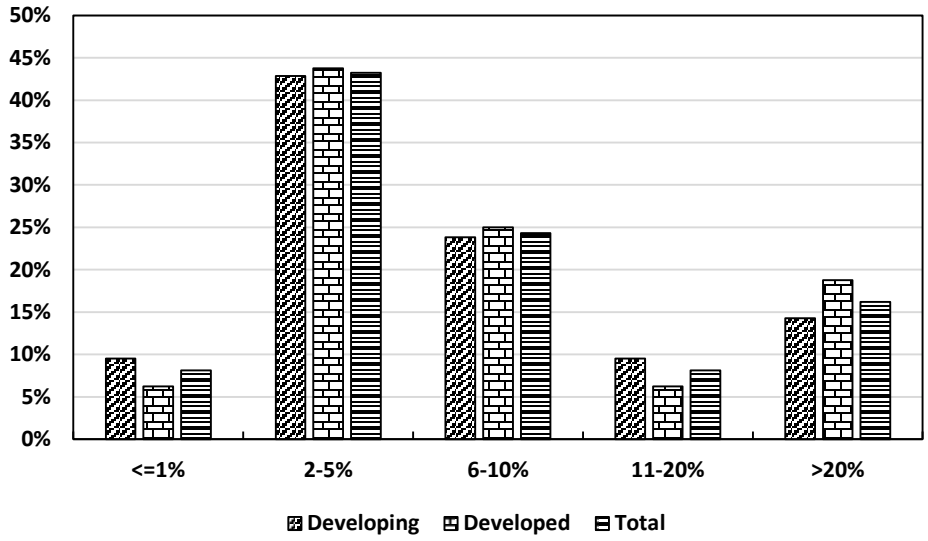


However, on closer scrutiny, it is found that the two questions (and hence responses) relate to two different time scales. While SAIs response in Figure 4-20 relate to a long-term (strategic) planning question (Q1), responses in Figure 4-21 relate to a short-term (annual audit plan execution) question (Q12). On a long-term basis, insufficient resources is considered as a constraint to undertaking more environmental performance audit. However, if there is a lack of (or limited) related resources, there is little likelihood that SAIs would include such (environmental) matters in their annual performance audit plan, where audit topics are selected giving due consideration to available resources (auditability). Insufficiency of resources being not an issue on a short-term basis will further be confirmed later (see discussion in 4.3.9.1-4.3.9.2). It is interesting to note that questions relating to responses discussed in the previous section, this section and a later section were not asked in consecutive order. However, a consistent message emerging from all of them is that on a short-term basis, a lack of skills is not an issue in the majority of SAIs.

4.3.8.4 Resources devoted to environmental performance audit

This section explores the relative importance the SAIs accord to their environmental performance audit work in terms of assigning resources. SAIs found it very difficult to answer the related question (see the caption of Figure 4-22). An SAI's observation—'it cannot be determined as no segregation of manpower utilization is available'—succinctly capturers the challenge involved. Despite a clear definition of environmental audit by the WGEA (see for example, WGEA, 2012a: 7), it is not easy for the SAIs to apply it in their work to appropriately estimate the resources devoted to all their environmental performance audit work. While some of them do have a 'special' environmental audit team, the work undertaken by other teams may often cover projects with environmental objectives. The response discussed below should be understood in this context. The proportion (nominated as % in response to an open-ended question) of SAIs' total resources devoted to environmental performance audit is shown as a frequency distribution in Figure 4-22.

Figure 4-22: Q13 - What proportion (as %) of your SAI's total resources (including human, financial and material) were devoted to environmental performance audit during the last 5 years? Response (%) - Developing SAIs (N= 21); Developed SAIs (N = 16); Total SAIs (N= 37).



More than three fourths of SAIs devote 10% or less of their total resources to environmental performance audit work, while only about a quarter of them devote 11% or more to this work. The largest proportion of SAIs (43%) devote between 2-5%, while the second largest proportion (24%) devote between 6-10% of their resources to environmental performance audit. It is interesting to note that the third largest proportion (16%) seems to devote 20% or more resources to environmental performance audit. This group is larger than the two groups (both 8%) of SAIs: (1) that devotes 1% or less; and (2) that devotes between 11-20%. The overall message here is that significant resources are being devoted to environmental performance audit work. About half of the SAIs seem to be devoting 6% or more of their resources with about a quarter of them devoting 11% or more to environmental performance audit work.

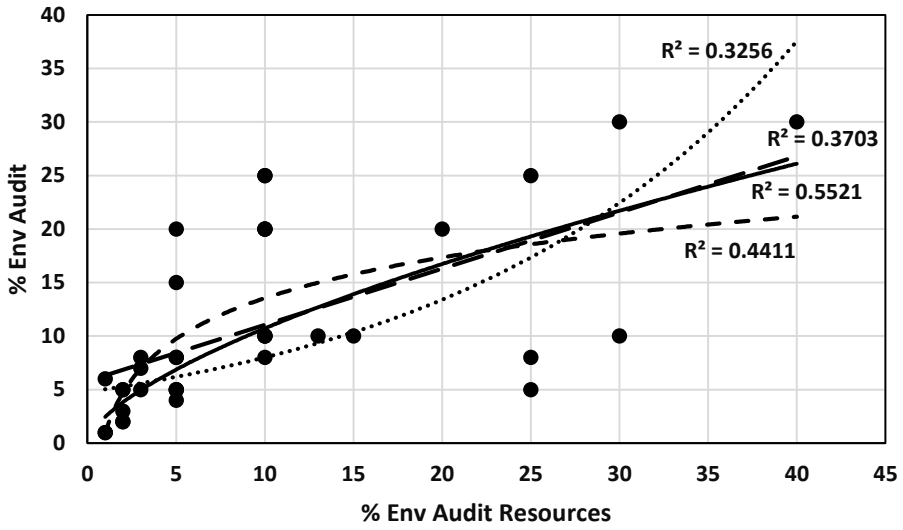
Expectedly, a higher proportion of developing SAIs (10%) than the developed (6%) SAIs is represented in the lowest resource allocation class (1% or less), and a higher proportion of developed SAIs (19%) than the developing (14%) SAIs are represented in the highest class (20% or more – a vice versa situation). There is little difference between developing SAIs and developed SAIs in two classes: (1) 2-5% and (b) 6-10%. However, in the second highest class (11-20%), about 3% more developing SAIs are present than the developed SAIs. While not inconceivable, this seems anomalous. The SAIs' difficulties in apportioning the resources to environmental performance audit work noted above, may partially have caused this anomaly. However, the overall message, that is, significant resources (6% or more) being devoted to environmental performance audit by about a half of SAIs and comparatively lower resources devoted by developing SAIs than the developed SAIs, is more important.

4.3.8.5 Relationship between resource allocation and environmental performance audit

Having SAIs' data for both: (1) the proportion of environmental audit (section 4.3.1.5 above); and (2) proportion of total audit resources devoted to environmental performance audit (section 4.3.8.4 above)

enables investigation of the relationship between the two. In this investigation, responses of only those SAIs that responded to both questions were considered. A regression between the two paired data sets shows that significant correlation exits between the two variables. It is reasonable to expect that the proportion of environmental performance audits should depend upon the audit resources devoted to the task. Having other factors constant, the greater the availability of audit resources, the more should be environmental performance audits. Fitting different types of curves to the data (Figure 4-23) results in the highest R^2 value for a power relationship. Thus, a nonlinear (power) relationship (solid line) is considered to be better characterizing the two data sets than a linear relationship.

Figure 4-23: Relationship between audit resources and environmental performance audit



A non-linear relationship between the proportion of audit resources devoted to environmental audit and the proportion of environmental audit to the total audit was also noted in Chapter 3 (section 3.4.5.1). The nature of the relationship found here and earlier in Chapter 3, however, is not identical. This is because the two data sets are derived differently. While data analysed here is direct data, the data in Chapter 3 was a re-analysis of an aggregated data. The point, to be noted here however, is the non-linear relationship between the proportion of audit resources devoted to environmental audit and the proportion of environmental audits. As noted earlier, the increased resources may enhance SAI capacity in more than one way, such as, additional staff, their training and capacity building, data collection, physical resources such as computer, internet and software packages, exchange of information and knowledge sharing through cooperation with other SAIs. Therefore, a non-linear impact of an increase in resources is reflected on the output of environmental performance audits.

4.3.9 Capacity/skills

4.3.9.1 Engagement of external subject matter experts/consultants

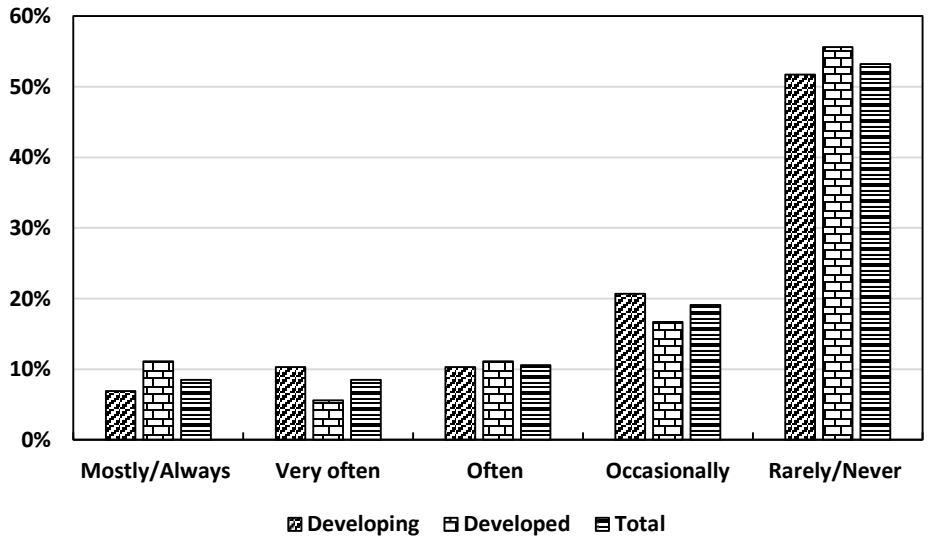
Engagement of external experts or consultants to undertake environmental performance audits may be an indicator of the lack of relevant in-house skills to undertake such audits.

External subject matter experts are 'often to 'always' engaged by less than 30% of SAIs (Figure 4-24) to undertake environmental performance audits—about one tenth of SAIs each, using them, 'always'; 'very often'; and 'often'. On the other hand, more than 70% of SAIs only use them 'occasionally' to 'rarely'—more than half of SAIs using them 'rarely' or 'never'; and less than a fifth using them 'occasionally' to undertake environmental performance audits.

It is expected that the developed SAIs are more likely to have in-house skills than the developing SAIs. Hence, the developed SAIs are less likely to use external experts to undertake environmental performance audits than the developing SAIs. Consequently, it would be expected that: (i) proportionally more developed SAIs than the developing SAIs are present in the lesser use classes, 'rarely' and 'occasionally'; and (ii) proportionally more developing SAIs than the developed SAIs are present in the higher use classes, mostly, 'very often' and 'often'. However, these expectations are not always met. So it may be concluded that that the development status has some bearing but not the sole bearing on the expectation of the availability of in-house skills in the SAIs.

The overall conclusion is that, irrespective of their development status, a large majority of SAIs has in-house skills to undertake environmental performance audits. This is consistent with the conclusion in section 4.3.8.3 that on a short-term basis, insufficiency of resources is not an issue. However, it should be noted that the earlier conclusion was about all resources not just skills (human resources) discussed here.

Figure 4-24: Q16 - How often did you have to engage external subject matter experts/consultants to undertake environmental performance audits: (a) Mostly/Always (90% or more of time); (b) Very often (50-89% of time; (c) Often (30-49% of time); (d) Occasionally (10-29% of time); and (e) Rarely/Never (Less than 10% of time)? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



4.3.9.2 Sufficiency of skill base

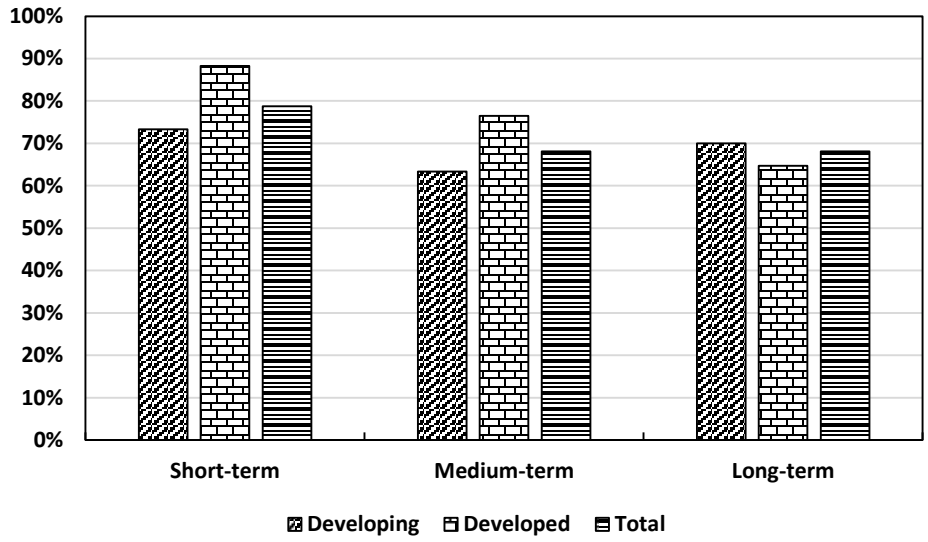
Following on from the discussions in sections 4.3.8.3 and 4.3.9.1, the sufficiency of skills (human resources) is further explored here. An overwhelming majority (close to 80%) of SAIs (Figure 4-25)

consider that their skill base is sufficient to undertake environmental performance audit in the 'short-term'. About 70% of them also consider that their skill base is sufficient to undertake environmental performance audit in the 'medium-term' and 'long-term'. Thus, it can be concluded that for a vast majority of SAIs, the skills base is sufficient and hence not an issue for them.

Expectedly, proportionately more developed SAIs than the developing SAIs consider their skill base sufficient in: (1) 'short-term' (88% versus 73%); and (2) 'medium-term' (76% versus 63%). However, more developing SAIs (70%) than the developed SAIs (65%) indicate having sufficient skills in the 'long-term'. There may be several reasons for this apparent anomaly that include: (1) estimating the sufficiency of skills over long-term (5-10 years) may be a challenge, where developed SAIs are perhaps being more realistic in factoring in uncertainties; (2) developed SAIs expect to be conducting more environmental performance audit in future; and (3) workforce is more mobile in developed countries than in developing countries.

The overall conclusion is that a vast majority of all SAIs consider that their skill base is sufficient to undertake environmental performance audit in the 'short', 'medium' and 'long-term'. This conclusion is consistent with the conclusion related to the 'short-term' sufficiency in earlier sections, 4.3.8.3, and 4.3.9.1. However, this does not seem to be consistent with the conclusion related to the long-term in section 4.3.8.1, where a majority (60%) of SAIs identify insufficiency of resources as a constraint in undertaking more environmental performance audit. In this regard, it may be noted that skills (or human resources) is not the only resource required for audit. Financial resources including infrastructure are also a major input to performance audits. Even if human resources exist (assuming funds are available to pay salaries), if there is not sufficient operating budget (such as for travel, communication, equipment, stationery and publication costs) available, it will not be easy to undertake performance audits. The discussion in section 4.3.8.1 is about all resources, whereas discussion in this section is about just the skills (human resources). Thus the conclusion in this section is not necessarily inconsistent with the conclusion in section 4.3.8.1.

Figure 4-25: Q14 - Do you consider your SAI's skill base sufficient to undertake environmental performance audit in (1) short-term (1 - 3 years); (1) Medium-term (3-5 years); and (3) Long-term (5-10 years) ? 'Yes' Response (%) - Developing SAIs (N= 30); Developed SAIs (N = 17); Total SAIs (N= 47). The original responses were weighted as follows: (a) Yes - 1; (b) No and N/A – 0.



4.3.9.3 Augmentation of skills

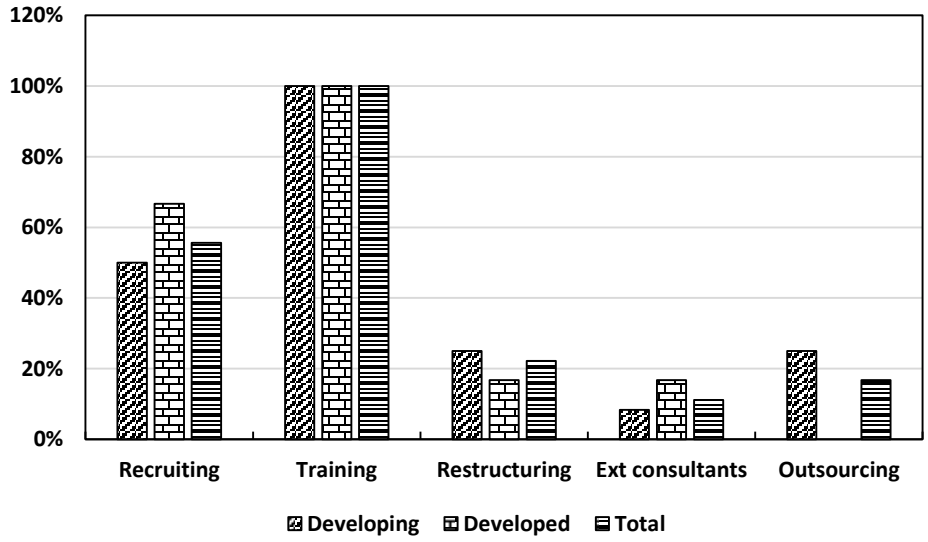
The SAIs (about 30%) that consider their skill base is not sufficient on any of the time scales, propose various means to augment the capacity gap. In the order of popularity, they are: (1) training - all of them (100%); (2) recruiting - 56%; (3) restructuring – 22%; (4) outsourcing – 17%; and (5) hiring external consultants – 11%. Note that these options are not exclusive. Training and recruiting seem to be two most popular options.

Between the developing and developed SAIs, the differences are as follows: (1) training – no difference; (2) recruitment - 17% more developed SAIs than the developing SAIs; (3) restructuring – 8% more developing SAIs than the developed SAIs; (4) outsourcing - only developing SAIs (25%); and (5) hiring external consultants – 8% more developed SAIs than the developing SAIs (equal but opposite of restructuring).

Not surprisingly, training being a normal developmental activity is routinely applied by SAIs irrespective of developmental status. More proposed recruitment by developed SAIs is also understandable, as are differences in restructuring and hiring consultants. Most surprising is outsourcing selected exclusively by the developing SAIs. Noting that hiring external consultants was a separate option, it seems, a small proportion (6% of total SAIs and 10% of developing SAI) of SAIs may consider outsourcing, should the need arise in the future. It is difficult to suggest a possible reason for this. Whether or not an SAI can or should outsource its work (basic responsibility to hold government accountable) depends upon the individual SAI's governing statues. Being based upon the response of a survey, where respondents cannot be identified, this matter cannot be explored further. Also being applicable to such a minor proportion of SAIs, this matter is not considered significant for the issues being studied in this research. It is sufficient

to note here that training and recruiting are the two most popular means proposed by SAIs (that consider their skill base insufficient) to augment their capacity.

Figure 4-26: Q15 - If you consider skill base insufficient for any of the timeframes above, how do you propose to augment the capacity gap? Response (%) - Developing SAIs (N= 12); Developed SAIs (N = 6); Total SAIs (N= 18).



4.3.9.4 Skills augmentation in specific disciplines

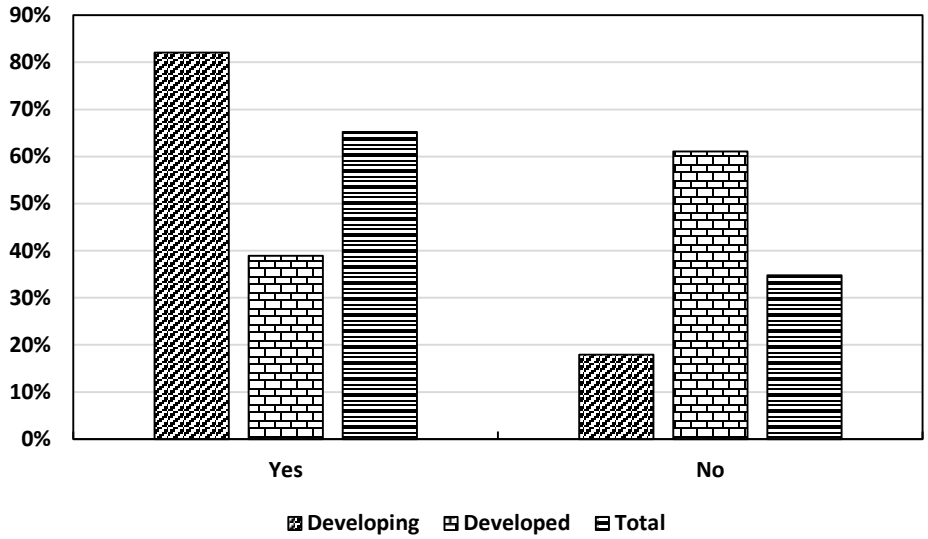
Environmental policies and programs are increasingly being enabled and assisted by scientific knowledge generated by experts. For example, the scientific knowledge on climate change generated by the Intergovernmental Panel on Climate Change (IPCC) is informing the global climate debate and policy formulation both domestically and internationally. While it is not possible, or may not be necessary, for the SAIs to have in-house expertise in every scientific discipline related to environmental management to be able to undertake environment performance audits, basic expertise in some areas, such as geographical information system (GIS) and relational databases is considered desirable to have in-house. Due to their widespread use, expertise in technologies such as GIS is now considered as routine for even a medium-size organization dealing with environmental matters.

Unlike the previous question that explored how SAIs identifying inadequacy of skills would augment the capacity gap, this question explores what specific areas or potential areas SAIs consider having a need for skill augmentation—a situation of desirability rather than necessity for in-house skills. Consequently, it relates to all SAIs.

About two thirds of SAIs consider (Figure 4-27) that there is a need for in-house skill augmentation in specific disciplines related to environment performance audits. Compared with a modest 39% of developed SAIs, an overwhelming majority (82%) of developing SAIs consider skill augmentation in specific disciplines is needed. Some reasons for this contrast may be that: (a) developed SAIs already have specific in-house skills; (b) developed SAIs may prefer to hire a consultant than augment skill in-house; and (c)

developed SAI do not consider that there is a need for skill augmentation in any specific discipline related to environment performance audits.

Figure 4-27: Q17 - Do you need in-house skill augmentation in any specific discipline related to environment performance audits, such as hydrology, ecology, Geographical Information System (GIS), environmental economics? Response (%) - Developing SAIs (N= 28); Developed SAIs (N = 18); Total SAIs (N= 46).



Compared with the developing SAIs (that still have considerable emphasis on actual results), the developed SAIs place more emphasis on systems and processes. As a consequence, the latter may not consider it necessary or desirable to have, or augment, skills in specific disciplines related to environment performance audits. For them, skill/knowledge in generic areas such as government processes and accountability framework and programs governance is adequate to assess performance of programs. A developed SAI notes that 'in most cases, a detailed technical knowledge of environmental matters is not necessary to undertake a performance audit on environmental topics' as the government often is a 'financier', rather than executor of such 'specialist' activities. This is an interesting observation, that not only describes aptly the environmental management situation in many developed countries, but also raises some fundamental issues about the SAIs' role, and the skill set, they need for auditing performance in a situation of devolved program governance, including, for instance, the delivery of public services by the private sector, either wholly, or partly in partnership with government, commonly known as 'public private partnership'. However, such matters need separate investigation that others are undertaking (see for example, English et al., 2010; Barrett, 2011a).

An SAI's comment regarding skill augmentation in specific disciplines related to environment performance audits is pertinent. The SAI notes that, while it has "three auditors performing environmental audits, they are not experts in each field of environmental auditing. It would be very important to improve their knowledge in environmental economics to be able to access financial consequences of solving different environmental issues." In addition to environmental economics, some other specific disciplines more

frequently nominated by SAIs for skill augmentation include: GIS, ecology, nature protection, climate change and hydrology in that order. Some less frequently nominated disciplines include, law, economics, statistics, sociology, microbiology, mining, chemistry and forestry.

It is concluded that SAIs, despite having adequate skills, recognize the need for skill augmentation in specific disciplines related to environment performance audits. This recognition is more in developing SAIs than in the developed SAIs.

4.3.10 Impact of environmental performance audits

WGEA (2012a: 21) considers that the main purpose of undertaking environmental audits by SAIs is to ensure that their findings lead to positive changes to the state of the environment. However, it acknowledges that establishing a causal link between audits and their direct impacts is challenging due to the complex nature of the environment. Generally, the twin purposes of performance audits are considered as: (a) ensuring accountability; and (b) improving performance (see for example, ANAO, 2008; Barzelay, 1996; Kells, 2011; Lonsdale, 2000; Pollitt & Summa, 1997). As discussed in Chapter 2 (section 2.3.14), SAIs place great emphasis on 'having an impact' (Lonsdale 2000) and measure that in several ways. This section explores the SAIs' own assessment of how their environmental audits have led to the improvement of: (i) governance of environmental policies and programs; and (ii) performance of environmental policies and programs.

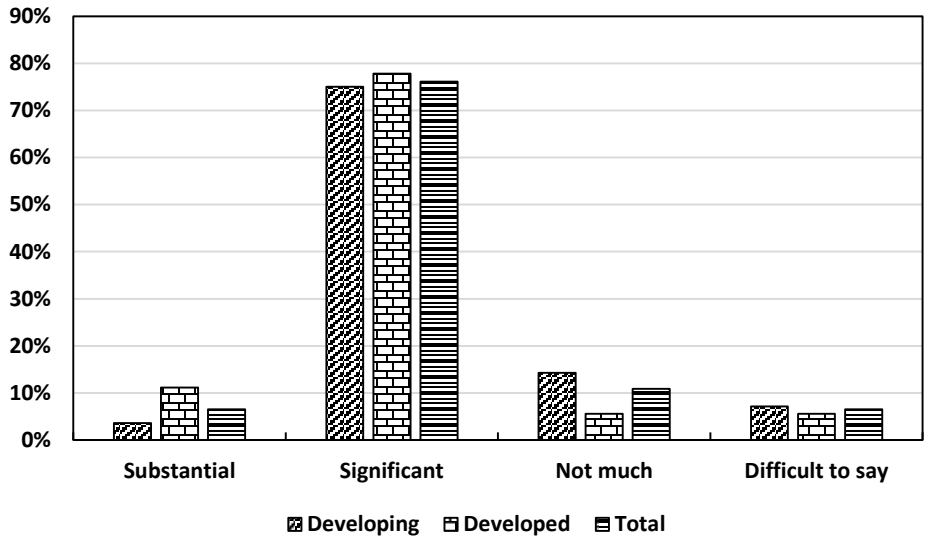
4.3.10.1 Impact on the governance of environmental policies and programs

More than four fifth of SAIs (Figure 4-28) consider that their performance audits have led to: 'significant' (76%) or 'substantial' (7%) improvements to the governance of environmental policies and programs. Only just above 10% of SAIs consider that they have led to 'not much' improvement. A similarly small proportion consider 'it difficult to say' anything about improvements their audits may have led to the governance of environmental policies and programs.

Compared with the developing SAIs, the developed SAIs seem to be somewhat more optimistic about their audits leading to 'substantial' and 'significant' improvements to the governance of environmental policies and programs. One reason for their more positive assessment may be that compared with their developing peers, the developed SAIs themselves are more attentive to administrative effectiveness related matters such as governance arrangements.

The overall conclusion is that an overwhelming majority (83%) of the SAIs consider that their audits have led to 'significant' to 'substantial' improvement in the governance of environmental policies and programs.

Figure 4-28: Q25 (a) - Do you consider that the environmental audits undertaken by your SAI have led to the improvement of governance of environmental policies and programs: (a) Substantial; (b) Significant; (c) Not much; (c) Difficult to say? Response (%) - Developing SAIs (N= 28); Developed SAIs (N = 18); Total SAIs (N= 46).



4.3.10.2 Impact on the performance of environmental policies and programs

More than three quarters of SAIs (Figure 4-29) consider that their performance audits have led to: 'significant' (67%) or 'substantial' (9%) improvements to the performance of environmental policies and programs. About a quarter of them consider that either their audits have led to 'not much' improvement to performance (17%); or it is 'difficult to say' (7%) anything about improvement in performance of environmental policies and programs.

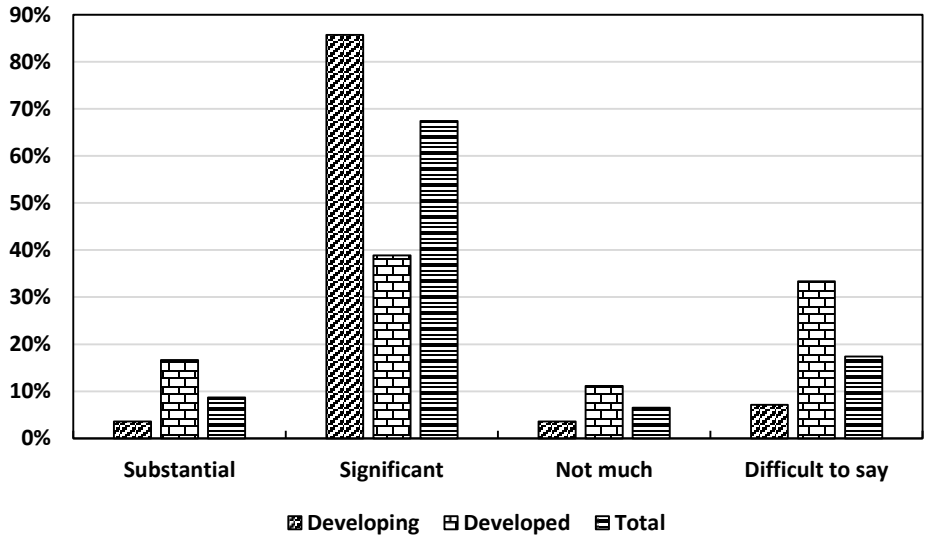
Compared with their developed peers (39%), an overwhelming larger proportion of the developing SAIs (86%) consider that their audits have led to significant improvements in the performance of environmental policies and programs. Correspondingly, a smaller proportion of the developing SAIs (11%) than the developed SAIs (44%) consider that either their audits have resulted in 'not much' improvement or it is 'difficult to say' anything about improvement in performance. As suggested earlier, compared with their developed peers (that emphasize more on governance issues), developing SAIs put a greater emphasis on results. So the latter may have put more efforts in assessing and consequently have a better idea about improvements in performance of environmental policies and programs than their developed counterparts. However, more developed SAIs (17%) than the developing SAIs (4%) considering that their audits have led to substantial improvements in performance of environmental policies and programs, while not inconceivable, seems somewhat anomalous. One possible reason for this anomaly may be that a relatively higher challenge is involved in assessing (substantive) improvements in performance than the (administrative) improvement in governance. From this perspective, it will be interesting to compare the two types of improvements.

It is notable that, compared with the improvement to governance (Figure 4-28) discussed in the previous section, 7% fewer SAIs consider that improvement to performance has been 'substantial' or 'significant'. Conversely, more of them either consider that 'not much' improvement to performance has occurred or they find it 'difficult to say' anything about improvement to performance. One reason for this may be that unlike the administrative or governance improvement, the substantive improvement to performance is more challenging to assess, as discussed in Chapter 2, section 2.3.6.

Unlike the improvement to governance (where 10% more developed SAIs than the developing SAIs report 'significant' to 'substantial or improvements), a substantially larger proportion (34% more) of developing SAIs than the developed SAIs report 'significant' to 'substantial' improvements to performance of environmental policies and programs. This difference could be attributed to the developing SAIs' higher emphasis on actual results (compared with developed SAIs higher emphases on governance).

Leaving aside the difference between the developing and developed SAIs, it is concluded that a large majority of SAIs consider that their performance audits have led to 'significant' to 'substantial' improvements to both governance and performance environmental policies and programs. While this is an assessment of SAIs of themselves, which some may dispute or consider exaggerated (see for example, Blume and Voigt 2007; Morin 2001; Morin, 2008; Sutherland 2003), there are strong reasons to believe the SAIs' assessment as they do assess the impacts of their audits by several means such as government response to their recommendations and follow up audits (WGEA, 2012a: 21). This does indicate that the 'improvement' purpose of performance audit is working for environmental policies and programs.

Figure 4-29: Q25(b) - Do you consider that the environmental audits undertaken by your SAI have led to the improvement of performance of environmental policies and programs: (a) Substantial; (b) Significant; (c) Not much; (c) Difficult to say? Response (%) - Developing SAIs (N= 28); Developed SAIs (N = 18); Total SAIs (N= 46).



4.3.10.3 SAIs reflections on the impact of their audits

SAIs overwhelmingly (about 90%) observe in their comments (60% commented) that their environmental audits have a 'positive response' as they support auditees 'own initiatives'. By 'proposing recommendations, they act as a catalyst for change' that encourage 'auditees to step up progress on programs being implemented'. "As environmental matters are complex and with long-term outcomes, [it] is easy to change the action's focus from the outcomes to the process. The environmental performance audit helps the governmental managers get back their focus to the outcomes." Because generally performance audit reports are public and discussed in a parliamentary committee, they 'trigger debate' and have often led to 'policy changes' as well as 'improvement of [program] governance, program performance and regulatory framework in the audited entities'. "Because of performance audits, improvement to design, implementation and management of the public policies related to environment have been identified." A SAI's comment succinctly captures the observations of the SAIs more generally:

> Lasting impact from environmental audits depends on the commitment of the senior management of audited entities to put in place recommended improvements and institutionalize them throughout the organization. Parliamentary interest in our audit reports and follow-up performance audits, undertaken from time to time, also assist with lasting impacts.

Another SAI cautions on the impacts, observing that, "it all depends upon the leverage given to SAIs." It cites the premise that most SAIs do not comment on policies, and as a consequence, assessing the impact on improvement to performance of policies and programs—as it will necessitate commenting on policy—may be beyond the scope of most SAIs. This realistic observation touches upon the dilemma in performance auditing earlier discussed in Chapter 2 (section 2.3.4 and 2.3.6).

A minority of SAIs do not seem optimistic about the impact of their environmental audits. "The auditees usually say they will consider our recommendation, but when we perform a follow-up audit we discover, that they didn't implement them", one SAI observes. "The audits are centered on past issues and often no matter how relevant the recommendations are, don't have a determinative influence on the practice of the audited entities", notes another.

Some suggestions for improving the impact of audits include: (1) "engagement of other stakeholders in the environmental domain (parliament, civil society, media) and the audit topic selected [are] keys to having high impact;" (2) public Institutions must work on data [and] information necessary to use different kind of indicators;" and (3) noting that development issues are sometimes prioritized over the environmental matters in developing countries, audits should 'clearly quantify the environmental effects or the risks and outline the threats' to enable the government implement the audit recommendations.

4.3.11 Cooperation among SAIs and contribution of the WGEA to environmental auditing

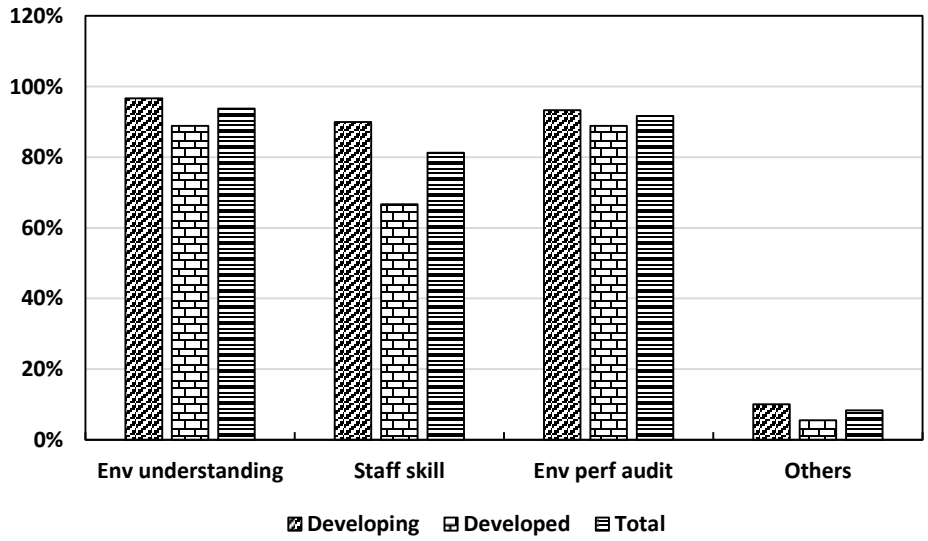
As discussed in Chapter 3, since its inception in 1992, the WGEA (2012d) has been working on its mission to assist SAIs in better undertaking environmental auditing to facilitate the exchange of information and experience between SAIs and to publish guidelines and other information for their use. Enhancing cooperation between the SAIs is implicit in the mission and objectives of the WGEA. To further this, the WGEA gives special attention to cooperative activities such as joint auditing by SAIs of cross border

environmental issues and policies, and the audit of international environmental accords (WGEA, 2012d). This is universally regarded useful by SAIs (WGEA, 2012a: 32). While the WGEA, through its surveys, has been tracking the growth of cooperation among SAIs, this section investigates, how SAIs perceive the various benefits, they derive from cooperation either directly, or indirectly via the WGEA. In doing so, this section also evaluates the advantage of international cooperation among SAIs on auditing of international environmental agreements, as suggested by Van Leeuwen (2004a), who first reported on the activities of the WGEA.

4.3.11.1 Benefits of cooperation generally

An overwhelmingly large proportions of SAIs (Figure 4-30) consider that cooperation with other SAIs directly or indirectly via the WGEA or other INTOSAI groups, have benefitted them in relation to: (a) improved understanding of environmental matters (94%); (b) improved skill of staff (81%); and (c) lifting the profile of environmental performance auditing generally (92%).

Figure 4-30: Q28 - Has the cooperation with other SAIs either directly or indirectly via INTOSAI (regional group or WGEA) benefited your SAI by contributing to any benefits related to: (a) improved understanding of environmental matters; (b) improved skill of staff; (c) lifting the profile of environmental performance auditing generally; and (d) other matters? 'Yes' Response (%) - Developing SAIs (N= 30); Developed SAIs (N = 18); Total SAIs (N= 48) weighted as follows: (1) Yes - 1; and (2) No and N/A – 0.



On all aspects, a higher proportion of the developing SAIs than the developed SAIs perceive benefits of cooperation, noting though that a large majority of the developed SAIs also consider cooperation is beneficial. The difference in perception of benefits between the developing and developed SAIs is largest in relation to the improvement in the skills of staff and smallest in relation to the lifting the profile of environmental performance auditing generally. It is considered that, due to their already relatively better staff experience and expertise, it is likely that a lesser proportion of the developed SAIs than the developing SAIs perceive cooperation as leading to the benefit of improvement in staff skills. This,

however, does not diminish the fact that, a very large majority of all SAIs consider cooperation beneficial on all aspects, including improvement in staff skills.

All SAIs that chose to comment (42%) on the matter, list the benefits of cooperation. These include the following: (1) “Sharing of ideas, experiences, challenges and suggestions on how to [overcome] them;” (2) “Exchange of methodologies and knowledge;” (3) “Exchange of good practices;” (4) “Training about environmental audit;” (5) “[T]he use of information from other SAIs and sample previous audits as a learning tool;” and (6) “Capacity building, build[ing] a common approach, [and] follow up the implementation of international agreements.” The following two observations broadly capture the views of the SAIs on the matter:

> (1) The problems are often similar in different countries and discussions/cooperation with competent staff in other SAIs provides a valuable arena for learning. Other SAIs have often already done audits in areas we are planning to audit. This serves as valuable input in the design of our audits. Audits on environmental issues often has a transboundary scope (like air pollution, CO2 emissions and waste). Information gathering and cooperation with other SAIs are often crucial for the ability our SAI has to perform/finalize this type of audits.
>
> (2) The contacts with other SAI's facilitates our audit planning and we can share best practices, good ideas, and experiences. Seeing the different approaches taken by our international peers is a good learning opportunity. WGEA provides access to a good network of experts in environmental auditing, which is beneficial to our own audit approach.

4.3.11.2 Benefits of cooperation on the audit of the international environmental agreements

Nearly all SAIs (98%) consider (Figure 4-31) that compared with individual audits, cooperative audits of the implementation of the international environmental agreements contribute more to the professional skills of the auditors. Overwhelming majorities of the SAIs also consider that compared with individual audits, cooperative audits contribute more to: (i) ‘audit quality’ (89% of SAIs); and (ii) ‘international environmental cooperation’ (93%).

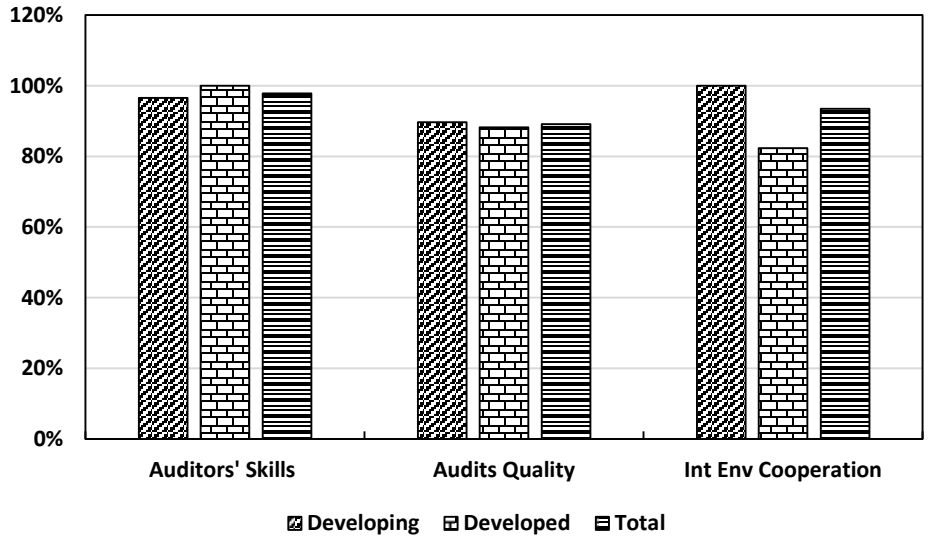
There is very little difference in the perception of the developing and developed SAIs on the relative benefits of cooperative audits relating to ‘auditors’ skills’ and ‘audit quality’. However, about 20% more developing SAIs than the developed SAIs consider that cooperative audits contribute more to international environmental cooperation. The more upbeat assessment of this benefit by the developing SAIs may be because that, compared with the developed SAIs, they perceive international cooperation more favourably, as they are perhaps net receivers of its benefits.

Leaving aside some differences on some aspects of the benefits between the developing and developed SAIs, an overwhelming majority of all SAIs consider that, compared with individual audits, cooperative of the implementation of the international environmental agreements contribute more to audit skills, audit quality and international environmental cooperation.

Conclusions in the previous section and this section suggest that SAIs strongly consider that the international cooperation is beneficial to them. This is a strong endorsement of the WGEA work by the SAIs. It reinforces the conclusion reached in Chapter 3 that the WGEA has a very positive influence on the

development of environmental auditing. Almost all SAIs that chose to comment (44%) on the matter sounded very positive. The following three observations broadly summarise their views: (1) "Joint/Cooperative audits assist SAIs to share methodologies on how to conduct different audits and share issues to consider most in different audits and for SAIs which have not yet conducted audits on certain areas to learn lessons from those which have already conducted them;" (2) "Cooperative audits enhance communication on the audit and provide the opportunity for capacity building of auditors;" and (3) "Conducting parallel audits and discussion of joint reports on the same topic improve the quality of the audit and provide an integrated approach."

Figure 4-31: Q31 - Do you consider that, compared with audit by a single SAI, joint/cooperative audits with other SAIs of the implementation of the international environmental agreements contribute more to: (a) the professional skills of the auditors; (b) the quality of the audits; and (c) international environmental cooperation? 'Yes' Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 17); Total SAIs (N= 46) weighted as follows: (1) Yes - 1; and (2) No and N/A – 0.



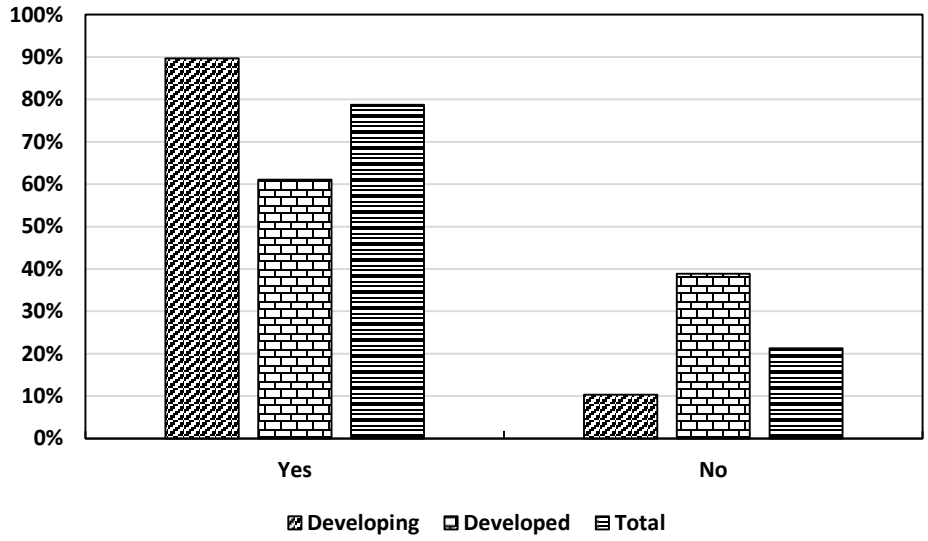
4.3.12 Agreement between the WGEA and United Nations Environment Program (UNEP)

As a sign of the growing international influence of the WGEA, UNEP that provides secretariat support to majority of international multilateral environmental agreements (MEAs), signed an agreement with the former in 2013 to track progress in implementing the MEAs. This agreement establishes a closer cooperation between UNEP and SAIs 'to evaluate whether government actions to tackle environmental challenges have produced the intended results, how gaps can be bridged, and whether environmental policies are being implemented in full compliance with international standards' (UNEP, 2013). While MEAs generally have their own compliance and review bodies established under them or provide such a role to international bodies such as UNEP, the 2013 agreement with the WGEA is perhaps an indication that SAIs are considered competent and perhaps having more influence on their respective governments than an MEA review body or the UNEP itself. The next two sections explore the SAIs views on the matter.

4.3.12.1 Awareness of the 2013 WGEA Agreement with the UNEP

A very large majority (about 80%) of the SAIs are aware (Figure 4-32) of the 2013 WGEA Agreement with the UNEP. About 30% more developing SAIs (90%) than the developed SAIs (61%) are aware of the agreement with the UNEP. More awareness is perhaps due to more interest in something which is considered beneficial. This reinforces the conclusion that the developing SAIs perceive international cooperation more favorably than the developed SAIs. A further investigation reveals that, compared with only 62% of the non-WGEA member SAIs, 85% of the member SAIs are aware of the agreement with the UNEP. This is expected, as members are likely to be more aware of the activities of the WGEA than non-members. However, the contrast between members' and non-members' awareness of the UNEP agreement is sharper among the developed SAIs than among the developing SAIs. Compared with 20% more member than non-member developing SAIs, about 30% more member than non-member developed SAIs are aware of the UNEP agreement.

