

**ADVANCING AND RESOLVING  
THE GREAT SUSTAINABILITY  
DEBATES  
AND DISCOURSES.**

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**A THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF  
PHILOSOPHY AT THE AUSTRALIAN NATIONAL  
UNIVERSITY**

## **Acknowledgements**

I wish to thank my host University ANU for the Ph.D Scholarship without which this would not have been possible. Thanks must especially go to my co-supervisors Professor Michael Collins and Professor Stephen Dovers for their belief in the value of this thesis and for their wisdom, guidance and attention to detail. Thankyou also to my Ph.D panel Professor Brendan Mackey, Dr Janis Birkeland, Dr Colin Butler. I wish to also thank the staff and students of the Research School of Chemistry and the Fenner School of Environment and Society for their interest, encouragement and support. Ph.Ds are a marathon rather than a sprint.

Ph.D's would not be possible without the support of one's wife, family and friends. So firstly, I must thank my darling wife Sarah who has been so patient, understanding and supportive. I have been very fortunate to have the encouragement from such a kindred spirit who is passionate about the issues herein. Secondly, my family's support, patience and understanding has been rock solid and has meant so much. Thankyou to my family Tim and Angela Smith, Rupert and Nikki and their wife and husband respectively Christine and Roger. My grandfather Archer Talbot said that he had worked hard so that we, his grandchildren, could have opportunities that he did not have. Thank to him and all my extended family and new adopted family who have been so supportive over the last years: Grandparents Molly and Tom Smith, Margaret and Archer Talbot, my Godfather Alan Talbot and Jenny Talbot, Clara and Jamie Glock, Archer Talbot, my Godmother Sue Smith and Ian King, Annie Mancini and John Gellie, Jane and Bill Dubski, Jill Smith and Will Gluth, Jill and Robin Mancini Sinclair, Jane Mancini and Gordon, Chris and Jim Morey, Lisl and Andrew, Rachel, Laura and Stephen, Diana Peters. Thankyou also to Susan and Peter Chapman, Emma and Stuart Mann, Kate Chapman and Damian Evans, Simon Chapman and Kristen Anderson for their enthusiasm and example for making a difference wherever one can.

Equally this Ph.D would have not been possible without the support for completing my thesis from my former colleagues of The Natural Edge Project; Karlson 'Charlie' Hargroves, Cheryl Paten, Peter Stasinopoulos, Stacey Hargroves, Fatima Pinto and Nick Palousis. I must also thank the following, without whose support in the early days, the formation of The Natural Edge Project would not have been possible: Martin Dwyer, Geoff McAlpine, Steve Williamson, Amory and Hunter Lovins, Elizabeth Heij, Rob West, Ron Clark, Jill Grant, Philip Sutton, James Moody, Mike Krockenberger, Dr John Cole and Karen Alexander. Special thanks must go to Joan Mesiti, Francis Elliot, David Marsden-Ballard, Josh Brine, and Roger Dennis, who kindly helped with proof reading. I also need to thank long time mentors Philip Sutton and Alan Pears for their wisdom, advice and loan of numerous books. Discussions with Philip Sutton and Alan Pears early on were critical to encouraging me to take this research direction. Finally, thankyou to Ruth Nicholls and David Marsden Ballard, who brought relevant and important literature to my attention and assisted with the final formatting of this thesis.

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## Abstract

This thesis demonstrates, in Chapter 1, that there is significant scientific evidence that the current form of global economic development is unsustainable. Whilst much of the general public assume that concerns and debates about the sustainability of development are relatively new, Chapter 2 shows that concerns debates about the sustainability of development have a long history. This thesis shows in Chapter 2 and 3 that debates about the sustainability of development have significantly mattered to the course of modern human history and quality of life for over a hundred years. This thesis, in Chapter 2, shows that, by 1909, that enough of the key understandings and ideas and enough new emerging technologies needed to define and pursue purposefully sustainable development were known. Chapter 3 considers what have been some of the major barriers to sustainable development. An historical perspective is used to help explain why so little progress has been made on many of the sustainability debates over the last hundred years. Chapter 3 shows that one of the main barriers to the implementation of sustainability has been vested interests and their sustainability blocking coalitions which have been very effective in preventing governments from progressing sustainability policy. The thesis shows that it is rare for purposeful sustainability policy and institutional reform ever to occur without a fight from those vested interests, who either will be, or perceive that they will be, negatively effected. This thesis seeks to offer a resource with information and strategies to help address and overcome such vested interests and their blocking coalitions.

Chapter 3 shows how there are patterns to how these sustainability blocking coalitions seek to undermine and prevent progress on sustainable development. Chapter 3 provides an historical perspective which shows that these blocking coalitions have sought to stall progress on sustainable development by arguing that sustainable development will harm business competitiveness, economic growth and lead to job losses. Thus this thesis focuses on these centrally important sustainability debates about whether achieving the goal of sustainable development will help or harm business competitiveness/profitability and economic growth and led to job losses.