Figure 4-32: Q29 - Are you aware of the 2013 agreement between the INTOSAI-WGEA and United Nations Environment Program (UNEP) to track progress towards the implementation of international environmental agreements? Response (%) - Developing SAIs (N= 29); Developed SAIs (N = 18); Total SAIs (N= 47).



Leaving aside the differences between the developed and developing and WGEA member and non-member SAIs, overall, an overwhelming majority (about 80%) are aware of the WGEA agreement with the UNEP.

4.3.12.2 Relative suitability of the SAIs to assess the progress of implementation of international environmental agreements

Close to 80% of SAIs consider (Figure 4-33) that, compared with the UNEP or review bodies established under MEAs, they are better placed to assess the progress with the implementation of MEAs. This perhaps reflects the reality. Compared with international bodies, not only would the SAIs have better access to and knowledge of their government policies and programs that implement the MEAs, their observations

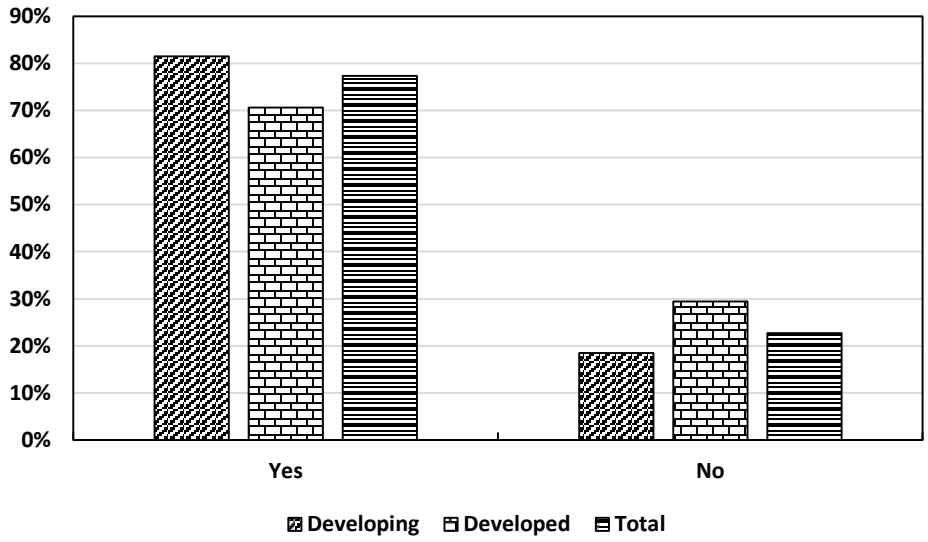
and recommendation would receive a more positive response. As a consequence, it is likely that SAIs would be more effective in monitoring the progress of implementing the MEAs than international bodies. Perhaps this realization has led the UNEP to sign the 2013 agreement. However a note of caution sounded by one SAI is worth noting in this regard.

> SAIs and bodies like UNEP have different origins, mandates, goals and so on. SAIs have a unique, independent role in society and a specific mandate. SAIs aren't specialized bodies like UNEP. SAIs have to divide their time and attention between several policy fields and are not merely concerned with environmental matters. Some SAIs don't even have the mandate to audit environmental matters.

Compared with their developed peers, about 10% more developing SAIs consider that they are better placed to audit the implementation of MEAs than the international bodies. While broadly reflecting the finding in the previous section, this seems somewhat inconsistent with the trends in most matters found in this study, where developing SAIs are more favorably disposed towards international cooperation. However, there are at least three reasons that can possibly explain this inconsistency: (1) international review bodies may be perceived by developing countries as being dominated by rich donor countries that may not be seen as having a sufficient understanding of their issues and challenges in implementing MEAs; (2) the 2013 move by the UNEP is seen as an international consensus to restore power back to the nations; and (3) it may be seen as paving the way for cooperation through a body (WGEA) that they are familiar with.

The majority of SAIs considering themselves as better placed to audit the implementation of MEAs is in line with the thinking of the UNEP that sees two-fold value from auditing of MEAs by SAIs. Firstly, the national parliaments and governments can use the SAIs audit findings and recommendations to improve domestic actions, policies and instrument. Secondly, through SAIs audit reports, MEA secretariats can get good information for developing mechanisms that can assist the implementation of current MEAS and help the future development of MEAs (UNEP, 2010: 42).

Figure 4-33: Q30 - Do you consider that SAIs are better placed compared with other compliance/review bodies established under international environmental agreements or an international body, such as UNEP, to assess the progress with their implementation? Response (%) - Developing SAIs (N= 27); Developed SAIs (N = 17); Total SAIs (N= 44).



4.3.13 SAIs' and other public bodies' roles in reviewing the implementation of environmental policies and programs

As earlier discussed in Chapter 2 (section 2.3.10), while almost unique to the public sector (Pollitt, 1999), performance audit is not always conducted by an SAI. There are other public bodies that undertake similar review functions. This section explores SAIs' views of 'other' public institutions roles in reporting on the performance of environmental policies and programs.

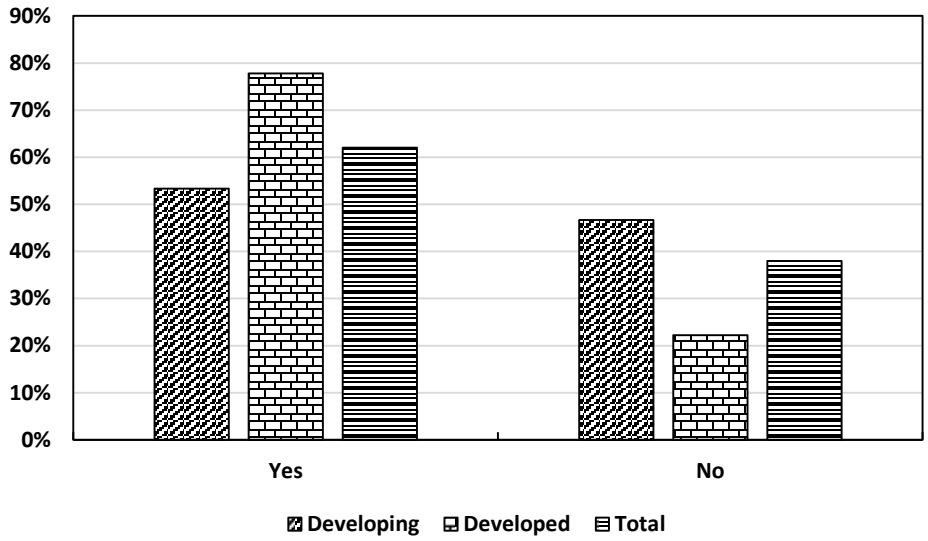
4.3.13.1 Awareness of other public bodies' assessment of performance of environmental initiatives

A significant majority (62%) of SAIs are aware that public bodies other than the national, state or provincial audit offices are examining and reporting on the performance of environmental policies and programs in their country. While it may be debatable that such examinations are audit or reviews (ASAE 3500 (AUASSB, 2008) makes this distinction), it confirms Pollitt (1999) observation that performance assessment in the public sector is not the sole prerogative of audit offices. In fact one SAI declined to participate in the survey on this ground that bodies other than itself undertake performance audit of environmental policies and programs in its country.

Compared with developing SAIs (53%), a significantly larger proportion (78%) of developed SAIs are aware of other public bodies assessing the performance of environmental policies and programs in their country. A negative response does not conclusively establish whether such bodies do not exist, as such bodies may exist but SAIs are not aware of them. However, a positive response does in fact confirm that such bodies do exist. Considering that SAIs possess a broader knowledge of the public sector in their country, it is likely that, if other public review bodies exist in their countries, SAIs would be aware of their existence. On the balance of probabilities, a positive response is likely to reflect the reality. Based upon this, it can

be concluded that public bodies that examine and report on the performance of environmental policies and programs are more prevalent in developed countries than in developing countries. This is consistent with expectation. As more public sector reform has likely happened in developed countries than in developing countries, the existence of review bodies other than audit offices is more likely in developed countries than in developing countries.

Figure 4-34: Q3 - Are you aware of any public sector institution(s) other than national, state or provincial audit offices, examining and reporting on the performance of environmental policies and programs in your country? Response (%) - Developing SAIs (N= 30); Developed SAIs (N = 18); Total SAIs (N= 48).



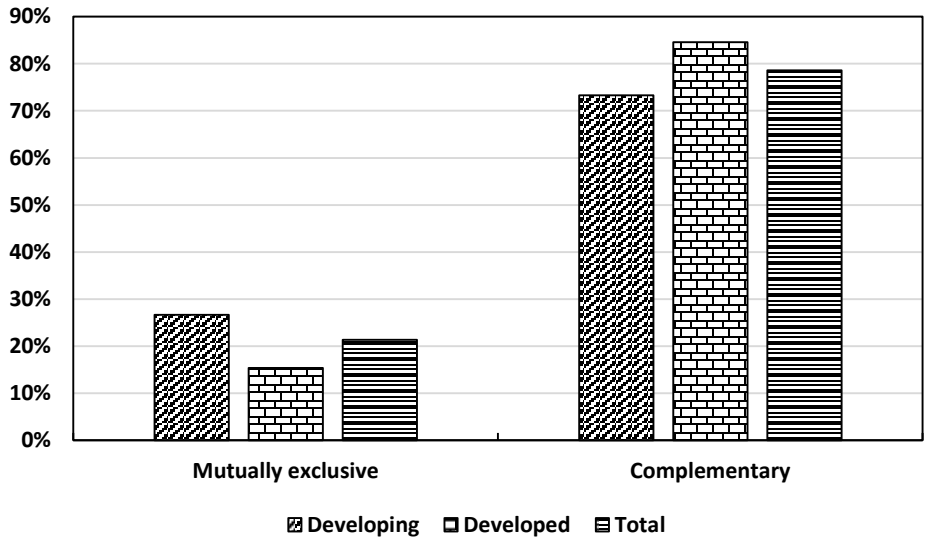
4.3.13.2 Roles of audit offices and 'other' public bodies in environmental performance assessment

Close to 80% of SAIs consider that the roles of audit offices and 'other' public bodies are complementary in reporting on the performance of environmental policies and programs. Only about 20% of SAIs consider that their and other public bodies' roles are mutually exclusive in this matter. A large percentage of SAIs that are aware of the existence (Figure 4-34) also consider that their and other bodies' roles are complementary. This indicates a healthy co-existence of review roles. In an optimistic scenario, perhaps the audit offices and other review bodies are working together or supporting each other in examining and reporting on the performance of environmental policies and programs; or at least they are not working at cross purposes.

About 10% more developed SAIs than the developing SAIs consider that audit offices and 'other' public bodies' role in reporting on the performance of environmental policies and programs are complementary. This is consistent with expectation as, due to likely a higher degree of public sector reform and more consultative governance in developed countries than in developing counters, audit offices and other review bodies in developed countries may have either had originally complementary mandates or subsequently have gravitated towards mutually complementary working arrangements.

The overall conclusion is that, irrespective of their developmental status, a very large proportion (about 80%) of SAIs consider that the roles of audit offices and other public bodies' in reporting on the performance of environmental policies and programs are mutually complementary.

Figure 4-35: Q4 - Do you consider that audit offices and 'other' public institutions roles in reporting on the performance of environmental policies and programs are: (a) Mutually exclusive; or (b) Complementary? Response (%) - Developing SAIs (N= 15); Developed SAIs (N = 13); Total SAIs (N= 28).



4.3.13.3 SAIs observations on 'other 'public institutions in environmental performance assessment

Consistent with the response discussed in section 4.3.13.2 above, rarely does any SAI in their comments suggest that their role and that of the other 'public' bodies are not 'complementary'. Most of them, in fact limit their comment to describing different 'other' public institutions engaged in reporting on the performance of environmental policies and programs in their country. These 'other' public institutions include: (1) government ministries, departments, and agencies, directorates and bureaus variously named such as, 'the Ministry of/for Environment', 'Ministry of Environmental Protection' 'Environmental Management Agency', 'Environmental Council'; (2) 'Parliamentary Commissioner'; and (3) 'Universities and research bodies'.

Notwithstanding the underlying tone of complementarity (or the absence of exclusivity) between the roles of an SAI and 'other' public bodies, some substantive comments underline the difference between them. These include: (1) "Most SAIs enforce the audit act, which may not necessarily be complementing the work done by others;" (2) "Although we take cognizance of reports on the environment compiled by other public institutions, [our] mandate obliges this office to take sole responsibility for [its] reports;" (3) "Several public institutions, such as the directorates, research institutions and public evaluation bodies monitor and report on environmental issues. [We] on the other hand report directly to the Parliament and have a mandate that includes compliance with laws and regulations, efficiency and effectiveness in the Public sector;" and (4) " …[Unlike] the others public institutions, the audit offices report about

performance of policies and programs considering the efficiency, economy and effectiveness in implementing policies and programs."

4.3.14 Policy issues highlighted and lessons learnt from environmental performance audits

This section summarizes the SAIs' response to the following two open-ended questions:

- What have been the major issues in relation to environmental policies and programs highlighted by your environmental performance audits in the last 5 years (see 4.3.14.1 below); and
- What have been some of the lessons you have learned in relation to audit by undertaking environmental performance audits (see 4.3.14.2 below).

4.3.14.1 Major policy issues highlighted by environmental performance audits

More than 80% (of 48) SAIs responded to the related question. The observations by two SAIs broadly capture the issues raised by SAIs. One SAI observed, "the major issues highlighted by our environmental performance audits are: (a) the lack of developing of policies framework due to unclear mandate, role and jurisdiction issues of various stakeholders; (b) programs and plans are not supported with legal and administrative back-up; (c) the lack of formally approved policies; and (d) strategic and operational planning relating to various environmental initiatives was not always appropriate." Another SAI noted, "common issues include: the lack of sufficient performance measures and [key performance indicators] KPIs; lack of performance benchmarking at the start of the environmental programs; insufficient data retained to demonstrate the achievement of environmental performance; substandard information management and record-keeping; and insufficient monitoring of program performance by audited agency senior management."

The major policy issues identified by SAIs environmental performance audits could be categorised in the following groups:

Institutional: (1) Overlapping 'mandates'/'lack of ownership'; and (2) 'Lack of coordination' between related agencies and policies

Strategic, legal and conceptual: (3) Lack of clear or executable policies; (4) Lack of 'mainstreaming of environmental matters'; 'tension between economic growth' and environment; lack of 'strategic planning;' (5) Lack of 'performance measures or 'indicators',

System and Operational: (6) Lack of information system; (7) Lack of data; (8) Lack of 'monitoring and evaluation'; (9) 'Inadequate' 'compliance' and 'enforcement'.

Resources: (10) 'Lack of the resource allocation to the environmental policies and programs by the government'.

It is noted that all these issues feature in the top ten issues identified by a survey by the WGEA (2012c: 13-14).

4.3.14.2 Lessons SAIs learned through environmental performance audits

More than 70% of 48 SAIs responded. Expectedly, some SAIs listed the issues and their observations about auditees as they consider them related to the lessons learned. These observations include the following: (1) "Most problems come from lack of governance, coordination, integration, planning, monitoring, assessment;" (2) "It is mostly a challenge for the implementers to meet the requirements of the policies;" (3) While 'auditees are not eager to make major changes in system immediately, if the quality of the audit is high and recommendations acceptable, the changes can be made;' and (4) 'External point of view is very important for the environmental policy managers'; they appreciate when audits identify the 'core questions of their problems.'

Most other SAIs noted direct lessons that are broadly reflected by these:

> (1) Environmental auditing is a very complex issue; it mostly includes more auditees; it is mostly cross-sectoral. The help from external experts is appreciated because of its complexity;
>
> (2) Plan realistic audits with clearly defined scope - don't be too ambitious. Discuss and agree audit criteria with the auditee. Produce audits which will be relevant and of interest to policy makers and other stakeholders. Be ready to experiment with different audit methodologies and obtain mutually supporting evidence from different sources. Do not underestimate the time needed to consult with experts, or overestimate their potential use. Environmental issues, and audit reports, should be seen in the context of overall sustainability - so economic and social issues also need to be considered when planning audits;
>
> (3) Constant validation of audit criteria and findings [at] technical levels of the auditee principal and expert inter-disciplinary teams are key to the quality of reports. Developing good planning facilitates the implementation phase of the audit. Stakeholders should be taken into account. Using clear and quantifiable indicators within the audit criteria;
>
> (4) Avoid scientific debate (do not choose areas with clear lack of scientific agreement). Share experiences between SAIs to get new ideas for audit approach. When drafting recommendations, one should think about the possible impact; and
>
> (5) Communication with auditees, scholars, civil society and other actors is of great help; sharing experience among SAIs is also helpful; and care has to be taken on how sample assessment results are understood."

In recognition of a long gestation period to detect impacts of some environmental policies, one SAI felt the need for 'sequential' performance audits.

Overall, consistent messages emerging from the views of the SAIs on the matter are related to: (i) complexity of environmental auditing issues and related data limitations call for well-thought audit planning, clear scoping and defining of audit criteria; (ii) avoidance of: (a) scientific debate; (b) underestimation of time; and (c) overestimation of impact; (iii) need for capacity building in specialist knowledge, skills/expertise; (iv) need for consultative approach with auditees and other stakeholders; (v) need for better communication of audit findings; and (vi) need for sharing of experience through international cooperation including through joint/cooperative audits.

4.3.15 Research in environmental performance auditing

This section explores the views of the SAIs (about two third of 48 SAIs responded) on the open-ended question: "Despite enormous efforts invested by SAIs individually and collectively through the WGEA to conduct and increase capacity in environmental performance auditing, and despite its greater capacity to influence the design and implementation of policies, environmental performance auditing remains an academically underdeveloped discipline compared to evaluation. Why do you think this might be the case?"

All, but one, respondent SAIs commented on the lack of academic interest and the consequent need for more development in environmental performance auditing. An SAI's observation captures this broader sentiment. "The environmental audit is an emerging topic. The awareness [needs to be] created among different stakeholders, particularly academics in the universities. It is the high time that university curriculum [is] prepared and this subject [is] taught as a module in higher learning institutes."

The lone SAI having a different view on the matter notes that "performance auditing (like standard performance auditing) is better placed to draw on a range of academic disciplines rather than being an academic discipline in its own right."

The reasons SAIs cite for the underdevelopment of the field can broadly be categorised relating to four themes: (1) subject matter - the emerging nature of the environmental performance auditing and associated difficulties; (2) SAIs – for them the matter is a lower priority; (3) universities/academies - lack of interest in the matter; and (4) the gap between practitioners and academics. One SAI's observation broadly captures the reasons 1 and 3 as:

> Performance auditing within this area is still relatively new (compared to evaluation) and the SAIs that conduct performance audits differ when it comes to mandate, funding, competence/skills and also achieved challenges. This affects the scope of the audits, methods used, the quality of the audits and the impacts of them. As a consequence, it has been difficult to perceive environmental performance auditing as one academic discipline of interest for external researchers. Another point is: This is an area without much marketing and tailored information to the common public, unlike the situation in the evaluation business.

Another SAI's comment highlights reasons 1 and 2 as:

> The performance audit field in general remains a relatively new field for public sector audit institutions, in comparison with financial auditing. For example, our SAI has only developed performance audit capacities in the past ten years. Environmental performance auditing is a subsidiary of this field, and the significance of environmental policies in budgetary terms is relatively low. As the performance audit field progresses, environmental performance auditing will continuously develop.

Reason 2 is noted in the following two comments: (a) "It is a very narrow segment of the SAI's work, not many auditors [are] dealing with it and it is relatively new"; and (b) "Especially since the last economic crisis started around 2009, the priority attached to environmental auditing has decreased, as priority had to focus on other more pressing issues (unemployment, restoring public finances, energy). Evaluation is considered by policy makers to directly contribute to policy formulation and is therefore more useful to them than audit."

Another SAIs comment illuminates the reasons 3 and 4 as: “the field of performance auditing is mostly full of practitioners both in terms of standard setting and in conducting the actual work - perhaps it is not of interest to academics. In addition, some of the academic work that has been published shows a lack of experience in conducting performance audits and the resulting publications are not that useful to the practitioner. The work of the WGEA is.”

It is concluded that the emerging nature of the field, lower budgetary stake of the SAIs in the field and a lack of interest in academia are the primary reasons for the underdevelopment of the field of environmental performance auditing. Almost all SAIs emphasise the need for developing the field.

4.4 Conclusion

This chapter investigated the contemporary operational aspects of environmental performance audit through a global survey of SAIs that have undertaken such audits. The survey was conducted with the help of the WGEA. Of the 107 targeted SAIs, 48 SAIs responded. An overall response of about 45% is considered a sufficiently representative sample. The quantitative response to the survey questionnaire is validated in several cases by the consistent qualitative response (comments) received in response to the related open-ended questions. Conclusions from the survey are given below.

Strategic Planning: Environmental matters feature in the strategic planning of overwhelming majority (94%) of SAIs, suggesting that environmental audit is in the mainstream of performance auditing at least in the strategic sense. The WGEA 3-yearly work plan influences the strategic planning of almost half of the SAIs—more so of the developing country SAIs than of the developed country SAIs.

Topic selection: Irrespective of whether the environmental audit is specifically included in their mandate or not, an overwhelmingly majority (94%) of SAIs use a structured approach to topic selection that includes amongst others risk assessment, materiality and salience. A large proportion of SAIs without a specific audit mandate for the environment also use a sectoral approach to topic selection. About one third of SAIs also select environmental topics based upon requests from stakeholders, primarily members of the legislature.

Proportion of environmental audit: Environmental performance audit is significant but still a small (10% or less) proportion of the total performance audit work for more than two third of SAIs. More developed country SAIs than developing country SAIs have a proportion of environmental performance audit higher than 20%.

Performance audit criteria: The majority of SAIs (57%) develop criteria for environmental performance audit in consultation with auditees. About 20% more developing than the developed country SAIs develop environmental performance audit criteria consultatively. More than two thirds of SAIs explicitly specify the criteria for environmental performance audit. More developed SAIs than the developing SAIs specify the criteria for environmental performance audit explicitly. About two thirds of SAIs derive the criteria for environmental performance audits from official sources and the remaining one third develop them through their own research. More developed SAIs than the developing SAIs use official sources for criteria. A high degree of skepticism about the reliability of official sources exist among SAIs. Only about half of SAI using the official sources for criteria, consider that they are adequate, realistic and/or fair.

Methods used for evidence collection: The five most popular methods of evidence collection for environmental performance audit are: (1) Document examination (96%); (2) Officials interview (85%); (3) Site visit (75%), (4) Literature survey (67%); and (5) System/Process review (64%). Three least used methods are: (a) Focus group (29%); (b) Other modelling (such as hydrological/ ecological (17%) and (c) Other methods (16%). Except for less frequently used methods, developed SAIs use all methods (including consultative methods, such as official interview and stakeholders' consultation) more frequently than the developing SAIs. Thus on average, the developed country SAIs seem to be using more methods than the developing SAIs. Key factors considered in the decision of methods include: (a) the complexity of the topic; (b) objectives and scope of the audit; and (c) availability of resources—both financial and human.

Standards and guidelines: Almost all SAIs (98%) use some standards or guidelines for quality assurance of their environmental performance audit. The three standards and guidelines most frequently used by SAIs are: (1) international standard for performance audit (88%); (2) their own performance audit guideline (63%); and (3) their own standard for performance audit (54%). The first two standards or guidelines are also more frequently used by the developing SAIs than the developed SAIs. On the other hand, proportionally more developed SAIs than the developing SAIs, use their own standard or national standard for performance audit.

Data and information: An overwhelming majority (about 90%) of SAIs consider that data related to environmental policies and programs has often to always been adequate and no SAI considers it has never been adequate. Proportionally more developed SAIs than the developing SAIs report that data has often to always been adequate. However, SAIs acknowledge 'weaknesses in the availability of data'; 'problems regarding reliability and quality of environmental data from official' sources; and the 'need for greater consistency of environmental data to compare like with like'.

When data related to environmental policies and programs is inadequate to make conclusions about their performance, a majority (about 60%) of SAIs take one or all of the following three measures: (1) ask the audited body to collect/generate data; (2) collect or generate data on their own; and (3) report that data held by the audited body is not adequate. However, the third option is taken slightly more frequently by SAIs than the previous two options. Among other measures taken, more than one third of the SAIs either: (4) collect data with external assistance; or (5) agree with stakeholders to use the available data. Except for reporting of the inadequacy of data, proportionally more developing SAIs than the developed SAIs take some or all measures to gather sufficient information to come to a conclusion.

More than 80% of the SAIs often to always use environmental performance indicators. There is very little overall difference in the use of environmental performance indicators between the developing and developed country SAIs.

Environmental policies and programs should have 'clear objectives' and targets' and specify 'adequate, realistic and fair' 'measures' or indicators' of 'performance' to enable assessment of their performance. 'A combination of outcomes-based, outputs-based, activity-based and input-based KPIs [key performance indicators] or measures' are considered appropriate to audit performance.

Effectiveness reporting and auditing: Measurement and reporting on effectiveness seem to be highly prevalent. Close to three quarters of SAIs indicate that auditees 'often' to 'always' measure and report on the effectiveness (impact or outcome) of the environmental policies and programs they implement. Proportionally more developed country SAIs (four fifths) than the developing country SAI (about two thirds) report that their auditees measure and report on the effectiveness of the environmental policies and programs they implement. McPhee (2016) notes that, given the challenges acknowledged in assessing the effectiveness of environmental programs, SAIs' assessment of auditees on effectiveness reporting may be somewhat generous.

Irrespective of their development status, more than two third of SAIs indicate that they audit both the policy (substantive) and system/process (administrative) effectiveness. Together with the high prevalence of measurement and reporting of effectiveness, the auditing of both substantive and administrative effectiveness by SAIs suggests that perhaps there is a disconnect between academics' and practitioners' views on the matter—the former stressing the purity of concept, while the latter taking a pragmatic view. Compared with developed SAIs, developing SAIs seem to have a higher focus directly on results rather than system and processes to achieve them (also observed in other matters such as the use of environmental indicators).

Long-term nature of environmental policies and programs: An overwhelming majority (about 90%) of SAIs consider that the long-term nature of some environmental policies programs pose particular challenges to the performance audit. About 10% more developing SAIs than the developed SAIs consider so. SAIs acknowledge that due to their 'long-term effects', the 'impacts' of some environmental policies programs are 'difficult to determine'. They are both difficult to measure and attribute to specific policies. Some SAIs suggest 'interim' or 'intermediate' performance measures to overcome this difficulty.

Clearance process for performance audits: A large majority (72%) of SAIs are satisfied or very satisfied with clearance process for performance audits. About 30% more developed SAIs than the developing SAIs are satisfied with the clearance process perhaps indicating relatively better relationship with the auditees than their developing peers.

Constraints in undertaking more environmental performance audits: Irrespective of their developmental status, an overwhelming majority (close to 80%) of SAIs identify insufficiency of either mandate or resources, or both, as constraints to undertaking more performance audits of environmental policies and programs. However, the largest proportion (60%) of SAIs consider insufficiency of resources as a constraint. Lack of resources 'is common to all matters, not only regarding to environmental matters'. However, given that 'environmental topics compete with other topics for attention' and 'environmental issues are not a [high] priority in most developing countries', this may create a hiatus for developing SAIs in undertaking performance auditing of the implementation of environmental policies and programs.

Impact of lack of human resources (skills): The apparent lack of human resources does not have a short-term impact on undertaking environmental performance audits. Irrespective of their developmental status, an overwhelming majority (close to 90%) of SAIs indicate that they did not have to abandon a

proposal of undertaking an environmental performance audit in the last 5 years due to a lack of in-house skill/capacity.

Resources devoted to environmental performance audit: Significant amounts of resources are being devoted to environmental performance audit work. About half of the SAIs are devoting 6% or more of their resources to environmental performance audit work; with about a quarter of them devoting 11% or more. Proportionally more developed SAIs than the developing SAIs allocate more than 20% of their audit resources to environmental performance audit and proportionally more developing SAIs than the developed SAIs allocate less than 1% of resources to such audits. However, the difference in resource allocation between the developed and developing SAIs is not that distinct in the middle range (6-10%). This may partly be due to the difficulties of the SAIs in apportioning their resources between environmental and other performance audits.

Relationship between resource allocation and environmental performance audit: There seems to be a non-linear relationship between the proportion of total resources allocated to environmental performance audit and the proportion of output of environmental performance audit to the total audit output.

Capacity/skills: Irrespective of their development status, a large majority of SAIs indicate that they have to—only occasionally to rarely—engage external subject matter experts to undertake environmental performance audits. This suggests that they have sufficient in-house skills, at least in the short-term, to undertake environmental performance audits. This is consistent with the earlier conclusion regarding the impact of skill shortages in short-term.

An overwhelming majority (close to 80%) of SAIs (73% developing and 88% developed) consider that their skill base is sufficient to undertake environmental performance audit in the short-term. This further validates the above conclusion. Further, a large majority (about 70%) of SAIs also consider that their skill base is sufficient in medium to long-term. Prima-facie, this does not seem to be consistent with the conclusion related to the long-term, where a majority (60%) of SAIs identify insufficiency of resources as a constraint in undertaking more environmental performance audit. However, in this regard, it may be noted that skills (or human resources) is not the only resource required for audit. Financial resources including infrastructure, are also a major input to performance audits. The earlier conclusion is about all resources, while conclusion here is just about human resources. Additionally, SAI's priority is also a key consideration in undertaking more environmental audits in the long-term. In the overall scheme of things, the environment may not be a high priority as noted above.

The small proportion of SAIs (30%) who consider that their skill base is not sufficient propose training and recruiting as the two main ways of augmenting their skill base. Other means of skills augmentation in decreasing order of preference are, restructuring, outsourcing and hiring external consultants.

While not necessarily having an inadequate skill base, SAIs consider it desirable to have in-house skills in some specific discipline related to environment performance audits. Proportionally more developing SAIs than the developed SAI desire so. Environmental Economics, GIS, Ecology, Nature Protection and Climate Change are the most sought after specific disciplines.

Impact of environmental performance audits: More than four fifths of SAIs consider their audits having led to: significant (76%) to substantial (7%) improvement to the governance of environmental policies and programs. About 10% more developed SAIs than the developing SAI consider their audits having significant to substantial improvements to governance of environmental policies and programs.

More than three quarters of SAIs consider that their performance audits have led to: significant (67%) or substantial (9%) improvements to the performance of environmental policies and programs. A substantially larger proportion (34% more) of developing SAIs than the developed SAIs report significant to substantial or improvements to performance of environmental policies and programs.

SAIs observe that their environmental audits receive a 'positive response' because they support auditees 'own initiatives'. By 'proposing recommendations, they act as a catalyst for change' that encourage 'auditees to step up progress' on programs being implemented.

Cooperation among SAIs and contribution of the WGEA to environmental auditing: An overwhelmingly large proportion of SAIs consider that cooperation with other SAIs directly or indirectly via the WGEA or other INTOSAI groups have benefitted them in relation to: (a) improved understanding of environmental matters (94%); (b) improved skill of staff (81%); and (c) lifting the profile of environmental performance auditing generally (92%). On all aspects, a higher proportion of the developing country SAIs than the developed country SAIs perceive these benefits of cooperation, noting though, that a large majority of the developed SAIs also consider cooperation is beneficial.

About 90% or more SAIs consider that, compared with individual audits, cooperative audits of the implementation of the international environmental agreements contribute more to: (a) the professional skills (98%); (b) audits quality (89%); and (c) international environmental cooperation (93%).While there is very little difference in the perception of the developing and developed SAIs on the benefits relating to auditors' skills and audits quality, about 20% more developing SAIs than the developed SAIs consider that cooperative audits contribute more to international environmental cooperation.

Agreement between the WGEA and United Nations Environment Program (UNEP): A large majority (about 80%) of the SAIs are aware of the 2013 WGEA Agreement with UNEP. About 30% more developing SAIs (90%) than the developed SAIs (61%) are aware of the agreement with the UNEP. Further, awareness is more among WGEA members (85%) than the non-members (62%).

Close to 80% of SAIs consider that, compared with the UNEP or review bodies established under multilateral environmental agreement (MEAs), they are better placed to assess the progress with the implementation of MEAs. Compared with their developed peers, about 10% more developing SAIs consider that they are better placed in auditing the implementation of MEAs than the international bodies.

SAIs' and 'other' public bodies' roles in assessing environmental policies and programs: A significant majority (62%) of SAIs are aware that public bodies other than the national, state or provincial audit offices are examining and reporting on the performance of environmental policies and programs in their country. About 25 % more developed SAIs (78%) than developing SAIs (53%) are aware of this fact.

Close to 80% of SAIs consider that the roles of audit offices and 'other' public bodies are complementary in reporting on the performance of environmental policies and programs. About 10% more developed SAIs than the developing SAIs consider this to be the case.

Major policy issues highlighted by environmental performance audits: The policy issues highlighted include: Institutional - (1) Overlapping 'mandates'/'lack of ownership'; and (2) 'Lack of coordination' between related agencies and policies; Strategic, legal and conceptual - (3) Lack of clear or executable policies; (4) Lack of 'mainstreaming of environmental matters'; 'tension between economic growth' and environment; lack of 'strategic planning'; (5 Lack of 'performance measures or 'indicators'; System and Operational - (6) Lack of information system; (7) Lack of data; (8) Lack of 'monitoring and evaluation'; (9) 'Inadequate' 'compliance' and 'enforcement'; and Resources - (10) 'Lack of the resource allocation to the environmental policies and programs by the government'.

Lessons SAIs learned through environmental performance audits: Some lessons SAI learnt relate to: (i) the complexity of environmental auditing issues and related data limitations calling for a well-thought of audit planning, clear scoping and defining of audit criteria; (ii) the need for avoidance of: scientific debate; underestimation of time and overestimation of impact; (iii) need for capacity building in specialist knowledge, skills/expertise; (iv) need for consultative approach with auditees and other stakeholders; and (v) need for sharing of experience through international cooperation including through joint/cooperative audits.

Lack of research in environmental performance auditing: The reasons SAIs cite for the underdevelopment of the field relate to four themes: (1) Subject matter - the emerging nature of the environmental performance auditing and associated difficulties; (2) SAIs – for them, the matter is a lower priority; (3) Universities/academies - lack of interest in the matter; and (4) The gap between practitioners and academics.

Having studied environmental performance auditing at a global (macro) scale in Chapter 3 and 4, the next chapter will have a closer look at the phenomena by a comparative study of environmental performance auditing in three countries—Australia, Canada and India.

Chapter 5 : Environmental Performance Auditing in Three Countries

5.1 Introduction

The discussion of the basic concepts of audit, environmental auditing and performance auditing and the description of global trends in environmental performance auditing in earlier chapters have provided the theoretical foundations of the discipline of environmental performance auditing. This chapter explores the practical aspects of the discipline by studying the practice of environmental performance auditing in three countries—Australia, Canada and India. This study is not about the three countries per se, but as a means of exploring the practice of environmental performance auditing in more detail. Including the introduction, the chapter is divided into eight sections.

Section 5.2 provides the rationale for choosing the three countries for this study and then describes the study methodology. The mandate and institutional arrangements of supreme audit institutions (SAIs) of the three countries are discussed in section 5.3. Following this background, the environmental performance audit planning and control framework of the three countries are described in section 5.4. The trends in environmental performance auditing in the three countries over the last two decades is discussed section 5.5. The matters related to the actual conduct of the environmental performance auditing such as audit objectives, method used for evidence collection and presentation of the audit reports are discussed in sections 5.6 and 5.7. Finally, key conclusions of this comparative study are provided in section 5.8.

5.2 The rationale for choice and the methodology

5.2.1 How many and which countries to study?

The first decision to make in the comparative study was the number of countries. While a lower limit of two countries is known, there is no known upper limit. The number of countries to study has to be decided by the purpose and availability of time and resources. The comparative study being only part of the doctoral research can only be devoted part of the available time. Three countries were considered an optimum choice given the constraints of time and resources for the research. This is an improvement over the minimum of two required for a comparative study.

The WGEA global environmental auditing database was analysed for choosing the candidate countries. The first and necessary criteria for choosing a candidate country was the availability of the environmental performance audit reports in English. Without this, it was not possible to study the practice of environmental performance audit in a country in the available time. The next criteria in deciding a candidate country was sufficiency of its experience in undertaking environmental performance audits. It was decided to only choose a country if it has undertaken at least twenty environmental performance audits in the last two decades. Australia emerged as an obvious choice on these counts. Being the country of residence of the researcher, it was also convenient to study Australia. When the first two criteria were met (availability of audit reports in English and a minimum of 20 environmental performance audit reports), the next criterion chosen was diversity i.e. to choose two other countries that are different to Australia. However, to facilitate comparison and contrast, comparability with Australia would need to be

maintained in some respect. The federal character of Australia and its developed nation status provided a good combination of criteria to choose other candidate countries.

5.2.2 Why Australia, Canada and India?

Apart from Australia, Canada and India have been chosen for this comparative study because together they possess significant similarity and diversity. All three countries have a similar governance model. Being former British colonies, they have inherited the Westminster system of parliamentary democracy with each having a bicameral parliament, an independent judiciary and a professional civil service under the control of a political executive headed by the prime minister. All three are federations, with the legislative powers divided (and shared) between the federal and provincial governments. All three countries are plural societies with free press. However, they also have significant diversity among them. While Australia and Canada are developed countries, India is a developing country. This would suggest different challenges for the environment, as the development status has a significant bearing on the environment matters. Further, the mandate of their supreme audit institutions (SAIs) over environmental matters are different. While the SAIs of Australia and India do not have a specific mandate for auditing environmental matters, the Canadian SAI does have a specific mandate.

5.2.3 Methodology

Two methodologies were used for two aspect of this comparative study – trend analysis and current practice. For the trend analysis, data on the environmental audits and the environmental performance audits of the three countries for the two decades period, 1992-2012 was analysed and the results compared. This period is chosen to maintain consistency with the global trend analysis. The results for the three candidate counties will be presented in section 5.5, as far as possible on the lines of the global analysis, to facilitate comparison with global trends.

To study their current environmental performance auditing practices—apart from their enabling statutes, performance audit standards, manuals and guidelines—their environmental performance audit reports for the five year period, 2010-2014 available on the WGEA website, were studied and their contents analysed. Their standards, manuals and guidelines were examined to provide insight into how they plan their performance audits including how they select environmental topics; how they conduct environmental performance audits; and how they assure and control the quality of audits. These documents present 'what should be' in terms of audit speak; whereas their environmental performance audit reports present 'what is'.

The key attributes of performance audits such as audit objectives, audit criteria, methods for evidence gathering collection, and the number of audit recommendations were noted from their performance audit reports and analysed. Qualitative observations on the argumentation and reporting style were also noted. The quantitative and qualitative analysis of the current practice will be discussed in section 5.6 following the trend analysis in section in section 5.5.

5.3 Mandate and institutional arrangements

Table 5-1 lists the salient features of SAIs of Australia, Canada and India. The SAI of Australia (the Auditor General together with the office that supports it) is also called ANAO (the Australian National Audit Office).

The SAI of Canada together with its office is also called OAG (Office of the Auditor General). Likewise the SAI of India together with its supporting department of Audit and Account is also called CAG (Comptroller and Auditor General). Each of the three SAIs is more than a century old.

Barring a few differences (discussed below), broadly the three SAIs are similar. This is expected as all three countries share the heritage of the Westminster (parliamentary) system of democracy, where the executive is accountable to the parliament (and to people through it).

Table 5-1: Salient features of SAIs of Australia, Canada and India

Matter	Australia (ANAO)	Canada (OAG)	India (CAG)
Establishment	1901 through an Act of federal parliament, *Audit Act, 1901* Current version, *the Auditor General Act,* 1997. Several other federal Acts including the *Public Governance, Performance and Accountability Act* 2013 confer some additional powers on the ANAO.	1878, through an Act of federal parliament Current version, the *Auditor General Act,* 1995. The *Financial Administration Act*, 1985 and the *Federal Sustainable Development Act*, 2008 confer some additional powers on the OAG.	1860 (the Indian *Constitution*, 1950 re-established it). An Act of federal parliament, *Comptroller and Auditor General's Duties, Powers and Conditions of Service* (DPC) Act, 1971 further elaborates the audit function of the CAG.
Independence	Independent from both executive and legislature.	Independent from both executive and legislature.	Independent from both executive and legislature
Appointment	Auditor General appointed by the head of the state for a fixed non-renewable term of 10 years.	Auditor General appointed by the head of state for a fixed non-renewable term of 10 years.	Auditor General appointed by the head of state for a fixed non-renewable term of 6 years. Appointee barred from further service under federal or any provincial government
Office and budget	The independent office's staff is part of the federal civil service. The office gets its budget by appropriation of the federal parliament.	The independent office's staff is part of the federal civil service. The office gets its budget by appropriation of the federal parliament.	The independent office's staff is part of the federal civil service. The office expense is directly charged to the consolidated fund of India, not requiring an appropriation by the federal parliament.
Jurisdiction	Federal government departments, agencies and federally owned enterprises, and companies, under particular circumstances	Federal government departments, agencies and federally owned enterprises and companies, three territorial (but not state)	Federal, provincial (state) and local/municipal government departments, government owned enterprises and companies, and semi

	state and local government and non-government /private sector organisations receiving federal funds.	governments and enterprises owned by them, semi-governmental organisations.	government organisations non-government/private sector organisations receiving government funds.
Special mandate for audit of environmental matters	No	Yes. The mandate is carried out by the Commissioner of the Environment and Sustainable Development (CESD) under the Auditor General	No
Types of audit	Financial, compliance, and performance	Financial, compliance, and performance	Financial, compliance, and performance
Discretion to audit	Full discretion to choose performance audit topics	Full discretion to choose performance audit topics	Full discretion to choose performance audit topics
Power to call witness	Full power to call witnesses and documents.	Full power to call witnesses and documents.	Full power to call witnesses and documents.
Audit reports submitted to	Federal parliament. The Joint Committee of Public Accounts and Audit (JCPAA) and/or other related committees review the audit reports and recommend actions to the government. The ANAO briefs these committees and attend their hearings.	Federal parliament. The public account committee (PAC) and/or other related committees review the audit reports and recommend actions to the government. The OAG briefs these committees and attend their hearings.	Federal parliament and provincial (states) legislatures via the respective executive. The public account committee (PAC) and/or other related committees review the audit reports and recommend actions to the government. The CAG briefs these committees and attend their hearings.

5.3.1 Independence

While all three SAIs are undoubtedly independent, it may be argued that SAI India's independence is more secure than its Australian and Canadian peers, because its expenses are not subject to a vote for appropriation in parliament. The SAI's India expenses are directly charged to the consolidated fund of India. As it does not have to negotiate its budget with the executive and its budget does not have to undergo parliamentary approval, it is not subject to any direct or indirect pressure. Unlike their Indian counterpart, both the Australian and Canadian SAIs budgets are negotiated with the executive and are subject to parliamentary appropriation. This creates some dependence on the executive, and hence, in theory, has potential to compromise the independence of the Australian and Canadian SAs.

Compromise or potential compromise of independence due to the dependence on the executive for budget is a valid concern that has been raised by no less than an Auditor General. OAG noted (McGlashan, 2014: 7-8) that as the Treasury Board of Canada Secretariat (TBS) was subject to its audit, it was inappropriate for TBS to determine its budget. The public account committee (PAC) of the Canadian

parliament agreed with the view of the OAG that led to the establishment of a parliamentary advisory panel to review the funding request from the OAG and resolve it with the TBS.

For the budgetary purpose, the ANAO comes under the portfolio of the Australian Prime minister and Cabinet department. Under the *Auditor General Act 1997*, the ANAO budget is reviewed by the Australian parliament's Joint Committee of Public Accounts and Audit (JCPAA). The Canadian parliament arrangement for the OAG's budget is similar to the Australian statutory arrangement for the ANAO. Both these arrangements minimise the interference in the working of the Australian and Canadian SAIs. However, they do not eliminate the possibility of indirect pressure on the SAIs through budgetary means; given that under the Westminster model in both countries, the majority party (or group of parties) in the lower house that controls the budget, also runs the government (executive). So there remains a possibility, however miniscule it may be, that a government (executive or majority party) in Australia or Canada not comfortable with the audit findings, may apply undue pressure on SAIs, thus compromising their independence.

5.3.2 Jurisdiction

Of the three SAIs, the jurisdiction of the CAG is most wide. It reaches to all three levels of government—federal, state (provincial) and local. On the other hand, the ANAO jurisdiction is mostly restricted to the federal government. The OAG jurisdiction reaches to the federal government as well to the territorial governments of Nunavut, the Yukon and the Northwest Territories. The three SAIs in their enabling legislation, now under the doctrine of 'follow the money', also have some access to non-government/private sector organisations receiving government funds. This has enabled the ANAO's and OAG's reach to some state and local government bodies receiving federal funding.

5.3.3 Specific mandate for auditing of environmental matters

Unlike the ANAO in Australia and CAG in India, the OAG in Canada has a specific audit mandate related to the environment and sustainable development. Under this mandate that resulted from 1995 amendments to the *Auditor General Act,* a statutory Commissioner of the Environment and Sustainable Development (CESD) on behalf of the Auditor General, undertakes the following functions and reports directly the parliament. The Commissioner:

- conducts performance audits and studies to monitor the federal government's management of environmental and sustainable development issues;
- monitors the quality, fairness and implementation of sustainable development strategies of federal departments; and
- administers the statutory environmental petitions process through which Canadians can ask the federal government to respond to their concerns about the environment and sustainable development (OAG, 2014d).

The Commissioner is considered a model institution that could be usefully examined by other countries (Rose, 2001; OECD, 2004: 2). An independent review by the Green Ribbon Panel (Dowdeswell et al., 2007: 9), has concluded that, "the OAG and Commissioner have had a positive impact on the federal

government's management of environmental and sustainable development issues. They have developed a strong domestic and international reputation as a centre of excellence in environmental auditing."

5.3.4 Types of audit

Three SAIs undertake financial, compliance and performance audits. The OAG/Commissioner also undertakes studies that are not technically audits, to bring to the parliament's attention matters of significance. The CAG also prepares the accounts of the central and state governments and maintains the superannuation accounts of their employees (public servants).

It is interesting to note that the enabling statutes of the three SAI describe performance audit differently. The ANAO's legislation describes performance audit as 'a review or examination of any aspect of the operations' of the entity without any reference to 'economy', 'efficiency' or 'effectiveness'. These terms appear as part of definition of performance engagement (audit or review) in the related Australian standard (ASAE 3500). The OAG's legislation, while does not mention the phrase 'performance audit', elaborately calls upon the Auditor General to report on any cases where:

- 'money has been expended without due regard to economy or efficiency;
- satisfactory procedures have not been established to measure and report the effectiveness of programs, where such procedures could appropriately and reasonably be implemented; or
- money has been expended without due regard to the environmental effects of those expenditures in the context of sustainable development'.