The thesis also focuses on these centrally important sustainability debates because the issue of whether or not economic growth and sustainable development can be compatible goes to the heart of the sustainability debates initiated by Limits to Growth in 1972 and further developed by the Brundtland Report, *Our Common Future*. This thesis also focuses on these debates because they are at the heart of differences between the key environmental discourses as shown by Dryzek in his 1997 publication *The Politics of the Earth: Environmental Discourses*. These “growth debates” are also important because they address the key claim of ecological modernisation. As Dryzek stated “Much of its (ecological modernisation’s) appeal lies in its promise that “we can have it all: economic growth, environmental

conservation, social justice”<sup>1</sup>. This thesis examines in Chapters 5-8 whether we can indeed have it all as described by Dryzek. *The key hypothesis of this thesis is whether or not environmental protection, economic growth and social justice can be compatible and under what conditions is the achievement of this compatibility most likely?* The intent of this thesis is to make a substantial advance on this question. In so doing the thesis seeks to also make a contribution to debates on whether or not it is possible to achieve a “green” form of economic growth – referred to as “Green Growth”?<sup>2</sup>

This thesis defines the range of goals for environmental and social sustainability to create a sustainable society based on the Earth Charter. The Earth Charter is chosen as a comprehensive list of sustainability goals because of the extensive global process under which it was created and reviewed. The thesis investigates to what extent pursuing the environmental and social sustainability goals of the Earth Charter correlate with economic growth? This thesis acknowledges that the implementation of some aspects of the Earth Charter will involve significant investment costs and harm economy growth but the thesis shows that the implementation of many of the other goals of the Earth Charter positively correlate with economic growth better than “business as usual.” A key finding of the thesis is that, whilst a transition to sustainable development will involve upfront investment, social and political costs, numerous studies now show that these costs of early action will be far less than the costs of inaction. Such studies show now that, lack of action on major sustainability issues like climate change and peak oil significantly threaten long term global economic growth.

Thus the thesis demonstrates that there is potential for the implementation of sustainable development, wisely applied, to result in better social and environmental outcomes in every respect whilst still ensuring strong economic growth this century and beyond. Hence the conclusion of this thesis is that social justice, environmental protection and economic growth can be compatible through the necessary political will, with active and meaningful business and community engagement, underpinned by purposeful sustainability policy and educational reform. This conclusion is contested by a number of academics who blame economic growth for the current environmental crisis and social ills This thesis responds to these academics by arguing that the current unsustainable nature of economic growth is a symptom of more fundamental causes and drivers of un-sustainability. This thesis argues that the current form of economic growth is unsustainable due to market, informational and institutional failures, rebound effects, a failure to mainstream sustainable design, rising global population plus a rapid expansion of unsustainable western consumption patterns globally. This thesis argues that, only by recognising this and focusing on the necessary changes needed to mainstream sustainability design, education, policy and institutional changes can the current unsustainable forms of development be turned around to become sustainable. Once it is understand that economic growth per se is not the

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<sup>1</sup> Dryzek, J. (1997) *The Politics of the Earth: Environmental Discourses*. Oxford: Oxford University Press.

<sup>2</sup> Ekins, P (2000) *Prospects for Green Growth: Economic Growth and Environmental Sustainability*, Routledge Publishing London, New York

problem then this helps to clarify what society needs to focus on to achieve the goal of sustainable development. This thesis argues that if we make the mistake of simplistically blaming economic growth for the current unsustainable form of economic growth then this plays into the hands of anti-sustainability blocking coalitions main argument, namely that social and environmental sustainability initiative will harm the economy too much and are therefore too costly to undertake. This thesis, by clearly differentiating between economic and physical growth, focuses on how best to decouple economic growth from negative social and environmental pressures. This thesis demonstrates that it is possible to cost effectively achieve significant decoupling of economic growth from environmental pressures including greenhouse gas emissions, biodiversity loss, freshwater withdrawal, air pollution, waste and hazardous waste production.

This thesis thus seeks, by providing significant evidence for decoupling, to help move the “growth” debates forward and encourage a focus on what changes to technology and design, what changes to policy and institutions will lead to a significant and cost effective decoupling. This thesis brings together literature in Chapters 4-8 which demonstrates that there exists still, twenty years on from the publication of *Our Common Future*, significant potential to decouple economic growth from physical throughput and environmental pressures through eco-efficiencies, eco-innovation, whole system design, sustainable consumption and policy and institutional change. The thesis seeks to show that such decoupling can be a useful part of broader strategy to achieve sustainable development as long as rebound effects are minimised through effective policy. This thesis brings together much evidence to support this hypothesis. Having said that it is beyond the scope of one thesis to provide a complete overview of all the technological, sustainable consumption and policy advances which will assist nations achieve decoupling. Hence this thesis provides a sample of technical, sustainable consumption and policy advances whilst referencing much more comprehensive sustainable technology and policy publications. This thesis presents a broad, integrated approach, bringing the three pillars of sustainability - environment, society and economy - more closely together than in much other work, and supports this with a new synthesis of empirical evidence. The thesis also presents an overview of the case that to date there has been significant underinvestment in key social sustainability goals such as poverty reduction and mounts the case for greater levels of such investment by demonstrating their positive effects from a humanitarian and economic point of view.

This thesis is grounded theoretically in the tradition of “strong” ecological modernisation. This thesis shows how a stronger form of ecological modernisation can assist to advance and resolve long standing sustainability debates. Finally, this thesis is not simply theoretical. As part of the practice of the thesis, the author has co-founded a new “anti-blocking coalition” sustainability think tank, The Natural Edge Project (TNEP) ([www.naturaledgeproject.net](http://www.naturaledgeproject.net)). This new think tank is putting to put into practice many of the operational actions, such as improving education for sustainable development,

recommended by this thesis to help create conditions within which ecological modernization is more likely to progress in Australia.

## Preface

This kernel of this thesis arose after the process of co-editing and co-authoring The Natural Edge Project publication *The Natural Advantage of Nations* with Karlson ‘Charlie’ Hargroves. Having sent the manuscript off to the publishers, I realised that there was an important emerging theme in the book that had been missed. A number of empirical studies in the book showed that seeking to achieve certain aspects of environmental sustainability would not harm the macro-economy significantly at all. Rather, there was encouraging evidence that decoupling economic growth from environmental pressure could be achieved. In addition, studies by Robert Putnam suggested that increasing social capital could help economic growth. Some studies were showing that a transition to environmental and social sustainability could even help create higher economic growth than business as usual. At the last minute, at my insistence, our publishers Earthscan, allowed these interesting results, which I had researched and integrated, to be added to the final draft of *The Natural Advantage of Nations* (see pages 26-33). Clearly these results deserved further investigation. For instance, Robert Putnam’s work on social capital showed that improving social capital can help economic growth, but what about other social sustainability goals? How would seeking to achieve them affect economic growth? Also, whilst in Chapter 17 of *The Natural Advantage of Nations*, Alan Pears and I had shown that economic growth could be decoupled from greenhouse gas emissions without harming economic growth significantly, the book did not address the question of whether this decoupling could be universally achieved cost effectively more broadly for other environmental pressures? Chapters 5, 6, 7 and 8 of this thesis do this and thus bring together new evidence to allow this thesis to revisit and shed new light the “growth” debates. Chapters 5-8 of this thesis address numerous new questions not covered in *The Natural Advantage of Nations*.

Discussions about whether ecological and social sustainability goals can be achieved without trade-offs with economic growth have a long history. For instance, ever since the publication of *Limits to Growth* in 1972 there have been ongoing “growth” debates and discourses. This thesis is original and new, because it not only brings together a current overview of the literature and history of the “growth” debates, but it also provides a comprehensive discussion of the arguments and resolves them once and for all. In particular, this thesis attends in novel ways to the long standing and unproductive confusion between economic growth (monetary growth) and physical throughput (physical growth of energy and resources) in modern economies, and the implications of such a clarification for achieving consensus and progress on sustainability. This thesis investigates, also for the first time, whether it is possible to cost effectively decouple economic growth significantly from a wide range of environmental pressures and thus provide a way to reconcile the need for economic growth and environmental sustainability. This thesis, also for the first time, examines how seeking to achieve a comprehensive array of social and environmental sustainability goals will affect economic growth in chapters 6, 7 and 8. The resolution of the growth debates has significant implications for many other

sustainability debates such as the climate change debates. This is shown in new ways in Chapter 7 of this thesis.

Many studies now show that there are several key assumptions that determine whether economic modeling predicts that achieving ecological sustainability helps or harms economic growth. One of the key assumptions relates to micro-economics and businesses. Simply put, if you assume that there are significant eco-efficiency and resource productivity opportunities still available for many industries then this makes it possible to reduce environmental pressures while making a profit. But what if business has already found all the cost effective eco-efficient savings, then any eco-tax or further requirement on business to achieve eco-efficiency gains will inevitably lead to higher costs to business and the economy. Debates about these issues at the microeconomic business level therefore have important macroeconomic implications for the “growth” debates. Therefore these questions are addressed in detail in Chapter 4 of this thesis. The results from Chapter 4 are important therefore for the “growth” debate discussions in Chapters 5-8.

There is a long and established history of environmental and social sustainability debates and discourses. Chapter 2 for the first time brings together an overview of when many of the great sustainability debates started. Whilst most people see the environmental movement and concerns about social capital as a recent phenomenon, Chapter 2 shows that many of the key ideas, insights and enabling solutions needed to begin to define and pursue sustainable development were known by 1909. This new perspective allows this thesis to then ask in Chapter 3 why did the world not pursue sustainable development from 1909 onwards? A goal of this thesis is, through asking such questions to ensure that in the 21<sup>st</sup> century we learn from and avoid the mistakes of the 20<sup>th</sup> century and do not repeat them. An historical perspective shows that there are many common patterns to the sustainability debates. This thesis, through investigating the common patterns of these debates, in Chapters 2, 3 and 9, distills the lessons of history and offers suggestions and ways forward of relevance to all those currently engaged in aspects of sustainability debates. This thesis seeks to provide a timeless resource to assist not just all sustainability think tanks and researchers engaged in research and such debates on sustainability and climate change issues but anyone interested in building a better future and positive legacy for their children and their children’s children.

#### Statement of Use of Previously Published Materials

Before proceeding with the thesis, it is important to clarify that around 5% of this thesis is derived from, or updated from, previously published work, all of which I am lead author. Specifically some text in this thesis draws upon or significantly updates small excerpts from *The Natural Advantage of Nations*’s chapters 1, 2, 3,5, 6 and 8, all of which I am lead author;

- Smith, M, Hargroves, K. (2005) *Natural Advantage of Nations*, Chapter 1 of Hargroves, K. and Smith, M. (eds) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan, London.