The CAG's legislation (Indian Constitution, 1950 and the DPC Act, 1971) does not mention 'performance audit'. As a consequence, there were some doubts raised over the CAG's authority to undertake performance audit (Kumar, 2008: 524-525). The regulations made by the CAG under the DPC Act in November 2007 clarified the situation. The regulations define the performance audit 'as an independent assessment or examination of the extent to which an organisation, programme or scheme operates economically, efficiently and effectively'. They further define the terms 'economy', 'efficiency' and 'effectiveness' and prescribe the process to undertake performance audit.

5.3.5 Institutional arrangements

The institutional arrangement of the three SAIs reflect their mandate. With the exception of the Commissioner of the Environment and the OAG's audit jurisdiction over three territories, the overall institutional arrangements for government auditing in Australia and Canada are similar. Both Australia and Canada have separate audit offices for federal and state governments. The ANAO in Australia and the OAG in Canada audit primarily the federal government. Unlike them however, CAG in India is a single unified auditor for all three levels of government. The state-level audit offices that are headed by Accountants General, are CAG's sub-ordinate offices. A regional Accountant General is responsible for the audit of a state, or a group of states. However, all audit reports are prepared in the name of the CAG. As such, the CAG has the overall responsibility for each audit.

The ANAO has about 350 staff (ANAO, 2015c: 97) that are mostly located in its Canberra office. The OAG has about 600 staff (including 400 audit staff) that are located in its head office in Ottawa and 4 regional

offices in Vancouver, Edmonton, Montreal and Halifax (McGlashan, 2014: 4; OAG, 2014c: 13). The CAG, on the other hand, has about 48,000 staff, including 43,000 audit staff (CAG, 2014b: iii, 78) who are located in 141 offices throughout India and in some overseas posts (Australia et al., 2012: 16). The large number of CAG staff needs to be seen in the context of its wide mandate over: (a) the departments and associated bodies of the central government; (b) 36 states and territory governments; (c) and thousands of local governments.

The ANAO has internal units with performance audit responsibilities for different portfolios or a group of government departments/portfolios. One such unit is responsible for auditing the matters related to the environment (Wilson, 2011: 25). The OAG's Commissioner for environment has dedicated staff (Rose, 2001) of 40 people (Dowdeswell et al., 2007: 16), who undertake performance audit of the environment and sustainability related issues. The CAG has established a nodal office for environmental audit. This office undertakes performance and compliance audit of the central (federal) government environmental programs all over India. Additionally, the different state Accountant General offices also undertake performance and compliance audits of state-level environmental programs (CAG, 2013d).

5.3.6 Submission of audit reports

All three SAIs' reports are laid before the relevant legislature. While the ANAO and the OAG (and Commissioner for Environment) submit their reports directly to the legislature, the CAG submits its reports to the head of the state (the President of India in the case of the central government and the relevant Governor in the case of a state government) for laying before the relevant legislature. This is effectively reporting to the legislature via the executive. The current legislation does not prescribe any time limit within which a government has to table the CAG report before the legislature. Legislative changes have been proposed for timely disclosure of the CAG report to the legislature (Australia et al., 2012: 17). As of January 2016, these changes have not materialized (Pandey, 2016).

5.4 Environmental performance audit planning and quality control framework

5.4.1 Performance audit planning

There are three types of planning for performance audits: (1) long-term (3-5 years) or strategic planning; (2) short-term – annual planning for audit work; and (3) operational planning for individual audits. The first two are concerned with 'what to audit' and hence are related to the broader government work outside the SAIs' offices. This is the core of audit planning that is guided by their overall corporate strategic plans (e.g. vision, mission, objectives) or statements (ANAO, 2015a: 56) that they develop to steer their organisation (OAG, 2014a; CAG, 2014a: 19). Due to its broader significance, 'what to audit' will be discussed here. The third issue is about 'how to audit' and mostly relate to the work inside the SAI offices. The third issue will be briefly mentioned and indirectly discussed as the output of the process under the current practice in Section 5.6.

Due to wide range of government activities and limited audit resources, it is not possible to audit every aspect of government activity. The three SAIs have full discretion in choosing topics for performance audits. However, they necessarily need a process to determine what to audit. Broadly they all employ a similar 'risk-based approach' to choosing topics (ANAO, 2015a: 53; CAG, 2014a: 21-22; OAG, 2004: 21).

They continuously scan government activities including through monitoring media reports, debate in parliament and its committees, portfolio/entity budget statements, and entity's annual reports and choose activities that pose the most significant risks; have greater potential to improve performance; and are of interest to public and parliament (see for example, ANAO, 2015a: 54-55; OAG, 2014b). However, due to their different processes, as they have slightly different ways of selecting topics, it is worthwhile exploring these. The annual audit topic selection process in Australia is known as 'Blue Book' preparation; in Canada as 'One pass planning' (OPP); and in India as: 'Annual audit plan'.

5.4.1.1 Australia (the Blue Book)

The ANAO's 'Blue Book' describes its annual audit coverage. It is a rolling annual program of potential performance audits and non-audit topics (better practice guides) by portfolio that is updated every year. It is product of a strategic and integrated approach to audit planning that is rigorous and consultative (Wilson, 2011: 29-31). The ANAO maintains an up-to-date knowledge base of the Australian government entities' operations on an on-going basis and it periodically (annually) conducts an environmental scan (environmental scan is a systematic way of data collection and analysis of factors that impact an organisation) to identify key issues and challenges faced by the Australian public sector administration With this information, the ANAO annually at its strategic planning session(s), first identifies potential audit issues for each portfolio. It then consolidates them and determines audits of significance by filtering the potential audit topics through considerations, such as, materiality, significance, potential impact and benefit, public/parliamentary interest, coverage (if covered by any recent audit or other studies or need for follow up audit) and the ANAO's resource availability (ANAO, 2015a: 52-59). As it is mandatory for the ANAO to have regard to the audit priorities of the Parliament, it provides the list of draft audit topics to the Parliament's Joint Committee of Public Accounts and Audit (JCPAA is equivalent of the generic PAC). It also simultaneously provides the draft list to government entities and other stakeholders for their comment. Following this, the planned audit work program for the forthcoming year (the 'Blue Book') is finalised; its copies are provided to parliamentarians including JCPAA and government entities; and it is also published on the ANAO website (ANAO, 2015a: 52-59; Wilson, 2011: 29).

Sometimes, the ANAO undertakes performance audits that are not included in its annual audit work program (Blue Book). These audits result from requests to the Auditor General from Parliament, Government or other parties. The Auditor General applies his discretion and considers each request on its own merit. An independent performance audit of ANAO has concluded that planning and scoping of the ANAO's annual Audit Work Program is efficient and effective (Wilson, 2011: 15).

5.4.1.2 Canada (One Pass Planning–OPP)

The one-pass plans provide a systematic, integrated and risk-based approach to long-term audit planning. (OAG, 2004: 21). Using the knowledge of business of government entities (updated periodically) and periodic environmental scanning, the OAG units, through one-pass planning and other risk based analyses, identify performance audit topics throughout the year. However, more intensive one-pass planning for an entity is done every 5-6 years in consultation with government entities. On completion of one pass plans for entities and functional areas, the OAG consolidates them each spring into a strategic audit plan (SAP) for five years. Being a long-term plan for audits of a sector or entity, the SAP is re-evaluated each

year to ensure that the right audits are planned (OAG, 2014b). Thus the output of the one-pass planning process is a SAP that identifies performance audits to be undertaken over the long-term (five years). A peer review recommends that the OAG give greater emphasis to the risk assessment phase of the audit planning process to which the OAG has agreed (Australia et al., 2010: 13).

The performance audit planning processes in Australia 'and Canada are closely aligned' (Wilson, 2011: 33). As in Australia, an audit may be undertaken in response to a request from the Government or a parliamentary committee.

5.4.1.3 India (Audit Planning and Audit Advisory Board)

Annual audit planning in India is undertaken by the field offices with reference to the CAG's strategic plans (CAG, 2014a: 19) that are at two levels:

- Long-term: the Strategic Plan – 2020 (current) outlines CAG's vision, mission and core values; the emerging issues for governance in India; organisational goals; and implementation arrangements (Australia et al., 2012; 23); and
- Medium–term (five year): the Perspective Plan 2010–15 (current) focuses on medium to long term goals and challenges, and assigns responsibilities and identifies timelines for completion of specific tasks (Australia et al., 2012; 23). A new five year plan has been developed, however this document is not publicly available (Pandey, 2016).

The audits proposed in annual audit plans are typically based upon government entity profiles, financial materiality and risks and also take into consideration the staff resources available (Australia et al., 2012: 13). The annual audit plans of field offices are reviewed by the CAG management considering the overall audit priorities, available resources and expectations across various offices. The approved audit plans are consolidated into the CAG's annual audit plan (CAG, 2014b: 10).

The CAG has established an Audit Advisory Board(s) for its head office in New Delhi and for each of its state audit offices. These boards comprise eminent persons and highly qualified professionals from diverse fields. The central Audit Advisory Board is chaired by the CAG personally, whereas the state Audit Advisory Boards are chaired by the respective state Accountants General. The purpose of the Audit Advisory Board(s) is to advise the CAG (and its state offices) on matters relating to audit (including audit topics) and suggest improvements in the performance and focus of audit (CAG, 2014b: 91-92). It reflects the CAG's openness to external advice, and is considered a 'good practice' (Australia et al., 2012: 24).

As a closing summary of this section, it is noted that of the three SAIs, the audit planning of the ANAO is most transparent. Not only is its planning widely consultative including with the public, its annual audit plans are also publicly available. On the other hand, not only is the audit planning of the OAG and CAG (notwithstanding CAG's audit advisory boards) less consultative, their audit plans are also not publicly available.

5.4.1.4 Individual audit planning

Following the approval of the annual audit plan, the audit team(s) picks an audit topic from the approved list and plans for its execution. While the process in each SAI varies, broadly, this includes initial approval to go ahead; development of audit scope, audit objective, criteria, methodology; estimation of audit resources and time, and preparation of audit risks management and communication protocols (see for example, ANAO, 2015a: 60-62; OAG, 2004: 42; CAG, 2014a: 24-25). Only when an individual audit plan is approved, the actual field work for a performance audit starts.

5.4.2 Performance audit quality management framework: audit standards, manuals and guidelines

Variously named, the three SAIs have their own performance audit quality management framework (QMF) that comprises audit standards, policy manuals and/or guidelines. For example OAG (2004: 10) calls it a quality management framework whereas, CAG (2014c: 1) calls it Audit Quality Management Framework. The QMF is used here in a generic sense to denote a suite of documents (whether mandatory or voluntary) that are followed by the three SAIs to assure that their performance audits have been conducted in accordance with applicable laws, policies and professional standards. The key QMF documents used by the three SAIs to guide their performance audits are shown in Table 5-2.

Table 5-2: Quality Management Framework (QMF) documents

QMF document	Australia (ANAO)	Canada (OAG)	India (CAG)
Standard	Australian Standard of Assurance Engagements (ASAE) - Performance Engagements - ASAE 3500, 2008 (ASAE 3000 also applies generally)	Chartered Professional Accountants (CPA) Canada Standard for Assurance Engagements, CPA Canada 5030	CAG's Auditing Standards, 2002
QMF		Performance Audit Quality Management Framework, 2004	Audit Quality Management Framework, 2014
Manual	Performance Audit Manual, 2015	Performance Audit Manual, 2014 (on-line)	Performance Audit Guideline, 2014 *Environment and Climate Change Auditing Guidelines
Other materials	-	*4th E Practice Guide	Practice guides on specific topics e.g. Planning individual performance audit

*Described under 'Good Practices' in section 5.4.4.

Among a very few audit offices globally, the ANAO and OAG have adopted international auditing standards for their performance audit activities (Wilson, 2011: 32). The ANAO has adopted the standards (e.g. ASAE 3500) developed by the Australian Auditing and Assurance Standards Board (AUASB). ASAE 3500 (AUASB,

2008) however, seems to have been intentionally written for organisations other than audit offices including, for example, internal auditors and private consultants that are not necessarily independent (Wilkins and Boyle, 2011). The ANAO conducts all its performance audits fully in accordance with its (AUASB) auditing standards (see for example, ANAO, 2010a: 36; 2010b: 55). Similarly, the OAG follows the Chartered Professional Accountants (CPA), Canada standards in its performance audit. However, unlike the ANAO, the OAG uses the CPA standards as the minimum requirements and also 'draws upon the standards and practices of other disciplines' (see for example, OAG, 2010a: 29; 2010b: 30).

The Indian auditing standards are based upon auditing standards issued by the International Organization of Supreme Audit Institutions (INTOSAI) in 2001 (CAG, 2002: 2). In tune with the INTOSAI standards that are non-mandatory guidelines (INOTSAI, 2004), the Indian auditing standards are non-prescriptive. Unlike their Australian and Canadian counterparts, the Indian auditing standards enunciate principles rather than prescribe obligations. The Indian standards' non-prescriptive nature is high-lighted by it statement that 'these standards are to assist and not to supercede the prudent judgement of the Auditor in making audit observations, conclusions and report' (CAG, 2002; 30). The Indian auditing standards that include provisions together for performance and financial audits are quite old (predates the INTOSAI performance standard of 2004). They contain significant duplications and would benefit from streamlining (Australia et al., 2012: 22). As of January 2016, the revision recommended to the standards (Australia et al., 2012: 22) is yet to materialise.

In addition to containing the necessary information on their performance audits (e.g. mandate), and guiding instructions on their internal processes, the Australian and Canadian performance audit manuals embed the relevant provisions of their respective audit standards. They clearly specify obligations required by standards or otherwise as 'shall' or 'should' policy statements (see for example, ANAO, 2015a: 100-101; OAG, 2014e; 2014f). On the other hand, the Indian Performance Audit Guidelines (CAG, 2014a) state a broad range of principles and practices to be followed, leaving scope to improve their clarity, including by differentiating between obligations and matters of sound practice (Australia et al., 2012: 22). While CAG has updated its guidelines in 2014, this observation of the peer review (Australia et al., 2012) still remains valid.

There are five elements of the Canadian Performance Audit Quality Management Framework: leadership and planning, audit management, client focus, people management and continuous improvement (OAG, 2004: 116). The Canadian Performance Audit Manual is designed to implement the OAG's 'Quality Management Framework' (OAG, 2004: 7). A peer review of the OAG (Australia et al., 2010: 1) concluded that except for minor improvements required to its risk assessment procedures and audit documentation, the OAG's quality management system was suitably designed to provide reasonable assurance compliance with relevant legislative requirement and professional standards. Further, the system was operating effectively. The peer review identified several good practices of the OAG that might be of interest to other audit offices. These include: management of relationships with parliament; delivery of a clear message by its performance audit reports; its collaborating with other accountability offices; and development criteria for performance audit of public corporations (Australia et al., 2010: 17).

The CAG's Audit Quality Management Framework (AQMF) is designed to ensure compliance with applicable legislative requirements, its auditing standards and policy instructions. Similar to the OAG's (2004: 118), framework, it has five elements: leadership and direction, human resources management, audit management, clients and stakeholder relations and continuous Improvement (CAG, 2014c: 2). The elements of this framework are mapped to the key instruments, the CAG employs under each element, such as the Auditing Standards and the Performance Auditing Guidelines. The CAG has updated its AQMF based upon recommendation of the peer review (Australia et al., 2012: 21). However, its key enablers, the Indian Auditing Standards (still to be updated) and Performance Auditing Guidelines (updated but retains its earlier principle-based character) remain largely in their old forms. As such, it appears, it will be challenging for CAG to fully implement the intent of its AQMF in the short-term.

On the positive side, the CAG conducts internal peer review of its audit offices and it inspects all field offices in a 3-year cycle. Further, the CAG has a large network of 15 training centres (CAG, 2014b: 112-113) to train audit officials in the art and craft of audit. This network includes two international training centres – (1) the International Centre for Environment Audit and Sustainable Development (iCED); and (2) International Centre for Information Systems and Audit. The iCED is a global training facility of the INTOSAI (CAG, 2014b: 84). During 2013-14, the CAG training centres ran about 750 courses and trained about 13,000 audit officials in different aspects of audit (CAG, 2014b: 81). The CAG has taken several other measures for quality improvement of performance audits. These include: (1) creation of a technical board of professional practice to consider policy issues related to audit and accounting; (b) issuance of guidance notes on (a) Interaction with auditees; and (b) confidentiality of draft audit reports (CAG, 2014b: 73-74).

5.4.3 Reporting standards

The audit report is a critical component of performance audit. To some extent, it delivers functions that in other types of audits are provided by general standards of audit documentation (CAG, 2014a: 17). Being the end product of performance audits, the audit reports are what the parliament, public and media see of the work of auditor generals (OAG, 2004: 75). As the reputation and credibility of the audit offices depend to a large extent on the quality of their reports, the SAIs generally are very conscious of the content and presentation of their reports. Consequently, the SAIs tend to specify them in their standards and/or manuals of practice. The performance audit report contents mandated by the three SAIs' standards/manuals are shown in Table 5-3.

As can be seen from this table, the Australian and Canadian reporting standards are obligation-based and hence very prescriptive. On the other hand, the Indian standard that is a principles-based standard only provides the framework for reporting. The standard is meant to assist, not to supercede the prudent judgement of the auditor in making audit observations, conclusions and report (CAG, 2002: 30). The Indian standard further concedes that unlike financial audit reports, performance audit reports are varied in content (CAG, 2002: 39).

It is clear from the discussion in the previous section and this section that compared with the Australian and Canadian Standards, the Indian Standards (including for reporting) are non-obligatory in nature. The leaves Indian auditors with greater discretion. This coupled with variable review of audit reports (Australia et al., 2012; 38), has potential to cause more variability in the quality of audit reports.

Table 5-3: Mandatory content of performance audit reports

Australia (ASAE 3500: 30-31)	**Canada (OAG, 2004: 75)**	**India (CAG, 2002: 30)**
(a) a title that clearly indicates the report is an independent assurance report; (b) an addressee; (c) an identification and description of the activity; (d) identification of the criteria; (e) where appropriate, a description of any significant, inherent limitation associated with the evaluation or measurement of the activity against the criteria; (f) when the criteria used to evaluate or measure the activity are available only to specific intended users, or are relevant only to a specific purpose, a statement restricting the use of the assurance report to those intended users or that purpose; (g) a statement to identify the responsible party and to describe the responsible party's and the assurance practitioner's responsibilities; (h) a statement that the performance engagement was conducted in accordance with applicable ASAEs (ASAE 3500 *Performance Engagements*) and the level of assurance provided; (i) a summary of the work undertaken; (j) the assurance practitioner's conclusions: (i) where appropriate, shall inform the intended users of the context in which the assurance practitioner's conclusions are to be read; (ii) shall be expressed in the positive form where reasonable assurance is provided; (iii) shall be expressed in the negative form where limited assurance is provided; (iv) where both positive and negative forms are expressed, shall clearly separate the two types of conclusions; and (v) where the assurance practitioner expresses a conclusion that is other than unqualified, the assurance report shall contain a clear description of the reasons; (k) the assurance report date; and (l) the name of the assurance practitioner, and a specific location, which ordinarily is the city of the assurance practitioner's performance engagement office.	• the objectives, nature, time period covered by the audit, and scope of the audit, including any limitations; • the professional standards and policies used; • the level of assurance provided by the report; • a description of the program or activity that was audited, including management's responsibilities; • the criteria used, their source, and any disagreements with management on their suitability; • the observations made; • the recommendations made to point to the direction in which positive changes can be made (may not apply to all audit notes); • management comments (if provided) including planned action in response to the audit and any differences of opinion; and • the conclusions reached against each audit objective including any qualifications, where applicable.	A description of the scope and coverage of audit, objective of audit, area of audit, main findings in respect of the efficiency, economy and effectiveness (including impact) aspects of the area (subject matter) which was audited and recommendations suggesting the improvements that are needed.

As will be seen in section 5.6, this had indeed materialized: there is greater variability in the Indian performance audit reports compared with the Australian and Canadian performance audit reports.

5.4.4 Good practices in performance audit planning and guidance

This research has identified some good practices in audit planning and guidance in the three SAIs that may be considered by other SAIs. These are briefly discussed below.

5.4.4.1 ANAO's publicly available audit work plan (Blue book)

At the start of each financial year (1 July), the ANAO publishes its finalised Audit Work Program on its website. The program transparently informs the Parliament, the public and government entities of the ANAO's full suite of planned audit and assurance activities for the Australian Government sector – the mandatory financial audits and discretionary performance audits and better practice guides. The performance audit part of the Audit Work Program is organised around the portfolio structure of the Australian Government with cross-portfolio audits listed under the general administration. For each portfolio, the audit work program: (1) provides a strategic overview; (2) lists and briefly describes the performance audits underway; and (3) potential performance audits proposed to be undertaken (ANAO, 2015b: 1-2). As the ANAO provides opportunity to general public and other (non-government) stakeholders to provide input to every performance audit (ANAO: 2016a), the Audit Work Program by alerting these stakeholders in advance, enables them to make a meaningful contribution to performance audits of interest.

5.4.4.2 OAG's 4th E Practice guide

To integrate environmental considerations in all its performance audit work, the OAG (2011c) has developed a manual, '4th E Practice Guide' (the environment is the 4th E, the other 3 Es being economy, efficiency and effectiveness). The Guide is intended to help auditors involved with performance audits that do not focus on environmental issues. Through a series of standard (template) questions the Guide enables these auditors who may have little or no environmental expertise to identify and assess potential environmental risks posed by the programs and activities of entities they audit. The Guide is organised into two sections. The first sections helps to identify environmental risks during the long-term (one-pass) planning of performance audits, while the second section helps the determination of potential environmental issues during the initial planning (survey phase) of individual performance audits. The Guide's appendices provide information and links to key documents and resources including on the OAG's mandate for sustainable development matters (OAG, 2011c: 1). While the mandatory Guide is aimed at serving the OAG's specific mandate for the environment, it nevertheless provides a good model for internalising environmental consideration in all performance audits. This is considered necessary now as the case for adding the fourth E (for the environment) to performance audits is growing, when the consideration of the environmental impact of all government activities and of the 'environmental' angle in policy making itself is becoming the norm (CAG, 2013d).

5.4.4.3 CAG's specific guidelines for environmental audit

To service increasing focus and expanding efforts in the highly technical and specialized area of environment audit, and to enable more effective environment audits, CAG (2010a) has prepared a

separate manual, 'Environment and Climate Change–Auditing Guidelines'. This Manual draws upon the CAG's own experience in undertaking environment audits over the years and the good practices in environmental auditing worldwide. It derives significant support from the publications of the WGEA and research papers and publications of other international organizations engaged in the field. The Manual is in two sections. The first section gives general but substantial information on major issues related to environment and climate change. This section then briefly describes national and international efforts being made to control environmental degradation. The section also provides guidelines on the planning and execution of Environmental Audits, together with checklists and questionnaires to assist in these processes. The second section of the Manual gives detailed audit guidelines and questionnaires on selected environmental issues, like, Biological Diversity including forests and forest management, wetlands, and mangroves, Air Pollution, Water Pollution, Waste Management, Climate Change and Coastal Zone Management (CAG, 2010a: 2-3). The Manual, in appendices, provides: (1) references to information resources from other sources such as WGEA, ASOSAI, International Associations and National Plans and Policies documents; and (2) a list of India's national environmental legislation. By bringing together extensive information related to environmental audit, the Manual provides a great starting point for environmental auditors. It is a model other SAIs may consider useful.

5.4.5 The environmental context

The mandate and performance audit planning and execution framework described above give the authority, processes and tools to the SAIs that they use to undertake performance audit of environmental policies and programs; or of government activities having significant bearing on the environment. These policies and programs are established through several means such executive/administrative decisions, policy decisions or legislative actions of the government. In addition to the government's general authority to spend money approved by the Parliament and its general administrative acts related to such spending (e.g. Australia's *Public Governance, Performance and Accountability Act*, 2013), the policy and legislative framework of the government's environmental initiatives provide the substantive context for environmental performance audit. As this research is about environmental performance audit, it would be helpful to briefly look at the broader context of environmental legislative and policies framework of the three countries within which the government environmental organisations, initiatives and programs, reviewed by the SAIs, operate.

Though environment is a pervasive matter, much of the concept of the environment, as it is understood today, (such as, air and water pollution, biodiversity conservation) originated in the mid to late twentieth century. As such the constitutional recognition of the environment in the three countries is not universal. The constitutions of Canada (1867), Australia (1901) and India (1950) reflect the social and cultural attitude towards the environment of the time they were adopted. The Indian Constitution recognises the environment and directs the state (generic meaning not administrative unit) to protect the environment and makes it a fundamental duty of citizens to protect and improve the environment. Thus the Indian federal government has a clear legislative mandate over the environment. Compared with this, the Australian and Canadian constitutions, predating India's, do not grant specific power to the federal government over the environment. However, the Australian and Canadian federal governments' power to legislate over the environment has evolved for several reasons, including their growing fiscal clout (vis

a vis state governments) and judicial decisions that upheld their constitutional powers (see for example, the famous 1983 *Tasmanian Dam* case of Australia; Becklumb, 2013: 2) to enter into treaties and implement them.

Table 5-4: Key environmental legislation and policies

Environmental issue category	**Australia**	**Canada**	**India**
Air/climate	National Greenhouse and Energy Reporting Act, 2007 Renewable Energy Act, 2000 Clean Energy Regulator Act 2011 Clean Energy Finance Corporation Act, 2012	Kyoto Protocol Implementation Act, 2007 Federal Adaptation Policy Framework	Air (Prevention and Control of Pollution) Act, 1981 National Action Plan on Climate Change National Green Tribunal, 2010
Biodiversity	Environment Protection and Biodiversity Conservation (EPBC) Act, 1999 Australia's Strategy for Australia's National Reserve System 2009–2030	Species at Risk Act, Migratory Birds Convention Act, 1994 Canada Wildlife Act	Biological Diversity Act, 2002 Indian Wildlife (Protection) Act, 1972.
Environment protection/ development approval	EPBC Act, 1997 Great Barrier Reef Marine Park Act, 1975	Canadian Environmental Assessment Act, 2012 Environmental Enforcement Act, 2010 Canadian Environmental Protection Act, 1999	Environment (Protection) Act, 1986 National Environment Policy, 2006 National Conservation Strategy and Policy Statement on Environmental
Forest	National Forest Policy Statement, 1992 Regional Forest Agreements Act, 2002	Federal Sustainable Development Strategy	The Indian Forests Act, 1927 National Forest Policy (1988)
Fishery	Fisheries Management Act 1991 Fisheries Administration Act 1991	Fisheries Act. 1985	The Fisheries Act, 1897
Water	National Water Initiative, 2004 Water Act, 2007	Canada Water Act, 1985	The Water (Prevention and Control) of Pollution Act, 1974 National Water Policy (2002)

Notwithstanding the varied origin of the legislative power over the environment, the federal governments of the three countries have produced extensive environmental legislative and policy frameworks that enable their environmental initiatives. An illustrative list of environmental legislation and policies of the three countries is given in Table 5-4. Further, the three countries have entered into several global treaties such as Convention on Biological Diversity (CBD), 1992; Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR Convention, 1971); the United Nations Framework Convention on Climate Change (UNFCC), 1992; and United Nations Convention on Laws of the Sea (UNCLOS), 1994. These domestic and international laws and policies provide the substantive environmental context that underpin the three SAIs environmental performance audits.

5.5 Trend in environmental performance audit: Australia, Canada and India

5.5.1 Total environmental audits and environmental performance audits

Figure 5-1 shows the trend in total environmental audit (comprising all types of audits: financial, compliance and performance audit) and Figure 5-2 shows the trend in environmental performance audit for Australia, Canada and India for the period 1992-2012. For comparison, the corresponding global data is also shown in these figures. It is seen from these figures that, the trend in environmental auditing and more particularly in environmental performance audit for all three countries, broadly reflects the global trends except towards the end of the period. Barring this exception, both the overall upward global trend and periodic upward and downward global trends are replicated by the three countries. This is consistent with the earlier discussion that global economic conditions that are shaped by major global economic events, such as, global financial crisis (GFC) do impact the trend in environmental auditing. In the modern world, a country's economy is highly connected to the global economy. This connection could suggest that a global trend in environmental auditing should be reflected in an individual country's environmental auditing.

In operational terms, broadly a country's economic conditions do impact on environmental audit and environmental audit performance audit for two reasons. First, it does affect the government's abilities to put in place environmental initiatives that need auditing (the subject) and secondly it also affects the SAI's capacity to audit. Even if some SAI (for example India) might be shielded from the political process of budget making, overall a country's economic condition will determine the SAI's budget (hence capacity). While local impact will vary in magnitude, as an individual country's economy and institutions' resilience differ, there will be some impact nevertheless. Thus a broad reflection of the global environmental auditing trends in Australia, Canada and India is reasonable.

Post 2009, while the global trend is flattening, the trend in Canada and India show a decrease and trend in Australia shows an increase. This is reflective of the difference in local conditions. A retreat from environmental programs such as withdrawal from the Kyoto protocol under a conservative government in Canada combined with post-GFC budget squeeze can explain the continued downward trend in environmental audits. The Indian downward trend seems more like a delayed response to the effect of GFC. While the role of other factors cannot be ruled out, the two key factors that could have caused this are relevant to this discussion. Firstly, being a large, diverse and developing country, the government in India cannot afford to be very responsive and slash public spending to manage its economic affairs.

Secondly, due to the security of its budget, the CAG would have continued to operate as previously for a longer period. Both of these would have caused this moderating effect in delay of the GFC impacts.

Barring the dip in 2011, the continued post-GFC rising trend in environmental audit in Australia that is not consistent with the global trend comes as a bit of surprise. However, further investigation finds that the Australian federal government spending on environmental programs significantly increased in the vicinity of the GFC. There are at least two key factors that could explain this increase. The Australian Government was running a huge budget surplus before GFC. To stave off the negative effects of the GFC, the Australian Government decided to spend almost the entire surplus of 50 billion Australian dollars on a stimulus package. A significant amount of this money went to the environmental programs and projects. Further, due to its almost 15 billion dollars intervention in the Murray-Darling Basin, the federal government has increased its reach in environmental matters. Thus, despite inconsistency with the global trend, increase in environmental auditing is still related to economic factors (increase in government spending on environmental programs).

Figure 5-1: Total number of environmental audits: Global, Australia, Canada and India for 1992-2012. The left vertical axis shows the three countries' data and right vertical axis shows the global data for the total environmental audits.

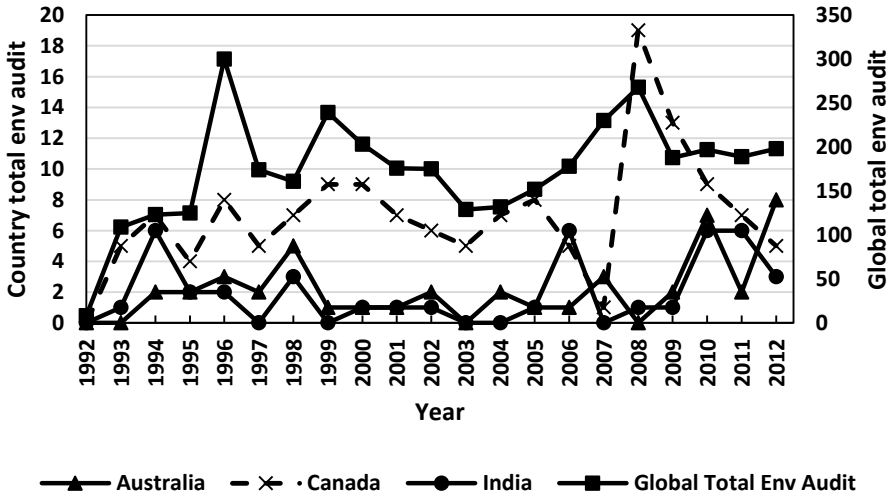
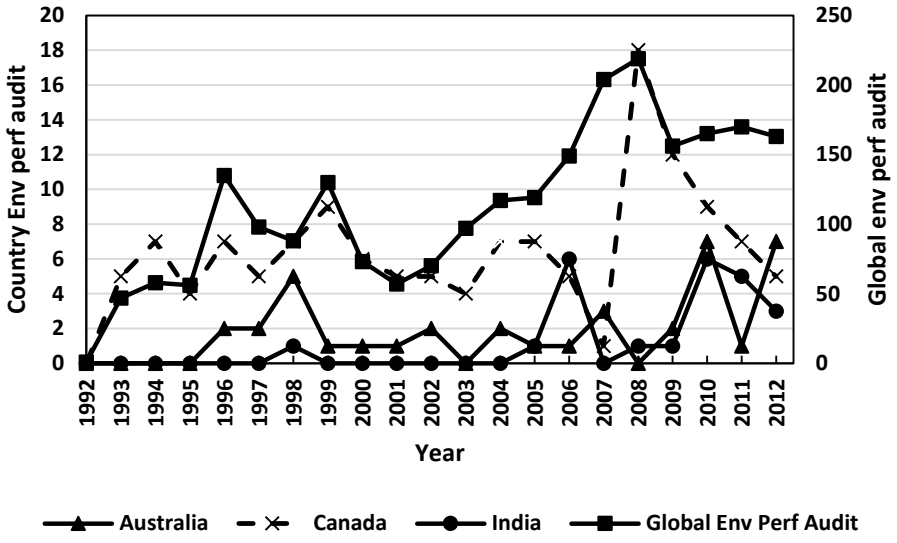


Figure 5-2: Total number of environmental performance audits: Australia, Canada, India and Global for 1992-2012. The left vertical axis shows the three countries' data and the right vertical axis shows the global data for environmental performance audit.



In inter-country comparison, Canada has consistently undertaken more total environmental audits and environmental performance audits than Australia and India. Key statistics of environmental audit for the three countries are given in Table 5-5. It is seen from this table that over the period, 1992-2012, Canada has undertaken 146 environmental audits; 135 of these were performance audits. During this period, Australia has undertaken 45 environmental audits (38 performance audits) and India has conducted 41 environmental audits (24 performance audits). With the 2nd rank globally (USA is the first) Canada is among the world leaders in environmental performance auditing. Australia ranked 19th and India ranked 31st among the 103 SAIs that conducted environmental performance audits during the two decades, 1992-20012. Note that 102 SAIs still did not produce any environmental performance audits over this period, despite the number of SAIs producing environmental performance audits increasing from 51 (1992 -2002) to 103 (2003-2012). Due to this significant growth in the number of countries producing environmental performance audits, it is reasonable that the rank of individual countries would change between the two decades and overall. For a better comparison, an SAI's normalised rank needs to be calculated by dividing its absolute rank by the number of SAIs contributing to the total in each period and then multiplying the ration by 100. The normalised ranks for three countries are shown in Table 5-5. For example, of 51 SAIs undertaking environmental performance audits during 1992-2002, the Australian SAI was 18th, so its normalized rank became: 18/51) x 100 = 35.

It is interesting to see from this table that in terms of the number of environmental performance audits, all three countries have improved their relative rank. This suggests that, compared to the other SAIs, they have increased their output of environmental audits at a faster rate. This fact is not readily evident from Figure 5-2 that compares their individual growth (trend) with the global growth in environmental performance audits.

Canada has improved its normalised rank from 10 (absolute rank 5) at the end of the first decade to 2 at the end of the second decade. Australia has improved from 35 to 19 and India from 96 to 31. While improvement in relative ranks of all three countries is remarkable and confirms their increased activity, improvement in the rank of Canada is exceptional. Canada had been in the top ten in the previous decade. By improving its relative rank, while already being in the top ten, Canada has demonstrated its exceptional calibre, at least in quantitative terms, for environmental performance auditing.

Table 5-5: Environmental audits: Australia, Canada, India and global: Numbers in the brackets are the number of SAIs that contributed to the global totals for the period.

Total environmental audits	1992-2002		2003-2012		Full period, 1992-2012	
	Number	Normalised Rank	Number	Normalised Rank	Number	Normalised Rank
Australia	19	39	26	22	45	27
Canada	67	9	79	5	146	5
India	17	41	24	25	41	30
Global	1793	-	1861	-	3654	(111)
Environmental performance audits						
Australia	14	35	24	20	38	19
Canada	60	10	75	5	135	2
India	1	96	23	22	24	31
Global	813	(51)	1559	(103)	2372	(103)

While the differences in environmental auditing between Canada and India could be attributed to the basic difference in economic development (measured by indices such as per capita GDP or national income), the difference between Canada and Australia cannot be explained in terms of only economic development (i.e. purely by economic factors). During the period 2003-2012, compared to India's per capita GDP of about 1,200 US dollars ($) per annum, the per capita GDP of both Canada (46,000 US$) and Australia (48,000 US$) were much higher. Given the similarity between Canada and Australia economically, they could be expected to have similar performance in terms of environmental audits. However, the performance of Australia in this respect is much closer to India than to Canada. This needs explanation.

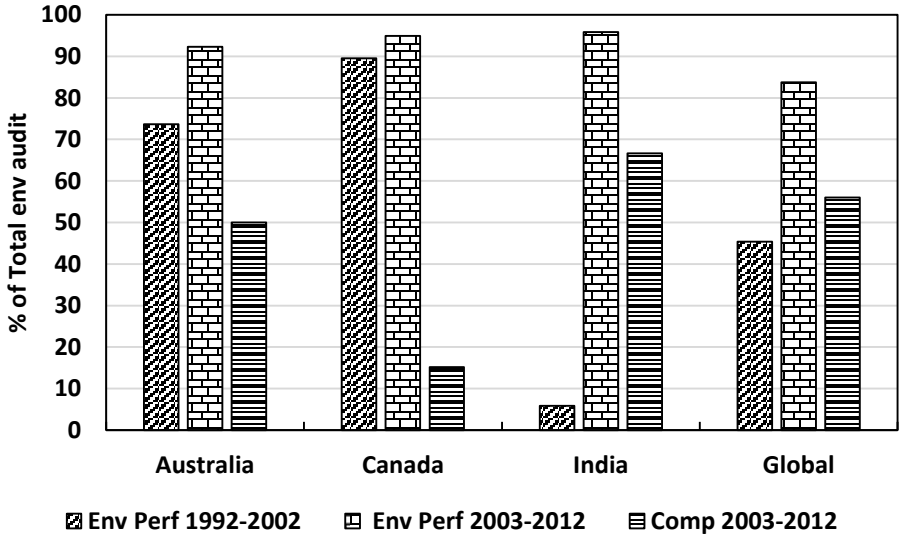
Canada has made an early start in environmental auditing, especially environmental performance auditing. Canada reports undertaking 5 environmental performance audits as early as 1993, whereas Australia's 2 environmental performance auditing reports appeared in 1996. The first Indian performance audit report appeared in 1998. Since the inception of the WGEA in about 1992, Canada has been quite active in its activities. Further, Canada chaired the WGEA and supported its secretariat for six years between 2001 and 2007. The involvement with the WGEA seems to have a marked influence on its environmental auditing. This is consistent with the finding earlier in Chapter 3. There is another factor that would most likely have played a key role. The OAG Canada has a specific mandate for environmental auditing. While Canada produces only about 30 performance audits compared to Australia's 50

performance audits per annum (Wilson, 2011: 32), Canada environmental performance auditing output is three to four times higher (for the period, 1992-2012, 3.5 times and for the period, 2003-2012: 3 times higher). The higher output of environmental performance audits as a proportion of total performance audits, could be attributed to the OAG's specific mandate on environmental auditing and consequent dedicated resources and focus. This indicates that a specific audit mandate can, and does, make a difference.

5.5.2 Proportion of performance audits and compliance audits to total environmental audits

Figure 5-3 shows the proportion of environmental performance audits and compliance audits as a percent of total environmental audits (note that compliance audit data is available only for the post-2003 period). Globally, some data is available for performance audits and total environmental audits for each year; so global ratio can be calculated for each year and plotted as time series. This calculation however, is not possible for individual countries for every year due to gaps in data. It is quite reasonable that, for some years, there would not be any environmental audit (applies to Australia and India). For this reason, the data aggregated over each decade is plotted for three countries and compared with the respective global averages.

Figure 5-3: Proportion of environmental performance audits and compliance audits: Australia, Canada, India and Global for 1992-2002 and 2003-2012. Compliance audit record is available only for 2003-2012.



It is evident from Figure 5-3 that, consistent with the global trend, the proportion of environmental performance audit for all three countries increased in the second decade compared with that for the first decade. However, it should be noted that the proportion of environmental performance audit for both Australia (74%) and Canada (90%) was already quite high in the first decade compared with the global average (45%). So the increases in Australia's (by 18% to 92%) and Canada's (by 5% to 95%) proportion of environmental performance audits was modest compared with the global increase (by 39% to 84%). On the other hand, India started with a quite low base (6%) in the first decade. Its proportion of environmental performance audit increased quite significantly to 96%.

Compared with the global average proportion of environmental compliance audit of 56% during 2003-2012, Canada's (15%) and Australia's (50%) proportions of environmental compliance audits were lower. On the other hand, India's proportion (67%) of environmental compliance audit was higher than the global average. India is a developing country, where concerns with the compliance with environmental rules and regulations can reasonably be expected to be higher than in Australia and Canada. Hence India's higher proportion of environmental compliance audit than that of Australia and Canada is consistent with this expectation.

There is an overall decreasing trend in proportion of compliance audits for the three countries (see Appendix E – Figure E-2) that is consistent with the global trend in Figure 3-7-Figure 3-8 (Chapter 3).

5.5.3 Issues audited in environmental performance audits

The 22 issues covered in environmental performance audits for Australia, Canada and India for the period 1992-2002 are listed in Table 5-6. However, as the issues list (60) is very long for the period 2003-2012, only the issue type and the top ten issues for each country are listed in Table 5-7. The full list of issues for this period is given in Appendix F (Table F-1).

5.5.3.1 Average number Issues audited per performance audit

During the 1992-2002 period (Table 5-6), Australia covered 31 issues in its 14 environmental performance audits; Canada covered 139 issues in 60 performance audits and India covered one issue in its only environmental performance audit. Noting the limitation of data for India, the average coverage of issue per performance audit was comparable for Australia (2.2) and Canada (2.3). While the coverage of issues was higher than the global average (1.9) for both Australia and Canada, it was lower for India.

The average number of issues in environmental performance audits can be taken as a surrogate for their complexity, or their complexity index. The data in Table 5-6 suggests that in the pre-2003 period, both Australia and Canada were undertaking more complex environmental performance audits than those in the global average. Canada was undertaking more complex environmental performance audits than Australia and India. It is thus seen that Canada was not just undertaking more environmental performance audits, it was doing more complex environmental audits as well during this period.

Table 5-6: Coverage of issues in environmental performance audits for Australia, Canada and India for 1992-2002. The numbers in brackets are the rank of top five issues.

No	Issue	Australia	Canada	India
1	Acidification	1	1	-
2	Agriculture - pesticides - land development - forestry	2	6	-
3	Air pollution		4	-
4	Climate change - ozone layers depletion	1	4	-
5	Disaster management - emergency preparedness	1	1	-
6	Ecosystems: biodiversity - ecological infrastructure - ecosystem management	5(1)	7	-
7	Energy	3	6	-

8	Environment & human health	1	13(2)	-
9	Fish	-	11(3)	-
10	Fresh water: drinking water - water quality - rivers - lakes - fresh water - fresh water fish	3(4)	7	-
11	Industrial pollution	-	6	-
12	Internal environmental management by public authorities or departments		25(1)	-
13	Minerals - natural resources (mining - gas - oil - etc.)	-	2	-
14	Nature & recreation: conservation & improvement of natural and/or cultural heritage - management of national parks & forests - recreation & tourism	4(2)	2	-
15	Noise reduction	1		-
16	Other subjects	-	9	-
17	Pollution prevention	-	6	1
18	Radioactivity	-	2	-
19	Salt water - marine pollution: salt water - salt water fish	4(3)	2	-
20	Soil pollution - contaminated sites	2	11(4)	-
21	Traffic - mobility - transport	-	5	-
22	Waste: waste in general - hazardous - non-hazardous - waste processing & landfills	3(5)	9(5)	-
	Grand Total	**31**	**139**	**1**
	No of environmental performance audit	14	60	1
	Average no of issues covered per performance audit	**2.2**	**2.3**	**1.0**
	Global average of issues covered per performance audit: 1.9			

Number in brackets is the rank of five top issues

For the period 2003-2012 (Table 5-7), Australia audited 93 issues in 24 environmental performance audits; Canada audited 377 issues in 75 performance audits; and India audited 53 issues in 23 environmental performance audits. Compared to the global average number of issues audited in an environmental performance audit of 3.7, Australia audited 3.9 issues; Canada 5; and India 2.3 environmental issues per performance audit (Table 5-7). Some key points to note from this data include that: (1) all three SAIs undertook environmental performance audits in this decade that were twice complex than the audits they undertook in the previous decade; (2) compared with the global average, the Australian environmental performance audits were more complex; the Canadian much more complex and the Indian environmental performance audits were less complex; (3) both Canadian and Australian environmental performance audits were more complex than the Indian audits; and (4) the Canadian environmental performance audit were more complex than the Australian audits.

Undertaking more complex or comprehensive environmental performance audits would require more audit resources, as such, the ability of an SAI to undertake more complex or comprehensive environmental performance would indicate that it has access to more resources. The complexity index (average number of issues per performance audit) data in Table 5-6 and Table 5-7 suggest that among the three SAIs, Canada has more resources; and Australia and India are next in that order. This message consistently

emerges from the available data (note a higher political priority for the environment in Canada is reflected by a special environmental audit mandate for its SAI and consequently dedicated resources for the purpose). The Canadian SAI's special mandate on environmental matters together with its early lead on the matter and deep engagement with WGEA has contributed to its leadership position in environmental auditing. Both Australia and India are also becoming more resourceful and confident in conducting more complex environmental performance audits.

5.5.3.2 Most important five/ten issues audited

The coverage of issues shows their relative importance (or priority) to the SAIs, to the government, parliament and society as a whole. Thus the higher the coverage of an issue compared with another issue in audits would mean that the former is a higher priority to the SAI (the society) than the latter.

During the 1992-2002 period (Table 5-6), the top five issues covered in Australian environmental performance audit were related to: Ecosystem (5); Nature & recreation (4); Salt water (4); Energy (3) and freshwater (3). The top five issues covered in Canadian environmental performance audit were related to: Internal environmental management in the public sector (25); Environment & human health (13); Soil pollution (11); Fish (11) and Waste (9). The only issue covered in one environmental performance audit for India was pollution prevention. There seems to be little in common between Australia and Canada's priority concerns for this period. This is quite reasonable as each SAI is guided by its own priority that generally reflects the risks seen in the government programs and hence priority of their parliament, government and society. However, the choice of topics is also guided by the capacity of SAIs to audit a topic. These (1992-2002) were early days of environmental performance audit when the practice was evolving. SAIs individually, and collectively, through the WGEA, might still be developing the capacity, system and processes to audit different environmental issues. So it is quite possible that the capacity to audit a set of issues present in one SAI was not present in the other. This could also have contributed to the absence of common issues between Australia and Canada.