- Smith, M, Hargroves, K. (2005) *Risks of Inaction on Sustainable Development*, Chapter 2 of Hargroves, K. and Smith, M. (eds) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan, London.
- Smith, M., Hargroves, K. (2005) *Asking the Right Questions*, Chapter 3 of Hargroves, K. and Smith, M. (eds) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan, London.
- Smith, M, Hargroves, K. (2005) *Thinking Locally, Acting Globally*, Chapter 5 of Hargroves, K. and Smith, M. (eds) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan, London.
- Smith, M., Hargroves, K. (2005) *Natural Advantage and the Firm*, Chapter 6 of Hargroves, K. and Smith, M. (eds) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan, London.
- Smith, M., Hargroves, K. (2005) *The Political and Social Context: A Sixth Force on Business?* Chapter 8 of Hargroves, K. and Smith, M. (eds) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan, London.

The co-author of these chapters, Mr Hargroves, was sent the drafts of all the chapters of this thesis both when the thesis was originally submitted in 2006 and again after I had addressed examiner's queries in 2008. He agreed that, since I was responsible for the research and drafting of the following excerpts from these chapters of *The Natural Advantage of Nations*, it was fair to include and update these excerpts in my thesis. Specifically this applies to the following sub-parts of the thesis

- 1.2.1 *Definitions of Sustainable Development*, page 32-33, parts of this are derived from page 51-52 in *The Natural Advantage of Nations*, Chapter 3, "How do Nations Measure Progress?"
- 1.2.2 *Clarifying Sustainable Development and the Role of Ethics and Values*, and 1.2.3 *Sustainable Development Requires No Major Trade Offs* is based on the line of argument on pages 45-50 of *The Natural Advantage of Nations*. These pages from *The Natural Advantage of Nations* were written based on conversations with Melbourne sustainability expert Philip Sutton and his work over many years to define sustainable development (<http://www.green-innovations.asn.au/sustainability-getting-orientated.htm>).
- 3.9 *The Business Competitiveness versus Sustainable Development Debate*, the last page of this sub-section of Chapter 3 is based on my research and adapted text based on text that I researched and drafted in Chapter 1 and 5 of *The Natural Advantage of Nations*.
- 4.2 *What determines business competitiveness?* This expands on Table 1.2 in Chapter 1 of *The Natural Advantage of Nations*. Table 1.2 is from Professor Michael Porter's publication *The Competitive Advantage of Nations* as acknowledged in the text.

- 4.5 *Additional benefits of decoupling profits from environmental pressures and negative social outcomes*. The opening two pages here are based on page 94-95 of Chapter 6 of *The Natural Advantage of Nations*, which I researched and wrote. These pages were edited by Karlson Hargroves in *The Natural Advantage of Nations*.
- 4.7 *The Porter Hypothesis*, builds upon, significantly updates and expands upon the second half of the journal paper by Professor Bruce Paton, entitled ‘Efficiency Gains Within Firms Under Voluntary Environmental Initiatives.’ *Journal of Cleaner Production*, vol 9, pp167-178

#### Statement of Use of PhD Material in Forthcoming Co-Authored Publications

At this time of submission, one other co-authored book manuscript had been completed and is with the publisher, Earthscan Publishing. That book is *Whole System Design: An Integrated Approach to Sustainable Engineering* of which I am second author. Research and ideas from Chapter 5 under the subheading “5.3.6 *Advanced Strategies for Decoupling – Whole System Approaches to Sustainable Design*” on pages 243-251 are used in Chapters 1 and 2 of the *Whole System Design* publication. I am the lead researcher and lead author of these two chapters for the *Whole System Design* publication. The integration of the 10 elements of whole system design as proposed by Appendix 5.1 of this thesis has also been used prominently in this forthcoming publication. This book is also significantly based on my TNEP colleague Peter Stasinopoulos’s University of South Australian Master’s thesis entitled *Elaborated Whole System Approach to Achieve More Environmentally Sustainable Engineered Systems*. He is lead author of this new publication *Whole System Design*. Peter’s thesis provides further evidence that the discussion of whole system design in this thesis is my own work. As Peter Stasinopoulos’s thesis states, my PhD thesis here is the source of the idea and rationale for integrating the 10 elements of whole system design (See Appendix 5.1 of this thesis) which are used, with acknowledgement, in Peter’s Masters thesis. In addition, chapter 7 of this thesis, entitled “*Decoupling Economic Growth from Greenhouse Gas Emissions to Achieve Environmental Sustainability*”, provided a significant percentage of the research, references, and argument for The Natural Edge Project’s 2008 submission to the Garnaut Review, of which I am lead author. Finally, this thesis, its research and core arguments will be used to significantly inform and assist the development of a new co-authored publication, of which I will be lead author, *Cents and Sustainability*, which will focus on the topic of decoupling of economic growth from environmental pressures. As such this book’s arguments and evidence will be significantly informed by the research, source documents, arguments and evidence presented in this thesis.

Unless otherwise attributed or referenced, I hereby declare that all the work contained in this dissertation is substantively my own.