For the period, 2003-2012 (Table 5-7), of the 8 broad category of issues, Australia had governance (24); Canada had Human activities and sectors (98); and India had Ecosystems (14) as the top most category of concern. In the next most important category, Australia had Human activities and sectors (20); Canada had governance (93) and India had water (9). Both Australia and Candia together as a developed country group, had Human activities and sectors (118) and Governance (117) as the two top most audited category. This is consistent with the global trend (with the order swapped) for developed countries (Table 3-10). However, India's two top most categories are not in accord with the global trend for developing countries. This is not unusual, as individual countries circumstances differ.

Of their ten top individual issues in performance audits during the period 2003-2012 (Table 5-7), Australia, Canada and India had three issues in common; all relating to the governance category. These were: (1) Domestic funds and subsidies, (2) Environmental management system and (3) Sustainable development. This is consistent with the global trend, where these issues are common to both developed and developing nations' top 10 issues in environmental performance audit (Table 3-13 and Table 3-16).

In addition to the three issues listed in the paragraph above that they both share with India, Canada and Australia share three more common issues in the ten top individual issues. These are: (1) Climate change; (2) Other governance issues; and (3) Energy and energy efficiency. These are all higher order issues—related to the quality of programs and in general, to quality of life.

From the common issues between Australia and Canada in the ten top individual issues, two key facts emerge: (1) Australia and Canada have more common issues (six) in performance audits than each of them has with India (Australia-India: five; and Canada–India: four common issues); (2) the issues exclusively common between Australia and Canada are all higher order issues – related to the quality of programs and in general, quality of life. These are both consistent with the broader expectations that being developed countries Australia and Canada will have more environmental issues of common concern between them than each of them will have with India – a developing country; and they would have common concerns for higher order issues (quality of life, e.g. climate change) that would usually be not shared by a developing country. However, this interpretation needs to be tempered by the fact that some issues in the top ten had the same rank.

Individually, for India, the pollution of water bodies was the topmost concern in environmental performance audits. This is broadly consistent with global trend (Table 3-16), where this issue is third top most issue (after Environmental management system and Environmental impact assessment) for the developing country SAIs in environmental performance audits.

For Canada, sustainable development emerges as the topmost issue. This is consistent with the priority of the issues in Canada and associated special mandate conferred on the OAG to conduct the performance audit of government department in implementing sustainable development policies.

For Australia, energy and energy efficiency was the topmost issue in environmental performance audits. This is consistent with global trend (Table 3-13), where this issue is the third top most audited issue for the developed countries SAIs in environmental performance audits.

Table 5-7: Coverage of issues in environmental performance audits for Australia, Canada and India for 2003-2012. The name of the issue type is given in bold and the name of the issue is given in normal font. Only the top ten issues are listed. The rank of the top ten issues for each country is given in brackets beside the number of performance audit where these are covered.

Issue type Issue	**Australia**	**Canada**	**India**
Air	**4**	**35**	**2**
Climate change	4(5)	17(4)	
Ecosystems	**17**	**58**	**14**
Biodiversity	2	13(7)	3(4)
Protected areas and natural parks	4(6)	5	2(9)
Rivers and lakes	3(9)	5	4(3)
Governance	**24**	**93**	**8**
Domestic funds and subsidies	9(2)	11 (9)	2(7)
Environmental impact assessment		14(6)	
Environmental management system	4(7)	11(10)	4(2)
Other governance issues	6(4)	17(3)	
Sustainable development	3(10)	18(1)	2(6)
Human activities and sectors	**20**	**98**	**8**
Agriculture	1	6	3(5)
Energy and energy efficiency	12(1)	11(8)	1
Environment and human health	2	18(2)	1
Natural resources	**4**	**23**	**3**
Fisheries (freshwater and marine)	1	14(5)	1
Other		**10**	**4**
Other issues		9	2(8)
Waste	**5**	**19**	**5**
Water	**19**	**41**	**9**
Drinking water - quality and supply	4(8)	7	1
Other water issues	7(3)	1	
Pollution of water bodies (such as by industry and agriculture)	3	11	6(1)
Wastewater treatment	2	4	2(10)
Grand Total	**93**	**377**	**53**
No of environmental performance audit	24	75	23
Average no of issues covered per performance audit	**3.9**	**5.0**	**2.3**
Global average of issues covered per performance audit: 3.7			

Number in brackets is the rank of the top ten issues

5.5.4 Objectives of environmental performance audit

Table 5-8 (pre-2003) and Table 5-9 (post-2003) show the proportional inclusion of different types of objectives in performance audits for Australia, Canada and India. It is to be noted that the WGEA has

categorised the pre-2003 and post-2003 objectives differently. These tables also list the average number of types of objectives in performance audits for each country. The corresponding global averages are also given for comparison.

5.5.4.1 Pre-2003 performance audit objectives

As noted in Table 5-5, India conducted only 1 performance audit during 1992-2002. This audit was focused on compliance with national environmental laws and regulations (Table 5-8). Due to the data limitations for India, the discussion about the objectives for this period will focus mostly on comparison between Australia and Canada and their respective comparisons with global averages. It is seen from Table 5-8, that, during 1992-2002, compared with the 11% global average, about 12% of Canadian performance audits examined compliance by the government with its international obligations. However, no Australian performance audits had this matter as an objective. Among the developed countries, this objective was covered in 9% of performance audits (Appendix B, Table B-4). This suggests that, from very early on, OAG was conscious of the Canada's international environmental obligations and the associated risks it saw in their implementation. It could be argued that this also reflects the Canadian government's priority in implementing its environmental obligations through environmental policies and programs.

As would reasonably be expected in environmental performance audits, performance of the implementation of environmental programs would be an objective. Compared with global average (59%), a higher proportion of Australian (64%) and Canadian (80%) performance audit had this objective (Table 5-8). The global average inclusion of this objective in the developed countries performance audits was 74%. This is very close to the mid-point between Australian and Canadian coverage of the objective.

In relation to the remaining types of performance audit objectives (Table 5-8), the Australian performance audits equally (36%) included three types of objectives: (1) compliance with national environmental laws and regulations; (2) environmental management systems and (3) evaluation of impacts of existing national environmental programs. The fourth objective, environmental effects of non-environmental programs was included in a lesser proportion (21%) of audits. On the other hand, a higher proportion (40%) of the Canadian performance audits included the objective of auditing environmental management systems compared with other three type of audit objective: compliance with environmental laws (23%); evaluation of impacts non-environmental programs (5%) and evaluation of impacts of environmental programs (2%). Globally, among the remaining types of performance audit objectives, compliance with environmental laws (31%) and environmental management systems (28%) are more prominently included. Noting the individual differences, the relative order of inclusion of the three most included types of audit objectives in Australian and Canadian performance audits can be summarised as broadly consistent with the global trend — (1) performance of environmental program implementation followed by, either (2) compliance with national environmental laws, or (3) audit of environmental management systems.

Table 5-8: Percent inclusion of types of objectives in environmental performance audits pre-2003 and number of types of objectives per performance audit

Country	Audit compliance by the government with international obligation	Audit compliance with national environmental laws and regulations	Audit environmental effects of non-environmental programs	Audit government environmental management systems	Evaluate impacts or effects of existing national environmental programs	Performance audit of the implementation of environmental program	Objectives per performance audit
Australia	0%	36%	21%	36%	36%	64%	1.9
Canada	12%	23%	5%	40%	2%	80%	1.6
India	0%	100%	0%	0%	0%	0%	1.0
Global	**11%**	**31%**	**11%**	**28%**	**24%**	**59%**	**1.8**

Table 5-9: Percent inclusion of types of objectives in environmental performance audits post-2003 and number of types of objectives per performance audit

Country	Compliance with domestic environmental legislation	Compliance with domestic environmental policies	Compliance with international environmental agreements	Environmental impacts of non-environmental government programs	Evaluate environmental impacts of proposed environmental policies	Fair presentation of financial statements and expenditures	Performance of government environmental policies and programs	Objectives per performance audit
Australia	38%	67%	8%	0%	0%	0%	100%	2.1
Canada	59%	72%	21%	11%	5%	3%	84%	2.5
India	83%	74%	9%	4%	17%	4%	83%	2.7
Global	**58%**	**52%**	**18%**	**13%**	**16%**	**12%**	**68%**	**2.4**

5.5.4.2 Post-2003 performance audit objectives

It is seen from Table 5-9 that, consistent with the global trend (68%) for the period 2003-2012, the highest proportion of environmental performance audits of Australia (100%), Canada (84%) and India (83%) included auditing the performance of environmental policies and programs as an objective. This is expected as environmental performance audits would audit the performance of environmental policies and programs. As all three countries' environmental performance audits proportionally included this objective more than the global average, it could be argued that compared with their global peers, the three SAIs are more conscious of the performance of their government's environmental policies and programs. Using this same argument, it can be said that ANAO has been more active in auditing the performance of environmental policies and programs than both OAG and CAG. Consistent with the global increase in inclusion of this objective during 2003-2012, compared to the previous decade (Table 5-8), all three SAIs increased the proportion of including this objective in their performance audits of environmental policies and programs. The progress in this direction was highest in India (100%) compared with Australia (36%) and Canada (4%). However, it is to be noted that India started with a very low base (0) in the previous decade, whereas Canada (80%) and Australia (64%) were already including this objective in a relatively higher proportion of their performance audits during 1992-2002. It is notable that all environmental performance audits in Australia during 2003-2012 assessed the performance of environmental policies and programs.

Consistent with the global trend, compliance with domestic environmental legislation and compliance with domestic environmental policies were the next two types of objectives most included in the environmental performance audits of the three counties. The proportional inclusion of the two compliance objectives was higher for India (83% and 74%) than both for Australia (38% and 67%) and Canada (59% and 72%). This suggests that Indian SAI's concern with compliance is higher than both its Australian and Canadian peers. The higher concern for compliance in a developing country than in a developed country is consistent with expectations. This is confirmed by the global data for developing and developed countries. The proportional inclusion of the two compliance—domestic legislation and domestic policy—objectives is higher for developing counties (72% and 59%) than for the developed countries (58% and 57%) (Appendix B, Table B-5).

Among the remaining objectives, the trend for the three countries is mixed, compared with the global trend. The proportional inclusion of compliance with international environmental agreements as an objective in environmental performance audits is highest for both Australia and Canada. However, it is evaluation of environmental impacts of proposed environmental policies that is included as an objective type most among the remaining types in Indian environmental performance audits. This suggests that after the performance of environmental policies and programs and compliance with environmental rules and regulations, the next most important objective is evaluation of environmental impacts of proposed environmental policies. It is interesting to note that a relatively considerable proportion (11%) of Canadian performance audit considered environmental impacts of non-environmental government programs. This is higher than both Australia (0%) and India (4%) and also higher than the global average for developed countries (10%). This reflects the influence of the specific environmental mandate of the OAG. It has prepared a practice guide for integrating environmental considerations in all its performance audit work,

the 4th E Practice guide (OAG, 2008). The mandatory guide that is used for planning of performance audits ensures that, performance audits that do not focus on environmental issues still give due regard to environmental impact of policies, even in cases, where the government has failed to do so (OAG, 2008: 1).

5.5.4.3 Average number of types of objectives in environmental performance audit

Table 5-9 shows that, compared with the global average of 2.4 types of objective per environmental performance audit, the Australian audits had 2.1; Canadian 2.5 and Indian audits had 2.7 types of objectives during 2003-2012. The higher Indian number for the types of objectives than Australian and Canadian figures is consistent with the corresponding global trend for developing (2.8) and developed countries (2.6) environmental performance audits (Appendix B, Table B-3). Consistent with the global trend of increase over the previous decade, types of objectives per environmental performance for the three countries increased during 2003-2012 (note that data for India was limited during 1992-2002).

The data in Table 5-9 suggests that a performance audit simultaneously considering performance and impact of environmental policies and programs and compliance with environmental rules and regulations is a more common occurrence in India than in Australia and Canada.

A performance audit having more types of objectives is likely to have a greater number of objectives. Thus it could be said that the Indian environmental performance audit on average would have more objectives than the Australian and Canadian performance audits. However, can the average number of types of objective be always taken as a surrogate for number of objectives included in performance audits? The validity of this hypothesis will be investigated in the next section.

5.5.4.4 Joint environmental audits

During 1992-2012, Australia and Canada each conducted one environmental audit jointly with 12 other SAIs. Incidentally both participated in the same 2010 audit, 'Coordinated International Audit on Climate Change—Key Implications for Governments and their Auditors (UNFCCC, Kyoto Protocol)'. India was not involved in any joint environmental audit during this period.

5.6 Current practice in environmental performance audit

The discussion in this section is based upon the content analysis of the environmental performance audit reports of Australia, Canada and India for the 5-year period, 2010-2014, available on the WGEA website. Some reports are listed but not available; some are joint/cooperative audit reports of several countries that are not typical country reports containing comparable details. These reports are excluded from this analysis. Altogether, 72 environmental performance audit reports were available for analysis (Table 5-10) comprising those from Australia (22), Canada (30) and India (20). Two of the Canadian reports were studies that shared common attributes with performance audits such as audit approach, methods of evidence collection and reporting style. These were considered for the common parts of analysis. However, they were excluded from performance audit-specific analyses, such as those related to audit objectives, criteria and conclusions.

Table 5-10: Number of environmental performance audit reports used for analysis

Matter	Australia	Canada	India	Total
Performance audit reports available on the WGEA website (Total N)	22	30	20	72
N used for approach, methods, reports size related analyses	22	30	20	72
N used for objectives, criteria, conclusions related analyses	22	28	20	70

In the following sections, a general introduction to the matter is provided followed by discussion of the matter observed from the content analysis of the three countries environmental performance audit reports.

5.6.1 Objectives

The audit objective(s) is an essential element of a performance audit that defines the intention or purpose of the audit, and must be expressed in a way that allows conclusion against them (ANAO, 2015a: 72). They are the reasons for conducting the audit (CAG, 2014a: 27) and usually the questions the audit will answer about the performance of an activity, such as, results achieved, economy and efficiency (OAG, 2004: 49). As future audit effort will be directed towards answering the questions raised in the audit objectives, they must be defined as clearly as possible to avoid any unnecessary and costly audit work (OAG, 2004: 49). To make them clearer, audit objectives can be sub-divided into sub-objectives. However, sub-objectives should be complementary, not overlapping and collectively be exhaustive in addressing the overall objective (CAG, 2014a: 10). The audit objectives largely determine the audit approach and audit criteria (CAG, 2014a: 10; ANAO, 2015a: 73). It is quite possible that audit objectives might change during the audit. However, quality assurance processes of SAIs would normally require that such changes are authorised before the audit report is finalised (see for example, ANAO, 2015a: 100; OAG, 2004: 49).

CAG (2014a: 10) considers that audit objectives could be descriptive (how are things?); normative (are things as they should be?) and analytical (why are things not as they should be?); however, normative and analytical objectives are more likely to add value. ANAO (2015a: 72) too considers that an objective could be descriptive such as 'the audit reviewed the administration of program audit xyz'. While, the OAG (2004: 49) agrees that, in many cases, the purpose of audit work also includes providing information to Parliament. However, it differentiates between 'non-audit objectives (… *to provide an overview of* …) for which a conclusion cannot be reached' and audit objectives (… *to determine whether …is efficient*) for which a conclusion can be reached and mandates that they should be separated (emphasis original).

All three SAIs require that objectives should be defined in a way that enables a conclusion against each of them. However, the OAG views on objectives are more stringent and better conform to a traditional view of audit (what is compared to what should be). As the OAG stance on audit objectives is clearer than that of the ANAO and CAG, this has been adopted for comparative analysis of alignment between objectives and conclusions in section 5.6.8.

The key observations from the content analysis on the environmental performance audit objectives are given in Table 5-11 and Figure 5-1. It can be seen from Table 5-11 that all Australian and Canadian environmental performance audit reports included audit objectives, whereas only 70% of the Indian

environmental performance audit reports included audit objectives. While this does not suggest that some Indian environmental performance audits did not have any audit objectives, it does indicate that a number of Indian audit reports (6 out of 20: 30%) did not mention audit objectives. Noting that the inclusion of objectives in performance audit reports is mandatory, as per the Indian standards (CAG, 2002) for reporting (Table 5-3), it comes as a surprise that this proportion of Indian performance audit reports would not include audit objectives. On average, however, the Indian environmental performance audits had higher number (3.5) of objectives than the Australian (1.5) and Canadian (1.1) audits. If the audit reports that did not quote audit objectives are excluded, the number of objectives per performance audit becomes 4.9.

The objectives are the focus of the audit. The lesser the number of objectives, the more focussed the performance audit is. The objective data in Table 5-11 would suggest that the Australian and Canadian environmental performance audits are more focussed than the Indian performance audits and the Canadian environmental performance audits are more focussed than the Australian environmental performance audits.

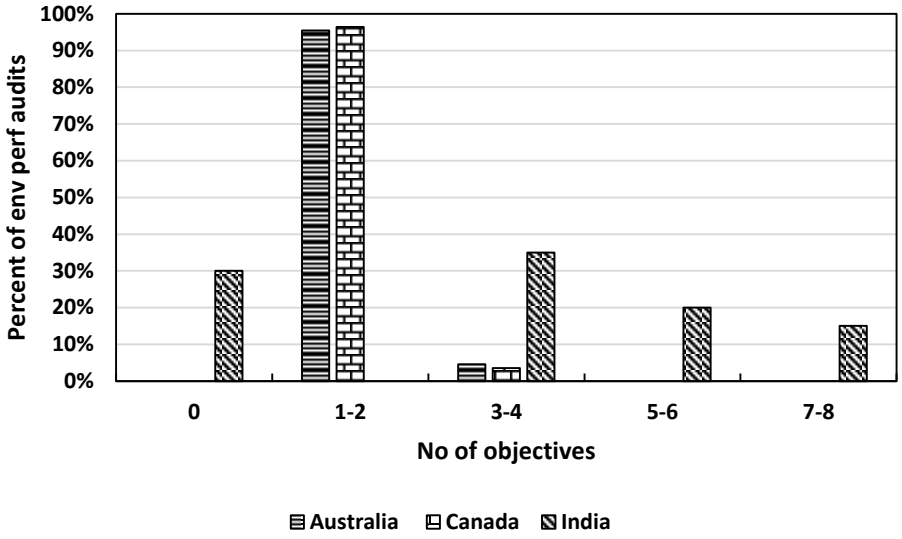
Table 5-11: Key statistics of audit objectives in environmental performance audit reports

Matter	Australia	Canada	India
Number of environmental audit reports (N)	22	28	20
% of environmental performance reports quoting objectives	100%	100%	70%
Minimum number of objectives in a performance audit	1	1	0
Maximum number of objectives in a performance audit	3	3	8
Average (mean) number of objective per performance audit	1.5	1.1	3.5
Standard (std) deviation of objectives	0.6	0.4	2.7
Coefficient of variation of objectives (std deviation/mean)	0.4	0.4	0.8
No of sub-objectives or line of inquiry per objective	2.6*	1.6	1.0

*Australian performance audits sometimes consider sub-objectives synonymous with audit criteria.

Not only did the Indian environmental performance audits, on average, have a higher number of objectives per audit, they also varied widely in terms of objectives. The minimum was 0 (when audits with zero objectives are excluded, the minimum was 3) and the maximum number of objectives in an Indian performance audit was 8. This is too many objectives even from the recommended Indian practice as the Indian performance auditing guidelines (CAG, 2014a: 27) recommends an upper limit of 3-5 for audit objectives. The presence of a large number of objectives in Indian performance audits has also been noted by an international peer review (Australia et al., 2012: 28) of the CAG. As each objective needs a conclusion, having too many objectives, is likely to make conclusions challenging. This is likely to result in gaps between objectives and conclusions. The tightness of fit or alignment between the audit objectives and conclusions of an audit reflects the degree of rigour observed during an audit (see section 5.6.8).

Figure 5-4: Frequency distribution of objectives in environmental performance audit reports



The variation in the number of objectives can be quantitatively compared using the coefficient of variation. As can be seen from Table 5-11, the coefficient of variation of audit objectives for India (0.8) is double that of Australia and Canada (both 0.4). The variation of objectives across the population of performance audits can be visualised from the spread of distribution of objectives shown in Figure 5-4. It can be seen from this figure that, the objectives of the Australian and Canadian performance audits were concentrated in two classes 1-2 and 3-4 (in fact 3). The maximum proportion (about 95% or more) of the Australian and Canadian performance audits had 1-2 objectives and about 5% or less had 3-4 (3 as maximum) objectives. On the other hand, the objectives of the Indian performance audits were spread over three classes: 3-4 (35%): 5-6 (20%); and 7-8 (15 %), if the 30% of audits quoting no objectives are ignored. The spread of Indian performance audit objectives over several classes suggest differential treatment of audit objectives by diverse regional audit groups undertaking those audits. On the other hand, the Australian and Canadian environmental performance audits are undertaken by relatively less diverse groups. As a consequence, the Australian and Canadian environmental performance audits demonstrate more consistency in terms of objectives.

As discussed earlier in this section, audit objectives are further refined by dividing them into sub-objectives. The division of objectives into sub-objectives is shown in the last row of Table 5-11 (1 means no further division of objectives into sub-objectives). There is considerable difference in number of sub-objectives per objective across the three SAIs. However, this difference needs to be put in context. It is to be noted that that the three SAIs treat sub-objectives differently. The CAG does not subdivide performance audits objectives into sub-objectives, so the matter rests here for India. However, the ANAO sometimes (27%) treats sub-objectives synonymous with audit criteria. The Australian figure of 2.6 has been derived using this approach. If only sub-objectives are considered, the figure becomes 1.9. The higher figure for Australian sub-objective per objective (1.9 or 2.6) compared with Canadian (1.6) indicates more refinement of audit objectives in the second stage. As discussed earlier, in the first stage, the Canadian performance audit objectives (1.1 per audit) are already more sharply defined than the

Australian audit objectives (1.5 per audit). So the higher refinement of Australian audit objectives in the second stage is consistent with expectations. A large number of objectives and no sub-objectives in Indian performance audits suggest scope for improvement in the focus of audits.

In terms of the types of objectives, the most dominant objective type (more than 80%) was the performance of government environmental policies and programs followed by compliance with environmental rules and regulations (more than 50%) for the three countries. On average, Australia had 1.4; Canada 2.1; and India 2.8 types of objective per performance audit. This compares with Australia (1.5), Canada (1.1) and India (3.5) audit objectives per audit. While more types of audit objectives for India have resulted in more audit objectives per audit, this is not true in relation to Australia and Canada. Thus the hypothesis that, on average more types of audit objectives would necessarily mean more audit objectives per performance audit, is not supported. The types of objectives and number of objectives measure two different aspects of an audit. The types of objectives define simultaneously different types of purposes, whereas the number of objectives per audit is a measure of audit focus.

5.6.2 Audit Scope

Established during the planning phase of an audit, the audit scope is the boundary of the audit (ANAO, 2015a: 73; CAG, 2014a: 27) that focuses the extent, timing and nature of the audit (OAG, 2004: 50). It is the shared view of the three SAIs that, scoping narrows down the audit to a few significant issues related to the audit objective that can be audited with the resources available. The identification of significant issues involves the consideration of both the materiality and risk factors that are critical to the performance of the subject activity as well as the auditability of those factors (ANAO, 2015a: 74). The auditability means whether the matter can be audited—if required skills, suitable criteria and approaches are available (OAG, 2004: 51-52), or, can be made available within the audit timeframe. The scoping determines: what (part of organisation or system), where (units/locations) and what time period to be examined by the audit and sometimes also clarifies what matters will not be examined (ANAO, 2015a: 75).

All environmental performance audits of Australia, Canada and India identified the audit scope. The scope generally defined the audit period and number of entities subject to audit. The observations on the number of entities examined in an environmental performance audit are summarised in Table 5-12 and Figure 5-5. It is seen from Table 5-12 that, while the minimum number of entities examined in an environmental performance audit was same for all three SAIs, the maximum number of entities involved varied widely. For Australia it was 4; for Canada it was 11; and for India it was more than 100. While 50% or more of Australian and Canadian environmental performance audits examined a single entity, only 45% of Indian audits examined a single entity. Further, the average number of entities examined by environmental performance audits was highest (10.8) for India and lowest (1.5) for Australia, with Canada averaging (2.8) closer to Australia than to India. The frequency distribution (Figure 5-5) shows that the higher end (7 or more departments), is represented by Canadian audits; and the highest end (15 or more entities), is represented by only the Indian performance audits.

The above observations mainly reflect the difference in the reach of the SAIs' mandate. The Australian and Canadian SAIs have similar reach—mainly limited to the federal government entities (note that the

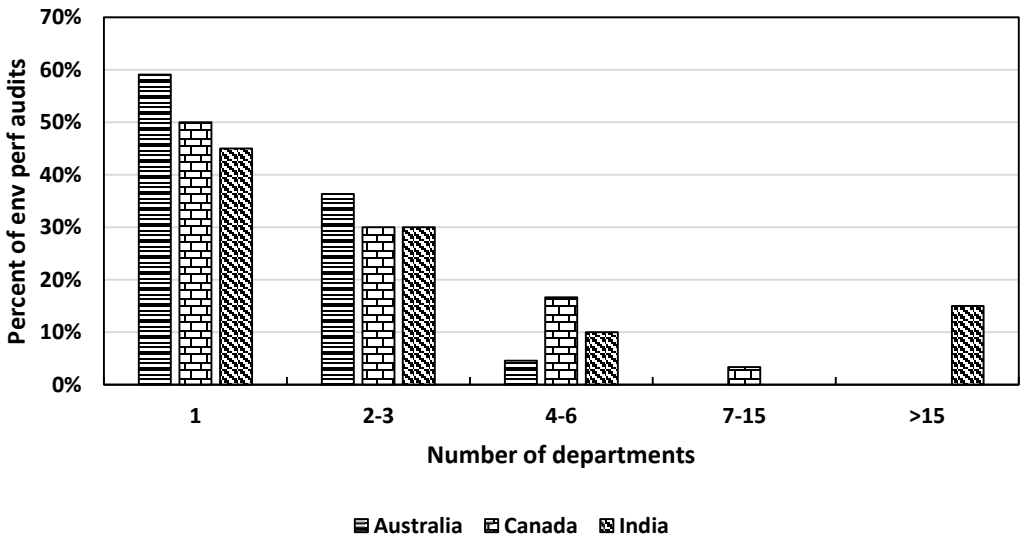
Canadian SAI also audits a couple of territories, so has a somewhat wider reach than its Australian counterpart). The Canadian audit that had examined the maximum number (11) of entities was, in fact, a study (the other study examinee only one entity), so not technically an audit. If this is excluded, the maximum number of entities involved in a Canadian environmental performance audit is 6. This is not very different to the maximum of 4 entities examined by an Australian performance audit. Of the three SAIs, the Indian SAI has greatest reach, extending to each of three levels of government and associated corporations. The three environmental performance audits that involved 15 or more (one involved more than 100) entities were all-India audits, examining simultaneously the relevant departments of the federal government and of all, or several, of 30 states and territories of India. Thus the examination of a larger number of entities in an Indian performance audit than in Australian and Canadian audits, is clearly a function of difference in the mandate (and institutional structure), rather than in any audit practice.

Table 5-12: No of entities examined in an environmental performance audit.

Matter	Australia	Canada	India
Number of performance audits	22	30*	20
No of entities audited	34	77	216
Minimum no of entities in a performance audit	1	1	1
Maximum no of entities in a performance audit	4	11	100+
Average no of entities per audit	1.5	2.8	10.8
Percent of audits examining a single entity	59%	50%	45%

*Includes two studies including, the one, with the maximum number of entities

Figure 5-5: Frequency distribution of entities examined in an environmental performance audit



5.6.3 Audit approach

There are three approaches available in performance auditing that can be taken separately or in combination (INTOSAI-ISSAI 3100: 1, 2004:3; CAG, 2014a: 10).

- **System-oriented approach** examines the proper functioning of management or control systems, e.g. financial management system. The focus here is on the adequacy of systems (policies and procedures) to promote, monitor and evaluate performance (OAG, 2004: 55) for achieving economy, efficiency and effectiveness (Daujotait & Macerinskien, 2008);
- **Result-oriented approach** assesses whether program objectives have been achieved as intended. The audit focuses on inputs, outputs, results and impacts (OAG, 2004; 55); and
- **Problem oriented approach** verifies and analyses the causes of a particular problem(s).

Of the three approaches mentioned above, the first two, or a combination thereof, are more commonly used (OAG, 2004: 55; Daujotait & Macerinskien, 2008).

Performances audits can take a top-down or bottom-up perspective (INTOSAI-ISSAI 3100, 2004:4; CAG, 2014: 10). The top-down audits focus mainly on the requirements, intentions, objectives and expectations of the legislature and executive. They do not question the policy intent, but examine whether the shortcomings in implementation including, sometimes, in laws and regulations have affected the achievement of intents. The bottom-up audits focus on problems of significance to people and the community (INTOSAI, 2004: 27-28). The mandate of the three SAIs most likely allows them to take a top-down rather than a bottom-up approach to performance audits.

The observations from the content analysis of audit approaches is summarised in Table 5-13. As noted earlier, out of 30 Canadian environmental performance audit reports studied, two related to studies that did not have any audit criteria or conclusions. In terms of the audit approach, these two (7%) could be considered as having taken a problem-oriented approach. The observations from the content analysis including these two reports for Canada are shown in brackets (second column with asterisk) in Table 5-13. The third column shows observations for Canada, excluding these two reports from the analysis. The results in this column are referred for the rest of comparative discussion in this section.

Table 5-13: Proportion of audit approach in environmental performance audits

Audit approach	**Australia**	**Canada***	**Canada#**	India
System	91%	(73%)	79%	45%
Result	0%	(3%)	3%	25%
System & result	9%	(17%)	18%	30%
Problem	0%	(7%)	-	0%
Number of performance audit reports (N)	22	(30)	28	20

* Includes two studies; #Excludes two studies

It is seen from Table 5-13 that together with 9% of audits that also considered results, 100% of Australian simultaneous performance audits took a system-oriented approach to performance auditing. This compares with 97% of Canadian performance audits (including 18% that also considered results) and 75% of Indian performance audits (including 30% that also considered results) took a system oriented approach. Thus, the system-oriented approach is the dominant approach to environmental performance auditing in the three countries. Given that the environmental impact of most environmental initiatives is long-term and is not easily measurable in the short-term, it is quite logical that SAIs have taken this

approach, irrespective of their individual circumstances. It is further noted that Australia leads on the system-oriented approach and both Australia and Canada lead India.

A higher proportion of Indian (55%—including 30% that also consider systems) environmental performance audits considers direct results than the Australian (9%—that also consider systems) and Canadian (21%—including 18% that also consider systems) performance audits. In Australia and Canada, there appears to be a move away from direct measurement of results and towards reliance on system and processes. The move away from direct measurement of results towards examining the systems and processes established to achieve those results (such as reporting of achievements against key performance indicators) is a general trend in developed countries. For example, in USA, the *Government Performance Results Act*, 1993 and in Australia, the *Public Governance, Performance and Accountability Act*, 2013 require the federal government agencies to prepare performance reports that are subjected to audit by Auditors General. There seems to be a paradigm shift from direct auditing (of results) to auditing of statements and assertions made by government agencies in such performance reports (Suzuki, 2004). This shift shows the maturity of performance auditing. Compared to India, performance auditing in Australia and Canada is considered more developed. Further, due to their longer history of reforms, public administration in Australia and Canada is more attuned to a system-approach, such as, measuring their own performance and producing reports that the respective SAIs can use in their performance audits. The more use of system-approach in Australia and Canada than in India is consistent with the view that SAIs reflect the broader norms within the state machinery of their country (Pollitt & Summa, 1997).

5.6.4 Criteria

Like the objectives, audit criteria are a fundamental component of performance audits. Expectedly, all three SAIs have a similar notion of audit criteria as a means of measuring, judging or evaluating the performance of the subject matter and make them mandatory (ANAO, 2015a: 75; CAG, 2014a: 11; OAG, 2004: 52). However, the OAG's definition is more comprehensive and states that performance 'audit criteria are reasonable and attainable standards of performance and control against which compliance, the adequacy of systems and practices, and the economy, efficiency and cost effectiveness of operations can be evaluated and assessed' (OAG, 2004: 52) (emphasis added). The ANAO's and CAG's definitions do not include the concepts of control and compliance with the adequacy of systems and practices. These are central to the 'system-oriented' approach to performance audit that, as will be seen later, is most often used by the three SAIs.

The OAG (2004: 52) clearly states that 'the assessment of whether or not criteria are met results in audit observations and the aggregate of the observations enable conclusion against each audit objective. As such, it explicitly mandates the development of criteria for each line of enquiry'. On the other hand, CAG (2014a: 11) and ANAO (2015a: 75) have a general requirement for establishment of suitable criteria. As such, the ANAO (2015a: 72) and CAG (2014a: 27) requirements to conclude against each audit objective only implicitly make criteria mandatory.

All three SAIs agree that characteristics of good criteria include reliability, objectivity, understand-ability, comparability and completeness (ANAO, 2015a; 75; CAG, 2014a: 31 and OAG, 2004: 52). This convergence on criteria is around the INTOSAI (2004: 103) standards. Possible sources of criteria include:

- legislation, government policy statements and regulatory bodies requirements;
- central agencies mandatory policies and guidelines;
- entity's own policies, practices; standards including performance measures, directives and guidelines;
- criteria used or developed by professional organisations and standard setting bodies;
- multilateral international agreement, if applicable;
- criteria used previously in similar previous audits nationally or internationally;
- independent expert advice and know how; and
- related literature on the subject matter or general management (ANAO, 2015a: 76; CAG, 2014a: 29-30 and OAG, 2004: 52-54).

While the OAG (2004: 54) makes the disclosure of the source of criteria mandatory in performance audit reports, the ANAO (2015a) and the CAG (2014a) do not do so.

The observations related to criteria from the content analysis are shown Table 5-14. It is seen from this table that only 27% of Australian environmental performance audits reported audit criteria; the remaining (73%) treated audit objectives/sub-objectives synonymously with the audit criteria in the reports. Further, the Australian performance audit reports also did not explicitly quote the source of audit criteria. About 9% of reports indirectly referred to the sources of audit criteria. Typically, criteria in Australian performance audit reports were framed at high level and in general terms using value-laden phrases, such as, if the department 'effectively implemented the scheme' (ANAO, 2012: 16) and if a 'structured risk management framework' was present to manage compliance risk (ANAO, 2014c: 14) without clarifying what 'effective implementation' and structured 'risk management framework' were. As such, it could be interpreted that the Australian environmental performance audits used implicit audit criteria. Wilson (2011: 49) has also identified scope for improvement in the presentation of audit criteria in the ANAO's performance audit reports.

The Canadian environmental performance audits always reported audit criteria and source(s) of criteria in the 'About the audit' section. Where the objectives were broken into sub-objectives; each sub-objective had its own set of criteria and sources of criteria explicitly listed. While on many occasions, several audit criteria sharing the same source (legislation/policy) created repetition, their separate listing facilitated transparency leading to better understanding. As such, this could be considered a better practice.

Table 5-14: Audit criteria in environmental performance audits.

Matter	Australia	Canada	India
Number of environmental performance audit reports (N)	22	28	20
% of performance audits quoting audit criteria	27%	100%	0%
% of performance audits explicitly quoting source(s) of audit criteria	0%	100%	100%
% of performance audits quoting explicit criteria	0%	100%	0%
Criteria per objective/sub-objective	2.6	3.2	-

None of the Indian environmental performance audits quoted audit criteria. They only listed the source of criteria, for example legislation and policies. As such, the Indian audit could be considered as using implicit audit criteria. The lack of clearly defined audit criteria in Indian performance audits has also been noted by an international peer review (Australia et al., 2012: 28).

Criteria are the basis of investigation and conclusion. As such, more criteria per audit objective would suggest more rigorous examination by an audit, of the relevant matters, to arrive at conclusions. From this point of view, the Canadian audits (3.2 criteria per audit objective) can be considered slightly more rigorous than the Australian audits (2.6 criteria per audit objective) (Table 5-14).

While the reporting of criteria is mandatory as per the reporting standards (Table 5-3) of both Australia and Canada, the Indian standard is silent on the matter. The Canadian reporting standard also mandates the reporting of sources of criteria. The reporting of criteria in the Canadian performance audits is in accord with the standard. However, the same cannot be said about the Australian performance audit reports (only 27% audits report audit criteria).

The audits, not quoting the audit criteria, or the source(s) of audit criteria, do not promote transparency which is one of the aims of auditing. While it cannot be said that the Australian and Indian environmental performance audits do not use explicit criteria, it can certainly be said that, they do not always explicitly report the criteria used in the environmental performance audits. Even if their reporting standards do not require them to do so, it would be helpful, if all criteria used in the Australian and Indian performance audits are explicitly stated and their sources disclosed. In the long-term, the performance audit reporting standards ought to be enhanced and implemented rigorously to promote transparency in reporting.

5.6.4.1 Acceptance of audit criteria

The Canadian performance audit reports explicitly state that the 'management reviewed and accepted the suitability of the criteria used in the audit'. This is despite the fact that only discussion, not agreement with auditees on criteria is mandatory; however, documentation of disagreement in audit report is mandatory (OAG, 2004: 54). The Indian performance audit reports, sometimes, refer to the entry conference, where audit objectives and methodology were discussed (see for example, CAG, 2013b: 7). However, they do not explicitly state whether the department (s) agreed to, or accepted, the audit criteria. The CAG (2014a: 30-31) is of the view that while the auditee's acceptance of all audit criteria is desirable and contributes to effectiveness of performance audit, it is neither mandatory nor always possible to achieve that. However, it suggests the need for resolution of disagreements and requires the documentation of efforts to do so, but does not specify where efforts should be documented.

While the Australian performance audit manual (ANAO, 2015a: 98) refers to the entry interview with auditees to discuss amongst other matters, the audit objectives and criteria, it does not explicitly state that audit objectives and criteria are to be agreed by the auditees. While all Australian environmental performance audit reports had a section stating the audit objectives, and criteria, none of them had any statement referring to the discussion at entry interviews about the audit objectives and criteria. Obtaining an auditee's agreement to criteria in Australia is considered not in accord with the independence of the Auditor General (McPhee, 2016).

5.6.5 Methods used for evidence collection

Evidence is the data and information gathered by auditors to document their findings and support their conclusions against the audit criteria (CAG, 2007a: 2). Performance audit evidence should be sufficient and appropriate (OAG, 2004: p58). Sufficiency refers to the quantity of evidence, whereas the appropriateness refers to the quality of evidence (ANAO, 2015a: 108). All three SAIs use similar phrases for the quantity and quality of evidence required in their standards and manual for performance audit.

There are several methods for collecting evidence in performance audits. However, there is no universally acceptable nomenclature and listing of methods for evidence collection available. For example, each of the two well-cited texts on performance audit (Pollitt et al., 1999: 129—16 methods; and Lonsdale et al., 2011: 100—23 methods) and INTOSAI publications (INTOSAI, 2004: 96-99—7 methods; and WGEA, 2013c: 51—12 methods) variously list and describe the methods. While some commonly used methods have similar names, others do not. This necessitates definition of the methods so that they could subsequently be used in a consistent way in discussion about the methods used by the three SAIs.

The methods of evidence collection, as they will be referred in this research, are listed in Table 5-15 and are briefly described in Appendix G. The methods have been categorised into two groups: basic (commonly used) and specialized (less commonly used) following the approach used by WGEA (2013c: 51). It may be noted that Table 5-15 does not provide an exhaustive list of methods used in performance audits, but only the methods that are generally used and are relevant to the environmental performance audit carried by three SAIs.

Table 5-15: Methods used for evidence collection in environmental performance audit.

Basic methods	Specialised methods
Document examination	System/process review (including database)
Interview of officials	Literature survey
Questionnaire/Survey	Case study
Stakeholders consultation/survey	Benchmarking
Site visit	Focus group
Sample examination	Economical/statistical analysis
Expert opinion	Scientific modelling (e.g. hydrological, ecological)

5.6.5.1 Choosing a method

The audit subject, the audit objective and audit criteria are the key determinants of the choice of methods. However, the choice of methods is constrained by the availability of time, resources, skills and competency of the audit team (CAG, 2007a: 4-5). The choice of method also depends upon the audit approach. Often more than one method is used to gather evidence. Whatever the methods chosen for evidence gathering, the quality of evidence needs to be verified. SAIs often suggest rules of thumb for quality assurance. For example, OAG (2004: 59-60) and ANAO (2015a: 122) provide the following guidance in this regard.

Documentary evidence is better than verbal evidence. Evidence is more reliable if consistent information is obtained from different sources. For example, verbal evidence (interview) that is supported by

documents, or verbal evidence from one person that is corroborated by another person, is considered more reliable. Original documents are considered better than photocopies. Evidence from credible third (neutral) parties is preferred over that generated within the audited body that has a vested interest. Evidence generated through direct means such as a photograph by the audit team is more reliable than obtained by indirect means such as a report.

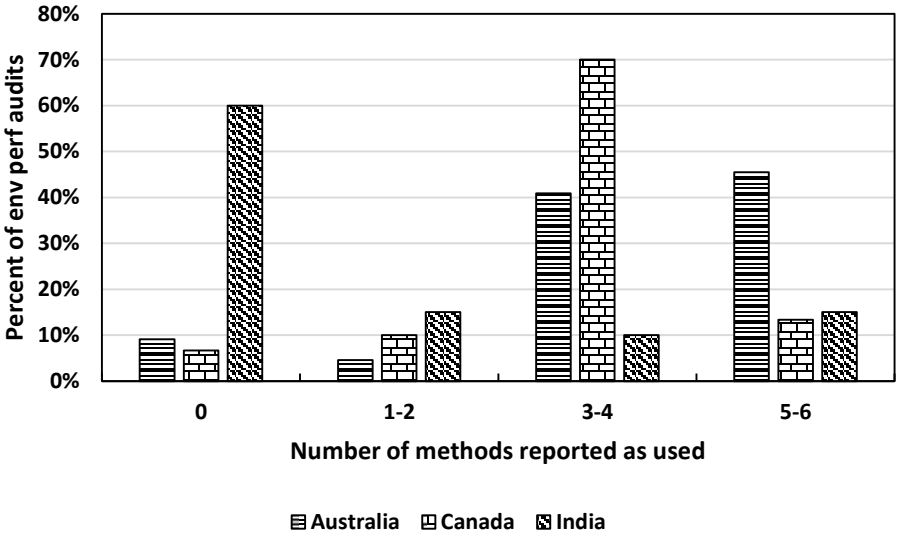
5.6.6 Methods used by the three SAIs

Initially, the methods being used were investigated by looking for relevant references in the methods/methodology section of the performance audit reports. The observations are shown in Table 5-16. This approach found that, on average Australia (3.9) and Canada (3.5) used far greater number of methods for evidence collection than India. While the result was consistent with expectations, it also showed that performance audit reports had gaps in the coverage of methodology section. About 9% of Australian, 7% of Canadian and 60% of Indian environmental performance audit reports did not include a method/methodology section, suggesting that not all methods used might be explicitly mentioned in the audit reports. The frequency distribution of methods used (Figure 5-6) confirmed this. Taking this approach any further would have meant that a significant proportion of environmental performance audits (9% of Australian; 7% of Canadian; and 60% of Indian audits) did not indicate using any method for evidence collection. This was not considered realistic. Consequently, a different approach of investigation was adopted. All environmental performance audit reports available (from the WGEA website) for the period 2010-14 were read and methods used were inferred from the context, using the definition/description given in Appendix G.

Table 5-16: Methods of evidence collection as reported in environmental performance audit reports.

Matter	**Australia**	**Canada**	**India**
Number of performance audit reports for 2010-14 (N)	22	30	20
Methods section present (as a whole)	20	28	8
Percentage method section present	91%	93%	40%
Percentage method section absent	(9%)	(7%)	(60%)
Average number of methods reported as used	3.9	3.5	1.2

Figure 5-6: Frequency distribution of methods reported as used



The results for methods using this approach are shown in Table 5-17 and Table 5-18 and also presented in Figure 5-7. Table 5-17 shows that 13 types of methods have been used by the three SAIs to collect evidence for environmental performance audits. Of all methods used, document examination and interview of officials are always (100%) used by the three SAIs. These two are traditional methods relied upon by SAIs in audits. So their invariable use is expected.

For Australia (91%) and Canada (67%), stakeholder consultation is the next highly used method, whereas for India it is site visit (75%). The higher stakeholder consultation in Australia and Canada than in India (20%) is consistent with the trend of more consultative governance in developed countries (Australia and Canada) compared with a developing country (India). As noted by Pollitt and Summa (1997), SAIs echo the larger tendency within the state machinery of their country.

The higher use of system and process review by Australia (77%) and Canada (40%) than by India (25%) is consistent with the greater emphasis on the system-oriented approach to performance auditing (Table 5-13) in Australia (100%) and Canada (90%) than in India (75%). Literature survey (37-73%), site visit (23-75%) and sample examination (23-60%) are quite frequently used. Case study (10-23%) and benchmarking (5-30%) are also considerably used. Economic/statistical analysis (0-9%) and modelling (0-5%) are the least used methods. Canadian performance audits have used benchmarking more than Australian (18%) and Indian (5%). This is quite consistent with the more sophistication of OAG than ANAO and CAG in environmental performance auditing.

The higher use of site visit in India (75%) than in Australia (50%) and Canada (23%) is consistent with the wider mandate and institutional structure of the CAG. However the higher use of literature survey in Indian audits than in Canadian performance audits seems to be an exception. This might be due to interpretational challenges involved, when a method is not explicitly mentioned (methods interpreted as used but not listed in audit reports are discussed later).

5.6.6.1 Statistical analysis of methods interpreted as used

It is seen from Table 5-18 that on average, Australia (6.1) used largest number methods compared with Canada (4.6) and India (4.7). Slightly higher average number of methods used in Indian audits than in Canadian audits is somewhat surprising. However, as can be seen from Figure 5-7, this is the result of 1 audit (out of 20) using an exceptionally large number (9) of methods. If this particular audit is excluded from analysis, the Indian average becomes 4.5 that is less than both the Australian (6.1) and Canadian (4.5) averages. This is consistent with the finding in Chapter 4 (section 4.3.3) that, on average, developed country SAIs use more methods for evidence collection than developing country SAIs. It is further seen from Table 5-18 that the Indian environmental performance audits have largest variability (0.4) in the use of methods for evidence collection compared with Australian (0.2) and Canadian (0.2) audits. The variability in the use of methods can be further visualised from Figure 5-7. It can be seen from this figure that the Australian methods fall in 3 classes and are mostly concentrated in two classes: 5-6 (41%) and 7-8 (50%). The Canadian methods too fall in 3 classes and are mostly concentrated in 2 classes: 3-4 (50%) and 5-6 (43%). On the other hand, the Indian audit methods fall in 5 classes and most are spread over three classes: 3-4 (40%); 5-6 (35%) and 7-8 (15%). While similar number of methods is used in half of the Australian (7-8) and Canadian (3-4) performance audits, only about 40% of Indian audit use similar number of methods. While the use of methods depend upon the need of individual audits, it also depends upon the composition of the team. Consistency in the use of methods indicate consistency in the composition of audit teams.