# Thesis Topic: Advancing and Resolving the Great Sustainability Debates and Discourses

## Introduction: Succinct Outline of Thesis

It is still contested whether or not current forms of development are sustainable or not, so Chapter 1 first addresses this key question by reviewing recent empirical scientific results and evidence. Hence, Chapter 1 discusses the results of major scientific studies such as the UN Millennium Ecosystem Assessment and the IPCC assessments to understand whether or not current development pathways are environmentally sustainable. Through a discussion of the latest science, Chapter 1 will show that there is mounting scientific evidence that the current paths of development are environmentally unsustainable and that this threatens social sustainability and the prospects for long term global economic prosperity. Chapter 1 also demonstrates that, according to the latest science, humanity has a small window of a few decades within which to reduce environmental pressures adequately to avoid dangerous climate change and other ecosystem tipping points. Chapter 1 shows that over the next 30 years experts warn that development and policy choices will largely determine whether humanity sees

- a) the sixth mass extinction of species<sup>3</sup>
- b) the positive climate change feedback loops unleashed, leading to runaway dangerous climate change which will hurt the most vulnerable on the planet<sup>4</sup>
- c) the significant spreading of diseases such as AIDS and vector borne diseases from global warming<sup>5</sup>
- d) increased intensity and vulnerability to natural disasters<sup>6</sup>
- e) loss of soil fertility globally<sup>7</sup>
- f) ecosystems pushed past the threshold point of irreversible decline<sup>8</sup>
- g) the peaking of world oil production leading to high oil, food and chemical prices<sup>9</sup>

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<sup>3</sup> Myers, N. (1996) *Key Challenges for Biodiversity: Discontinuities and Synergisms*, Biodiversity and Conservation, September.

<sup>4</sup> International Climate Change Taskforce (2005) *Meeting the Climate Challenge*. Institute for Public Policy Research. Available At <http://www.ippr.org.uk/publicationsandreports/publication.asp?id=246>

<sup>5</sup> McMichael, A. (2002) *The Biosphere, Human Health and Sustainability*, Science, vol 297, p1063 McMichael, T. (2001) *Human Frontiers, Environments and Disease: Past Patterns, Uncertain Futures*, Cambridge University Press, Cambridge.

<sup>6</sup> UN Millennium Ecosystem Assessment, (2005) *Ecosystems and Human Well-being: Biodiversity Synthesis*. World Resources Institute, Washington, DC

<sup>7</sup> Ibid.

<sup>8</sup> UN Millennium Ecosystem Assessment, (2005) *Ecosystems and Human Well-being: Biodiversity Synthesis*. World Resources Institute, Washington, DC UNEP (2007) *Global Environment Outlook: Environment for development (GEO-4)* report. UNEP. Available At <http://www.unep.org/geo/geo4> Accessed 23.03.08 World Resources Institute (WRI) (2000) *World Resources: People and Ecosystems: The Fraying Web of Life*, WRI, Washington, DC

Thus, this thesis argues, it behoves us to learn from the past, to understand what has historically prevented progress on a transition to sustainable development especially now that, according to the latest science, such a transition is urgently needed. Global recognition of these concerns and debates about whether development is environmentally and socially sustainable are not new. Likewise for some time now respected institutions have supported the call for a transition to sustainable development especially since the publication of The Brundtland Commission's *Our Common Future*<sup>10</sup> in 1987. This thesis is a response to The Brundtland Commission's *Our Common Future*,<sup>11</sup> which was the first publication to significantly mainstream and move forward sustainability debates and generate a remarkable level of consensus and support for the pursuit of sustainable development. Following the 20th anniversary of *Our Common Future* in 2007, it is timely to review what have been the lessons from the last twenty years of efforts to move forward the sustainability debates about whether or not development is sustainable and debates about how best to achieve sustainable development. An historical perspective is useful, this thesis argues, to help identify patterns to the sustainability debates and to identify what "elements" or "key factors" enabled the sustainability debates to progress, stall or even go backwards.

This thesis, in Chapter 2, first briefly covers the key conclusions from Tainter's and Jared Diamond's<sup>12</sup> histories of past civilisations which highlight both the old nature of these issues and debates but also point to long term historical patterns and "elements" or "factors" which determine whether or not sustainability debates progress or not. Chapters 2 and 3 then highlight that many aspects of these patterns have repeated themselves within the sustainability debates over the last 100 years. Chapter 2 brings together and integrates for the first time a wide range of evidence to show that by 1908 humanity possessed a far greater knowledge of the major threats to the sustainability of development than has been previously understood. Chapter 2 is a novel contribution to the history of sustainability debates in that it highlights that by 1908 many of these debates about the sustainability of development had begun. As shown in Table 2.1 in Chapter 2 already by 1908 the risks of over fishing (1865), pushing beyond ecological thresholds (1864), dry land salinity (1864), soil degradation (B.C), deforestation (~300 B.C), materials like asbestos (1898), chemicals such as PCB's (1899), benzene (1897), and radiation (1896) were known and whether action should be taken was being debated. With this one hundred year historical perspective, Chapter 3 then looks at some of the patterns of the last one hundred years of how these debates have evolved. Chapter 3 asks what patterns have emerged in the sustainability debates? Chapter 3 finds that often over the last one hundred years, when new

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<sup>9</sup> Hirsch, R.L (2005) '*The Inevitable Peaking of World Oil Production*', The Atlantic Council of the US Bulletin. Available at [http://www.acus.org/docs/051007-Hirsch\\_World\\_Oil\\_Production.pdf](http://www.acus.org/docs/051007-Hirsch_World_Oil_Production.pdf). Accessed 4 September 2007

<sup>10</sup> World Commission on Environment and Development (WCED). (1987) *Our Common Future*. Oxford University. Press, Oxford.

<sup>11</sup> Ibid.

<sup>12</sup> Diamond, J. (2006) *Collapse: How Societies Choose to Fail or Succeed*. Random House.

social or environmental programs or higher standards were proposed to address such issues, vested interests and often economists/experts (often hired by these vested interests) have opposed such change. This aligns well with Jared Diamond's<sup>13</sup> conclusions looking at more ancient civilizations. Jared Diamond found that whether or not the vested interests – the elite wealthy ruling class – of a particular civilization was directly effected by environmental threats was critical as to whether or not that civilization was able to adapt and respond early enough to avert ecological disaster and the collapse of the civilization.

Chapter 3 shows that, whilst the nature of the vested interests has changed since ancient times, with the rise of market capitalism and the corporation, many of the overall patterns, identified by Jared Diamond, have continued in the sustainability debates of the last 100 years. Chapter 3 shows that, just as with ancient civilizations, vested interests have been a major barrier to progress being made to achieve sustainable development in modern times as well. Chapter 3 shows that, in modern times, vested interests have used sophisticated justifications and played on ordinary people's fears to fight proposed changes to achieve a transition to sustainable development. Often vested interests have argued that specific efforts to enable development to be more sustainable would lead to at least one or more of the following:

- a) add significantly to costs and thereby harm business competitiveness
- b) lead to loss of jobs
- c) force their business/corporation to relocate the respective business to developing countries where regulatory costs are less<sup>14</sup>.
- d) lead to loss of economic growth and even an economic recession.

This thesis addresses whether or not such claims are true. This thesis addresses issues around whether there is an inevitable trade off between sustainable development and jobs, business competitiveness and economic growth in Chapters 3-8. This thesis can also be seen as a response to Gro Brundtland's call in the Forward to *Our Common Future*<sup>15</sup> when she stated that 'What is needed now is a new era of economic growth-growth that is forceful and at the same time socially and environmentally sustainable'. Following the 20th anniversary of *Our Common Future* in 2007 it seems timely to re-examine this question. This thesis aims to present a comprehensive synthesis to address this question. Whilst some scholars have addressed aspects of this question we lack an integrated view of how *both a socially and environmentally* sustainable form of economic growth could be achieved. To date no study exists like this which is investigating potential correlations between both social and environmental sustainability goals and economic growth.

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<sup>13</sup> Ibid.

<sup>14</sup> Goldstein, F (1999) *The Trade Off Myth: Fact & Fiction About Jobs and The Environment*. Island Press. Washington:

<sup>15</sup> World Commission on Environment and Development (WCED). (1987) *Our Common Future*. Oxford University. Press, Oxford. p. 43

The thesis also focuses on the “growth” debates and discourses because the issue of whether or not economic growth and sustainable development can be compatible goes to the heart of the differences between the key environmental discourses as shown by Dryzek in his 1997 publication *The Politics of the Earth: Environmental Discourses*. This question also goes to the heart of ecological modernisation. As Dryzek stated “Much of its (ecological modernisation’s) appeal lies in its promise that “we can have it all: economic growth, environmental conservation, social justice”<sup>16</sup>. This thesis examines in Chapters 5-8 whether we can indeed “have it all” as described by Dryzek. The “growth” debates also go to the heart of debates over whether or not it is possible to achieve “green growth”? This thesis seeks to make a significant contribution to that discussion and debate as well.<sup>17</sup>

No one thesis can cover in detail all the nuances of the history of all of the specific great social, economic and environmental debates. But there are common themes across many of these debates. Thus, it is possible to derive patterns and lessons that are relevant to almost all of these specific debates. One of the underlying issues that is reflected in so many sustainability debates is the question of whether it is possible to achieve better social, economic and environmental outcomes, the triple bottom line, with no major trade offs? Those that believe it is possible to achieve better triple bottom line outcomes with no major trade offs tend to argue for sustainable development in these debates, whilst those who believe that major trade offs are inevitable tend to argue against sustainable development. By addressing the underlying assumptions behind specific debates such as whether or not trade offs are inevitable, this thesis seeks to create a general resource that can assist anyone concerned with these issues.

This thesis also recognizes that rational discussion about the economic and business competitiveness impacts of a transition to sustainable development is not going to be sufficient to address the barriers to progress because of vested interests and blocking coalitions. This thesis makes clear that a rationale discussion and resolution of these sustainability debates on its own will not be sufficient to result in a rapid transition to sustainable development. Whilst achieving sustainable development is in the common interest of the vast majority of citizens, it runs against the vested interests of powerful organizations, corporations and political parties. Such changes cannot be achieved simply by convincing government decision makers or the vested interests themselves alone by rational argument. Change to achieve sustainable development is helped by either

- a) the creation of a new vested interest that is as powerful in terms of political donations, influence in the media and contributions to the economy as the old vested interests or

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<sup>16</sup> Dryzek, J. (1997) *The Politics of the Earth: Environmental Discourses*. Oxford: Oxford University Press.