Table 5-17: Methods (% of audits) interpreted as used for evidence collection in environmental performance audits.

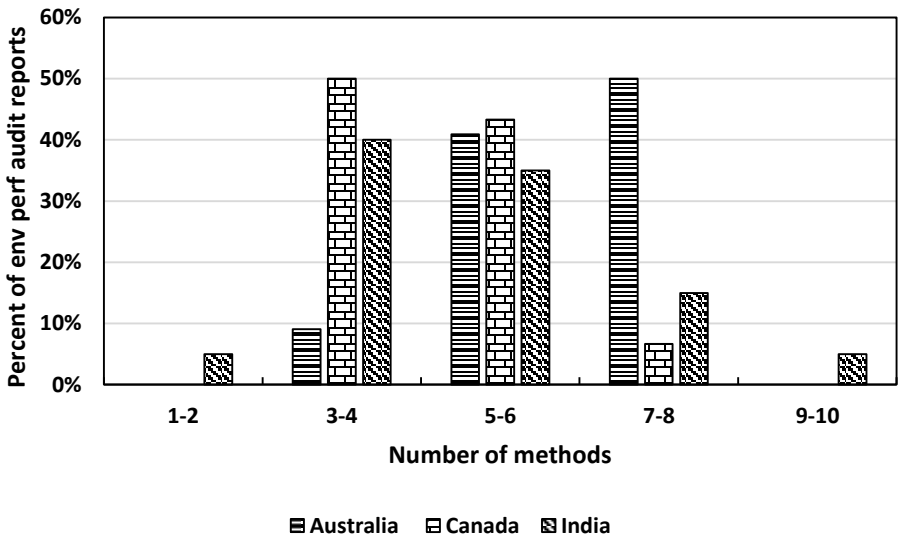
No	Method	Australia	Canada	India
-	Number of performance audits 2010-14 (N)	22	30	20
1	Document examination	100%	100%	100%
2	Interview of officials	100%	100%	100%
3	Survey of officials	0%	7%	5%
4	Stakeholders consultation/survey	91%	67%	20%
5	Site visit	50%	23%	75%
6	Sample examination	59%	23%	60%
7	System/process review including database	77%	40%	25%
8	Expert opinion	9%	20%	10%
9	Literature survey	73%	37%	55%
10	Case study	23%	13%	10%
11	Benchmarking	18%	30%	5%
12	Focus group	0%	0%	0%
13	Economical/statistical analysis	9%	0%	0%
14	Other modelling such as hydrological, ecological	5%	0%	5%

Table 5-18: Key statistics on methods interpreted as used

Matter	Australia	Canada	India
Number of performance audit reports for 2010-14 (N)	22	30	20
Maximum number of methods used	8	7	9
Minimum number of methods used	3	3	2
Average (mean) number of methods used	6.1	4.6	4.7*
Standard deviation of methods used	1.3	0.9	1.9
Coefficient of variation (std dev/mean) of methods used	0.2	0.2	0.4

*If one outlier audit is excluded, the Indian average becomes 4.5.

Figure 5-7: Frequency distribution of methods interpreted as used



5.6.6.2 Relationship between the audit issues and number of methods

A regression analysis of the number of audit issues and the number of methods used for evidence gathering was undertaken for the environmental performance audits of the three countries. The analysis showed significant correlation between these two variables for Australia and India (see Figures H-1 and H-2 in Appendix H); but no such relationship was discernible for Canada. The correlation was stronger for India than for Australia. However, both correlations were still weak (R^2 less than or equal to 0.3). Thus only a general conclusion can be drawn that the larger the number of audits issues, the larger the number of methods is likely to be in case of Australia and India. However, predicting the number of methods precisely based upon the knowledge of number of issues is not possible.

5.6.6.3 Methods interpreted as used but not reported

A table was prepared taking out the difference between the methods interpreted as used (the second approach) and the methods reported as used (the initial approach) and percentage was worked as a proportion of the methods interpreted as used. This would show what methods are not recognised, or not reported, by SAIs. This is given in Table 5-19.

Table 5-19: Methods (% of audits) interpreted as used but not recognized (not reported).

No	Method	Australia	Canada	India
1	Document examination	9%	13%	70%
2	Interview of officials	9%	13%	75%
3	Survey of officials	-	0%	0%
4	Stakeholders consultation/survey	5%	5%	25%
5	Site visit	9%	43%	80%
6	Sample examination	54%	14%	58%
7	System/process review including database	59%	25%	100%
8	Expert opinion	0%	0%	50%
9	Literature survey	94%	64%	100%
10	Case study	100%	50%	100%
11	Benchmarking	75%	89%	100%
12	Focus group	-	-	-
13	Economical/statistical analysis	100%	-	-
14	Other modelling such as hydrological, ecological	100%	-	100%

Table 5-19 shows that all methods used are recognized and reported in varying degrees by Canada. Australia did not recognize (did not report) the use of three methods: case study, economical/statistical analysis and modelling. India did not recognize (did not report) the use of five methods: system/process review, literature survey, case study, benchmarking and modelling. This is not unusual given that the methods that are not recognized by Australia and India are not widely used and hence not universally recognized. There is no consistent definition of these less often used methods in the literature (see for example, Pollitt et al, 1999: 129; Lonsdale et al., 2011: 100; INTOSAI, 2004: 96-99; WGEA, 2013c: 51). As the field of performance audit grows, it would be helpful to develop a standard definition of various methods, so that a common understanding of various method develops and interpretational differences are minimized. A leadership by the INTOSAI on the matter is warranted.

While non-reporting of uncommon methods by some SAIs is understandable, non-reporting by all three SAIs of all methods on some occasions (even the commonly used methods, such as document examination and interview) is a major issue as can be seen in Table 5-19.

Non-reporting of methods used in performance audit reports is not considered critical (McPhee, 2016), given that the primary client of an SAI's audit reports is legislature, whose members may not have the time or any interest in methodological details (Lonsdale, 1999a). Legislature views of the work of an SAI and the way it performs its role is very important (McPhee, 2016). In at least one jurisdiction (UK), members of the legislature have indicated their preference for concise reports, leaving the SAI with limited space to include discussion of methods. The lack of interest in legislature for details also suggests a lack of incentive for including methodological details (Lonsdale, 1999a). This explains the overall lack of attention by the SAIs to the methodological details in their performance audit reports.

5.6.7 Description of methods in environmental performance audit report

The use of methods that are reported by three SAIs in some reports and not in others, including a very high degree of non-reporting of well-recognized methods (e.g. document examination, interview of officials and site visit) indicates that there are systemic issues with reporting of performance audits. As seen earlier (Table 5-16), the methods section is not always present in environmental performance audit reports. Only 91% of the Canadian, 93% of Australian and a mere 40% of the Indian environmental performance audit reports contain a methods section. It is interesting to note that none of the reporting standards of the three SAIs (Table 5-3) makes it mandatory to include a methods section. As such, the three SAIs might argue that non-inclusion of a method section in their performance audit reports is not a deficiency. This would, however, seem intriguing. SAIs that usually set and expect high standard of behavior from public entities, are expected to lead by example. Given their role in ensuring the accountability of others for their performance, SAIs are expected to explain the methods used in their work, as a key part of their own accountability (Lonsdale, 1999a: 144).

Any investigation is expected to provide a description of how it was carried out. This is required for both transparency and perspective. One of the objectives of public auditing is to enhance the transparency of government operations, by bringing information into the public domain. As such there is a universal emphasis on transparency by SAIs. So it is expected that SAIs would describe, at least briefly, how they have carried out the performance audits. This is also expected because despite the maturity of the field and development of related standards, performance audit unlike financial audit is still not considered a routine exercise. Every performance audit is considered as a standalone endeavour. That means that a method or methodology section should always be present in environmental performance audit reports. Noting similarities between academic research and performance audit, Lonsdale (1999a: 144) expects performance audit reports to contain methodological details similar to academic research reports.

While performance audit reports are prepared in compliance with generally accepted auditing standards (GAAS) in terms of forms and composition, there is no general standard for the content of performance audit reports (Suzuki, 2004). Performance audit reports are highly visible public documents that are used by legislatures, governments, the media and the public for various purposes. It could be argued that most audiences would be more interested in what the audits found than in how they did it. However, adding a methods section would certainly make the reports more transparent. Given the growing importance of the performance audit reports, it would seem timely that a generally accepted standard of reporting is developed for performance audit reports. For the SAIs that already have reporting standards, reviewing them and implementing them rigorously are warranted.

5.6.8 Alignment between performance audit objectives and conclusions

As discussed earlier, a performance audit is required to conclude against each of its objectives and accordingly the three SAIs' performance audit manuals and guidelines prescribe this. Therefore, it will now be investigated how far the three SAIs have achieved alignment between the audit objectives and conclusions in their environmental performance audits. Such an alignment could also serve as a measure of effectiveness of the performance audit process.

5.6.8.1 Alignment index as a measure of effectiveness of a performance audit process.

As the effectiveness of a program is assessed by investigating if it has met its objectives, likewise the effectiveness of a performance audit can be assessed by investigating if the audit met its stated objective(s). In other words, the effectiveness of a performance audit process can be assessed by answering the question, 'did the audit conclusion(s) address the audit objective(s)'. Objective(s) and conclusion(s) are two fundamental characteristics of an audit that determine its effectiveness. Effectiveness in this sense—as it does not relate to measuring the impact of an audit, hence is not influenced by external factors—can be considered as an intrinsic property of an audit process itself. Effectiveness in this sense can also reflect audit quality.

While audit effectiveness can be expressed in simple 'yes' (1) or 'no' (0) by comparing the audit objective(s) with the conclusion(s), a more detailed approach was taken. An index called alignment index was defined as a continuous variable that could take any value between 0 and 1 as a measure of degree of alignment between performance objective(s) and conclusion(s). If the performance audit defined an overall objective, say for example, effectiveness of program administration and did conclude if the programs administration was effective or not, the alignment index was given a value of 1. If the conclusion did not address the objective directly, nevertheless addressed it, alignment index was assigned a value less than 1 depending upon how far or close the conclusion was to the objective.

If there was no overall conclusion, but separate conclusions against several sub-objectives, each conclusion was assessed applying the above logic to determine if it addressed the related sub-objective. An audit addressing only 1 of the 2 sub objectives was assigned an alignment score of 0.5. In exceptional circumstances, when an audit either defined no clear objective (s), or it was very difficult to determine whether conclusion(s) addressed the objective(s), the alignment index was assigned a value of 0. This process, while does not eliminate bias, but can be considered more effective in minimising it, compared with a process that just gave a value of yes (1) or no (0).

Using the above process, the alignment index for each environmental performance audit for Australia, Canada and India was determined. The data for each country was then analysed to estimate key statistical measures, e.g. mean, standard deviation and coefficient of variation (Table 5-20) and frequency distribution (Figure 5-8) of the alignment index. The mean alignment index (Table 5-20) for Canada is 1; Australia is 0.7; and for India is 0.5. This suggests that, on average, the Canadian environmental performance audit conclusions are almost perfectly aligned with their objectives, while about 70% aligned for the Australian performance audits, and only about half aligned for the Indian performance audits. With almost negligible coefficient of variation, Canadian environment performance audits are most consistent in making a conclusion against objective. With a coefficient of variation of 0.9, the Indian performance audits are least consistent in making a conclusion(s) against objective(s). The Australian performance audits consistency in concluding against the audit objective(s) also significantly varies.

Table 5-20: Alignment index for environment performance audits: Australia, Canada and India

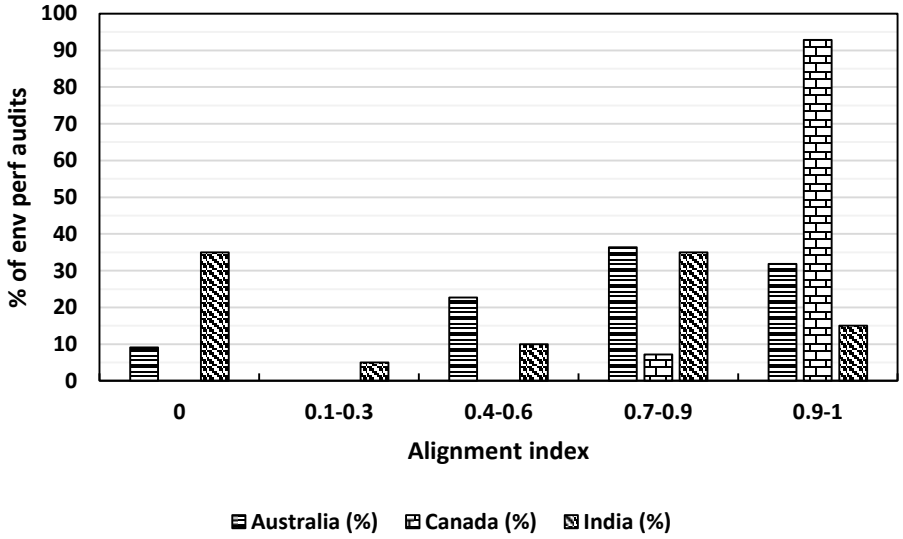
Item	Australia	Canada	India
Average alignment index	0.7	1.0	0.5
Maximum alignment index	1.0	1.0	1.0
Minimum alignment index	0.0	0.9	0.0
Standard deviation of alignment index	0.3	0.0	0.4
Coefficient of variation (standard deviation/mean)	0.4	0.0	0.9

The variation in conclusion(s) against objective(s) can better be appreciated with the frequency distribution of alignment index shown in Figure 5-8 . It is seen from this graph that except for a small proportion (7%), Canadian performance audits always either directly concluded against the objectives or concluded very close to them. Compared with 93% of Canadian audits, only 32% of Australian and 15% of Indian audits had alignment index between 0.9 and 1 (audits that can be considered as well-aligned). While not apparent in the graph, the data showed that the alignment index for 85% of Canadian performance audits was 1. Canada invariably used a system-approach to performance audit; framed very clear system-related audit objectives; and very explicitly drew conclusions against those objectives in more than 90% of cases.

About 10% of Australian and 35% of Indian environment performance audits did not conclude against their objectives. In these cases, either the audit objectives were not defined clearly, or the conclusion did not address the stated objectives, or both. Australian environmental performance audits mostly have an overall objective(s) and in many cases have sub-objectives that are concluded with the help of criteria. The Australian audits invariably take a system-approach, where they confirm if the systems and processes required to meet the desired objectives of programs are present. However, in about 10% of cases, the Australian audits did not draw conclusion(s) that either addressed the overall objective or sub objectives. Indian environmental performance audits too extensively used a system-approach and set the objectives accordingly. However, in 35% of cases, the Indian performance audits either made conclusions on substantive environmental matters, which were not stated in the objectives, or in some cases, objectives themselves were not stated.

About 5% of Indian performance audits had alignment index between 0.1-0.3; 10% had between 0.4-0.6; and 35% between 0.7-0.9 and only 15% between 0.9-1. About 25% of Australian environmental performance audits had alignment index between 0.4-0.6; 35% between 0.7-0.9; and about 30% between 0.9-1. These audits which did not have alignment index of 0.9 or greater, made conclusions that significantly deviated from the audit objectives. The degree of deviation of conclusion from the objectives is indicated by the range of alignment index. In fact, performance audits with 0 alignment index could also considered as an extreme case of deviation of conclusions from the objectives.

Figure 5-8: Frequency distribution of alignment index. In this graph, 0 indicates no alignment and 1 indicates perfect one to one alignment between performance audit objective(s) and conclusions.



Concluding against objectives is a major decision in a performance audit process that is reviewed several times before the audit is finalized. So it is highly unlikely that conclusions not matching objectives is due to any omission. It is quite possible that Auditors General prefer not to frame their conclusions in 'black and white' or sometimes conclusions are very difficult to summarize /reduce to the precise wordings of audit objectives. It is also possible that the audit has moved on from the original objective(s) due the discovery of new facts or new circumstances. All three audit offices have elaborate quality control process that would require that the audit objectives should be revised, if the audit has moved on. However, this would invariably mean that another internal process be engaged in. Whatever the reason of deviation of conclusions from the initial objectives, the strict discipline of audit demands that conclusions are drawn against any revised objectives so that Auditors General could first, and foremost, answer the question to themselves: was the performance audit effective—did it achieve the stated objectives? Audit being one of the most visible and highly revered public functions, requires that it maintains its authority and influence for the proper functioning of the public sector. To be able to do so, it needs to maintain a strict discipline on itself—practice what it preaches. In other words, be effective—achieve what it has set to achieve and be seen in doing so through its audit reports.

The results in this sections suggest that Canada has taken a most disciplined and methodological approach to environment performance auditing, whereas Australia and India while endeavoring to do a good job in the circumstances they have scope for improvement. An international peer review (Australia et. al, 2012: 29) has recommended improvement in the Indian performance audit design by refining the development of audit objective, audit criteria and test programs.

5.6.9 Performance audit recommendations

Performance audits, in addition to promoting accountability, are mainly aimed at improving performance of government entities. As such, performance audits should include recommendations for actions that

will bring significant improvements in performance (ANAO, 2015a: 170; OAG, 2004: 68). Recommendations should address the causes not the symptoms of the issues. They generally are aimed at addressing strategic issues and serious deficiencies, not each audit findings (OAG, 2004: 68). In some circumstances, for example relating to routine operational matters, a recommendation is not the best way to achieve the intended result. A discussion with the audited entity may produce a better result.

The three SAIs (ANAO, 2015a: 170; CAG, 2014a: 43-44; OAG, 2004: 68) identify some key characteristics of a good recommendation. These include that a good recommendation:

- adds value;
- is concise and clear;
- specifies what needs to be done without prescribing how;
- identifies the actor (entity) responsible for action; and
- is presented in the active voice.

Key results from the analysis of recommendations are presented in Table 5-21 and Figure 5-9.

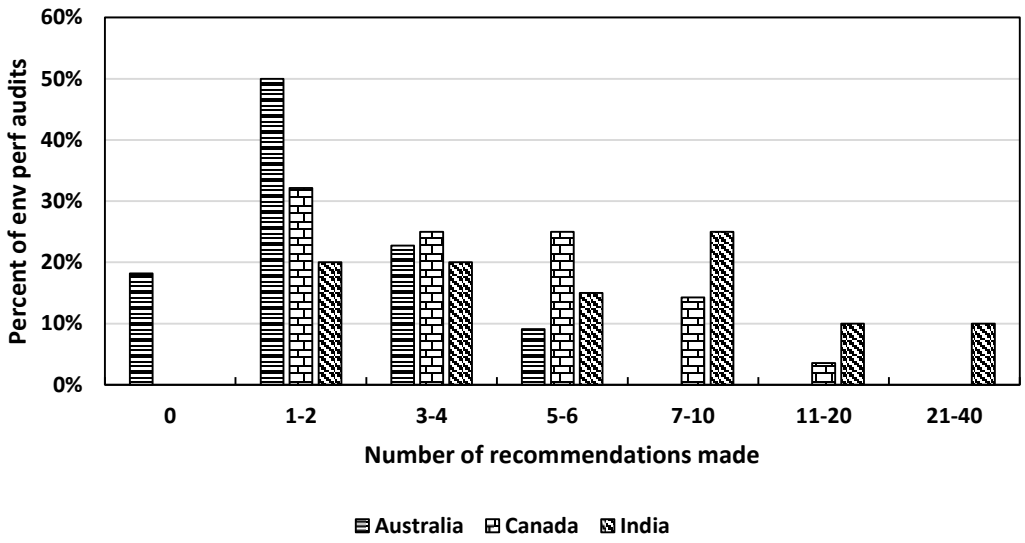
Table 5-21: Recommendations made in environmental performance audits

Matter	Australia	Canada	India
Number of performance audits	22	28	20
Number of recommendations	43	121	173
Average Number of recommendations per audit	2.0	4.3	8.7
Should/recommends (%)	100%	100%	39%
Need (%)	-	-	29%
Essential/important (%)	-	-	2%
Advisable (%)	-	-	1%
May/could (%)	-	-	29%
Audits using the same verb in all recommendations (%)	100%	100%	35%
Responsible actor identified (%)	100%	100%	61%
Entity/department (%)	100%	100%	24%
Government (%)	-	-	37%
Entities responded	100%	100%	0%
Recommendations accepted (%)	100%	98%	-

Table 5-21 shows that compared with the Australian (2.0) and Canadian (4.3) audits, on average, the Indian environmental performance audits make a large number (8.7) of recommendations per audit. While the high average is influenced by a very large number of recommendations by a couple of all-India performance audits ('Water Pollution in India' (CAG, 2011a) – 27 recommendations; and 'Disaster Preparedness in India' (CAG, 2013b) – 38 recommendations), this observation is generally true. As can be seen from Figure 5-9, only 40% of the Indian performance audits have made 0-4 recommendations (on the lower end), while the remaining 60% have made 5 or more recommendations (on the higher end). This compares with about 90% of Australian audits and 60% of Canadian audits making 0-4

recommendations. This would suggest there are systemic preference for larger number of audit recommendations in India than in Australia and Canada. This may be reflective of the nature of the relationship between the CAG and the administration in India. Compared with Australia and Canada, the relationship between the audit office and government administration is still cast in a traditional mode, which to some extent, can be termed as adversarial. This matter will be further discussed in the next section.

Figure 5-9: Frequency distribution of recommendations made in an environmental performance audits.



It is noted from Figure 5-9 that about 20% of Australian performance audits have made no recommendations. This is not inconsistent with the general view and especially with that of the ANAO (2015a: 171) about recommendations that, not every issue discussed in an audit warrants a recommendation and an audit could encourage improvement even without an explicit recommendation. The ANAO (2015a: 17) further considers that an audit should not recommend an existing requirement as this will not add any value. In recent years, the ANAO has deliberately focused its recommendations on the more significant issues, leaving the mention of other opportunities for improvements in the main body of reports (McPhee, 2016).

As evident from Table 5-21, the Australian and Canadian environmental performance audits always direct their recommendations to specific entity(ies) and make consistent use of verbs in all their recommendations—within the same audit and across the audits. The Australian performance audits recommendations are always cast as: 'ANAO recommends that the entity (action verb) ….' Similarly, the Canadian performance audits recommendations are always framed as: the entity should (action verb). On the other hand, the Indian environmental performance audits use a variety of verbs in their recommendations within the same audit and across the audits. As can be seen from Table 5-21, compared with the use of the same verb in 100% of Australian ('recommends') and Canadian ('should') performance audits recommendations, the Indian performance audits recommendations have used a variety of verbs: (a) 'should' (39%); 'need' (29%); 'is essential/important' (2%); 'is advisable' (1%); and 'may/could' (29%).

In terms of consistency within an audit recommendations, only 35% of Indian audits used the same verb in all their recommendations, compared with 100% of the Australian and Canadian audits. While the use of different verbs in different Indian performance audits could be attributed to the different preference and style of diverse audit teams (CAG is a very large organisation comprising regional/state audit offices, headed by the equivalent of states' Auditor General in Australia and Canada) to some degree, the use of different verbs in the recommendations of the same audit suggest that there are some systemic issues. Either there is lower quality control in the production of performance audit reports or the use of different verbs is deliberate to suggest different emphasis. The latter seems more probable. This matter seems related to the number of audit recommendations in Indian performance audits and will be discussed together when discussing responses to the audit recommendations in the next section.

Unlike the Australian and Canadian environmental performance audit recommendations that always identify the entity(ies) responsible for taking corrective actions, only 61% of Indian audits do so—37% identify responsible departments and 24% identify the government as a whole responsible for action. While, it is not unusual that several agencies are considered responsible for action in a multi-agency audit, OAG (2004: 71) suggests that, in such situations, government-wide recommendations should generally be avoided. When not possible to do so, it suggests that a lead agency should be nominated. A large proportion (63%) of Indian environmental performance audit recommendations do not clearly identify responsible bodies—39% of audits do not identify an agency/department responsible for action; and 24% of audits only identify the government as a whole for action. This is inconsistent with the relevant requirement of the CAG (2014a: 43) for recommendations that, "it should be clear who and what is addressed by the recommendation, who is responsible for taking initiative."

5.6.10 Response to the audit recommendations

The (government) entities generally have at least three formal opportunities to comment on the performance audit findings: (1) the exit interview that happens at the closure of the audit field work; (2) the draft audit report stage; and (3) the final report stage, just before the performance audit report is submitted to the legislature and is published. On the last two occasions, they can also comment on the recommendations. With minor differences, this applies to government agencies in all three countries. As seen in Table 5-21, in all (100%) of Australian and Canadian performance audit reports, the government agencies formally responded to the recommendations. They also clearly stated whether they agreed or disagreed with the audit recommendations. All (100%) of Australian and 98% of Canadian environmental performance audit recommendations were agreed to by the relevant government agencies. This compares with 94.3% (2013-14) and 99.0% (2012-13) acceptance of overall Australian performance audit recommendations (ANAO, 2015c: 23). No such figure is readily available for overall Canadian performance audit report recommendations.

On the other hand, none of the Indian environmental performance audit reports contained any formal response of the government agencies. So it was not clear how many environmental performance audit recommendations were accepted. Only one of the 20 (5%) environmental performance audit reports studied noted that a committee had prepared a roadmap for implementing the agreed recommendations (CAG. 2011a: xii). However, that report also did not indicate how many of the recommendations were

agreed to. A peer review of the CAG (Australia et al., 2012: 31) has also noted the absence of a formal response to performance audit recommendations by audited entities.

The overall acceptance of Indian performance audit recommendations is about 28% (CAG, 2014b: 22). Compared with the Australian and Canadian acceptance of greater than 90%, this is a very low rate of acceptance of recommendations. This suggests a relatively weaker CAG's engagement of the administration, or inadequate responsiveness of the administration, or both. An international peer review of the CAG (Australia et al., 2012: 30-31) notes that the lack of responsiveness of audited entities in commenting on the draft audit reports is a significant issue for the CAG to address. The review notes that of the 35 performance audit reports it reviewed—in 25% cases, the audited entity did not provide any response; and in about 9% of cases, the entity sent response well after the statutory deadline. The review recommended that CAG review its approach to obtaining a response from the audited entities and, in particular, the CAG seek a response to each recommendation in the draft reports and publish them in the final reports. The CAG has agreed to the peer review recommendation (Australia et al., 2012: 31), noting, however, that the efficacy of the recommendation would depend upon cooperation from the audited entity. As of December 2015, CAG has not been able to publish the audited entity's response to audit recommendations in its final performance audit reports (see for example, CAG, 2015).

The large number of audit recommendations, and the use of various types of verbs in recommendations appear to be systemic. It seems related to the process of response to the Indian performance audit reports. So it would be helpful to understand this process that is described in various CAG documents (see for example, CAG, 2007b: 56-63; CAG, 2010c: 19, 27; 2014a: 55-57). In summary, this is a three-step process—two pre-report and one post report. In step 1, the field audit team, after the conclusion of the field work, prepares an inspection report that contains preliminary audit observations (the Australian equivalent is 'Report preparation papers' and the Canadian equivalent is Principal's draft). The inspection report is sent to the audit entity for comment (including factual verification and corrective action) within four weeks. When significant audit observations remain unresolved, they appear in draft paragraphs (Australian equivalent: proposed audit report, Canadian equivalent is Transmission draft). In the second step, draft paragraphs are sent to the relevant department head for response within six weeks. Subsequently the draft audit paragraphs are finalised and the department head is informed of the finalised paragraphs as they would appear in the CAG Audit Report to be tabled in the legislature (federal parliament or the state legislature as the case may be). When either no comments are provided, or the department's explanations are not substantiated, the initial audit observations are incorporated in the final CAG Audit Report. The default position is that, if the department (Government) does not respond to the draft audit paragraphs within the specified period or agreed extended period, the Government has no comments to make.

Once tabled in the legislature, the CAG audit reports are considered permanently referred to the Public Accounts Committee (PAC) of the relevant legislature. The relevant departmental secretary is required to respond to audit paragraphs (3rd step) by submitting action taken notes (ATN) that are generally vetted by the CAG for review by the PAC. CAG, in its annual audit report to the legislature, reports on the status of ATNs. However, there is a heavy pendency of receipts of ATNs that CAG has brought to the attention of the PAC of the Indian parliament (PAC-IP). Extremely concerned with the situation, the PAC-IP has

established a sub-committee to investigate the matter (CAG, 2010b: 6). Legislative changes to the CAG's (Duties, Powers and Conditions of Service) (DPC) Act, 1971 were proposed in 2009 to expand the mandate of the CAG with the aim, amongst others, to improve the timeliness of the information provided by the audited entities (Australia et al., 2012: 31). As of January 2016, these changes are yet to be legislated (Pandey, 2016).

As evident from the discussion above, the administration in India is not very prompt in responding to the CAG audit reports. It is possible that many initial audit observations (with different emphasis such as 'may consider' or 'is important' or even 'should') were meant to be addressed by timely corrective actions before the final audit report. However, due to deficient responses in stage 1 and stage 2, several of them ultimately were incorporated as recommendations into the final audit report. This may also have contributed to a larger number of audit recommendations (and with different verbs) in the final audit report. The third step of (post report) response to the Indian audit recommendations as it stands now in fact combines the two later stages of response as related to the Australiana and Canadian performance audit recommendations: (1) formal response to final audit report (pre-publication); and (2) response to the PAC review. The PAC, being a political body, is unlikely to have the time and inclination to go into the details of each performance audit recommendation. It will be interesting to see if, or how, the process for response to the Indian performance audit recommendations is improved.

5.7 Other observations and discussion

5.7.1 Format of environmental performance audit reports

Each country has its own tradition and style of reporting environmental performance audits. Canadian and Australian reports have their own consistent formats. There is very little variation in the style of reports. The layout of a typical Australian and Canadian report is as shown the Table 5-22.

There is no standard layout for the Indian environmental performance audit reports—some performance audit reports are standalone reports, while others have several performance audits as chapters in, one report, yet others (related to state audits generally) were combined regularity and performance audit reports. This may be reflective of the mandate (the reach of the audit to the three tiers of government and associated bodies) and the sheer size of the SAI India (141 offices (Australia et al., 2012: 16)). Unlike its Canadian (with some exceptions) and Australian counterparts, the Indian SAI conducts performance audits of the federal and state and local governments, with audit reports originally prepared by different offices (though approved by the head office in New Delhi). Notwithstanding these challenges, a peer review of the CAG (Australia et al., 2012: 35) considered that the lack of a consistent structure in its performance audit reports needs to be addressed. It suggested the use of a template to ensure consistency—to which the CAG has agreed (Australia et al., 2012: 52).

Table 5-22: Typical layout of content of Australian and Canadian environmental performance audit reports.

Australia (ANAO)	Canada (OAG)

• Title/cover page
• Copyright page
• Transmittal letter
• A page containing
  ○ Statement about the Auditor General 's role
  ○ Contact details
  ○ Audit team
• Contents
• Abbreviations and glossary
• Self-contained report summary including:
  ○ Introduction
  ○ Audit objectives/scope
  ○ Overall conclusion
  ○ Chapter wise key findings
  ○ Summary of agency response
  ○ Recommendations with entity's clear agreement or disagreement about each of them
• Chapters containing audit findings
  ○ Introduction/context containing
  ▪ Background
  ▪ Audit objectives/approach
  ▪ A statement containing the conduct of audit according to the ANAO auditing standards and cost of the audit
  ○ Other chapters
• Appendices containing agency responses, and other materials where necessary
	• Title/cover page
	• Copyright page
	• Inside title page
	• Statement about performance audit report
	• Contents
	• Introduction
	• Observations and recommendations
	• Conclusion
	• 'About the Audit' including:
	  ○ A statement about the particular audit
	  ○ A statement about the audit being conducted as per the standards of assurance issued by the Chattered Professional Accountant of Canada
	  ○ Objective
	  ○ Scope and approach
	  ○ Audit criteria with sources listed against each of them in a table and statement below that the management reviewed and accepted the criteria
	  ○ Period covered by audit
	  ○ Audit team
	  ○ Contact details
	• Appendix containing recommendations with entity's clear agreement or disagreement about each of them

5.7.2 Size of environmental performance audit reports

The size of the performance audit report is expected to generally depend on the subject matter of the audit. However, does the size matter and tell something more about the approaches taken? To investigate this issue, key statistics about the size of the environmental performance audit reports were calculated. These are shown in Table 5-23.

Table 5-23: Key statistics of environmental performance audit reports

Item	Australia	Canada	India
No of performance audit reports 2010-14	22	30	20
Average (mean) report size (pages)	133	36	66
Maximum report size (pages)	205	98	343*
Minimum size (pages)	98	13	8#
Standard deviation	26	18	95
Coefficient of variation (standard deviation/mean)	0.2	0.5	1.5

*A report on all-India performance audit of federal and state governments. #A chapter in a combined audit report of several federal government agencies.

The average size of the Australian reports was about 130 pages with a maximum of 205 and a minimum of about 100 pages. The average size of the Canadian reports was about 35 pages with a maximum of about 100 and a minimum of about 20 pages. The average size of the Indian reports was about 65 pages with a maximum of about 340 and a minimum of about 10 pages. As discussed above, due to their own inherent consistency, the Canadian and Australian reports are more comparable with each other, than with the Indian reports.

While differences in font and general layout may explain some difference in the size of report, the size difference is more about the style of narration. The Canadian reports use wider margins for subheadings and to explain new terms/facts immediately in the vicinity of its first reference in the text. This space that is mostly blank more than compensates for the wider font of Australian reports. The Canadian reports always have an 'About the Audit' section that provides more details about the audit (e.g. a comprehensive listing of sources of each criterion that are sometimes repeated as the same source may relate to other criteria) than the Australian report. It may be concluded that the Canadian environmental performance audit reports are "slicker" and more concise than the Australian reports. Unlike the Australian reports, the Canadian reports do not use footnotes to cross refer to the sources. Noting the OAG policy of publishing concise reports, a peer review (Australia et al., 2010: 16) has that suggested that additional context should be provided in the reports. The peer review concurred with an earlier peer review's (UK et al., 2004: 8) suggestion for inclusion of sources of evidence. Despite this mild criticism, it may be argued that as the Canadian reports comprehensively list sources of its all criteria at one place, there is no need to further list them. It will only distract the readers and reduce the readability of reports.

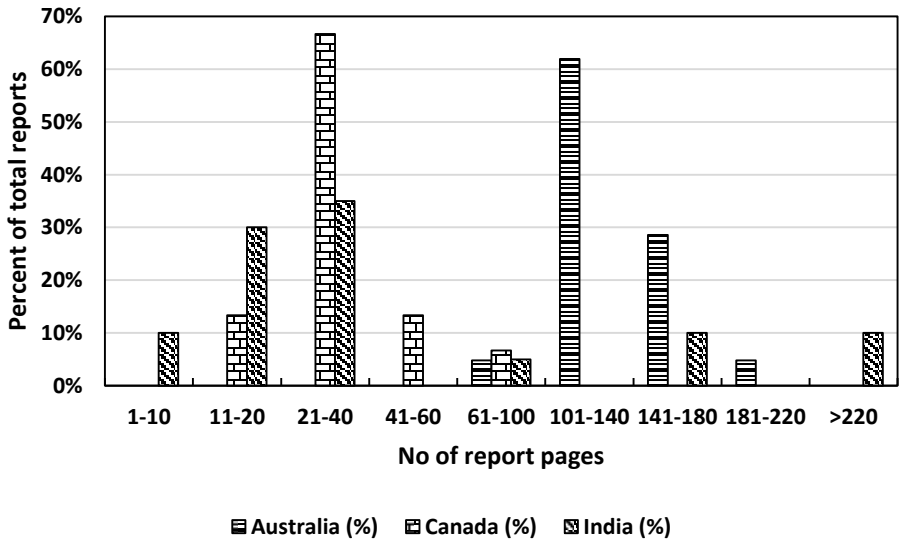
An interesting fact to note from Table 5-23 is the variability in the size of reports. While standard deviation gives some idea about the variability, the coefficient of variation is considered a more representative measure of variation here, than the standard deviation because the means are quite different. It can be seen that the coefficient of variation is lowest for Australia (0.2) and highest for India (1.5) with Canada (0.5) coming in-between. The variability in report sizes could also be visually appreciated from the frequency distribution of the size of reports shown in Figure 5-10. The horizontal axis shows the class interval of the report sizes and the vertical axis shows the percentage of the number of reports falling in each size class. The more the spread of sizes of an SAI reports, the more variability there is in the size of

its reports. Conversely, the majority of reports falling in a small number of size classes shows that report sizes are less variable.

Figure 5-10 shows that about 90% of Australian reports are of only two sizes: 101-140 pages (about 60%) and 141 -180 pages (about 30%). Of the remaining 10% reports, about 5% are between 61-100 pages and 5% between 161-200 pages. The ANAO (2015a: 164) now aims for 75% of its performance audit report to be 100 pages or less.

About 70% of Canadian reports are of one size, between 21-40 pages. In the remaining about 30% reports, two equally prevalent sizes (just above 10%) are 11-20 pages and 41-60 pages. The least prevalent size (below 10%) was 61-100 pages.

Figure 5-10: Frequency distribution of size of environmental performance audit reports.



Unlike the Australian (60%, 101-140 pages) and Canadian (70%, 21-40 pages) reports, no size is dominant in Indian reports. About 35% Indian reports are of 21-40 pages and 30% of 11-20 pages; about 10% each are of 1-10 pages, 141-180 pages and more than 220 pages. About 5% of Indian reports are between 61-100 pages long.

While the form (style) may be playing a role, the contrast in the variability of the size of environmental performance audit reports could also be related to a substantive matter—the contrast in the mandate of the three SAIs. The lowest variability in the size of Australian reports is perhaps due to its least diverse (or most uniform) mandate that is limited mostly to the federal government departments and enterprises. Compared to its Australian peer, the Canadian SAI's mandate is more diverse. Over and above the federal government department and enterprises (included in ANAO's mandate), the OAG mandate includes two territory governments. Further reflecting its special mandate on the environment, the OAG has made it a mandatory requirement to consider the 4th E (environment) in the audit of non-environmental matters. So it could be argued that compared with the Australian reports, more variability in the size of Canadian environmental performance audit reports does reflect more diversity in its mandate.

Among the three SAIs, the Indian SAI's mandate is most diverse. It includes all the three levels of government and their associated bodies. Some of the environmental performance audit reports undertaken by the CAG include both the federal and state governments, comprising hundreds of entities in one audit; on the other hand, some audits may be limited to a few departments within one level of government. For example, the 'Performance Audit of Water Pollution in India' (CAG, 2011a) examined the water pollution policies, programs and projects in the whole of India comprising more than 100 federal and state departments/entities. The performance audit report was about 275 pages. In contrast to this, the performance audit of six initiatives being undertaken or coordinated by the different entitles of the federal environment department, examined the performance of these entitles of the federal government. The reports were of sizes varying between 8-20 pages. Unlike its Canadian and Australian counterparts, the Indian SAI produce combined regularity and performance audit reports for each state of India that can contain several performance audit reports.

Though vertically integrated, the Indian SAI (CAG) is a very large diverse organisation. The audit reports in the majority of the cases, originate either from the regional or sectoral audit offices, that it seems, have their own styles of reporting. As indicated earlier (Table 5-3), of the three SAIs, the Indian reporting standard is least prescriptive.

Diverse audit mandate, diverse origin of audit reports, together with the lack of a template (discussed earlier) for the Indian performance audit reports, result in more variability in the size of Indian performance audit reports, compared with those of Australian and Canadian performance audit reports.

5.7.3 Comment on policy matters

Sharing the common heritage of the Westminster system of governance, the three SAIs are considered officers of their respective parliaments (though the Indian SAI is established by the constitution itself, not by an act of parliament). In the Westminster system, the supremacy of the legislature (parliament) in setting policy is well recognised. Even under the separation of powers doctrine, the judiciary only decides the legality of policies/legislation, not their merit. While the enabling legislative provisions do not explicitly prohibit the three SAIs from considering or commenting on the policy matters, they generally do not do so, as a matter of high regard for the established convention of supremacy of the parliament. The three SAIs explicitly declare their position on the matter in publicly available documents. For example, the ANAO (2015d: 2) states that it 'does not comment on the merits of government policy'. The OAG in all its performance audit reports (e.g. OAG: 2014g: ii) declares that while it 'may comment on policy implementation in a performance audit, it does not comment on the merits of a policy'. The CAG (2014a: 5) states that its performance audit 'does not question the intentions and decisions of the legislature, but examines whether any shortcomings in the laws and regulations or their way of implementation have prevented the specified objectives from being achieved'. The CAG's positon is interesting as it highlights the grey area of separation between so called 'black and white' policy and policy implementation that performance audits sometimes tread in.

The ambivalent nature of the performance audit in relation to policy is also noted in the Australian and Canadian context. A serving auditor general of Australia has observed that in situations incidental to a performance audit if the ANAO finds that aspects of a government policy would benefit from a review, it

has recommended departments consider the position and advise the government accordingly. This is a responsible position for the ANAO to take in such circumstances (McPhee, 2011: 7). The OAG (2004: 14-15) explicitly acknowledges the relationship between the audit function, and government policy and policy making. It has devoted a full section in its performance audit manual, where it also refers to a discussion paper prepared to provide additional information on the relationship between policy and auditing. It catalogues the types of policy issues commented upon by its performance audits and notes that the following three types pose a risk to its mandate:

- The adequacy of the analysis forming the basis of a policy or program;
- Opportunities to fill policy gaps (for example, the need for a government wide policy on emergency preparedness); and
- The need for improvement in an existing policy (for example, the need for a new White Paper for defence).

The OAG (2004: 14-15) further observes that, when it needs to comment on the adequacy of government policy, its risk increases when it moves from the routine administrative areas (such as service delivery and contract administration) to more political areas needing specific policy decisions, program or policy goals (such as closing certain government offices, fishery conservation policy and reducing child poverty).

The main point to note from the above discussion is that, occasionally, the performance audit needs to comment on government policy, especially on its adequacy or absence.

5.7.3.1 Observations on actual comments on policy

The ANAO undertook two performance audits that could be interpreted as being very close to the political domain for reasons identified by the OAG above. The performance audits of: (1) Green Loans Program (ANAO, 2010a) and (2) Home Insulation Program (ANAO, 2010b) were undertaken on the request of the members of legislature and executive (minister). These audits involved policy issues related to politically charged matters in Australian politics – climate change and measures to stave off the effects of global financial crisis of 2008-09. The ANAO could have exercised the discretion of the Auditor General in choosing the audit topics and declined the request to save it from entering into the political domain. However, despite the risks involved, the ANAO undertook those audits as it would have determined that undertaking these audits was a 'responsible position to take'. However, the difficulty the ANAO faced in treading the political territory, is evident in the way audit objectives and subsequently conclusions were framed for these audits.

'The objective of the [first] audit was to examine key aspects of the establishment and administration of the Green Loans program' (ANAO, 2010a: 16 emphasis added). The audit did not make a clear cut conclusion. The closest the audit came to that can be considered a conclusion is:

> [M]uch of the Green Loans management effort since late 2009 has been directed towards managing the numerous administrative issues that adversely impacted the effective implementation of the program. Most of these issues can be sourced to actions and decisions taken in the program's design and implementation. .. [D]epartments' capacity to address the legacy issues has been inhibited by their

> entrenched nature, and the loss of corporate memory through staff turnover and the generally poor standard of past recordkeeping. (ANAO, 2010a: 21-22).

Noting the improvements to the program governance already made, the audit did not make any recommendation. Instead, it directed attention to its Better Practice Guide Implementation of Programme and Policy produced in 2006 to assist agencies in managing program implementation Initiatives.

'The objective of [the second] audit was to assess key aspects of the establishment and administration of the HIP [Home Insulation Program]' (ANAO, 2010b: 25 emphasis added). The audit concluded that:

> Overall, HIP has been a costly program for the outcomes achieved, including substantial remediation costs. There still remains a range of safety concerns and coronial inquiries are yet to be completed in relation to the four fatalities associated with installations under the program. The fallout from the program has caused serious inconvenience to many householders, reputational damage to the insulation industry, and financial difficulties for many Australian manufacturers and installers. It has also harmed the reputation of the Australian Public Service for effective service delivery. This experience underlines very starkly just how critical sound program design and implementation practices are to achieving policy outcomes. There are important lessons here for those agencies with policy implementation responsibilities but also those responsible for policy development (ANAO, 2010b: 27, emphasis added).

Noting the closure of the program and the improvement strategies already being implemented the audit did not make any recommendation. However, the audit did compile a list of lessons learned to reinforce its messages for public administration.

As can be seen, the objectives of the two audits did not use clear normative statements. While the objective of the second audit appears to be normative ('assesses' as compared to 'examine' in the first), it does not refer to the actual norm. As a consequence, the conclusions do not seem to align very well with the audit objectives. The two audits demonstrate the challenge the performance audits face in making assessment in political areas that are not their forte for several reasons, including that of maintaining independence.

Politically sensitive matters were not apparent in the Canadian environmental performance audits. However, the 'Managing Fisheries for Sustainability' study (OAG, 2011b: 23-24) endeavours to educate the members of Parliament on the core issues related to sustainable fisheries to enable them carry out their political responsibilities for ensuring sustainable management of those fisheries. Referring to a 1992 audit conclusion, the study points out to the inadequacy of 138-year-old *Fisheries Act* in providing for sustainable management of fisheries. The study refers to the several failed attempts to amend the *Fisheries Act* and compares it with the *Oceans Act* in regards to sustainability. In addition to the OAG audits, the study points to several studies by Parliament that have documented the concerns related to the fisheries. Virtually reminding them of their responsibilities, the study encourages the parliamentarians to ask questions such as:

- What specific legislative and policy tools are needed to address current and emerging issues, such as international management of fisheries, marine protected areas, and eco-certification?
- What steps are being taken to put those tools in place?

- What legislative and policy safeguards have been put in place to ensure that fisheries decisions respect the scientifically determined ecological limits? What is the evidence that these safeguards are working as intended (OAG, 2011b: 24)?

Though not technically audits, the studies are similar to performance audits in all respects except for the lack of criteria, and they do provide the framework and criteria for future audits (OAG, 2011b: 1). It can be argued that, through this study, the OAG has almost entered into a political debate on policy matters. This is not inconsistent with the position of the OAG on policy matters, as noted earlier.

Consistent with its constitutional position, much like the Indian judicatory, the CAG has been proactive in its work. Its proactive stance on environment almost venturing into the policy domain can be understood from the following statement made in an audit report.

> Protection and conservation of the environment is increasingly becoming important, especially in light of observed climate change which has devastating consequences for the survival of humanity. In this context, effective environmental governance by the Executive is of utmost importance. … Our objective, through this report, is to create awareness and urgency about conservation and protection of the environment which need to be addressed by the Government. .. The report would also help in sensitising policy makers to look at environmental issues with a holistic approach and address deficiencies in programs/schemes/policies so that our environment is conserved more effectively (CAG, 2010b: i and 1).

The CAG's entry into the policy domain is further evident by its observations in two environmental performance audits. The CAG undertook a comprehensive 'Performance Audit of Water Pollution in India' (CAG, 2011a). In the preparatory phase, the CAG first organised a stakeholders' conference on environmental audit in 2009. In addition to identifying general matters related to the environmental audit, the conference concluded that as water involved very important environmental issues, it should be audited by the CAG. CAG then held an international conference on environment audit-concerns about Water Pollution in 2010. Subsequently, an all-India performance audit was undertaken that involved extensive input from stakeholders. Amongst other conclusions, the audit (CAG, 2011a: viii) identified several weaknesses in legislative and policy frameworks noting that

> Water pollution has not been adequately addressed in any policy in India, both at the central and the State level. In the absence of a specific water pollution policy which would also incorporate prevention of pollution, treatment of polluted water and ecological restoration of polluted water bodies, government efforts in these areas would not get the required emphasis and thrust.

Of the 27 recommendations that the audit (CAG, 2011a: vii-xii) made, several were aimed at addressing the policy inadequacies. These included that:

- legislation should be enacted both at the centre and states to control water pollution from both point and non-point sources and for ecological restoration of degraded water bodies;
- central government should take the basin-wide approach to planning for pollution control;
- central government should establish enforceable water quality standards for lakes, rivers and groundwater.

In its performance audit of 'Compensatory Afforestation in India', the CAG made several policy-related observations. These included that the non-operationalisation of the Compensatory Afforestation Managements Authority (CAMPA) that was envisaged as a permanent, independent authority for guidance, direction and oversight severely hampered the compensatory afforestation activities in India (CAG, 2013a: xiv).

It is clear from the above discussion that, notwithstanding their general position of not commenting on the merits of policies, the three SAIs have not shied away from entering into the policy domain. While the OAG and CAG stance on policy has been more pro-active, that of the ANAO has been somewhat circumspect.

5.7.4 The tone and tenor of environmental performance audit reports

An audit report is considered balanced, if it does not solely focus on criticising identified lack of performance, but contains a fair assessment that also acknowledges good performance (CAG, 2014a; 59). Balanced reporting of an audit is stressed by all three SAIs in their performance audit guidelines and manuals (ANAO, 2015a: 163-164; OAG, 2004: 76; and CAG, 2014a: 17).

The tone of all Australian and Canadian environmental performance audit reports was considered balanced and positive. However, the tone of some Indian performance audit reports was considered somewhat adversarial. They used combative phrases such as, 'the department stated' to describe the department's position and 'was not acceptable' to describe its disagreement (see for example, CAG, 2011b: 19, 22; 2013c: 31)). This may be compared with the use of softer/neutral phrases, such as the officials/department 'informed'/'we found'; and that 'we could not agree', to describe the equivalent situations in Australian and Canadian environmental performance audit reports (see for example, OAG, 2010a: 10; OAG, 2010b: 24; ANAO: 2012:24; ANAO, 2014b: 89). One CAG report used the phrase 'lackadaisical approach' (CAG 2013e: 19) to describe omissions by the department. An international peer review of the CAG noted that, of the 35 sample audit reports it reviewed, about half could have been more balanced in content and tone (Australia et al., 2012: 19). In this context, the review cited the CAG's Auditing Standards requirement that the use of language that generates defensiveness and opposition should be avoided (CAG, 2002: 31).

The peer review noted that, as a large number of government projects were 'beset by substantial time and cost overruns, and poor outcomes' (Australia et. al.; 2012: 16), there were often considerable deficiencies in program administration and implementation for the SAI India to report (Australia et. al., 2012: 36). It is interesting to note that, compared with 32% of Australian, and 54% of Canadian environmental performance audits, 100% of the Indian environmental performance audits found that government programs, either did not have the requisite systems and processes to achieve their objectives, or did not achieve their objectives. In describing the deficiencies on average, the language of the ANAO can be considered soft (see for example, ANAO, 2014b: 24; 2014c: 18); that of the OAG can be considered firm (see for example, OAG, 2011d: 16; OAG, 2010c: 30; OAG, 2014h: 32); and that of the CAG can be considered strong (see for example, CAG, 2013a: vi; CAG, 2011c: 70, 72, 73, 77). This research does not defend the use of strong language especially when that is not sanctioned by the relevant standards. However, there appears to be a correlation between the overall effectiveness of administration in

program implementation and the degree of softness in language—the higher is the overall effectiveness of administration in implementing the environmental programs, the softer is the tone of the performance audit reports in pointing out the deficiencies and vice versa. This puts the tone of the language used by the three SAIs in their performance audit reports in context.

5.7.5 Other matters

5.7.5.1 Audit team members

The Australian and Canadian environmental performance audit reports always provide the details of the audit teams. However, the Indian reports are silent on the composition of audit teams. Table 5-24 and Figure 5-11 present the key observations on the size of Australian and Canadian audit teams. Table 5-24 shows that the average size of the Canadian environmental performance audit team is larger than the average size of the Australian team. The largest Canadian audit team (10 members) is also larger than the largest Australian audit team (7 members). Comparatively, the Canadian audit team size is slightly less variable (coefficient of variation 0.3) than the Australian audit team (coefficient of variation 0.4). Further, as can be seen from Figure 5-11, more than 70% of the Australian performance audit teams, compared with only 30% of Canadian audit teams, comprised 4 members or less. So the Canadian audit teams were consistently larger, not just in terms of average size.

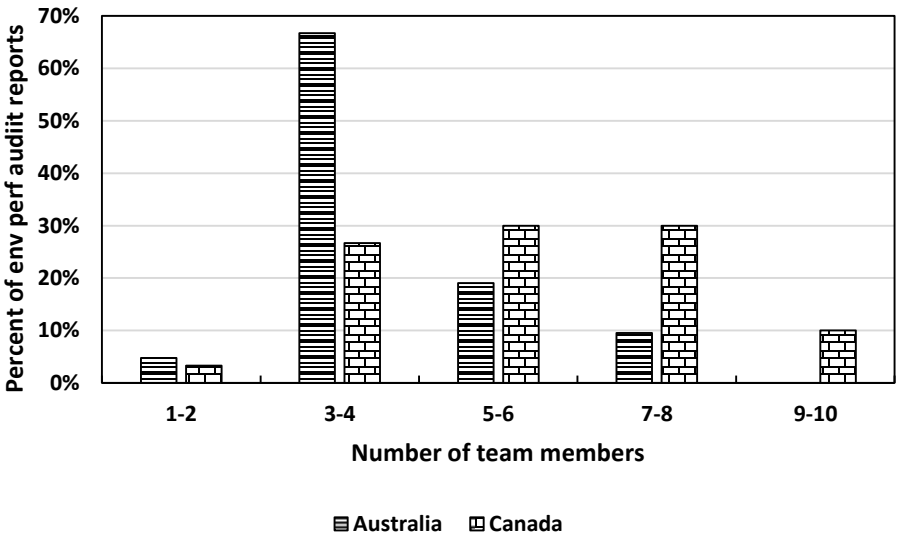
The specific mandate of the OAG to audit environmental matters and its related dedicated work force could be the most likely reasons for this contrast between Australia and Canada. However, it is difficult to make any definite conclusion on the team size, as the data does not contain further details such as individual skill set of team members, the role they played, and the time they spent on individual audit assignments. So the observations that the Canadian audit teams are bigger and less variable than the Australian performance audit teams, could only be investigated for explanation in terms of general relationships such as between the audit complexity/issues and team size.

Collectively, the audit team must have the skills and professional competence necessary to conduct the performance audit (ANAO, 2015a: 81; CAG, 2014a; 14). As such, the composition of audit team will be determined by operational and organisational factors such as the audit issues, the availability of skill set, time constraints and organisational priority. A regression analysis was carried out between the number of issues and the size of audit teams for both Australia and Canada. The analysis showed that while there was significant correlation (though weak) between the number of audit issues and the size of the audit team for Canada, no such relationship existed for Australia. As the correlation between the audit issues and the size of the Canadian audit team was weak (R^2 about 0.2, see Figure H-3 in Appendix H), the team size cannot be precisely predicted from the knowledge of number of audit issues; only a general statement can be made that greater the number of audit issues involved, the bigger the Canadian audit team is likely to be.

Table 5-24: Environmental performance audit team size

Matter	Australia	Canada
No of audits 2010-14	22	30
Maximum size of audit team	7	10
Minimum size of audit team	2	2
Average size of audit team	4.2	5.9
Standard deviation	2.1	1.2
Coefficient of variation (stdev/average)	0.4	0.3

Figure 5-11: Frequency distribution of the size of the audit team for Australia and Canada



5.7.5.2 Quoting the use of performance audit standards and cost of audit

The Australian and Canadian environmental performance audit reports always quote the use of their performance audit standards in undertaking those audits. However, the Indian performance audit reports infrequently quote the use of its audit standard. As shown in Table 5-3, reporting the use of performance audit standards is a mandatory content for both the Australian and Canadian performance audit reports. Therefore, by quoting the use of their performance audit standards, the Australian and Canadian performance audit reports are meeting their mandatory content requirements. This provides at least partial assurance to the readers of the Australian and Canadian performance audit reports of the quality of the performance audit work being reported. The Indian performance audit standard, on the other hand, is silent on the mandatory reporting requirement of the use of the audit standard. Therefore, the Indian performance audit reports, that do not report the use of the audit standard, cannot necessarily be considered as not meeting the mandatory requirements. However, those Indian performance audit reports that do quote the use of the audit standard, as they provide some assurance of the quality of the audit work, can be considered a better practice.

The Australian performance audit reports also quote the cost of undertaking each performance audit. Quoting the cost of audit is not a mandatory content requirement. However, as this enhances transparency and accountability of the ANAO work—the values espoused by audits, this can be considered a better practice.

5.7.5.3 What audits found

5.7.5.3.1 Data monitoring and reporting

About 65-85% of environmental performance audits have identified issues with data, monitoring and reporting of the implementation of environmental policies, program and projects. The Australian environmental performance audit reports frequently raised issue with development and reporting of performance measures such as key performance indicators for environmental programs. On the other hand, the emphasis of Canadian audit reports was on the collection and reporting of environmental data. The Indian audit reports were more concerned with the basic monitoring of projects, though some (e.g. CAG, 2011a) also raised concerns with monitoring and reporting of environmental data.

Table 5-25: Data, monitoring and reporting issues noted by environmental performance audits

Matter	Australia	Canada	India
No of audits 2010-14	22	30	20
Audits identifying issues	19	21	13
Percentage having issues	86%	70%	65%

5.8 Conclusion

Environmental performance auditing in three counties—Australia, Canada and India—was investigated in this chapter. This three-component comparative study comprised: (1) a study of the enabling legislations of the supreme audit institutions (SAIs) of the three countries and their SAI's performance audit planning and quality control framework; (2) a trend analysis of two decades of environmental performance auditing in the three countries; and (3) content analysis of their environmental performance audit reports for the last five years. The three SAIs are similar in most respects. They are independent institutions, not subject to any directions (in selection of topics of performance audits and methods employed to audit them); and have full power to call witnesses and documents. They report their findings to parliament and assist it (public account committee or other relevant committees) to scrutinise their reports and hold the government to accountable. There are some notable differences. With minor exceptions, the Australian and Canadian (include three territories) SAIs have jurisdiction only over the federal government. However, the Indian SAI's jurisdiction includes all three levels of government. Unlike its Australian and Indian peers, the Canadian SAI has a specific mandate to audit environmental matters and a statutorily designated official with dedicated workforce for the purpose. All three SAIs use risk-based analysis and employ long-term strategic planning for selection performance audit topics. While their approach to topic selection is generally consultative, the Australian SAI's approach is most consultative and transparent that enables even the public to contribute to audit planning and participate in performance audit.

The Australian and Canadian performance audit standards (and manuals) are obligatory, while the Indian standards (and manuals) are discretionary. Likewise, the Australian and Canadian performance audit reporting standards are comprehensively prescriptive compared with the Indian reporting standards that barely specify any content. However, none of the three SAIs reporting standards, mandates the reporting of the methods used for evidence collection. The Australian standards do not mandate the reporting of the sources of audit criteria.

The three counties (SAIs) are quite active in environmental performance auditing. They are in top thirty percent of countries reported to have undertaken environmental performance auditing over the two decades 1992-2002. However the sharp unexpected contrast between Australia and Canada (both developed countries) is more interesting than the expected contrast between Australia and India (a developing country). With 135 environmental performance audits, Canada emerges as the second (normalised rank), Australia with 38 audits as the nineteenth and India with 24 audits as the thirty-first globally. Due to the similarity in socio-economic and political backgrounds, the difference in the output of environmental performance audits between Australia and Canada can reasonably be attributed to the specific environmental audit mandate of the Canadian SAI.

Overall, the environmental performance auditing trend in the three countries is that of rising and almost mirrors the global trend – both the overall trend as well individual peaks and troughs. This is consistent with the rising global concern for environmental issues and consequent rising resourcing of environmental issues – policy making, implementation and audit. For the same reason, any deterioration in the global economic condition is also reflected in the performance auditing trend in the three countries. Compared with the first decade (Australia (14), Canada (60), and India (1)), the three countries have not only undertaken more performance audits in the second decade (Australia (24), Canada (75), and India (23)), they have also undertaken more complex environmental performance audits. Thus, they have made progress, both in terms of the quantity as well as quality. The coverage of issues in the environmental performance audits of the three countries reflected their economic development (developed and developing) status and was in accord with the global trend. There were more issues of common concern in the top ten audit issues between Australia and Canada (developed countries) than between India (developing) and the former two individually. Also, the objectives of the environmental performance audits of the three countries were in accord with the global trend—the highest proportion of their audits included examining the performance of government environmental policies and programs as an objective.

The content analysis of the environmental performance audit reports revealed that, on almost aspects studied, compared with the Australian and Canadian reports, the Indian audit reports showed most variability. While the Indian SAI's wider mandate could have played some role, this variability is systemic and can mostly be attributed to its less prescriptive auditing standards and variable quality of supervision. Australian audits also showed some significant degree of variability.

The minimum number of objectives of an Indian environmental performance audit was zero (when audits with zero objectives are excluded, the minimum was 3) and the maximum number of objectives was 8. Compared with this, the difference between minimum (1) and maximum (3) number of objectives in Australian and Canadian audits was 2. The Canadian environmental performance audits (average 1.1

objectives per performance audit) were more sharply defined than the Australian (1.5) and Indian (3.5) environmental performance audits. Compared with the large proportion of Australian and Canadian environmental performance audits (95% or more) that had 1-2 objectives, the Indian audits never had 1-2 objectives. The Canadian SAIs consistently treated audit objectives and subdivided them into sub-objectives, when required. Compared with this, the Australian SAI sometimes treated sub objective as synonymous to performance audit criteria. The Indian SAI never divided objectives into sub-objectives.

All three SAIs conducted single entity as well as multi-entity environmental performance audits. The proportion of single entity audit was highest in Australia (59%) and lowest in India (45%) and Canada in between at 50%. Compared to Australian (4) and Canadian (11) audits, the maximum number of entities examined in an Indian environmental performance audit was more than 100. This was consistent with the reach of SAIs. The widest reach of the Indian SAI resulted in on average 11 entities examined per audit compared with less wide Canadian (2.8) and least wide Australian (1.5).

The system-oriented approach was the dominant approach to environmental performance auditing in the three countries. All Australian (100% including 9% that also considered results) performance audits, 97% of Canadian performance audits (including 18% that also considered results) and 75% of Indian performance audits (including 30% that also considered results) took a system-oriented approach to performance auditing. Given that the environmental impact of most environmental initiatives is long-term and is not easily measurable in the short-term, it is expected that SAIs would use this approach irrespective of their individual circumstances.

Consistent with its standards, the Canadian environmental performance audits always reported audit criteria and source(s) of criteria. On other hand, most of Australian environmental performance audits (73%) treated audit objectives/sub-objectives synonymously with the audit criteria and they also did not explicitly report the source of audit criteria. While it is noted that the Australian standards do not mandate the reporting of the sources of audit criteria, this renders the criteria as implicit, when criteria are set at high-level using value-laden terms such as ‘effective ‘and ‘appropriate’. None of the Indian environmental performance audits reported the audit criteria; they only quoted the source of audit criteria. Non-reporting of criteria explicitly in Australian performance audit reports does accord with its reporting standards. Irrespective of their compliance with standards, the performance audits, not reporting the audit criteria or the source(s) of audit criteria, do not promote transparency—which is one of the aims of the auditing. In the long-term, all reporting standards must be enhanced and implemented rigorously to promote transparency in reporting. In the short-term, SAIs should voluntarily report audit criteria and sources of criteria explicitly in their performance audit reports, even if their reporting standards do not require them to do so.

Canada has been very articulate in specifying audit criteria with each sub-objective having its own set of criteria. With 3.2 criteria per audit objective/sub-objective, Canadian environmental performance audits are considered more rigorous than the Australian audits (2.6 criteria per audit objective), noting that Indian audits do not specify criteria at all.

Reporting of methods used by the three SAIs for evidence collection is variable. About 93% of Canadian, 91% of Australian and only 40% of environmental performance audit reports contained a methods section. As none of the reporting standards of the three SAIs make it mandatory to include a methods section, it could be argued that non-inclusion of a method section in their performance audit reports is not a deficiency. However, such an argument would be inconsistent with the basic tenets of audit. SAIs that usually set and expect high standard of behaviour from public entities, are expected to lead by example in promoting transparency. Despite the maturity of the field of performance auditing and development of related standards, performance audit unlike financial audit, is still not considered a routine exercise. Given that every performance audit is a standalone endeavour, a methodology section should always be present in environmental performance audit reports.

Of all methods used for evidence collection, two traditional methods, document examination and interview of officials were always (100%) used by the three SAIs. Stakeholder consultation was the next highly used method for Australia (91%) and Canada (67%), whereas it was site visit (75%) for India. The higher stakeholder consultation in Australia and Canada than in India (20%) is consistent with the trend of more consultative governance in developed countries (Australia and Canada) compared with a developing country. Further, the higher use of system and process review by Australia (77%) and Canada (40%) than by India (25%) is consistent with the higher emphasis on the system-oriented approach to performance auditing in Australia (100%) and Canada (90%) than in India (75%).

On average, Australia (6.1) used more methods per performance audit than Canada (4.6) and India (4.5). However there was more variability in the use of methods in Indian (0.4) environmental performance audits than in Australian (0.2) and Canadian (0.2) audits. Australian audit methods belonged to 3 classes and were mostly concentrated in two classes: 5-6 (41%) and 7-8 (50%). The Canadian methods too fell in 3 classes and are mostly concentrated in 2 classes: 3-4 (50%) and 5-6 (43%). On the other hand, the Indian audit methods were spread over 5 classes and most were concentrated in three classes: 3-4 (40%); 5-6 (35%) and 7-8 (15%). While about half of the Australian and Canadian performance audits use similar number of methods, only about 40% of Indian audit use similar number of methods. More consistency in the use of methods in Australian and Canadian per performance audit indicate more consistency in the composition of their audit teams compared with composition of the Indian audit teams.

The Canadian environmental performance audits conclusions (average alignment index 1) were most aligned with their stated objectives and the Indian audits were least aligned (average alignment index 0.5), with the Australian performance audits coming in-between (average alignment index 0.7). The Canadian environmental performance audits were also most consistent (least variable) in this respect and Indian audits were least consistent, with the Australian audits coming in-between. Except for a small proportion (7%), Canadian performance audits always directly concluded against the objectives. Compared with this, only 32% of Australian and 15% of Indian environmental performance audits directly concluded against their objectives. About 10% of Australian and 35% of Indian environment performance audits did not conclude against their objectives at all. In these cases, either the audit objectives were not defined clearly or conclusions did not address the stated objectives or both.

On average, Australian (2.0) environmental performance audits made fewer number of recommendations per audit than the Canadian (4.3) and Indian (8.7) audits. About 20% of Australian performance audits made no recommendations at all. Fewer number of recommendations suggest more focus on important strategic issues. There is a near consensus among SAIs that recommendations should add value and not every issue discussed in an audit warrants a recommendation. The ANAO does not recommend an existing requirement as it considers it does not add any value. The Australian and Canadian environmental performance audits always direct their recommendations to specific entity(ies) making consistent use of verb in all their recommendations. On the other hand, Indian environmental performance audit recommendations used variety of verbs and in only about 60% of cases identified entity(ies) responsible for actions.

In all (100%) Australian and Canadian performance audit reports, the government agencies formally responded to the recommendations indicating their clear agreement or disagreement with the audit recommendations. All (100%) of Australian and 98% of Canadian environmental performance audit recommendations were accepted by the relevant government agencies. On the other hand, none (0%) of the Indian environmental performance audit reports contained any formal response of the government agencies. So it was not clear how many environmental performance audit recommendations were accepted. Unlike in Australia and Canada, routine response to performance audit recommendations in India are followed by the public account committee(s) of legislature through a review of action taken notes creating a heavy burden on the committee(s).

The Australian and Canadian performance audit reports have their own consistent formats, while the Indian reports have variable formats. Compared with the Australian and Indian reports, the Canadian performance audit reports are very concise, with informative headings. The average size of the Canadian reports (36 pages) was smaller compared with the Australian (133) and the Indian (66) reports. Due to the lack of a consistent template, there is greater variability in the size of Indian performance audit reports compared with the Australian and Canadian reports.

The three SAIs do not comment on the merits of any policy. However, they do point out deficiencies in policy when results were not achieving the intended purpose.

The tone of environmental performance audit reports is considered soft in Australian, firm in Canada and strong in India. The tone of performance audit reports seems to be related to the performance of administration in implementing the government policies and programs—overall, a better performing public administration eliciting a softer tone in performance audits to describe its deficiency and vice versa.

All the Australian and Canadian performance audit reports consistently cite the use of audit standards, while the Indian reports infrequently do so. Further, Australia and Canada disclosed information about their audit teams and Australia also disclosed the cost of performance audits. As the use of standards at least partially, assures the readers of the audit reports, of the quality of audits, its disclosure should be mandatory. The disclosure of other audit related information (e.g. team and cost) enhances the overall transparency of the SAIs audit work. This is considered a good practice worth consideration by the SAIs.

Despite individual differences in the performance of public administration in implementing the environmental policies and programs and in the conduct of performance audits themselves in the three countries, there is an overriding similarity in the performance audit reports in that an overwhelming majority of them in each country identified issues with data, monitoring and reporting.

Overall, except for improvements required to include a methodology section that fully lists/describes all methods used for evidence collection, the Canadian environmental performance audit reports are considered better practice. Inclusion of a methodology section that fully lists/describes all methods used for evidence collection fuller description of methodology, a better articulation of audit criteria and a better alignment between conclusions and audit objectives would enhance the value of the Australian performance audit reports. Notwithstanding the challenges, the SAIs India faces in working with a largely non-responsive administration, significant improvements in its performance audit reports is possible by adoption of a standard template for reports; inclusion of a methodology section that fully lists/describes all methods used for evidence collection; better articulation of audit objectives (reducing the number of objective by subdividing objectives into sub-objectives); clear specification of audit criteria; a better alignment between audit objectives conclusions, consistent wordings of audit recommendations and identification of responsible entity therein and inclusion of auditees response in the audit reports. Standardization by the INTOSAI of the names and precise definition of methods of evidence collection would be helpful to remove some of the current confusion.

The Australian SAI's publication of its annual audit plan for performance audits, the Canadian SAI's 4th E Practice Guide and the Indian SAI's specific guide for Environmental Audits are models of good practice that other SAIs may find useful.

Together with Chapter 3 and Chapter 4, this chapter completes the set of three empirical investigations undertaken for this thesis. The next chapter will synthesise the key issues emerging from the theoretical discussions in Chapter 2 and the three empirical investigations.

Chapter 6 : Environmental Performance Auditing - Perspectives and Prospects

6.1 Introduction

The earlier chapters investigated theoretical and operational aspects of environmental performance auditing including its evolution and trend. Chapter 2 traced the origin and evolution of audit and captured the continuing debate over the nature of performance auditing. It found that while environmental performance auditing was essentially a type of performance auditing, it did involve some special challenges. Chapter 3 investigated trends in global environmental performance auditing and found them to be broadly related to global economic conditions. It further found that an SAI's environmental performance audit output was broadly related to its parent country's economic development as well as its membership of the WGEA. Capacity gaps were identified predominantly in the underdeveloped regions. Chapter 4, through a global survey, investigated current practices in environmental performance auditing and found them also related to economic factors. Chapter 5 investigated trends as well as current practices in environmental performance auditing in Australia, Canada and India. It found that trends and current practices in three countries broadly reflected the respective global trends and especially those related to their developmental status. The chapter further found local institutional arrangements resulted in significant differences in audit practice. However, the absence of a standard for performance audit reporting creates significant differences in reporting not only between SAIs but also within them.

This chapter brings together the perspectives provided by the earlier chapters by synthesising the underlying key issues; and explores the prospects of these issues and challenges into the future. The chapter is divided into three sections. A brief description of the context of this research, including current and emerging challenges, is given in section 6.2. Subsequently within this context, the key issues identified and discussed earlier are synthesised and prospects discussed in section 6.3, followed by conclusions in section 6.4.

6.2 The strategic context

Due to several drivers such as population growth, industrialisation, globalisation, and digital revolution, the world is changing very fast, both in its natural and socio-political domains. Impending exceedance of some critical thresholds in the natural domain will likely adversely affect life-support functions of the earth, with significant adverse implications for human well-being (UNEP 2012: 6). One such consequence, climate change induced by global warming, is already being felt. The globally-averaged temperature across land and ocean surfaces for the two recent consecutive months—December 2015 and January 2016—were the highest on record over a 137-year period (NOAA, 2016). Governments across the world have been endeavouring to combat such environmental challenges through both domestic and international actions. 'Environmental protection and sustainable development is one of the most topical issues that face governments in the new millennium' (INCOSAI, 2010). Environmental audits undertaken by SAIs can and do play a crucial role in the implementation of environmental initiatives including those in Multilateral Environmental Agreements (UNEP, 2010: iii) aimed at environmental protection. These audits, particularly environmental performance audits, that SAIs have been undertaking for over two decades, have resulted in governments taking action both domestically and internationally to improve

water quality in rivers, to strengthen the protection of flora and fauna, and to reduce pollution (WGEA, 2012c).

While several possible scenarios could be perceived of the future (Suter, 2016), it seems unlikely that governmental role in the environmental domain will diminish. Rather, it is likely that public policy tools used to manage the environment will continue to expand (WGEA, 2007b: 48), as they have in the past. Building upon the earlier initiatives towards sustainable development, such as, Agenda 21 reached at the Rio Earth Summit, 1992, the UN Millennium Development Goals (MDGs), 2000, World Summit on Sustainable Development, 2002, and the Rio+20 Summit in 2012, the world leaders unanimously adopted new sustainable development goals (SDGs) in September 2015. This was immediately followed up by another landmark agreement on climate change at the Paris climate conference in December 2015. Together with the Paris Climate Agreement, the SDGs set the agenda for governmental efforts across the world for sustainable development for decades to come: to end poverty, fight inequality and injustice, and tackle climate change by 2030 (UNDP, 2016).

Topfer (2004) observes that "sustainable development cannot be achieved without good governance, and good governance, in turn, is greatly furthered by the valuable work of SAIs. Therefore, SAIs can play a vital role in informing and supporting efforts to achieve sustainable development." Due to their independence, SAIs are in a unique position 'to legitimately and credibly evaluate the efficiency and effectiveness of government policy and obligations' (Topfer, 2004). Environmental audits, and particularly the environmental performance audits undertaken by SAIs, should be seen in this context.

6.2.1 Current issues and challenges

6.2.1.1 What is special about environmental performance auditing?

Notwithstanding the similarities between environmental audits and audits in other fields, there are a number of challenges specific to environmental auditing (INTOSAI, 2012a): (1) Environmental problems and their solutions are generally long-term; (2) Environmental issues are multinational and interdisciplinary; (3) Policy issues are relatively new; (4) Sustainability—a core dimension—is difficult to address; (5) Environmental data is often lacking, diffuse, or incomplete; (6) Linking environmental issues to state finances is challenging; (8) Cost-benefit analysis of long-term environmental initiatives is difficult; (9) Fieldwork requires specialist competencies and knowledge; (9) Finding domestic audit criteria is difficult, and persuading governments to adopt international criteria even more so, and (10) Auditing generally has a retrospective focus; however, environmental issues require assessing the potential future impact of initiatives.

As noted in Chapter 4, the major policy-related issues identified by SAIs environmental performance audits include:

- overlapping 'mandates/lack of ownership;
- lack of coordination between related agencies and policies;
- lack of clear or executable policies;
- lack of mainstreaming of environmental matters; tension between economic growth and environment; lack of strategic planning;

- lack of performance measures or indicators;
- lack of information system;
- lack of data;
- lack of monitoring and evaluation;
- inadequate compliance and enforcement; and
- lack of the resource allocation to the environmental policies and programs by the government.

These issues also feature in the top ten issues identified by a survey by the WGEA (2012c: 13-14).

As noted in Chapter 4, some lessons SAIs learnt through environmental performance audits stress the need for: (i) well-thought through audit planning, clear scoping and defining of audit criteria to address the complexity of environmental auditing issues and related data limitations; (ii) avoidance of: (a) scientific debate; (b) underestimation of time; and (c) overestimation of impact; (iii) capacity building in specialist knowledge, skills/expertise; (iii) a more consultative approach with auditees and other stakeholders; and (iv) sharing of experience through international cooperation, including through joint/cooperative audits.

6.2.2 Emerging challenges

As the work of the SAIs sits within the overall context of governmental work, the challenges that governments will face into the future in their work, especially in implementing the sustainability agenda, will determine the overall landscape within which the SAIs environmental performance audit will be undertaken. Some existing trends will continue. Demand for food, water and energy will grow and consequently the agriculture sector will be under pressure to increase productivity amid shrinking supplies of freshwater and arable land. Continued urbanisation especially in the developing world will strain civic services, such as transport, housing, water supply and sanitation potentially giving rise to civic unrest. Sea levels rise may result in environmental refugees. Due to growing awareness of environmental issues, governments will be under increasing pressure to do more to implement the sustainable development agenda such as implementing cleaner energy technologies, water sensitive urban design, undertaking more research and development in these areas, and engaging in more cooperative and international efforts to alleviate poverty which should result in more flow of development aid to the developing countries. All the associated complexities will mean that, domestically, the governments in the future, will likely be working more and more in partnership with the private and non-government sectors to deliver goods and services to citizens and internationally with other governments and non-government organisations to implement the 2030 sustainable development goals. All these, though they only present a partial picture of the future governmental endeavours, mean several challenges for SAIs on three fronts: (1) Legal/institutional; (2) Operational; and (3) Relational. These are discussed below.

(1) Legal/institutional: According to the WGEA (2007b: 48-29), increased domestic and international collaboration will create further accountability risks that are at least two-fold. First, accountability is dispersed among several parties, where no one party is 100 percent accountable. Second, a robust system of accountability for delivering results may not be established through existing channels. This may challenge the mandate of SAIs to follow the funds outside of auditable government organizations (WGEA,

2007b: 48-49). Concern for this has been expressed by no less than an Auditor General and Chair of the WGEA (Oviir, 2012):

> I am concerned about the inadequate attention paid to auditing the rapidly expanding environmental investments of international funds. Recently, governments have sought to solve environmental problems by putting together multilateral funds like the Global Environment Fund or the Climate Investment Funds. Nobody seems to realize that these funds also contain taxpayers' money and that, consequently, SAIs should be able to audit them. Currently, these funds escape auditors' attention, and I see this non–involvement as a big risk. We have not yet been able to address this topic, but there will no doubt be others who will raise it.

(2) Operational: SAIs' environmental audit practices will need enhancement to serve the future needs. SAIs may be called upon for advice and audit in areas they may not have experienced in the past, such as, the nexus between food, water and energy; regulation of international market in carbon trading; regulation of artificially grown (genetically developed) body parts; and environmental concerns related to so called cleaner energy, such as nuclear energy and coal seam gas. They may be called upon more frequently to audit in politically sensitive areas such as agriculture subsidies for delivery of ecosystem conservation/restoration services (see for example, Kleijn & Sutherland, 2003; Stobbelaar et al., 2009; Yang et al., 2013). SAIs will need to continuously enhance the auditing standards to serve the needs of the future. Further, the development of environmental accounting and sustainability reporting and assurance that are still in their infancy (especially the latter) may require significant attention of the SAIs.

Environmental accounting provides a framework for organizing environmental data and linking it to economic data. Amongst other uses, it can enable policy makers to better manage resources; assess various environmental pressures; evaluate the impact of different regulations, taxes, and consumption patterns on environmental sustainability; and identify paths to sustainable development (WGEA, 2010: 5). As a discipline, environmental accounting is still evolving and has not yet entered the mainstream of public policy (see for example, Vardon et al., 2016). It covers complex and diverse matters some of which are still contentious. For example, valuing some natural assets and services such as clean air and water is complicated as they are not generally traded in markets, and alternative valuation methodologies face conceptual and empirical challenges. As a consequence, while several countries have developed their environmental accounting in varying degrees, none of them have developed a full set of accounts (WGEA, 2010: 7). Due to their knowledge of whole of government business, SAIs are uniquely positioned to assist their governments in enhancing the development of environmental accounting to provide more reliable analysis of the relationship between environment and economy (WGEA, 2010: 21).

Originating in the private sector and mainly practiced in developed countries but spreading to developing countries too, sustainability reporting is a systematic tool to collect and present sustainability information to the management and stakeholders such as employees, shareholders, customers, local communities, NGOs and investors. It increases transparency and accountability on issues that traditional financial reporting do not address, such as on greenhouse emissions, waste generation and efficient use of resources. Local governments are leading the way in adopting sustainability reporting in the public sector (WGEA, 2013b; 6). SAIs can contribute to sustainability reporting in at least two ways. Firstly they can introduce sustainability reporting as an organisation themselves. Secondly and more importantly they can

provide assurance to sustainability reporting as they currently do to financial reporting (WGEA, 2013b: 7). Measuring and reporting sustainability is challenging; providing assurance to sustainability reporting will be more so. But the independence and reputation of SAIs equip them well to do so - initially to assist their governments in introducing sustainability reporting and subsequently to provide assurance to such reports in the public sector. This will require capacity building in sustainability issues (WGEA, 2013b: 36).

(3) Relational: There will be greater need to work domestically and internationally with bodies, other than the peer SAIs and WGEA, such as NGOs, universities, UNEP, UNDP and UNESCO to co-generate knowledge to assist governments implement the sustainable development agenda; and co-operatively hold governments to account for their commitments.

6.3 Key issues

This section will briefly examine the key issues emerging from the earlier chapters in the context noted in section 6.2 above. Table 6-1 shows how issues arise from different chapters. While the issues may be categorised in several ways, legal/institutional, operational and relational, grouping of the emerging challenges are adopted for convenience. It may be noted that some issues, like collaboration, though not explicitly appearing in any chapter, are cross-cutting issues applying to all three categories of issues. Only the key issues (in italics)—not all issues listed—will be discussed separately. These are the issues that either raise fundamental questions about performance auditing or identify actions that need to be taken to address current and emerging challenges. Some issues may be mentioned in passing and some may not be discussed at all. Individual chapters may be referred for detail on them.

Table 6-1: Issues related to environmental performance auditing investigated (key issues in italics).

Issues/*Key Issues*	**Chapter 2**	**Chapter 3**	**Chapter 4**	**Chapter 5**
Legal/institutional/conceptual				
• *Mandate*	✓	✓	✓	✓
• *Nature of performance auditing*	✓		✓	
Operational				
• Environmental performance auditing	✓	✓	✓	✓
• Topic selection	✓	✓	✓	✓
• Criteria	✓		✓	✓
• Methods			✓	✓
• Standard	✓		✓	✓
• *Capacity and skills*		✓	✓	
• *Data and information*			✓	✓
• Impact	✓		✓	✓
Relational and communication				
• *Collaboration*	✓		✓	✓
• *Reporting*			✓	✓
• *Strengthening the WGEA*		✓	✓	✓

Key issues in italics

6.3.1 Legal institutional issues

6.3.1.1 Nature of performance auditing

At the core of performance auditing lies the idea of independent assessment of economy, efficiency and effectiveness of a government organization, program, activity, or function for the purpose of accountability and improvement of performance (see for example, Lonsdale & Bechberger, 2011; Kells, 2011). On the face of it, this conceptual definition seems innocuous. However, as noted in Chapter 2, there are some inherent tensions and dichotomies inherent within and between the different elements of this definition. While related to the core issue of the policy versus implementation dichotomy, the debate appears in different forms such as:

(1) The idea of effectiveness – (a) does it relate to policy (substantive effectiveness); or only to the process of implementation (administrative effectiveness)? (b) Is outcome being assessed or only the system/process to achieve outcome is being assessed?
(2) Efficiency or effectiveness – a highly efficient system can be ineffective (fail to achieve objective) and an inefficient system can still be reasonably effective;
(3) Accountability - who is ultimately accountable: the government (minister) to the parliament and people; or the administration to the government; and
(4) The accountability mission of performance auditing does not sit well with the learning mission. While the former (traditional assurance mode of audit) is based on social distance between the auditor and auditee; the latter is based upon social proximity between the two (Morin 2003; Saint Martin, 2004). Thus the improvement mission of performance auditing is not consistent with the institutional position of SAIs (Barzelay, 1997; Morin, 2003; Saint-Martin, 2004). Also, while the accountability approach does not require extensive expert knowledge of the matter, the learning approach does require such knowledge (Put, 2011). Given that it is almost impossible for SAIs to have expert knowledge of all areas of government business, it raises the question how their performance audits can contribute to improvements in areas where they do not have expertise. The issue of expertise becomes very important in specialist areas such as the environment (recognised as such by SAIs as noted in Chapter 2, and in Chapter 4, this issue is separately discussed later). While the two objectives can and do co-exist comfortably in most cases, in the case of conflict, accountability will prevail. It is to be noted that some of the challenges that performance auditing faces, are also due to its comparatively recent history. Unlike the thousands of years old history of financial accountability, performance accountability is less than 50 years old. So performance auditing is still evolving and thus it is not unexpected to have on-going debate on its nature.

Related to this debate is the inability of SAIs particularly in the Westminster system, to comment on the merits of policy. As noted earlier in Chapter 2, the continuing debate in the performance audit literature over the policy versus implementation audit is contentious. There are contrasting views on the matter even among practitioners. For example, Barrett (2015b)—a former Auditor General of Australia—citing evidence in performance audit reports, observes that deficiency in program performance is frequently more about policy than implementation. On the other hand, Emmett (1996)—who later became the first Commissioner of Environment and Sustainable Development (CESD) within the Canadian Office of Auditor General (OAG)—did not see any downside of the necessity for the CESD to be a part of the OAG—to keep

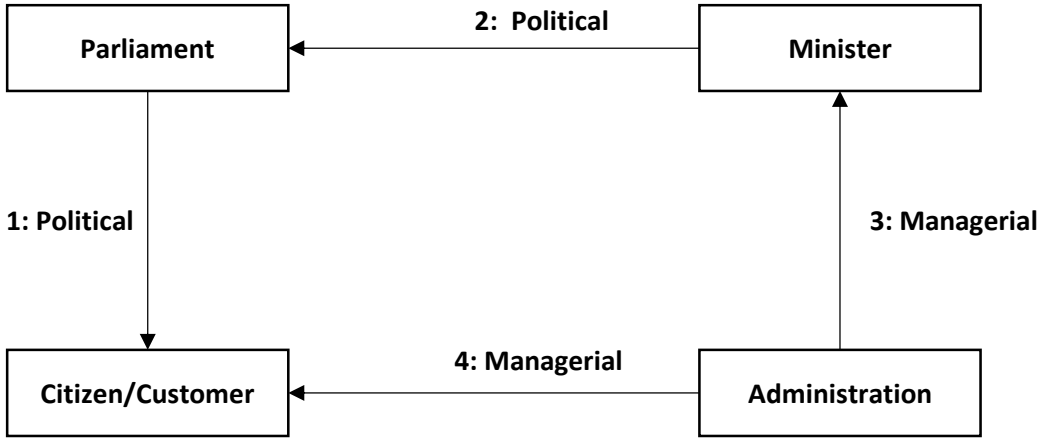
away from policy debate, observing, “the biggest problem on the environmental side at the moment is the gap between policy and execution. What we need are better systems to execute policies that are formed by Parliament and by ministers.”

Policy formulation is essentially a political process. The benefit of SAIs keeping away from it is that it gives them the ability to speak in an authoritative way that is viewed broadly as being unbiased (Emmett, 1996). As noted above, commenting on policy is a fine balancing act—a grey area without a black and white separation. All that can be said is that SAIs are challenged, so far as avoiding comment on policy is concerned (as seen in Chapter 5). To understand the challenge SAIs face in maintaining the delicate balance between policy and implementation matters, it is important to understand the nature of accountabilities involved in a democratic system. As seen in Figure 6-1, there is a series of accountabilities between citizens (also customers of government services) who are the ultimate principal (sovereign) and the administration (public service):

(1) Citizens elect parliamentarians who are accountable to them in a political sense. But parliamentarians (or parliament as a group) do not directly deliver service to citizens.
(2) Parliamentarians delegate their decision making power to the government (minister) they elect and give it budgetary resources. The government (minister) is accountable to the parliament in a political sense for expenditure and other decisions.
(3) But the government (minister) also does not directly deliver service to citizens: instead it appoints an administration (public servants) to do the job giving certain resources and delegating its certain powers to them. The administration is accountable to the government (minister) in a managerial sense.
(4) The administration that delivers service to citizens is also accountable to them in a managerial sense as it ultimately uses their (public) resources to deliver the service.

In this set up, it is not unusual for some citizens to see the government (minister) and administration together as one; and sometimes even parliament, minister and administration together as one (simply the Government).

Figure 6-1: Different types of accountability relationships in the public audit system (adapted from Put, 2011). The direction of arrow shows the direction of accountability.



In terms of auditing, the challenge for SAIs (generally an independent officer of parliament (or sometimes independent state institutions) is that, they are asked to audit and report on three accountabilities (2, 3 and 4 in Figure 6-1) that are both political and managerial, without much direction. It is a highly complex task, where distinctions between different types of accountabilities on one hand, and between government and administration on the other, get blurred. Asking SAIs to audit both managerial and political accountabilities, but expecting them not to comment on policies (by law or convention) seems akin to asking someone to do something, but restraining them from doing so—almost a mission impossible situation! It is therefore not surprising that the three SAIs studied in Chapter 5, even if they publicly declare that they do not to comment on merits of policy, occasionally cannot avoid doing so. In the environmental domain, when a policy does not promote sustainability, it is incumbent upon SAIs, as good models in society, to call attention to it; if they do not, who else would (Oviir, 2012)?

Performance audits cannot generate the desired positive impact or learning for improvement without analysing the root causes of problems. However, such an analysis may discover that root causes relate to merits of policy or sufficiency of resources or plain old politics that may be difficult for SAIs to address (Reed and Cing-Mars, 2014). As it would require SAIs to enter into the policy domain, it may jeopardise their traditional independence, objectivity and credibility (Desautels, 1994). Thus, expecting SAIs to assess substantive effectiveness without enabling them to do so, is a fundamentally deficient aspiration, like a utopia worth dreaming about, but unrealistic to achieve. As noted in Chapter 2, because public accountability is difficult to assess, it is a reasonable question to ask whether performance auditing and related institutions are being stretched too far (e.g. Ling, 2007). Not surprisingly, Mayne (2006) argues that performance audits should avoid effectiveness assessment. Amid this ongoing debate over auditing of effectiveness, it is notable that an overwhelming majority of SAI indicate in the survey (Chapter 4) that they audit both policy (substantive) and administrative (implementation) effectiveness. This adds another dimension to the fluidity of debate—a chasm between the purists' (academics) and pragmatists' (practitioners) views of effectiveness.

The discussion in this section has shown that assessing substantive effectiveness and, as a corollary, generating learning that is part of the performance auditing mandate, cannot always be generated without going into the 'forbidden territory' of policy. As such, it will continue to challenge SAIs in a fine balancing act of generating learning, yet keeping away from the policy debate in a traditional auditing for accountability mode. However, operating within their limits, SAIs are doing and can still do many things to improve the quality of the environment and the lives of ordinary people. Being apolitical does not necessarily mean being inactive. Using their wide discretion and independence, SAIs can bring out facts and objective analyses through both audit and non-audit investigations, especially in emerging areas, such as, the environment and sustainable development. Thus they can enable and stimulate debate without being partisan.

6.3.1.1.1 Frequency of review

Due to their limited resources, SAIs cannot audit the performance of each and every program of government let alone audit them regularly. As such, one of the limitations of performance auditing is its non-recurring nature. While SAIs do sometimes undertake follow up audits, this does not in itself, make

performance auditing a recurring assessment activity. On the other hand, some long-term programs, like many environmental programs, do need regular feedback to ensure that they stay the course to achieve the intended objectives. Given the long-term nature of some environmental initiatives, a typical performance audit therefore may not provide the ideal review mechanism. However, neither an internal or external evaluation can do so, due to acknowledged concern about their independence. It is considered that a combination of both recurring evaluation (Kleiman et al., 2000) and performance audit —rather than one or the other—is needed for long-term environmental initiatives. The former can provide detailed technical evidence of performance of a particular program, while the latter can integrate the broader socio-economic issues, including from other programs and assess the economy, efficiency and effectiveness from wider public service and even a societal perspective. Thus, the independent and vantage position SAIs occupy in the governance system enables them to make a substantial contribution to sustainable development.

6.3.1.2 Mandate

Mandate determines what types of audit SAIs can undertake and whom they can audit. As noted in Chapter 3, the overwhelming majority of SAIs do have a performance audit mandate; nearly all of them have access to the national government; about two thirds have access to state/provincial and local government; about three fourths to state-owned enterprises; and about half of them to semi-government enterprises. However, access to non-government public and private organisations is extremely limited. As environmental problems occur at a range of scales often beyond jurisdictional boundaries, environmental initiatives often involve cooperative efforts ranging from internationally, between national governments, to domestically, between different levels of government and even between government and the private sector through public private partnerships (PPPs). As noted earlier, this dispersed accountability is a challenge to the existing audit mandate of SAIs, not only for international initiatives like auditing international aid and multilateral environmental agreements, but also for domestic joint initiatives, such as, those between different levels of government, and PPPs. While internationally, at least some mechanism for cooperative audits, such as, through WGEA (and the broader INTOSAI and UN bodies such as UNEP and UNDP) exists, it is not well known if audit offices at different levels of government in multi-jurisdictional nations are cooperating with each other in auditing jointly-funded environmental initiatives (for example, only one instance of joint state-federal audit in Australia—the performance audit of the Gun Buy Back Scheme—is known). Some federations, like India and South Africa, have a single audit office with a nation-wide mandate over all levels of government that partly solves the problem of mandate. However, most others, such as Australia and Canada, have separate audit offices at national and state levels that pose challenges to the mandate for auditing joint federal and state initiatives. While the Australian National Audit Office (ANAO) has recently been conferred some mandate to audit federally funded initiatives run by the state governments, this is quite restrictive (McPhee, 2016). Apart from auditing joint government initiatives, auditing PPPs and NGOs and community sector-run activities partly funded by government are emerging audit areas that challenge the existing mandate of many SAIs.