<sup>17</sup> Ekins, P (2000) *Prospects for Green Growth: Economic Growth and Environmental Sustainability*, Routledge Publishing London, New York

- b) through the more diffuse kind of power exercised by a mass movement of progressive organisations and citizens.<sup>18</sup>

Such a mass movement would include sympathetic pro environment businesses, professional organisations, trade unions, churches and environmental and social justice non-government organisations (NGOs). If the vast array of groups and individuals, making up such a movement can agree on common principles, goals and strategies, the movement can be almost irresistible to any government that wishes to stay in office and to any opposition party wishing to achieve office. This thesis argues that there is a need for new institutions, new campaign strategies and new anti-blocking coalition style “think tanks” that are networked with progressive industry groups, innovation/R&D and educational institutions. Such new strong anti-blocking coalitions are needed to provide confidence to other progressive business, government and civil society organizations to publicly commit and implement sustainability actions and measures.

To set the scene, these thesis chapters seek to address the following specific issues and questions:

- Chapter 1 sets up the thesis by examining the question of whether or not current forms of development are environmentally and socially sustainable? Chapter one also seeks to outline and clarify the scope of the thesis and define what is sustainable development. Defining sustainable development is not a major focus of this thesis. Hence this thesis defines the range of goals for a sustainable development based on established sets of sustainability principles such as the Earth Charter. The Earth Charter is chosen as a comprehensive list of sustainability goals because of the extensive global process under which it was created and reviewed. Chapter 1, and the accompanying Appendix 1.3, also begin to position the thesis theoretically in the ecological modernisation tradition and begin to address criticisms of ecological modernisation. Subsequent chapters will build on from this.
- Chapter 2 discusses when these sustainability debates began in a novel way by addressing the question: when did humanity have the first chance to define and pursue sustainable development globally? Through asking this question the chapter seeks to show that not only did these debates begin well before Rachel Carson’s *Silent Spring*<sup>19</sup> but also that these debates have mattered to the course of human history globally for at least one hundred years. Chapter 2 shows through this historical approach that the sustainability debates are not new. This historical perspective enables the thesis to look at why many sustainability debates have failed to progress significantly leading to overall insufficient business, government and societal action for change over the last 100 years. The historical perspective enables this thesis to

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<sup>18</sup> Diesendorf, M (2007) *Greenhouse Solutions with Sustainable Energy*, UNSW Press, Sydney.

<sup>19</sup> Carson, R. (1956) *The Silent Spring*. Houghton Mifflin. Boston:

investigate what factors have held back progress on sustainable development for a considerable time in the following chapter, Chapter 3.

- Chapter 3 addresses the question: why has there been so little progress on the sustainability debates and what have been the major barriers to sustainable development over the last 100 years? Chapter 3 asks what lessons can we learn to help progress the sustainability debates today.
- Chapter 4 addresses the question: are significant trade offs between business competitiveness and corporate social and environmental responsibility inevitable or not? Chapter 4 addresses the question: are significant trade offs inevitable or not at the micro-economic level? Many studies now show that there are several key microeconomic assumptions that determine whether macroeconomic modelling predicts that achieving ecological and social sustainability helps or harms economic growth. One of the key assumptions relates to micro-economics and businesses. Simply put, if you assume that there are significant eco-efficiency and resource productivity opportunities still available for many industries then this makes it possible to reduce environmental pressures while making a profit. But what if business has already found all the cost effective eco-efficient savings, then any eco-tax or further requirement on business to achieve eco-efficiency gains will inevitably lead to higher costs to business and the economy. Debates about these issues at the microeconomic business level therefore have important macroeconomic implications for the “growth” debates. Therefore these questions are addressed in detail in Chapter 4 of this thesis. The results from Chapter 4 are important therefore for the “growth” debate discussions in Chapters 5-8.
- Chapter 5 addresses the question: is it possible for there to be a form of economic growth that is socially and environmentally sustainable, and if so, under what conditions? Chapter 5 starts the main focus of this thesis namely whether or not it is possible to achieve better economic, social and environmental outcomes at a national, macro-economic level. This builds on from the results from the microeconomic level of Chapter 4. This thesis argues that the current unsustainable nature of economic growth is a symptom of more fundamental causes of unsustainability. This thesis argues that current economic growth is unsustainable due to market, informational and institutional failures, rebound effects, a failure of sustainable design to be adopted by the majority of mainstream designers (engineers, architects, industrial designers), rising global population, a rapid expansion of unsustainable western consumption patterns globally plus lack of global co-operation. This thesis argues that, only by recognising this and focusing on the necessary sustainability design, policy and institutional changes to address these barriers to sustainability can the current unsustainable forms of development be turned around to become sustainable. Once it is understood that economic growth per se is not the problem then this helps to clarify what society needs to focus on to achieve the goal of

sustainable development. Chapter 5 starts to bring together literature which demonstrates that there is significant potential to decouple economic growth from physical throughput and environmental pressures through eco-efficiencies, eco-innovation, sustainable consumption and policy and institutional change. Chapter 5 shows that decoupling can be a useful part of broader strategy to achieve sustainable development as long as rebound effects are minimised through effective policy.