While the absence of a specific mandate is not considered a barrier to environmental auditing by the WGEA (see for example, WGEA 2012a; 11; 2007a: 23; 2004: ii)) and is also corroborated by the survey in Chapter 4, the study in Chapter 5 shows that the mandate of an SAI does play a significant role in its

environmental performance auditing. With similar socio-economic and political backgrounds, Canada produces a significantly larger number of environmental audits than Australia. This can reasonably be attributed to the specific environmental audit mandate of the Canadian SAI and the consequent existence of a dedicated Commissioner of the Environment and Sustainable Development for the purpose within the SAI. Given that 'environmental topics compete with other topics for attention', this can become an issue in relation to environmental auditing for all SAIs with non-specific mandate for environment, but more so for developing SAIs 'as environmental issues is not a big priority in most developing countries'(survey respondents).

The survey in Chapter 4 indicates that in the majority of countries, there exist public bodies other than audit offices that examine and report on the performance of environmental policies and programs and most SAIs consider them as complementary. Along with them, other integrity bodies such as ombudsman, courts and tribunals (including those created especially for the environment—e.g. Land and Environment Court in the Australian state of New South Wales and the National Green Tribunal of India) may be interested in performance reviews of environmental matters. These provide opportunities to SAIs to collaboratively work with them in undertaking performance auditing of environmental matters. While such other public integrity bodies may exist in other areas and SAIs may cooperate with such bodies in auditing other issues, consideration here is limited to environmental matters due to the scope of research.

6.3.2 Operational issues

For over two decades, SAIs have been undertaking environmental audits to hold governments accountable to their environmental commitments and to confirm if such actions were delivering results. As noted in Chapter 3, environmental audits have been growing (both in number and complexity) and, increasingly, more SAIs have been undertaking such audits. Despite some noticeable decline in environmental audits post-2008 due to impact of the global financial crisis, it is likely that they will continue to grow in the future given the expanded sustainable development agenda agreed by governments in late 2015 (UNDP, 2016). As environmental problems are rooted in economic and social policies (Carisse et al., 2004), so are the capacities to resolve and monitor them. Consequently, it has been seen in Chapter 3 (and also in Chapters 4 and 5), that the socioeconomic conditions of individual SAIs and the world as a whole, do have an influence on environmental performance auditing. During the 20-year period, 1992-2012, developed countries as a group—though smaller in number—undertook more environmental performance audits than the developing countries. Further, as the global GDP increased, so did the number of environmental performance audits.

Further, it has also been noted (in Chapter 3 and Chapter 5) that the topics selected for audit and methods and approaches to environmental performance auditing (Chapters 4 and 5) are also influenced by the socio-economic status of the SAIs. The developed SAIs generally focus on auditing the performance of environmental initiatives related to higher order—quality of life— issues, such as, climate change; whereas the developing SAIs generally concentrate on undertaking performance audit of environmental programs related to subsistence matters, such as, water supply and sanitation. SAIs' selection of audit topics reflect the preference and priorities of the broader society they are part of. This only confirms the intertwined nature of environment and economic development made explicit at the World Summit on

Sustainable Development (WSSD) in 2002; also stated earlier at the Earth Summit in 1992; and suggested earlier in 1987 in *Our Common Future* (Bruntland, 1987) report of the World Commission on Environment and Development. In addition, being part of the broader public governance apparatus, SAIs also reflect the prevailing norm of the public administration (Pollitt & Summa, 1997) in the choice of the methods and approaches to audit. Consistent with this, compared with developing SAIs, developed SAIs generally use more system-oriented approaches and more consultative methods in their environmental performance audits.

6.3.2.1 Resources - Capacity/knowledge/skills

As noted in Chapter 3, there has been significant growth in environmental audits and environmental performance audits. It is notable, however, that even after almost a quarter century of holding the Earth Summit and the establishment of the WGEA in 1992, about half of SAIs are not undertaking environmental performance audits. The highest concentration of these SAIs is in Africa—a region of lower socio-economic development, which suggests a lack of capacity in SAIs to conduct performance audits generally and environmental performance audits particularly. The capacity deficiency in Africa and other regions identified in Chapter 3, should be a matter of concern for the INTOSAI and donor agencies such as the World Bank, International Monetary Fund, the Asian Development Bank, UNDP, UNEP and even the individual donor nations, given that these regions or individual countries will also be receiving developmental assistance as part of the new sustainable development agreement. The donor agencies and nations should invest in the capacity development of these SAIs, especially in the developing country SAIs that have not been able to undertake environmental performance audits. The INTOSAI Development Initiative (IDI) has launched a database to keep track of capacity development initiatives targeting SAI globally (INTOSAI, 2012b: 30). The donor agencies may record their capacity development support to SAIs in this database to promote transparency and accessibility of capacity building information.

While donor agencies have been endeavouring to build evaluation capacity in recipient countries (Khan, 1998; Holvoet and Dewachter, 2013), there is a need to focus particular attention on SAIs in this matter for at least two reasons: (1) The monitoring and evaluation capacity built up in agencies like government departments, universities and research institutions tend to be project-based and hence transient in nature. As soon as specific projects or related funding finish, the capacity developed tends to disappear. Due to their position in the state apparatus, SAIs are more likely to be an enduring repository of accountability determining capabilities than other bodies. Further, unlike other institutions, as SAIs are independent, they are better able to take a long-term perspective of the issues, that is required in environmental matters (Oviir, 2012). Consequently, capacity developed in SAIs can be enduring. (2) Due to their unique position of access and experience in whole of government issues, SAIs are in a better position to integrate social, economic and environmental issues across different sectors and to form non-partisan views—very much required for auditing sustainable development. While it may be argued that some central agencies, like departments of Finance, Treasury and Prime Minister do have whole of government views, these agencies, by their nature, are basically policy-oriented (political) and do not have the same public credibility to objectively review and integrate issues. While some research bodies and think tanks may have capabilities to integrate social, economic and environmental issues, their

dependence on funding from government and/or some other vested interests raise question about their independence/objectivity.

Environmental auditing requires specific skills (Ovirr, 2012; CAG, 2010a: 40). This implies having qualified people with a sound understanding of environmental issues, relevant environmental laws, regulations, policies and international agreements (Reed & Cing-Mars, 2014). It is not unusual for government officials in environmental departments to raise doubts about the competence of the audit team to conduct audits especially performance audits of their activities (see for example, ANAO, 2014b: 30; CAG, 2010a: 49-50; OAG-WA, 2013: 9). While most SAIs indicate in the survey (Chapter 4) that they do have sufficient skills to undertake environmental performance auditing, two key issues should be noted in forming a view of the sufficiency of skills across SAIs: (1) The survey only represents the views of the SAIs that are already undertaking environmental performance auditing. There are about 100 SAIs that are not undertaking such audits, likely due to inadequate skills; and (2) Skills seem to be sufficient only in the context of short-term work - topics chosen for audit. If SAIs do not have skills in certain areas, they may not choose such topics for audit. For their long-term requirements, SAIs do indicate a need or desire for development of skills in certain areas, for example environmental economics. Further, due to emerging challenges (as noted in section 6.2.2), there will continue to be a need for skills development to undertake environmental audits. For example, SAIs will likely need to build up capacity related to addressing sustainability issues in audits, in order to help develop sustainability reporting framework for the public sector, and subsequently, providing assurance on sustainability reporting, if and when, it is introduced (WGEA, 2013b: 36).

To meet the growing need for specialist training in environmental auditing, WGEA, in partnership with the SAI of India, has established a global training facility—the International Centre for Environmental Audit and Sustainable Development (iCED) in Jaipur, India (Prasad, 2012). Starting in 2013, iCED has been delivering training courses to the staff of various SAIs. However, participation in the iCED training courses will likely be determined by the availability of financial support, as the majority of SAIs willing to participate, do not have the financial means to do so (WGEA, 2012a: 71).

It goes without saying that financial resources are as important as human resource (skills) for undertaking performance audits. A large majority of SAIs in the survey (chapter 4) indicate that insufficient resources (including financial and human) are a constraint to undertaking more environmental performance audits.

6.3.2.2 Monitoring system, data and information

Despite strong demand for it, environmental data collection and analysis remains a substantially unmet challenge (van Dijk et al., 2014). The most common obstacles to developing and conducting environmental audits include insufficient data on the environment and insufficient monitoring and reporting systems (WGEA, 2012a: 28). Data monitoring and reporting being a significant issue in environmental performance audits is confirmed in Chapter 5, where an overwhelming majority of environmental performance audit reports produced by three SAIs identify issues with data, monitoring and reporting. The survey of the SAIs in Chapter 4 shows that, while an overwhelmingly large majority consider that data related to environmental policies and programs has often to always been adequate to make conclusions about their performance, only a small proportion consider that it has always been adequate.

Environmental monitoring systems are like the National Accounts that take the pulse of economy—they both provide information to support a wide variety of uses (OAG, 2011a: 25). There are ongoing challenges in obtaining and using high-quality data (WGEA, 2013a: 7). A large majority of SAIs in Chapter 4 note issues with environmental record-keeping, such as, 'weaknesses in the availability of data'; or the 'need for greater consistency of environmental data'. On this matter, one SAI notes:

> We almost always have a lot of problems regarding reliability and quality of environmental data from official statistics and the data we get from the auditees. In almost all our reports on environmental audits, we have a series of findings and conclusions about unreliability and incompleteness of official environmental data.

When data is not adequate, SAIs generally: (1) ask the audited body to collect/generate data; (2) collect data on their own; (3) collect data with external assistance; (4) agree to use available data; and (5) report that data held by the audited body had not been adequate. A report by the WGEA (2013a) provides some guidance to the SAIs on the matter. In addition to describing the various ways that SAIs use environmental data, this report documents some key sources of global and regional environmental data that SAIs can access; key matters they should consider when using such data; and provides a toolkit of methods that SAIs can use when high-quality environmental data are lacking. The report notes the growing use of Geographical Information System (GIS) and satellite based observations by environmental managers and cites several examples where SAIs used them in their audit and related work. It also directs the SAIs to its 2010 *Auditing Forests* guidance paper that describes how SAIs can use GIS technology in auditing forest management, for example to determine the extent of deforestation, illegal logging activities, and illegal land use (WGEA, 2013a: 42).

SAIs seem to be marching ahead in the use of such modern technologies. For example, the SAI of India used GIS and remotely sensed (satellite) data to analyse the growth of the plantations for the 'Performance Audit of Compensatory Afforestation in India' (CAG, 2013a: 101). The SAI of Indonesia has applied these methods for audits of forestry, plantations, and mining (Musa, 2012). Further, social networking tools such as LinkedIn and Facebook that are already being used to monitor environmental issues by some governmental and nongovernmental organizations present new opportunities as well as challenges for SAIs (WGEA, 2013a: 44). Ever growing pressures on budgets may lead environmental managers to shift away from on-ground data collection efforts and use more remotely sensed and modelled data to demonstrate performance. Further, programs managers, in addition to budget constraints, for the reason of efficiency, may enter into partnerships with other agencies to collect and analyse data; may use purchased data; or even use data generated by resource users (e.g. water user) to base their performance indicators upon. These have some implications for data veracity for SAIs, who will rely upon such data to audit performance (WGEA, 2013a: 44).

6.3.2.2.1 Performance measures/indicators and environmental indicators

Performance management is a core element of public management (e.g. Ingraham, 2003; Kettl & Kelman, 2007; and Talbot, 2010) that can be considered pivotal to performance auditing. Despite a long history and burgeoning literature (see for example, Bouckaert & Halligan, 2007: 11; Pollitt, 2013) public sector performance management remains a contested field (Bouckaert & Halligan, 2007: 13). Many government agencies continue to find it challenging to develop and implement key performance indicators (KPIs),

particularly KPIs relating to effectiveness that provide quantitative information to enable assessment and reporting of achievement against objectives (ANAO, 2011: 17). However, it is likely that in the future, performance auditing—like financial auditing—would become an activity attesting the appropriateness of performance statements. So, SAIs will be more and more involved in auditing KPIs, rather than measuring and assessing performance themselves. For example, in Australia, under a new public governance legislation, federal government agencies are now required to include a performance statement in their annual reports that may be audited by the ANAO. It is heartening to note from the survey in Chapter 4 that, notwithstanding some deficiencies that may be present, measurement and reporting of effectiveness of environmental initiatives is highly prevalent. It is better to be vaguely right than exactly wrong (INTOSAI, 2004: 114).

The long-term nature of some environmental programs and policies do pose a challenge to auditing their performance. As noted in Chapter 2, the WGEA concedes that this is one of the many issues that makes environmental auditing special. This is further confirmed by the survey in Chapter 4, where an overwhelming majority of SAIs consider that the long-term nature of some environmental policies and programs pose particular challenges to performance auditing. Developing some 'interim' or 'intermediate' performance measures to overcome the difficulty of measuring long-term outcomes that is discussed in the literature (see for example, ANAO, 2005; Barrett, 2012; Barrett, 2015), has also been suggested by SAIs in the survey (Chapter 4). According to the survey, 'a combination of outcomes-based, outputs-based, activity-based and input-based key performance indicators' that are 'relevant, acceptable, credible, easy [and] robust' should ideally be specified in the environmental policies and programs to facilitate their audit.

The SAIs survey in Chapter 4 demonstrates a widespread use of environmental performance indicators by SAIs in their audits. While a welcome sign, the use of environmental or ecological indicators is not without pitfalls. There may be various unintended and potentially negative side effects of indicator-based communication, particularly related to sustainability issues that are characterised by various actors and multiple temporal, functional and spatial scales (Lyytimäki et al., 2013). SAIs need to be mindful of the risks and limitations of environmental indicators they use in performance audits. This is illustrated by, for example, the SAI of the United States' audit of a national set of ecological indicators to assess whether changes to US federal monitoring systems might affect the ability of those systems to provide the data necessary to support the indicators (OAG, 2011a: 22).

6.3.3 Relational and communication issues

6.3.3.1 More influence by developing collaborations and partnerships

Conscious of preserving their independence, SAIs have generally been closed organisations, reluctant to work with others and generally not interested in forming coalitions (Posner, 2011). While protecting their independence on the upside, this institutional insularity on the downside, has been diminishing SAIs' influence in the issue networks that drive the policy agenda and change (Schwartz & Posner, 2008). However, it seems the SAIs are gradually breaking their insularity and coming out to work with others. For example, in Australia for decades, the ANAO has been consulting with stakeholders, including customers of government services and the general public, in developing its annual audit plan and also in conducting

performance audits. As precursors to its 'Performance audit of water pollution in India', the SAI of India organised two international conferences of stakeholders and also called for submissions from the public during the audit (CAG, 2011a: 4-5). These conferences were attended by various civil society organisations, government agencies, international agencies, regulatory bodies and the SAIs of Austria, Bhutan, Maldives and Bangladesh.

While SAIs are becoming more consultative, they still have to cover some ground to become fully collaborative. Recently, the state audit office of Vaud (Switzerland) undertook performance audits of: (a) subsidised professional integration programs in collaboration with a university; and (b) sustainability of public buildings in collaboration with experts in a university and in the private sector (Rey, 2016). Bhandari (2014) cites several examples of various models of involvement of civil society organisations (CSO) in public audits in India, Africa, Philippines, Mexico and Korea.

The public audit is now also considered as a means of community empowerment and agent of social change (see for example, Rubenstein, 2001; Stern, 2005). Performance audits, by bringing information—that is otherwise hidden in government departments—out in the public domain, can empower the community to raise questions about the performance of government programs, thus making government more accountable. The UN Resolution A/66/209 notes that citizens and the civil society are as important as addressees of audit reports and recommendations as competent political bodies, and they also contribute to effective control through public debate.

While the involvement of CSOs and NGOs is a welcome sign, this also present some risks to the SAIs that need to be managed. For example, confidentiality of information needs to be maintained. Further, many CSOs and NGOs are known to have views that some may consider partisan. In working with these organisations, SAIs need to be careful not to get involved in policy advocacy, lest it discredits their objectivity and independence—the core foundation of their reputation. This way, they would lose more influence than they would gain. Notwithstanding the risks involved, it is unlikely that SAIs would be able to operate effectively in isolation. In the modern era of exponentially growing connectivity enabled by the digital revolution, SAIs may perhaps struggle for influence, if they do not transform themselves as connected organisations. They will need to make some strategic choices if they would like to be the source of authentic, objective and timely performance information that is enabled by partnership with others; or compete with so many other sources of information and risk fading into irrelevance, being perceived as obsolete. While they have a monopoly over government audit, this will only serve to the extent that the public at large, see them as the source of timely, authentic and beneficial information. With limited resources and a lot to do, perhaps the question about engaging in partnerships may no more be of 'if'; rather than of 'how', they do it. What they use the partnerships for, rather than whom they partner with, will be a bigger determinant of their influence. If they concentrate on building partnerships and collaborations to gather data and information, develop analytical tools and methods, and develop and disseminate knowledge, SAIs are likely to gain more influence. There is a range of bodies that SAIs can collaborate with in these areas, such as universities, statistical and research bodies, NGOs, CSOs and think tanks.

6.3.3.2 Greater impact of environmental performance audits through better communication

As noted in Chapter 4, environmental performance audits have led to significant improvements to both the governance and the performance of environmental policies and programs. Reed and Cing-Mars (2014) identify some practical measures for increasing the impact of environmental performance audits. These include: (1) selecting topics of interest to the public and to parliament; (2) focusing on results in audit objectives; (3) going beyond compliance in audit criteria; (4) timing of audits to 'pivot points' in environment issues cycle, such as, periodic review of key environmental legislation/programs; (5) when scoping audits, considering linkages between issues by doing multiple audits on one topic over years; (6) and when determining focus considering drivers of degradation.

Additionally, improvement to communication and engagement can deliver more impacts. As indicated in Chapter 5, improving communication and engagement with auditees perhaps is still 'low hanging fruit' with huge potential to enhance audit impacts. Notwithstanding this, unlike a law court however, SAIs do not have enforcement powers to ensure implementation of their recommendations by government. In this respect, they depend primarily on parliament, as the ultimate owner of policies and as the primary client of their audit reports. Therefore, they must proactively and responsively engage with parliament to enhance the impact of their audits. Other avenues for enhancing communications for better impacts are discussed below.

6.3.3.2.1 Lifting the SAIs' game – standard of reporting

The quality of performance audits is critical to the reputation and credibility of SAIs (Wilkins and Boyle. 2011). As discussed in Chapter 4, in conducting environmental performance audits, almost all SAIs use some form of standards or guidelines to assure the quality of their audits. These standards and guidelines range from the principles-based non-mandatory standards such as INTOSAI (2004) international performance audit standards (ISSAI 3000 -3100) to mandatory national standards such as ASAE 3500 used in Australia. Notwithstanding some variability in the application of standards by one SAI (Australia et al., 2012: 28), all three SAIs studied in Chapter 5 use standards in undertaking performance audits. However, unlike the conduct of performance audits, there is no general standard for the content of performance audit reports (Suzuki, 2004). As a consequence, the contents of performance audit reports not only vary between the SAIs, they also vary between different audit reports of the same SAI. As noted in Chapter 5, the most notable variation in the audit reports is the coverage of methodology. While a lack of interest among the parliamentarians—the primary client of SAIs—in methodological details (Lonsdale, 1999a: 145-146; McPhee, 2016)) is acknowledged, it does not absolve the SAIs of their professional responsibility to maintain rigour in their reporting work. Some related issues are discussed below.

Despite the maturity of the discipline and the development of related standards, a performance audit, unlike a financial audit, is still considered as a standalone endeavour, much like a research investigation. Therefore, like an academic research report, every performance audit report should contain methodological details. This is required both for technical rigour and transparency. SAIs, that usually set and expect a high standard of behaviour from public entities, should be expected to lead by example in promoting transparency. Given their role in ensuring the accountability of others for their performance, SAIs are expected to explain the methods used in their work as a key part of their own accountability

(Lonsdale, 1999: 144). It is noted that unavailability of a standard definition of methods has not helped the cause either. For example, each of the two well-cited texts on performance audit (Pollitt et al, 1999: 129—16 methods; and Lonsdale et al., 2011: 100—23 methods), as well as, INTOSAI publications (INTOSAI, 2004: 96-99—7 methods; WGEA, 2013c: 51—12 methods), variously list and describe the methods used. As the field of performance audit grows, it would be helpful to develop a standard definition of various methods, so that a common understanding of the various methods develops and interpretational differences are minimized. Leadership by the INTOSAI on the matter is warranted.

Description of audit criteria in performance audit reports is another area that requires attention. While a large majority of SAIs indicate in the survey that they use explicit criteria in environmental performance auditing, it is not clear, if they also describe them in performance audit reports. A study of audit reports of three SAIs in Chapter 5 shows a mixed result. The deficiencies in the coverage of both methodology and criteria in performance audit reports point to a systemic antithesis of auditing that is to promote transparency and accountability.

Performance audit reports are highly visible public documents that are used by a range of stakeholders including parliamentarians, government, the media and the public for various purposes. They need some assurance on their contents. Given their growing importance, it is important that a generally accepted standard of reporting is developed for performance audit reports. For the SAIs that already have reporting standards, reviewing and implementing them rigorously is warranted.

6.3.3.2.2 Means of reporting

It is acknowledged that different audiences have different needs and it may be challenging for SAIs to meet all such needs in one report. However, the advances in information and communication technologies can be harnessed by SAIs to meet this challenge, such as publishing different versions of report (summary and full report) on the internet, and using social media such as Facebook and Twitter to reach different types of audiences. Some audit offices are already doing that. For example, SAI of India uses small coloured booklets to communicate performance audit messages to clients. The booklets include a summary of key findings and conclusions, accompanied by colour photos and an electronic copy of the report on a CD-ROM. A peer review (Australia et al., 2012: 40) considers that this innovative way to reach out to a broader audience and draw attention to important community issues is a good practice. A SAI notes in the survey (Chapter 4) that, “we are experimenting with alternative ways of presenting our work - using more interactive [portable document formats] pdfs rather than long-form reports. While this is not confined to our work on environmental issues, [this] is one of the areas where we are making more use of this new format than most.” ‘Ensuring publicity and transparency, wide media coverage of problems and difficulties in the environmental protection identified during audit work’ is one of the lessons noted by SAIs in the survey (Chapter 4) that highlights the importance of communication. Recognising the ‘preponderance of stakeholders in the environmental domain’, the audit offices should reach beyond the usual suspects to specialised media, academics, journals, civil society, grassroots organisations and today’s youth to reinforce the messages and impact. This obviously requires a communication strategy beyond reports, ‘news releases, news conferences and interview with the usual media’ (Reed & Cing-Mars, 2014).

Currently, SAIs make recommendations that are buried in their performance audit reports. Sometimes SAIs undertake follow up audits to assess how their recommendations are being implemented. Depending upon the politico-administrative arrangements, sometimes parliamentary committees also follow up on the implementation of the SAIs' recommendations. However the public is rarely aware of the implementation of the recommendations. This, in some way, limits the benefits of public auditing that includes letting the public know how government/administration is responding to the recommendations for improvements. One way of realising the hidden potential of public auditing is that SAIs put a database of their performance audit recommendations on their website that is updated periodically to show the status of implementation. This may put the department(s)/minister(s) under more public scrutiny, as the public may question government directly, or via their member of parliament, as to why recommendations have not been implemented. As this will put the spotlight directly on the administration/government and is likely to cause some discomfort, some resistance is expected. However, given their independence and standing, SAIs can implement this through a careful, cautious but consultative approach.

In many countries, for example, Australia and UK, SAIs recently have concluded that producing audit reports is not enough for effecting beneficial change (Lonsdale, 2011a), so they have started producing better practice guides (BPGs) incorporating the learnings from their audits. While some government officials have welcomed them asking for more of BPGs and less of audits (McPhee, 2011: 11), it is also considered as a conflict of interest and potential threat to independence because it is perceived as stepping outside the competence of SAIs (Barrett, 2012). As a consequence, there has been some rethinking, for example, the SAI of Australia has decided to discontinue producing BPGs (Hehir, 2016).

6.3.3.3 Research in environmental performance auditing

Compared with the proximate disciplines of evaluation and performance measurement, there is a lack of academic interest in research into performance auditing generally (e.g. Furubo, 2011; Pollitt & Summa, 1999) and in environmental performance auditing particularly. Pollitt and Summa (1999) cite the highly technical and apolitical nature of SAIs' work, associated lack of news worthiness and publicity shyness of SAIs as reasons for this. The insularity of SAIs, their reluctance to work with others and to open themselves to greater scrutiny by others, perhaps due to their concern for preserving independence (Posner, 2011), can also be considered as other reasons for this lack of interest. Further, there is also a lack of outlets for research in the field, as Furubo (2011) notes the absence of societies, conferences, and journals dedicated to performance auditing. The closest journal, *the International Journal of Government Auditing* is mostly devoted to reporting INTOSAIs' and its members' activities with occasional technical articles from SAIs. Consequently, researchers need to go to general public administration, accounting and auditing journals to publish their work whose focus and interest may be different to performance auditing.

Notwithstanding the lack of interest by academics noted above, there is little doubt that on-going research is required to meet the current and emerging challenges of environmental performance auditing. While WGEA has been undertaking significant research and has been producing guidance material, it is noted that most of this research has been undertaken by SAIs. While no doubt useful, it is considered that the WGEA research endeavour would benefit from participation by universities and other research bodies. SAIs are busy workplaces, generally challenged by a lack of adequate resources and mostly working to

deadlines. This work environment of daily grind is not very conducive to 'blue sky' thinking that may be required to develop the audit methodologies of the future. For example, the research and development expertise of universities and research bodies could be tapped to develop environmental accounting and sustainability reporting and assurance. SAIs, through the WGEA or individually, could collaborate with universities to undertake such research. With cross fertilisation of ideas from SAIs and academics, such research could enrich the discipline of environmental performance auditing. Successful collaborations between professionals in government and outside in other professions such as law, medicine and engineering, are worth emulating in performance auditing.

The survey in Chapter 4 shows that presently SAIs and universities are not well connected for several reasons including relatively SAIs' lower budgetary implications for environmental performance auditing, lack of interest in universities and the usefulness of research produced by the universities. However, on the positive side, the evolving nature of environmental performance auditing is acknowledged and the need for research is recognised by SAIs. Some positive developments are already visible. For example, the SAIs of USA and Uganda (on behalf of the WGEA), in addition to their SAI peers from several countries, worked with the Columbia University and statistical offices/bureaus from a number of countries to produce preliminary guidance on 'Environmental Accounting' (WGEA, 2010). Likewise, the SAI of Finland, in addition to its SAI peers from several countries, worked with the University of Canterbury (UK), the Association of Chartered Certified Accountants, (UK) and a Finnish private sector company, Tofuture, to produce WGEA (2013b) guidance on 'Sustainability Reporting'. In early 2016, the Queensland Audit Office (QAO), Australia, commissioned the Queensland University of Technology (QUT) to undertake research into the future of performance auditing to investigate: (a) major challenges confronting performance auditing in the future; and (b) dominant solutions to deal with these future challenges (Greaves, 2016). The QAO, in association with the Australasian Council of Auditors General, also organised the inaugural 'International Meeting of Performance Auditing Critical Thinkers (IMPACT)' conference, 15-16 March 2016. The conference, attended by over 100 Australian and overseas delegates from audit offices (60%), universities and other public and private sector organisations (40%) (Anderson, 2016), discussed contemporary research in performance auditing on a range of topics such as, global challenges, development in the public sector, transactional and relational themes in performance audit recommendations, integrated reporting and large data assimilation leading to new insights. The research initiatives such as those by the WGEA and QAO are a welcome sign and auger well for the future of performance auditing generally and environmental performance auditing in particular.

6.3.3.4 Strengthening the WGEA

The WGEA is promoting the development of environmental auditing through several related means such as publication of guidelines, tri-annual survey of SAIs on environmental auditing, and facilitating exchange of experience between SAIs through cooperative audits. As noted in Chapter 3, the WGEA has a very positive influence on the SAIs' capabilities to undertake environmental audit. This is evidenced by a strong correlation between WGEA membership and the output of environmental performance audits. WGEA-member SAIs have produced more environmental audits and environmental performance audits than the non-member SAIs. Among the WGEA-members, the developing country SAIs out-perform their developed peers in producing environmental audits and environmental performance audits. However, irrespective

of the membership, the benefit of the WGEA is recognised universally by SAIs (WGEA, 2012a: 32). Further, as reported in Chapter 4, an overwhelming majority of SAIs consider that WGEA is beneficial in terms of: (a) improved understanding of environmental matters; (b) improved skill of staff; and (c) lifting the profile of environmental performance auditing generally. SAIs also consider that cooperative audits that WGEA promotes lead to: (c) better audits quality; and (d) more international environmental cooperation.

While the WGEA has delivered immense benefits so far, some early signs of stress are visible. For example, the SAIs contacts on the WGEA website are not regularly updated and the publication of the 8th tri-annual survey has been delayed—both suggesting capacity constraints in the WGEA. It is noted that the WGEA is currently an under-resourced (or un-resourced) voluntary organisation. Unlike its parent body (INTOSAI), the WGEA does not have a permanent secretariat and staff to manage its day-to-day operations. The secretariat support to the WGEA is provided on a voluntary basis by the Chair of the WGEA that rotates among members. It should be noted that the secretariat manages a huge amount of data and information, in addition to providing administrative support to the WGEA. As a consequence of a transient and under-resourced secretariat, there is a risk that valuable data and information held by the WGEA will get fragmented. It is understood, for example that, the data generated by the WGEA tri-annual surveys (8 so far) are not held in one location. Compared with its limited resources, demand on the WGEA is likely to increase in the future, for example to produce guidance material on emerging issues. Further, in view of the adoption of new sustainable development goals, the WGEA will need to collaborate more with other international bodies such as UNEP and UNDP.

In view of the above, there is a strong case for strengthening the WGEA to maintain and enhance the benefits it provides. This requires providing a permanent secretariat to the WGEA for its more effective functioning. This could result, amongst other things, in better collaboration, better management of valuable data and more value-added information products. For example, the current WGEA database of the environmental audit reports—that is rudimentary—could be enhanced to periodically update the type of analysis produced in Chapter 3; more analysis of the WGEA tri-annual survey data could be made possible; and more value added/tailor-made information products could be generated. These information products could be made available to governments and donor agencies, for example to inform capacity building efforts in SAIs. Further, a permanent secretariat could work on building better collaboration with other regional and international bodies such as, the Asian Development Bank (ADB), the World Bank and UNEP. The UN, the World Bank, ADB and other financing/donor bodies may consider bearing the costs involved in strengthening the WGEA.

6.4 Conclusion

This chapter has synthesized the research on environmental performance auditing presented in earlier chapters by bringing together the underlying key issues and challenges and exploring their implications for the future. The following key messages emerge from the synthesis:

(1) There is an inherent tension between the twin objectives of performance auditing – accountability and improvement;
(2) Despite being similar to performance auditing in other fields, SAIs recognize environmental performance auditing as posing some special challenges;

(3) The global and individual output of environmental performance audits seem related to economic development. Globally environmental performance audits have been growing (both in number and complexity) in line with the overall global economic growth. However, after almost a quarter of century, about half of SAIs—mostly in weaker economic regions such as Africa—are not undertaking environmental performance audits, suggesting capacity gaps. INTOSAI, along with donor agencies, may particularly focus on building capacity in these identified SAIs;
(4) In view of the emerging challenges, SAIs may consider transforming themselves and working collaboratively with others, to enhance performance auditing including by developing new tools and methods for data collection and analysis;
(5) To increase the impact of their audits, SAIs may consider enhancing their communication, their reporting standards and methods of reporting; and
(6) WGEA has been very beneficial to SAIs through assisting capacity development, fostering cooperation, and generating and disseminating knowledge related to environmental auditing. However, some early signs of stress are visible in the WGEA. To enable it continue meeting the growing challenges of the future, SAIs through the INTOSAI, may consider strengthening the WGEA, for example, by providing a permanent secretariat. The INTOSAI may approach the UN, the World Bank, ADB and/or other financing/donor bodies for financial support to meet the costs involved in this endeavour.

Following the synthesis of research presented here, the next chapter will conclude this thesis.

Chapter 7 : Conclusion

7.1 Overview

Governments around the world invest large amounts of public resources in environmental policies and programs. The effectiveness of these policies and programs is critical to environmental sustainability. The efficacy of the governments' policies and programs are examined by Auditors General (also referred as supreme audit institutions or SAIs) through what is commonly known as performance auditing. Compared with traditional evaluations undertaken mostly by private sector and academic institutions, performance audits by Auditors General, have greater capacity to influence the implementation of policies. Despite this, performance auditing in the environment field has received very little academic attention. To fill this knowledge gap, this thesis aimed to study environmental performance auditing by SAIs taking a disciplinary approach. As environmental performance auditing is not yet a discipline in itself, a preparatory question, 'what is it' was investigated to establish the discipline. Subsequently the study investigated three related questions: (a) Has there been any trend in environmental performance auditing; (b) How is environmental performance auditing practiced; and (c) What are the key issues and challenges in environmental performance auditing? This chapter reflects upon the research undertaken for this study at a higher level than the findings noted in previous chapters.

7.2 Environmental performance auditing – what is it?

Chapter 2 answered this question at the very outset that environmental performance auditing is the performance auditing of the implementation of environmental policies and programs undertaken by SAIs. However, unlike other disciplines such law, medicine and accounting, performance auditing is still not well established. So ideas and issues relating to performance auditing are still evolving and even fundamentals are still being hotly contested. Consequently, research in performance auditing needs to collate and explain these live issues. Starting with the origin of audit, Chapter 2 retraced the journey of performance auditing and captured in the process the contemporary debate over the nature of performance auditing. From accountability for money to accountability for performance, thousands years old public auditing's journey from financial auditing to performance auditing is quite recent. Performance auditing has twin missions of accountability as well as learning for improvement. There is inherent tension between the two, as the former is premised on social distance or independence (a fundamental requirement for audit) from the auditee, while the latter is based upon social proximity. This tension is reflected in the related debate over policy versus implementation review and the substantive versus administrative effectiveness assessment. Overall, the identity and nature of performance auditing remain a work in progress. However, one thing is settled that the independence of SAIs differentiates their performance audit work from a functionally and methodologically similar work carried out mostly by private sector in the form of traditional evaluation.

Subsequent to discussing the nature of performance auditing, Chapter 2 introduced some operational matters such as steps in performance auditing and performance auditing standards. Further contemporary developments such as the participation of civil society organisations in performance audits and performance auditing beyond SAIs were also touched upon. In order to provide clarity to the field of

environmental performance auditing, Chapter 2 differentiated it from nearby terms, such environmental auditing, environmental monitoring and state of environment reporting. The chapter noted some challenges specific to environmental performance auditing recognised by SAIs. These include the long-term nature of environment initiatives, difficulties with data, plurality of issues and actors, and difficulties in assessing cost benefit analysis due to non-market nature of the benefits.

Overall, environmental performance auditing is essentially a branch of performance auditing that shares all its basic attributes but has some specific challenges. Essentially, it is about assessing the economy, efficiency and effectiveness of government's environmental initiatives with twin purposes of holding government accountable and generating learning for improving the administration of such initiatives. Answering the preparatory question, the chapter 2 provided the theoretical and contextual foundations for the research.

7.3 What has been the trend in environmental performance auditing?

Chapter 3 explored this question by analysing global data on environmental auditing already available from the Working Group on Environmental Auditing (WGEA). A primary analysis of two decades (1992-2012) of environmental performance audit reports data and a secondary analysis of seven WGEA triennial survey data scattered in seven survey reports were undertaken. To discern causative factors underlying any trend, the primary analysis also investigated the existence of any relationship between environmental performance auditing and economic factors with the help of related data such as GDP and developmental status of SAIs available from the World Bank. Further, the influence of the WGEA membership on environmental performance auditing was also investigated.

Key findings of the primary analysis include that: (a) Environmental performance audits have been growing in number and possibly in complexity, and increasingly more SAIs have been undertaking such audits. However, the growth in environmental performance audits has been uneven. About half of the environmental performance audits over the two decades have been produced by top ten countries, and half of SAIs have not produced any environmental performance audits during this period. (b) There is a link between global economic conditions and global output of environmental performance audits. As global GDP has steadily increased so has the output of environmental performance audits. Further, transient fluctuations in the global economic conditions are also reflected in the global output of environmental performance audits. (c) There is also a link between the broader economic conditions of the parent country of SAIs and their output of environmental performance audits—developed country SAIs as a group, though smaller in number, have produced more environmental performance audit than the developing country SAIs. Due to their sheer large number, overall, the developing country SAIs seem to be overtaking the developed countries gradually in the production of environmental performance audits. However, as they are also more vulnerable to any downturn in broader economic conditions, such as, the global financial crisis, these have more pronounced effect on the output of environmental performance audits of developing country SAIs, than developed country SAIs.

(d) The economic development conditions of the parent country of SAIs also determine environmental topics they audit. The development and sustenance issues (e.g. drinking water, agriculture) are more important to developing country SAIs, and life quality issues, such as, climate change and governance are

more important to developed country SAIs. As would be expected, SAIs being part of the wider society of their countries, reflect the wider societal priorities in their audit work. (e) There is a strong correlation between the WGEA membership and the output of environmental performance audits. WGEA-member SAIs have produced more environmental performance audits than the SAIs who are not members of the WGEA. Among the WGEA-members, the developing country SAIs outperform their developed peers in producing environmental performance audits. However, among the non-members, in reversal of the trend, developed SAIs have produced more environmental performance audits than their developing peers. This underscores the importance of environmental awareness (reflected via the WGEA membership) vis-a-vis the economic factors.

7.4 How is environmental performance auditing currently practiced?

This question was explored through a global survey of SAIs in Chapter 4 and through a comparative case study of environmental performance auditing in three countries—Australia, Canada and India in Chapter 5.

Chapter 4 investigated current global practice of environmental performance auditing including the influence of SAIs' developmental level on the practice. This chapter also investigated several related matters including impacts of environmental performance audits and benefits of cooperation and that of the WGEA. Key findings about the current practice in environmental performance auditing includes that: (a) Environmental matters are now part of the mainstream of performance auditing as an overwhelming majority of SAIs consider them in their strategic audit planning. (b) Irrespective of the existence of a specific mandate for environmental auditing, SAIs predominantly use a structured approach to topic selection that include amongst others, risk assessment, materiality and salience. As environmental topics compete with other topics, such as, those related to health and education, for the attention of SAIs (with non-specific mandate for environmental audit), this method disadvantages environmental performance auditing especially in developing countries, where environmental issues may not be a high priority. SAIs without a specific mandate for environmental auditing also use a sectoral approach to topic selection, where environmental matters are selected as per their relative importance. Like other topics, environmental matters are also selected as a consequence of request from stakeholders. Overall, however, environmental performance audit work is a significant, but still a very small proportion of the total performance audit work of SAIs.

(c) The majority of SAIs (proportionally more developing than developed SAIs) develop criteria for environmental performance audits in consultation with auditees. Predominantly, SAIs (proportionally more developed than developing SAIs) explicitly specify the criteria for environmental performance audit. Likewise, SAIs (more developed than the developing SAIs) predominantly derive criteria for environmental performance audits from official sources, such as policies and auditees' performance indicators. However, SAIs are highly sceptical of the reliability of official sources. (d) Almost all SAIs use some standards or guidelines for quality assurance of their environmental performance audits. (e) SAIs use about fifteen different types of methods to collect evidence for performance audits. The five most popular methods of evidence collection in that order are: document examination; official's interview; site visit; literature survey; and system/process review. On average, the developed SAIs seem to be using more methods than

the developing SAIs. Key factors considered in the decision of methods include: the complexity of the topic; objectives and scope of the audit; and availability of resources–both financial and human. (f) SAIs overwhelmingly (more developing than developed) consider that cooperation with other SAIs, directly or indirectly, via the WGEA has benefitted them by improving the understanding of environmental matters; improving skills of staff; and lifting the profile of environmental performance auditing generally. Further. SAIs also overwhelmingly consider that cooperative audits that WGEA promotes lead to better audits quality and more international environmental cooperation.

The comparative study of 3 countries (Australia, Canada and India) in Chapter 5 enhanced the understanding of the practice of environmental performance auditing, especially how local institutional settings, culture and traditions can profoundly impact the performance audit practice. While there are broader similarities between the three countries' (SAIs) audit practices, e.g. selection of topics, overall conduct of audit, use of standards and reporting to parliament, there are also significant differences between them. For example, the SAI of India can audit all levels of government. As a consequence, there is a great variety in its reports in terms of format, content and size. On the other hand, even though Australia and Canada are socio-economically similar, Canadian SAI is far ahead of its Australian counterpart in terms of the volume of environmental performance audits. This is attributed to the special environmental mandate of SAI Canada. Even adhering to the same basic principle that a performance audit must conclude against audit objectives, three SAIs widely vary on this matter. The Canadian performance audit conclusions are very closely aligned to the audit objectives, whereas conclusions of the Indian audit reports are not well aligned and the alignment between audit objectives and conclusions of the Australian audit reports are in between. Undoubtedly as SAIs serve their parliament, their reporting style and preferences would have evolved to better suit that requirement. Despite being rooted in the same basic tenets of democracy, no two parliaments are identical in their practice, likewise it would be expected that no two SAIs would be identical in their performance auditing practice. Having said that, it appears that the difference in reporting styles of SAIs—especially the difference between different reports of the same SAI—is technical in nature and is a consequence of: (a) non-adherence to their existing standards perhaps due to deficient quality control; and (b) an absence of reporting standards. SAIs individually need to tighten adherence to their own standards. Further they need to work together via INTOSAI to develop a reporting standard for performance audits.

7.5 What are the key issues and challenges in environmental performance auditing?

This question was explored throughout the thesis, but particularly in Chapter 3 and Chapter 4. Chapter 6 collated these issues and discussed their prospects into the future. Broadly these issues are of three types: (a) Relating to environmental policies that are within the realm of governments; (b) Relating to SAIs but mostly within the realm of governments, such as, mandate and resources; and (c) Relating to SAIs that need to be addressed by themselves such as communicational and relational matters.

Environmental policy related issues within the realm of governments include: (1) Overlapping mandates; (2) Lack of coordination between related agencies and policies; (3) Lack of clear or executable policies, (4) Lack of mainstreaming of environmental matters; (5) Lack of information systems; (6) Lack of monitoring and evaluation including a lack of data and performance measures or indicators; (7) Inadequate

compliance and enforcement; and (8) Lack of the resource allocation to the environmental policies and programs by the government. A related issue is the long-term nature of some environmental programs and policies. Developing some interim or intermediate performance measures is considered to be a solution. Further, SAIs suggest that a combination of outcomes-based, outputs-based, activity-based and input-based key performance indicators, that are relevant, acceptable, credible, easy and robust, should ideally be specified in the environmental policies and programs to facilitate their performance audit.

Mandate is the primary enabler that determines what types of audit SAIs can undertake and whom they can audit. The overwhelming majority of SAIs do have a performance audit mandate; and nearly all of them have access to the national government. However, only two-thirds of SAIs have access to state/provincial and local governments and to government undertakings, while less than half of them have access to semi-government bodies. Access to non-government public and private organisations is extremely limited. In the new age, when more and more governmental programs including environmental programs are delivered in partnership between several governments, and/or between the public and private sector, performance auditing face significant challenges due to the model of SAIs' existing mandate. A complementarity model of performance auditing is required where audit officers at different levels of government, and for that matter, SAIs and private sector auditors, can work together to audit the performance of environmental initiatives funded and executed by several governments and even by the private sector. While a specific environmental audit mandate is not necessary, it does drive performance auditing of environmental issues. While governments could reconsider mandates of SAIs to better serve the needs of the future, until such time that happens, SAIs will need to innovate to better utilise their exiting mandate to audit under the emerging circumstances.

In addition to mandate, SAIs need resources/capacity to undertake audits. The highest concentration of SAIs that have not undertaken any environmental performance audit is in Africa—a region of lower economic development. This suggests a lack of capacity in SAIs to undertake performance audits generally and environmental performance audits particularly. Skill/capacity deficiencies in Africa and other regions should be a matter of concern for governments, INTOSAI and donor agencies. As performance auditing is profoundly affected by local factors, capacity building should be tailored and targeted toward individual countries.

Further for the SAIs that have undertaken environmental performance audits, there is a non-linear relationship between SAIs budget and output of environmental performance audits. An increase in an SAI's budget produces non-linear positive effect on environmental performance auditing, due to simultaneous multiple effects, that reinforce each other, such, as enhancement of skill/capacity, availability of equipment and resourcing of cooperation. While SAIs indicate that their current skill/capacity is sufficient to undertake environmental performance audits, they do identify lack of resources (both financial and human resources) as a constraint to undertaking more environmental performance audits. Strengthening SAIs is critical to enhancing the accountability of government administration that is instrumental in implementing the sustainable development agenda. Two UN resolutions in quick succession (one in December 2011 and another in November 2014) have called for action on this. Consequently, all governments should strengthen their SAI to enable the achievement of post-2015 sustainable development goals. However, having more resources would not automatically

translate into more capacity and skills. SAIs will need to proactively develop skills and capacities in areas of identified needs. For example, environmental economics and GIS are two such areas, many SAIs consider a need for capacity development therein.

The overwhelming majority of SAIs measure the impact of their environmental audits through various means, such as, monitoring the government response to audit recommendations, follow up audit and parliamentary hearings. As noted in Chapter 4, performance audits have led to significant improvements to the governance of environmental policies as well as performance of environmental policies and programs. However, there is a considerable scope to improve impacts by action on the part of SAIs. SAIs can do so by improving their communication with auditees, parliament and the general public. To create more impact, SAIs need to enhance their standard of reporting and innovate in their reporting to be able to reach wider audiences. The connectedness of the modern world means that SAIs cannot afford to work in isolation to preserve their independence. They need to come out of their insularity to collaboratively work with others, such as, civil society organisations, universities and research organisations in the public and private sector to make their audits more participatory and thus more accessible, relevant and beneficial to the wider society. SAIs also need to promote research to develop new tools and methods to enable auditing amid growing complexity of government business characterised by multilateralism, public-private partnerships, privatisation and outsourcing. Further, international cooperation with other SAIs that has proved to be beneficial to capacity building and quality improvement of audits could be enhanced. The WGEA that has been promoting cooperation among SAIs on environmental auditing is showing signs of stress. In order to meet the growing challenges of the future, SAIs need to strengthen the WGEA.