- Chapter 6 investigates the relationship and correlations between the social justice goals of the Earth Charter and economic growth. Chapter 6 shows that whilst some social sustainability goals, like sustainable consumption, will negatively affect economic growth, many of the other Earth Charter goals – such as stabilising population growth, reducing corruption, building social capital, reducing inequality, enhancing gender equality, investing in education and health - show a positive correlation with economic growth. However, in achieving the social justice goals of the Earth Charter and eliminating poverty this will create an additional 2-3 billion people aspiring to consume just as much as is currently consumed unsustainably in OECD countries. As Chapter 1 will show, it is physically impossible for all developing nations to achieve Western material living standards with previous modes of development, as the global ‘ecological footprint’ (the equivalent land and water area required to produce a given population’s material standard, including resources appropriated from other places) is already greater than the carrying capacity of our planet.<sup>20</sup>
- So Chapter 7 investigates environmental pressures from rising greenhouse gas emissions and discusses potential costs of inaction versus action of making the necessary investments to decouple economic growth from greenhouse gas emissions on a global scale. Chapter 7 also investigates strategies to reduce the costs of action and in Appendix 7.3 policies to underpin a decoupling of economic growth from greenhouse gas emissions are outlined. Chapter 7 concludes by overviewing recent positive developments to build a global movement amongst business, governments, churches, the union movement and civil society campaigning for action on climate change.
- Chapter 8 looks at the other main sources of environmental pressure and investigates the costs of inaction versus action of decoupling economic growth from these additional environmental pressures. The environmental pressures investigated in this chapter have not been chosen randomly. Rather they reflect the main areas chosen by the OECD for their frameworks on decoupling economic growth from environmental pressures.

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<sup>20</sup> World Wildlife Fund (2004) *Living Planet Report*. WWF. Available at [www.panda.org/news\\_facts/publications/key\\_publications/living\\_planet\\_report/index.cfm](http://www.panda.org/news_facts/publications/key_publications/living_planet_report/index.cfm) Accessed 8.01.2008

- In Chapter 9 the results of Chapters 5-8 are combined to address the main hypothesis of the thesis is it possible to “have it all” – environmental sustainability, social justice and economic growth and prosperity? The results of Chapters 5-8 seek to answer the question therefore of whether it is possible to achieve sustainable development at the macroeconomic level. This thesis does this deliberately to compliment books such as *Natural Capitalism*<sup>21</sup> and *Factor 4*<sup>22</sup> which have already shown that it is possible to achieve sustainable development at the micro-economic level of business. Chapter 9 also concludes the thesis by synthesising ten key steps that would, if applied, help to move the great sustainability debates forward and create conditions under which strong ecological modernisation would be more likely to occur. Chapter 9 also calls for the prioritisation of education for sustainable development to help create the conditions for ecological modernisation globally.

Whilst Chapter 9 discusses this in more detail there is an important understanding that comes from this discussion that relates to the discussion of debates in this thesis. Hence it is important to note it now so that the discussion of the debates which follows can be seen with this additional context and understanding. The key insight is that many of these debates around whether it is possible to achieve sustainability and greater business competitiveness or higher economic growth are subject to a key condition. That condition is that those people in decision making positions in business and government are good at finding triple bottom solutions that improve social, economic and environmental outcomes simultaneously without any major trade offs. This thesis’s research in Chapters 4-9 shows that there is an overwhelming case that triple bottom line solutions are possible at the microeconomic and macroeconomic levels. But whether business and government and society fulfil this potential and realise these triple bottom line possibilities is another matter. This is because whether a company or a government achieves sustainable development depends on *how well* a company or a government implements these sustainable development principles and ideas in practice. How *well* a company or a government implements a sustainability strategy depends on the decisions, technical choices or detailed policy decisions made by many people in that company or government over many years. If a company or government does not identify carefully win-win-win opportunities and instead implements sustainable development poorly they can incur significant economic costs. Clearly that is not sustainable. How *well* people make decisions in this area depends on many factors including their knowledge and experience on developing strategies, processes and solutions for sustainable development. When it comes to implementing sustainable development for companies or government the devil is in the detail. Detailed insights are needed by decision makers in companies or government to achieve real eco-

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<sup>21</sup> von Weizsäcker, E., Lovins, A. and Lovins, L. H. (1997) *Factor Four: Doubling Wealth, Halving Resource Use*, Earthscan, London.

<sup>22</sup> Hawken, P., Lovins, A. and Lovins, L. H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Earthscan, London

innovation or effective policy choices respectively. Whether decision makers in business and government make wise choices depends critically on whether they have had a good education in sustainable development. Education and professional development for sustainable development to help business and government decision makers make wise choices regarding the implementation of their sustainability strategies is critical to whether sustainable development is implemented well or not. This was acknowledged recently by a CSIRO report on the issue of climate change. A CSIRO report predicts a carbon emissions trading scheme will require three million workers to be trained or re-skilled by 2015.<sup>23</sup> The report says without retraining the workforce with the necessary skills they need to help achieve a low carbon economy there is little chance the Government will meet its target of reducing greenhouse gas emissions by 60 per cent by 2050.<sup>24</sup>

Society currently require years of training for all specialists before they are expected to be world class at their profession. Yet currently there are few courses training the next generation in how to be world class at sustainable development at the tertiary level. Addressing this gap is a central focus of my research and publications to date (see Appendix 1.1) For eight years I have researched and co-authored a range of publications and educational programs freely available online designed to assist both formal professional development and adult self-directed learning in education and training for sustainable development. These will be discussed further in the concluding chapter, chapter 9.

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<sup>23</sup> Hatfield-Dodds S, Turner G, Schandl H and Doss T (2008) *‘Growing the green collar economy: skills and labour challenges in reducing our greenhouse emissions and national environmental footprint’*. Report to the Dusseldorp Skills Forum, June 2008. CSIRO Sustainable Ecosystems, Canberra

<sup>24</sup> Ibid.