7.6 Significance of this research

In view of the two recent (2011, and 2104) UN resolutions focussing attention on the SAIs and the adoption of new sustainable development goals in late 2015, this research is particularly timely and significant. Through a global trend analysis this research has shown that environmental performance auditing and broader global economic conditions are related to each other. Further there is a strong correlation between the memberships of the WGEA and output of SAIs performance auditing, suggesting the strong positive impact the WGEA creates on SAIs. The research identifies SAIs that have not produced any environmental performance audit over the two decades. These SAIs, mostly concentrated in lower income regions, such as Africa and Caribbean, need the attention of INTOSAI and donor agencies for capacity building. Further, this research has consolidated the analysis of the WGEA surveys scattered in seven survey reports and thus endeavoured to make them accessible to the wider community of academics and decision makers in government and donor agencies. Through a comparative study of environmental performance auditing in three countries, the research has documented the influence of local institutional arrangements and traditions on performance auditing. This study highlights the need for development of a standard for reporting of performance audits. This study has brought several operational details on a global scale into the public domain for the first time. This demystifies the operations of SAIs to some extent and thus enhances knowledge and raises curiosity about a very important state institution that has traditionally been very insular and has not received the interest and attention of academics. The study has identified several challenges that call for action from governments

and SAIs themselves. The findings of this study have general applicability, for example, the need for capacity building in SAIs, especially in weaker economic regions, the need for development of performance audit reporting standard, and the need for a culture of innovation and collaboration in SAIs.

7.7 Limitations

The analyses carried out in this research are inevitably constrained by the available data. For example, more environmental performance audits may exist than those available on the WGEA database that were analysed for the global trend analysis in Chapter 3. Some individual results may change if such hidden data were to be added to the analysis. While it is not certain that this would lead to any large changes in the overall trends over the past two decades studied, it would definitely be valuable to extend the analysis with more data and to a longer period. It is considered that the three empirical analyses have a sufficiently robust basis for the purpose at hand. However, it is noted that later research or policy learning might extend this work through accessing more or finer scale data. For example, another survey of SAIs may provide more insights into their current environmental performance auditing practices and challenges they face, and further case studies beyond the three countries investigated here, would undoubtedly unearth some more issues with practice.

7.8 Future research

This research is just the beginning. Several issues identified during this study that warrant academic attention include: (a) Broader legal and conceptual challenges related to performance auditing amid dispersal of responsibilities at various levels—internationally between countries and domestically between various levels of government and between the public, private and community sectors; (b) Institutional cooperation/complementarity of SAIs and subnational audit offices on one side and between audit offices and other accountability/integrity bodies and research agencies in the public and private sector; (c) Performance auditing of government initiatives funded through international donations that lie outside national budgets; (d) Performance review by other (non-audit) public bodies; (e) Social audits and public participation in audits by SAIs e.g., involvement of the general public and civil society organisations; (f) SAIs' research and development agenda generally and particularly to meet the new sustainable development goals; and (g) Impact of non-financial global events on environmental performance auditing, such as, tri-annual meetings of INTOSAI and WGEA, adoption of the Millennium Development Goals in early 2000s, and negotiation of new multilectal environmental agreements.

As more data on environmental performance auditing becomes available in the future, it will be useful to further analyse the trend to investigate amongst other things: (i) If the decline in environmental performance auditing post-2008 has reversed; and (ii) The continuous decline post-1996 in environmental performance auditing in low income countries and reasons for that. This research could only broadly relate the economic factors, such as, gross per capita national income and economic development level to environmental performance auditing through a univariate analysis. To further understand this relationship, more investigation, possibly through a multivariate correlation analysis, between pertinent socio-economic variables and environmental performance auditing is required. Annual expenditure on environmental policies and programs is a good candidate variable to start with. Some other variables that may be considered include some socio-economic indices published by the World Bank such as, the

Country Policy and Institutional Assessment (CPIA) index, International Development Association Resource Allocation Index (IRAI), and other relevant world development indices; and transparency in government (e.g. corruption perception index, published by the Transparency International). It is recognised that expenditure on environmental policies and programs may not be easy to get for all countries. However, it might be possible to get it for some countries such as from the European Commission. It will be interesting to investigate, for those countries, if the environment sector is getting fair attention of SAIs in proportion to expenditure on the environment sector compared with other sectors, such as, health and education. When the WGEA 8th survey data becomes available, it would be helpful to further the analysis of the survey data carried out in this study. This is required to enhance the value of the WGEA surveys. Further, a future research may: (a) benefits from interview with SAIs; (b) investigate environmental impact of environmental performance audits; (c) analyse environmental audits data differently e.g. according to INTOSAI regional groups.

7.9 Final Remarks

This is the first systematic global study of performance auditing of environmental policies and programs. Prior to this study, very little was known about the practice of performance auditing as applied to the field environmental policies and programs. Following are the key contributions of this study. (a) Through a survey of SAIs on operational matters, it has provided the first global picture of operations inside the hallowed institutions of audit offices that endeavours to demystify public auditing. The study also documents the challenges and lessons learnt in environmental performance auditing. (b) It has produced the first global trend analysis of environmental performance auditing based upon two decades of actual performance audit reports by SAIs. The study has discovered a relationship between global economic parameters (such as GDP) and environmental performance auditing. The analysis carried out herein provides insights into global environmental performance auditing not available before, such as audit capacity gaps in regions of lower economic development and the positive influence of the WGEA on environmental performance auditing. (c) The study has produced the first re-analysis of the data on environmental auditing scattered in seven global surveys of SAIs. This collation and analysis has made the survey data accessible to audiences beyond SAIs themselves, such as academics and donor agencies and thus enabled the development of understanding of environmental performance auditing as a global phenomenon. (d) It has produced the first comparative study of the practice of environmental performance auditing in three countries that gives further insight into the challenges of performance auditing generally and environmental performance auditing particularly arising from local institutional arrangements and traditions. (e) Part of the study was undertaken with the help of the WGEA. This has shown the potential for collaborative research between universities and audit bodies.

In the context of objectives set at the beginning of this thesis and answers provided as conclusions here, it is believed that this thesis has made significant contributions to the understanding of performance auditing of environmental policies and programs. While performance auditing in a specific field has been studied, some of the observations and conclusions have wider applicability. For example, capacity building within the audit offices, development of a reporting standard for performance auditing, taking a collaborative approach to performance auditing and improving communication by the audit offices have applicability across the board.

Appendix A: Environmental Performance Audits

Table A-1: Environmental performance audits during 1992-2012

Rank	Country	No of env. perf audits
1	United States	80
2	Argentina	70
3	Japan	67
4	Germany	66
5	Canada	60
6	Poland	45
7	Paraguay	35
8	Bolivia	35
9	Egypt	29
10	United Kingdom	27
11	Austria	24
12	Netherlands	24
13	Honduras	20
14	Korea (S)	18
15	Sweden	18
16	Thailand	16
17	Costa Rica	15
18	Finland	14
19	Australia	14
20	Brazil	13
21	Lithuania	12
22	Albania	9
23	Saudi Arabia	9
24	New Zealand	9
25	El Salvador	8
26	Norway	8
27	Italy	7
28	Indonesia	6
29	Czech Republic	6
30	South Africa	5
31	Estonia	5
32	Turkey	5
33	Malaysia	4
34	Belgium	4
35	Mexico	3
36	Denmark	3
37	Ecuador	3
38	Pakistan	2
39	Zimbabwe	2
40	Peru	2
41	Tanzania	1
42	China	1
43	India	1
44	Jamaica	1
45	Bulgaria	1
46	Greece	1
47	Malta	1
48	Ukraine	1
49	Cyprus	1
50	Iraq	1
51	Kuwait	1

Table A-2: Environmental performance audits during 2003-2012

Rank	Country	No of env. perf. audits
1	Austria	83
2	United States	81
3	Poland	78
4	United Kingdom	75
5	Canada	75
6	Argentina	52
7	Thailand	51
8	Paraguay	47
9	Ukraine	45
10	Ecuador	43
11	Peru	38
12	Saudi Arabia	37
13	Estonia	32
14	Honduras	29
15	Japan	26
16	Bulgaria	26
17	Netherlands	26
18	Costa Rica	25
19	Czech Republic	25
20	Hungary	25
21	Norway	24
22	Australia	24
23	India	23
24	Finland	21
25	Belgium	20
26	Lithuania	20
27	Morocco	19
28	Russian Federation	19
29	Sweden	19
30	Cyprus	19
31	Italy	18
32	Slovenia	18
33	China	17
34	Iraq	16
35	European Court of Auditors	15
36	Brazil	15
37	Egypt	12
38	Slovak Republic	12
39	Malaysia	11
40	Germany	11
41	Malta	11
42	Kuwait	11
43	Botswana	10
44	Tunisia	10
45	Denmark	10
46	Korea (S)	9
47	El Salvador	9
48	Mexico	9
49	Macedonia	9
50	Spain	9
51	New Zealand	9
52	Bhutan	8
53	Hong Kong	8
54	Indonesia	8
55	Latvia	8
56	Colombia	8
57	South Africa	7
58	France	7
59	Switzerland	7
60	Turkey	7
61	Romania	6
62	Bolivia	6
63	Philippines	5
64	Albania	5
65	Belarus	5
66	Iceland	5
67	Samoa	5
68	Ghana	4
69	Lesotho	4
70	Mongolia	4
71	Palau	4
72	Tanzania	3
73	Zambia	3
74	Azerbaijan	3
75	Bangladesh	3
76	Georgia	3
77	Panama	3
78	Tonga	3
79	Sudan	2
80	Uganda	2
81	Zimbabwe	2
82	Kazakhstan	2
83	Papua New Guinea	2

84	Jamaica	2
85	Greece	2
86	Iran	2
87	Israel	2
88	Venezuela	2
89	Cook Islands	2
90	Fiji	2
91	Micronesia	2
92	Tuvalu	2
93	Algeria	1

94	Burkina Faso	1
95	Ethiopia	1
96	Kenya	1
97	Nepal	1
98	Croatia	1
99	Ireland	1
100	Portugal	1
101	Guam	1
102	Kiribati	1
103	Marshall Islands	1

Table A-3 Summary of environmental audits 1992-2012

Category	**Pre-2003**	**Post 2003**	**Total**
Environmental audits			
Developing	1010	973	1983
Developed	783	888	1671
Global total	1793	1861	3654

Table A-4: Summary of environmental performance audits 1992-2012

Category	**Pre-2003**	**Post 2003**	**Total**
Developing	371	769	1140
Developed	442	790	1232
Global total	813	1559	2372

Table A-5: Country (SAI) based summary of environmental performance audits during 1992-2012

	WGEA member			**WGEA Non-member**			**Total**		
Env Perf Auditing	Developed	Developing	Total	Developed	Developing	Total	Developed	Developing	Total
No	3	10	13	15	74	89	18	84	102
Yes	16	48	64	15	24	39	31	72	103
Total	19	58	77	30	98	128	49	156	205
Env Perf Audits	807	907	1714	425	233	658	1232	1140	2372

Appendix B: Environmental Performance Audit Issues and Objectives

Table B-1: Audit issues (WGEA Categories) in global environmental performance audits during 2003-12

Name of issues	Number of env perf audits
Air	**365**
Acid precipitation	12
Climate change	142
Indoor air quality	12
Local air quality, such as smog, particulates, SO2, NOx, CO2	105
Other air issues	36
Stratospheric ozone layer depletion	13
Toxic air pollutants, such as organic POPs, dioxins, furans	45
Ecosystems	**893**
Biodiversity	162
Coastal areas	55
Ecosystem management and ecosystem changes	139
Other ecosystem issues	60
Protected areas and natural parks	158
Protection of marine habitat	52
Rivers and lakes	124
Species at risk	91
Wetlands	52
Governance	**1388**
Domestic funds and subsidies	284
Environmental impact assessment	225
Environmental management system	323
Fraud and Corruption in Environmental Audit	2
Government greening operations	102
International funds and subsidies, such as Global Environmental Facility (GEF)	47
Market Based Instruments	2
Other governance issues	157
Strategic environmental assessment (SEA)	48
Sustainable development	186
World Summit on Sustainable Development (WSSD)	12
Human activities and sectors	**1318**
Agriculture	136
Biosafety and genetically modified organisms (GMOs)	11
Chemicals management	73
Cultural heritage	47
Energy and energy efficiency	175
Environment and human health	197
Humanitarian aid	1
Infrastructure	174
Issues not identified	6
Land development	103
Natural disaster management: preparedness responses	65

Other human activities/sectors	85
Pesticides	41
Recreation and tourism	44
Transportation, traffic, mobility	66
Urban environment quality (sustainability)	94
Natural resources	**338**
Fisheries (freshwater and marine)	84
Forestry and timber resources	118
Minerals, such as mining, gas, oil	78
Other natural resources issues	58
Other	**116**
Disaster Management/Disaster-related Aid	4
Energy and climate technology	1
Environmental liabilities	1
Management of environmental issues in an urban region	1
Other issues	105
Radiological emissions	1
Town planning	2
Urban development	1
Waste	**660**
Contaminated sites and soil pollution	104
General waste	141
Hazardous waste	134
Municipal, solid, non-hazardous waste	146
Other waste issues	85
Radioactive waste	50
Water	**739**
Acidification	8
Drinking water - quality and supply	142
Marine pollution	61
Other water issues	90
Pollution of water bodies (such as by industry and agriculture)	183
Wastewater treatment	149
Water quantity management or management of watersheds	106
Grand Total	**5817**

Table B-2: Audit issues (WGEA Categories) in cooperative/joint audits.

Air	**14**
Climate change	7
Toxic air pollutants, such as organic POPs, dioxins, furans	2
Local air quality,such as smog, particulates, SO2, NOx, CO2	2
Other air issues	1
Acid precipitation	1
Stratospheric ozone layer depletion	1
Ecosystems	**56**
Ecosystem management and ecosystem changes	13
Biodiversity	11
Protected areas and natural parks	11
Species at risk	7
Rivers and lakes	6
Other ecosystem issues	3
Protection of marine habitat	3
Wetlands	1
Coastal areas	1
Governance	**62**
Environmental management system	17
Domestic funds and subsidies	9
Sustainable development	8
Strategic environmental assessment (SEA)	7
Environmental impact assessment	7
Other governance issues	5
International funds and subsidies, such as Global Environmental Facility (GEF)	5
World Summit on Sustainable Development (WSSD)	2
Government greening operations	2
Human activities and sectors	**18**
Natural disaster management: preparedness responses	4
Recreation and tourism	2
Transportation, traffic, mobility	2
Energy and energy efficiency	2
Environment and human health	2
Agriculture	1
Other human activities/sectors	1
Cultural heritage	1
Urban environment quality (sustainability)	1
Infrastructure	1
Land development	1
Natural resources	**15**
Fisheries (freshwater and marine)	9
Forestry and timber resources	5
Minerals, such as mining, gas, oil	1

Other	**3**
Other issues	3
Waste	**19**
Hazardous waste	6
General waste	4
Radioactive waste	3
Municipal, solid, non-hazardous waste	3
Contaminated sites and soil pollution	2
Other waste issues	1
Water	**38**
Pollution of water bodies (such as by industry and agriculture)	10
Wastewater treatment	8
Drinking water - quality and supply	8
Water quantity management or management of watersheds	5
Other water issues	4
Marine pollution	3
Grand Total	**229**
Audits by Issue - Up to 2002	**4**
Waste: waste in general - hazardous - non-hazardous - waste processing & landfills	1
Salt water - marine pollution: salt water - salt water fish	1
Internal environmental management by public authorities or departments	1
Pollution prevention	1
Grand Total	**229**

Table B-3: Ratio of issues and objectives per environmental performance audit

	Issues per audit		Objectives per audit	
	Pre-2003	Pre-2003	Pre-2003	Post-2003
Developing	2.1	4.2	2.1	2.8
Developed	1.8	3.9	1.6	2.6
Global	1.9	3.7	1.8	2.4

Table B-4: Coverage ratio of objectives in pre-2003 environmental performance audits.

	Audit compliance by the government with international obligation	Audit compliance with national environmental laws and regulation	Audit environmental effects of non-environmental programs	Audit government environmental management systems	Evaluate impacts or effects of existing national environmental p	Evaluate impacts or effects of proposed national environmental policies	Performance audit of environmental polices	Performance audit of the implementation of environmental program
Developing	6%	23%	7%	20%	10%	4%	8%	20%
Developed	9%	17%	7%	14%	26%	5%	11%	74%
Global	11%	31%	11%	28%	24%	7%	13%	59%

Table B-5: Coverage ratio of objectives in post-2003 environmental performance audits.

	Compliance with domestic environmental legislation	Compliance with domestic environmental policies	Compliance with international environmental agreements	Environmental impacts of non-environmental government programs	Evaluate environmental impacts of proposed environmental policies	Fair presentation of financial statements and expenditures	Performance of government environmental policies and programs
Developing	72%	59%	25%	17%	19%	15%	69%
Developed	58%	57%	25%	10%	15%	12%	83%
Global	58%	52%	18%	13%	16%	12%	68%

Appendix C: WGEA Surveys Data on Government Environmental Policies

Table C-1: Does the government have an environment policy (SAIs response - %)?

Existence of environment policy?	1993 N= 58	1997 N= 80	2000 N= 107	2003 N= 111
Yes response	83%	91%	93%	83%

Table C-2: Does the environmental policy following (SAIs response - %)

Content of environmental policy	1997 (N=73)	2000 (N=104)	2003 (N=114)
The objectives to be achieved?	92%	90%	88%
The instruments to be used?	79%	78%	81%
How achievements will be monitored and reported	71%	67%	63%
The targets to be met in specified years?	66%	68%	61%

Table C-3: Help given by SAIs to government departments (SAIs response - % 2006 survey also categorises data according to income levels—Low, Medium and High)

	2000	2003	2006 Three income level & total response			
Help given by SAIs to government departments	2000 (N=108)	2003 (N=114)	Low (N=19)	Medium (N=63)	High (N=34)	Total (N=119)
Does not help government departments with any environmental issues	-	57%	21%	38%	62%	43%
Helps government evaluate their capacity to develop and implement environmental policies or programs	18%	20%	32%	24%	18%	24%
Helps government formulate environmental legislation or environmental policies or programs	23%	24%	16%	16%	18%	19%
Helps in other ways	0%	0%	16%	25%	9%	-
Helps government develop their environmental management systems	13%	9%	21%	21%	9%	18%
Helps government generate their environmental indicators, performance measures, monitoring systems, or other policy information to evaluate environmental policy	23%	20%	37%	16%	6%	17%
Other subjects	19%	7%	16%	16%	18%	17%
Helps government produce their environmental reports	15	10	11	5	3	6

Appendix D:Global Survey Questionnaire

Mandate

1. Which of the following is a constraint in undertaking more performance audits of environmental policies and programs? [Please choose one]
    a. Insufficient or unspecific mandate to audit environmental matters
    b. Insufficient audit resources including financial and human
    c. Both a and b
    d. None of the above

Please provide further comments on the matter above

2. (a) If environment **is** explicitly included in the mandate of your SAI, how do you select, which environmental topic to audit. [Select as many responses as apply] Using:
    a. a structured approach considering issues such as;
        - risks involved in different environmental entities and programs;
        - materiality and significance including financial, social and political
        - salience and public visibility of topics; or
    b. request by legislature or other stakeholders
    c. any other method.

Please elaborate your SAI's approach to topic selection.

Or

2(b) If environment is **not** explicitly included in the mandate of your SAI, how do you select the environmental matters for performance audit from among all other matters (e.g. health education)? [Select as many responses as apply] Using:

    a. a structured approach to considering issues such as:
        - risks involved in different areas of public sector, entities and programs;
        - materiality and significance including financial, social and political
        - salience and public visibility of topics
    b. a sectoral approach in which environmental matters will be picked up as per its relative importance.
    c. request by legislature or other stakeholders
    d. any other method

Please elaborate your SAI's approach to topic selection.

3. Are you aware of any public sector institution(s) other than national, state or provincial audit offices, examining and reporting on the performance of environmental policies and programs in your country? [Y/N]

4. If 'Y' to the previous question, do you consider audit offices and 'other' public institutions roles in reporting on the performance of environmental policies and programs [choose one]:
    a. are mutually exclusive;
    b. are complementary as they serve different purposes and circumstances;

Please provide further comments in the box below on other public institutions reporting on the performance of environmental policies and programs in your country.

Environmental audits

5. Do environmental matters feature in your strategic audit planning? Y/N
6. Does the INTOSAI Working Group on Environmental Auditing (WGEA) 3-yearly work plan affect the choice of environmental topics you audit: Y/N
7. On average, what percentage did environmental audits comprise of the total number of audits (excluding financial audits) conducted by your SAI in the last five years?

Standards and guidelines

8. Do you use any standard or guideline in conducting environmental performance audit? [Tick as many as apply].
    a. Your own standard for performance audit
    b. Professional standard for performance audit or equivalent assurance
    c. National standard for performance audit or equivalent assurance
    d. International standard or equivalent guideline for performance audit
    e. Your own guideline for performance audit
    f. Your own specific guideline for environmental performance audit
    g. No standard or guideline is applied
    h. Not considered necessary

Methods

9. If environmental matters were audited for performance by your SAIs in last 5 years, what methods were used for evidence gathering; select as many as apply with a descriptor, mostly/always (90% or more of time), very often (50-89% of time), often (30-49% of time), occasionally (10-29% of time), rarely/never (less than 10% of time)
    a. Document examination
    b. Interview of officials
    c. Survey of officials
    d. Stakeholders consultation/survey
    e. Site visit
    f. Sample examination
    g. System/process review including database
    h. Expert opinion
    i. Literature survey

j. Case study
k. Benchmarking
l. Focus group
m. Specific economical/statistical analysis
n. Other modelling such as hydrological, ecological
o. Other methods

Please comment on the key considerations in deciding which methods to use.

Criteria

10. The audit criteria you use for environmental performance audits are: [choose one for each]:
    a. Developed in consultation with the auditees ☐ Developed independently and auditees informed only ☐
    b. Explicitly specified ☐ Implicitly understood ☐

(Explicit criteria for example, is a written statement saying that a student performance is satisfactory if s/he scores 50 out of 100 marks in each of the four courses studied. Implicit criteria is a written or implied statement saying student performance is satisfactory)

    c. Based upon official sources ☐ Based upon our own research ☐

(Official sources are for example, auditee's own performance indicators, objectives or targets in relevant policy documents, legislations etc. When there is no criteria available from official sources SAI develop their own criteria for performance e.g. based on international norms or from other relevant literature)

11. If you rely upon official criteria (e,g. auditee's own performance indicator for the program) do you think they are adequate, realistic and/or fair (i.e. not easily gamed by the department? Y/N.

    Please provide further comments on the development and use of criteria for environmental performance audits in the box below.

Capacity/skills

12. Has your SAI ever not undertaken an environmental performance audit (in the last 5 years) because your SAI lacked in-house skill/capacity to undertake such an audit? Y/N
13. What proportion (as %) of your SAI's total resources (including human, financial and material) were devoted to environmental performance audit during the last 5 years?
14. Do you consider your SAI's skill base sufficient to undertake environmental performance audit? Choose 'Y'/'N'/Not applicable for the following.
    a. Short-term 1 - 3 years
    b. Medium terms 3 - 5 years
    c. Long-term 5 - 10 years
15. If 'N' to any of the question above, how do you propose to augment the capacity gap? Tick as many as applicable
    a. Recruiting

b. Training
c. Restructuring
d. Hiring external consultants/outsourcing

16. How often did you have to engage external subject matter experts/consultants to undertake environmental performance audits?
    a. Mostly/Always (90% or more of time)
    b. Very often (50-89% of time)
    c. Often (30-49% of time)
    d. Occasionally (10-29% of time)
    e. Rarely/Never (Less than 10% of time)
17. Do you need in-house skill augmentation in any specific discipline related to environment performance audits, such as hydrology, ecology, Geographical Information System (GIS), environmental economics? Y/N, If yes, please name the discipline

Please comment on skills/capacity required and available for environmental performance audits

Data

18. How often in the last 5 years, has the data (other than financial data) related to environmental policies and programs either publicly available or sourced from auditees or other agencies been adequate to make conclusions about their performance?
    a. Mostly/Always (90% or more of time)
    b. Very often (50-89% of time)
    c. Often (30-49% of time)
    d. Occasionally (10-29% of time)
    e. Rarely/Never (Less than 10% of time)

Please comment on the management, governance and administration of environmental record keeping relating to the data collection, storage, analysis and dissemination of information

19. When data related to environmental policies and programs has not been adequate to make conclusions about their performance, what did you do to gather sufficient information to come to a conclusion? Tick more than one if applicable
    a. Asked the audited body to collect/generate data
    b. Collected/generated data on your own
    c. Collected/generated data with external assistance
    d. Agreed with stakeholders to use available data
    e. Reported that data held by the audited body has not been adequate
20. How often did you use environmental performance indicators (excluding financial indicators) in environmental performance audit?
    a. Mostly/Always (90% or more of time)
    b. Very often (50-89% of time)
    c. Often (30-49% of time)
    d. Occasionally (10-29% of time)
    e. Rarely/Never (Less than 10% of time)

Please *comment on matters that in your opinion, should ideally be specified in environmental policies and programs to facilitate audit/judgement about their performance.*

Effectiveness reporting and auditing

21. To what extent do auditees measure and report on the effectiveness (impact or outcome) of the environmental policies and programs they implement [choose one]
    a. Mostly/Always (90% or more of time)
    b. Very often (50-89% of time)
    c. Often (30-49% % of time)
    d. Occasionally (10-29% of time)
    e. Rarely/Never (Less than 10% of time)
22. Whether or not auditees report on the effectiveness of the environmental policies and programs they implement, do you assess [choose only one]
    a. the effectiveness of environmental policies and programs themselves in meeting their desired objectives/outcomes;
    b. only the adequacy/soundness of the systems and processes designed to achieve the objectives/outcomes of the environmental policies and programs.
    c. both a and b
23. Does the long-term nature of the outcome of some environmental programs/policies pose particular challenges to the performance audit, for example in assessing effectiveness? Y/N

Please comment on issues encountered in assessing the efficiency and effectiveness of environmental programs/policies in the box below.

Clearance process for environmental performance audits

24. How satisfied you are with the clearance process for environmental performance audits with the auditees: [Choose one]
    a. very satisfied,
    b. satisfied,
    c. neutral,
    d. dissatisfied,
    e. very dissatisfied.

Please comment on the issues and challenges involved in the clearance process with the auditees for environmental performance audit reports

Impact of environmental performance audits

25. Do you consider that the environmental audits undertaken by your SAI have led to :
    a. the improvement of governance of environmental policies and programs: [tick as appropriate]

i. substantial
ii. significant
iii. not much
iv. difficult to say

b. the improvement of <u>performance</u> of environmental policies and programs:
i. substantial
ii. significant
iii. not much

Please comments on why environmental performance audits have or have not had an impact on the development and implementation of environmental policies and programs

Please comment on what, if any, requirements/incentives could be put in place to achieve the required performance

Lessons learned

26. What have been the major issues in relation to environmental policies and programs highlighted by your environmental performance audits in the last 5 years? [Please put your comments in the box below].

27. What have been some of the lessons you have learned in relation to audit by undertaking environmental performance audits? [Please put your comments in the box below].

Benefits of cooperation among SAIs

28. Has the cooperation with other SAIs either directly or indirectly via INTOSAI (regional group or WGEA) benefited your SAI by contributing to: Choose Y/N/Not applicable for each
    a. improved understanding of environmental matters;
    b. improved skill of staff
    c. lifting the profile of environmental performance auditing generally
    d. others

Please provide further comment on the benefits of cooperation among SAIs

29. Are you aware of the 2013 agreement between the INTOSAI-WGEA and United Nations Environment Program (UNEP) to track progress towards the implementation of international environmental agreements? Y/N
30. Do you consider that SAIs are better placed compared with other compliance/review bodies established under international environmental agreements or an international body, such as UNEP, to assess the progress with their implementation? Y/N

31. Do you consider that, compared with audit by a single SAI, joint/cooperative audits with other SAIs of the implementation of the international environmental agreements contribute more to: Choose Y/N for each
    a. the professional skills of the auditors;
    b. the quality of the audits
    c. international environmental cooperation

Please provide further comments on the audit of implementation of international environmental agreements

General

32. Are you willing to make available your SAI's response to the WGEA 2015 survey on the condition that your SAI's identity is not disclosed in any publication? Y/N

If yes please email to: Awadhesh.Prasad@anu.edu.au

33. Despite enormous efforts invested by SAIs individually and collectively through the WGEA to conduct and increase capacity in environmental performance auditing, and despite its greater capacity to influence the design and implementation of policies, environmental performance auditing remains an academically underdeveloped discipline compared to evaluation. Why do you think this might be the case?

Please provide your thoughts on the statement above

34. Would you be prepared to further discuss the matters in this survey with the principal researcher? Y/N

35. Please provide the contact details in the box below. The contact detail will only be used for any clarification, if required. The identity of any response (i.e. the name of country/person) will not be disclosed in any publication.

Country: **Name of the contact person:** **Position in the organization:** **Email:** **Phone:**

Appendix E: Proportion of environmental performance and compliance audits

Figure E-1: Trend in proportion of environmental performance audit for Australia, Canada and India.

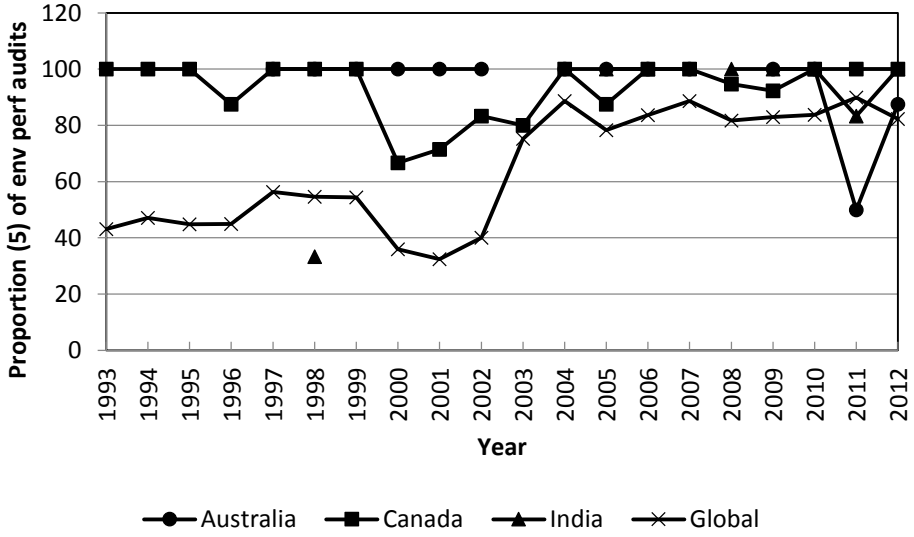
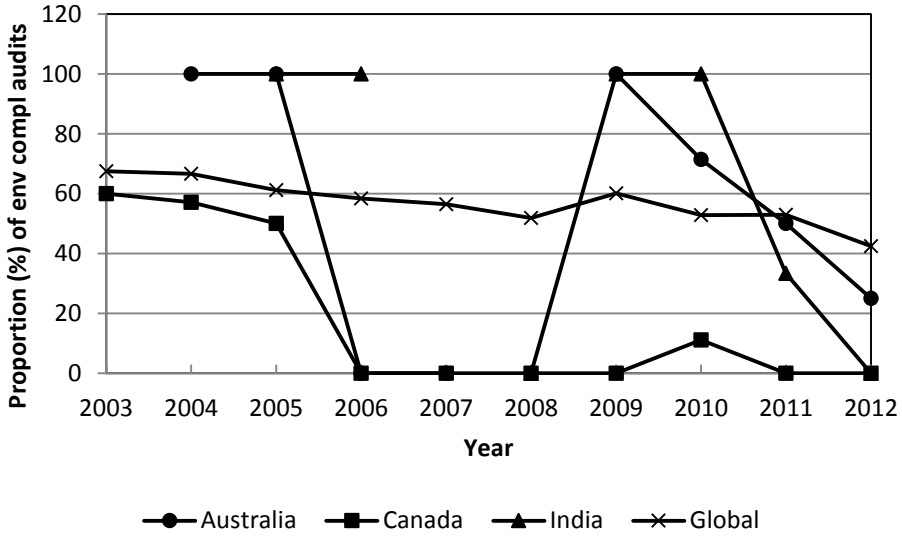


Figure E-2: Trend in proportion of environmental compliance audit for Australia, Canada and India



Appendix F: Issues in environmental performance audits

Table F-1: Issues covered in environmental performance audited of Australia, Caned and India during 2003-12.

	Australia	Canada	India	Total
Air	**4**	**35**	**2**	**41**
Acid precipitation		1		1
Climate change	4	17		21
Local air quality, such as smog, particulates, SO2, NOx, CO2		6	1	7
Other air issues		3		3
Stratospheric ozone layer depletion		2		2
Toxic air pollutants, such as organic POPs, dioxins, furans		6	1	7
Ecosystems	**17**	**58**	**14**	**89**
Biodiversity	2	13	3	18
Coastal areas		6	1	7
Ecosystem management and ecosystem changes	1	10	1	12
Other ecosystem issues	1	4	2	7
Protected areas and natural parks	4	5	2	11
Protection of marine habitat		7		7
Rivers and lakes	3	5	4	12
Species at risk	3	5	1	9
Wetlands	3	3		6
Governance	**24**	**93**	**8**	**125**
Domestic funds and subsidies	9	11	2	22
Environmental impact assessment		14		14
Environmental management system	4	11	4	19
Government greening operations	2	10		12
International funds and subsidies, such as Global Environmental Facility (GEF)		1		1
Other governance issues	6	17		23
Strategic environmental assessment (SEA)		8		8
Sustainable development	3	18	2	23
World Summit on Sustainable Development (WSSD)		3		3
Human activities and sectors	**20**	**98**	**8**	**126**
Agriculture	1	6	3	10
Biosafety and genetically modified organisms (GMOs)		3		3
Chemicals management		10		10
Cultural heritage	1	6		7
Energy and energy efficiency	12	11	1	24
Environment and human health	2	18	1	21

Infrastructure		7		7
Land development	1	6		7
Natural disaster management: preparedness responses		7	1	8
Other human activities/sectors		4	1	5
Pesticides		4		4
Recreation and tourism		3		3
Transportation, traffic, mobility		9		9
Urban environment quality (sustainability)	3	4	1	8
Natural resources	**4**	**23**	**3**	**30**
Fisheries (freshwater and marine)	1	14	1	16
Forestry and timber resources	2	2	1	5
Minerals, such as mining, gas, oil		5	1	6
Other natural resources issues	1	2		3
Other		**10**	**4**	**14**
Waste	**5**	**19**	**5**	**29**
Contaminated sites and soil pollution	1	9		10
General waste	2	1	1	4
Hazardous waste	1	4	2	7
Municipal, solid, non-hazardous waste		2	2	4
Other waste issues	1	2		3
Radioactive waste		1		1
Water	**19**	**41**	**9**	**69**
Acidification		1		1
Drinking water - quality and supply	4	7	1	12
Marine pollution	1	11		12
Other water issues	7	1		8
Pollution of water bodies (such as by industry and agriculture)	3	11	6	20
Wastewater treatment	2	4	2	8
Water quantity management or management of watersheds	2	6		8
Grand Total	**93**	**377**	**53**	**523**

Appendix G: Methods of evidence collection

1. **Document examination:** This involves reviewing documents such as files and records related to the relevant projects/programs/activities of the auditees. These may be in either paper or electronic form. This is most commonly used methods for evidence collection (ANAO, 2015a: 113). In a study of 105 water-related audits WGEA (2013c: 53) reports that this method was used more than 95% of the time.
2. **Interview of officials:** It involves conversation in the form of question and answer session(s) either face to face or over phone. It may be structured (fact finding) or unstructured (exploratory). Sometimes short questions or clarifications may be sought through emails. Interview is also a widely used method for evidence collection. The WGEA (2013c: 53) reports that this method was used in more than 90% of audits.
3. **Questionnaire/Survey:** A survey is a systematic collection of data usually from a large population by means of a questionnaire. Survey may be conducted by various means such post, telephone, internet and in-person. It is considered a cost effective way (ANAO, 2015a: 119) of collecting information that is usually not available in any other way (INTOSAI, 2004: 97). Caution is considered necessary in its use as surveys tend to have higher potential of errors and may be affected by low response rates (WGEA, 2013c: 56).
4. **Stakeholders consultation (including survey):** Consulting third parties, e.g. suppliers and customers is a good means of collecting generally independent performance information about a government organisation. While this may involve the methods already described, (e.g. interview or survey), this has been considered as a separate method in this research. As SAIs assign different weights (often higher) to the information provided by customers/public and by the auditees themselves, it is considered that stakeholder consultation warrant a separate category. While the literature (e.g. Pollitt et al, 1999; Lonsdale et al., 2011; INTOSAI, 2004; WGEA, 2013c)) does not differentiate between the stakeholders and officials survey, it seems quite often, that the word survey has been used in the context of stakeholders survey rather than the officials survey. If this interpretation is taken, this method is also quite popular. About 35-40% of audits in the WGEA study (2013c: 56) used this method.
5. **Site visit:** Sometimes called observation, direct observation or physical observation, this method involves directly watching or observing the things, events, or processes. Observing the physical condition of an asset (e.g. dam), observing service delivery e.g. sanitation in a locality by municipality are some examples. While considered very effective (WGEA, 2013c: 54), the use of this method can potentially affect the reality. For example, due to the knowledge of a visit by the audit team on a particular day, a municipality might run a cleanliness drive to show the area neat and clean which it normally does not do. The WGEA (2013c: 54) reports that this method was used in approximately 60% of audits.
6. **Sample examination:** This involves examining a sample (limited number) of the population, for example checking a sample of transactions, inspecting a sample of beneficiary villages. This method is usually used in combination with other methods of evidence collection for example document examination or site visits. Samples may be statistically (random) or non-statistically (targeted) selected. Statistical samples are used to draw conclusion about the entire population, such as rate of compliance with a regulation, whereas non-statistical samples are used as examples of systemic issues. (ANAO, 2015a: 145). Statistical sampling is a discipline in itself where the two most common methods used are simple random sampling and stratified random sampling. In random sampling, every member of population has equal chance of selection thus enabling an unbiased estimate. In stratified sampling the population is subdivided into groups such as geographical regions or amount or type of transaction and then samples are drawn

randomly from within each group. It provides more reliable estimates than simple random sampling. However, it requires more effort in design and implementation and typically requires assistance of a statistician (ANAO, 2015a: 150).

The sample examination method is quite often used. For example, Lonsdale (2011b: 100) reports a 30% use of this method by NAO in its performance audits.

7. **System/process review including database:** This involves examination of subsystem(s) within an organisation or program/project/activity being audited, for example, a grant assessment process, or a community consultation process. A complex information technology (IT) system such as a database used for storing and processing data, for example compliance with environmental approval conditions, is another example. This is used to investigate questions such as was the system/process designed and implemented in a fair, equitable and objective manner; how vulnerable the system process is to commission and omission errors; and are appropriate control system in place. The method is widely used. For example, Lonsdale (2011b: 100) reports a 20% use of the method in performance audits by NAO.
8. **Expert opinion:** This involves consulting people or organisations (outside the audit office) recognised for their skills, knowledge or experience in particular fields. Thus is required when the subject matter is new and/or highly specialised or technical complex. In a new field, for example regulating genetically modified crops, expert opinion may be required to develop criteria and judge if they are being met. A variation of this method is an expert panel, where more than one expert is consulted simultaneously. Unlike the expert opinion that is often qualitative, it is possible to quantify the information from an expert panel (WGEA, 2013c, 60). This is usually required where the knowledge domain is highly contested. The WGEA water-related audit study found that expert opinion was used in about 25% cases (WGEA, 2013c: 58) whereas expert panel was used in less than 5% of cases (WGEA, 2013c: 60). In this study, no distinction has been made between expert opinion and expert panel.
9. **Literature survey:** This involves using the work of other studies and investigations and audits. Some audit issues, having a long history, may have several previously completed studies often unpublished such as consultant reports, internal audit and evaluation reports, or sometimes even publicly available works such those of parliamentary/legislative committees, universities and voluntary organisations. Such material can provide useful information for audit planning and even as audit evidence (CAG, 2007a: 13). This method is quite often used. For example, NAO uses literature survey in more than 45% of its performance audits (Lonsdale, 2011b: 103).
10. **Case study:** A case study is a descriptive, exploratory or explanatory analysis of an organisation, program or a project. The method is used to learn about a complex issue, by developing a comprehensive understanding of the particular instance. It involves an extensive description and analysis of the particular issue within the context of the whole audit area. This method is also quite frequently used. Between 35-40% use is reported in the literature (see for example, Lonsdale, 2011b: 103 and WGEA, 2013c: 57)
11. **Benchmarking:** it involves comparing the performance of the activity, project, program or organisation being audited with performance of a similar activity, project, program or organisation in other jurisdictions. Sometimes internal/national benchmarking is differentiated from international marking (see for example, Lonsdale, 2011b: 103; WGEA, 2013c: 51), However, in this study no such differentiation has been made. This method is not very frequently used. For example, only between 5-15% uses is reported (Lonsdale 2011b: 103; and WGEA, 2013c: 64).
12. **Focus groups:** Focus group involves a moderated discussion among a group of people between seven to twelve individuals. Unlike expert panel, individuals are not experts, but stakeholders of

the projects/programs being audited. They meet for a specified period of time (generally face to face, but may also meet via internet) to discuss program implementation challenges or potential changes. This method is not yet very popular among SAIs. For example, WGEA (2013c: 61) found it was used in just under 5% of audits.

13. **Specific economical/statistical analysis:** This method involve monetary matters such as price comparison of alternative options to achieve an objective and cost benefit analysis of a project or program that takes into account the opportunity cost of resources used and benefits accruing to the community or country as a whole. SAI use this method to determine optimum use of resources. It is evident that it is a specialist type of analysis much beyond the usual graphing or tabulation of project or programs numerical data. This method is used very infrequently. For example, the WGEA study (2013c: 61) found its use in less than 5% of cases.
14. **Scientific modelling (such as hydrological, ecological):** This is a broad range of scientific analysis involving modelling such as hydrological and ecological models. WGEA (2013c: 63) has also used this term to include analyses that demonstrate the cause-effect empirical relationship between program goals and its impact as well as chemical testing. The term used in this research is in the sense of modelling only. For example, the use of remote sensing to determine farmed or forested area will be considered as modelling.

Appendix H: Correlations - audit issues, team members and evidence collection

Figure H-1: Relationship between number of issues in the Australian environmental performance audits and number of methods used for evidence collection.

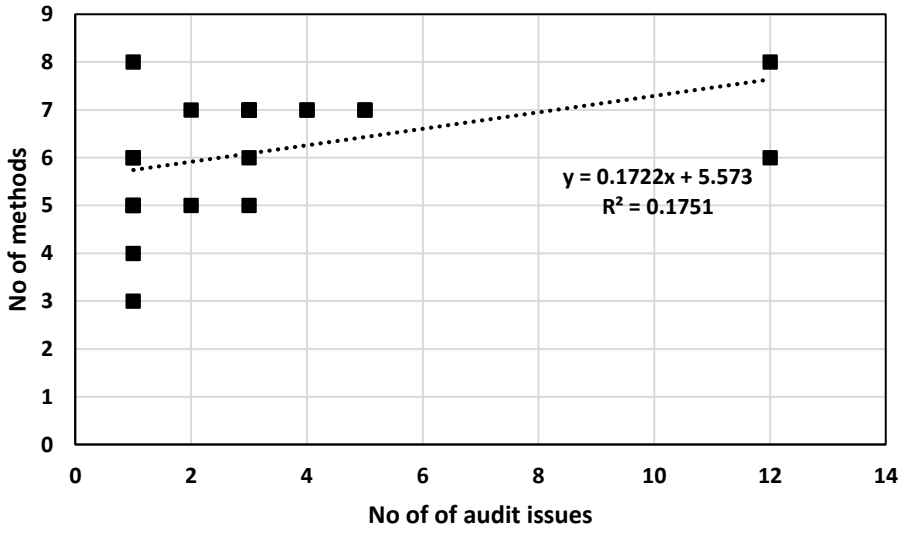


Figure H-2: Relationship between number of issues in the Indian environmental performance audits and number of methods for evidence collection

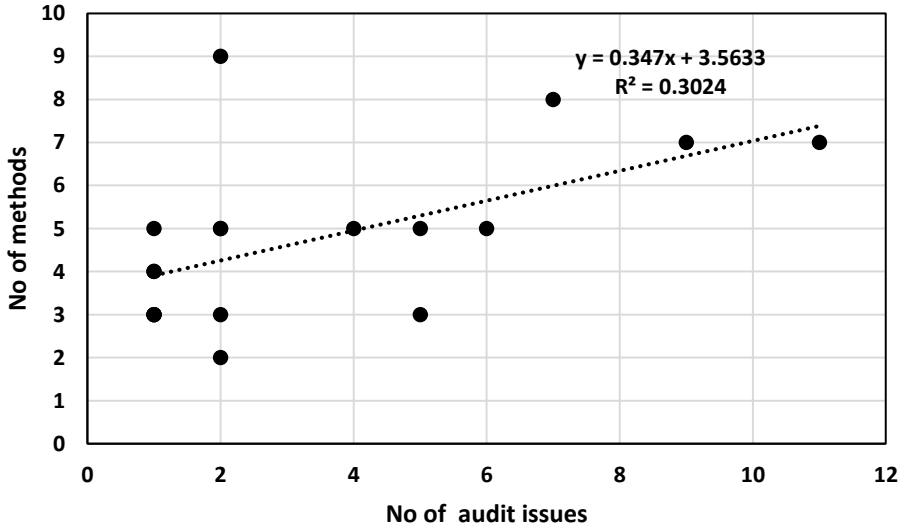
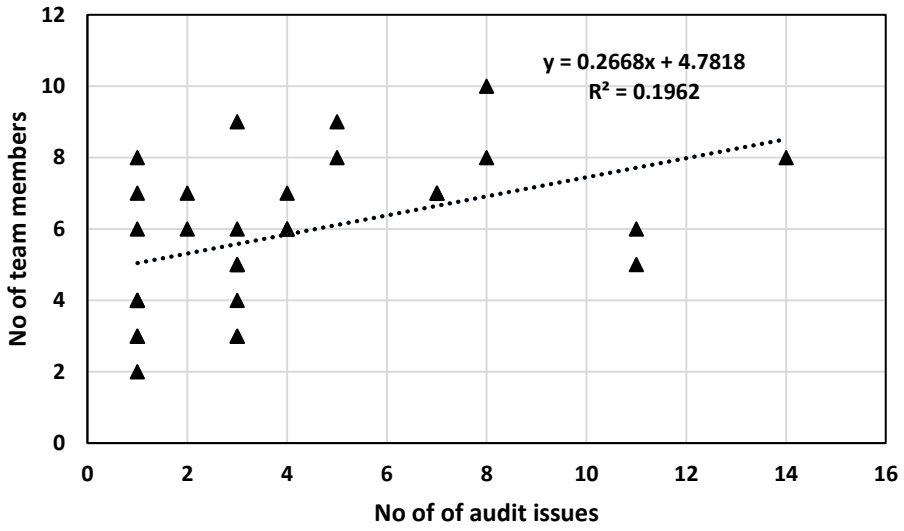


Figure H-3: Relationship between number of issues in the Canadian environmental performance audits and the number of audit team members.



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