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**Chasing the wind: Can the sustainability of
development be monitored?**

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Introduction

The 1994 Barbados conference on the sustainable development of small Island States agreed that the sustainability of the development process should be monitored and regularly reported. The job was given to the UN's regional commissions. Because the conference was driven mainly by concern for the environment, the monitoring process will initially emphasise environmental sustainability. The drawbacks of this limitation will soon be apparent, and a wider scope attempted. This paper looks at implications of the monitoring task which arise from the destabilising nature of the development process itself. It also considers the multiplicity of interactions involved and the fact that detailed outcomes cannot be accurately forecast.

Sustainability and change

Sustainability¹ is the fashionable word for the process of growth and change which is capable of indefinite continuation physically, financially and politically. The development process has always been understood to mean change: change in agriculture, education, health and governance. It includes changes in the way people live, the way natural resources are used, patterns of trade and relative prices, the level and distribution of income. It is implied that the goal of development is the permanent improvement in general living standards and a more equitable distribution of power. It is the aim of the development process, as enunciated by politicians and planners, to facilitate the way in which market forces operate to bring about such change.

The fact that quantified targets are normally missed, and detailed long-range plans go off the rails very quickly, does not alter the fact that development goals are expressions of dissatisfaction with the present, and a wish that the future should be different. This implies a wish to destabilise (make unsustainable) an existing set of economic and social relationships and replace it with something better. Development management, of which development planning is an essential part, consists of formulating goals and establishing means of reaching these. It is necessary to express these with sufficient clarity and detail to support the coherent allocation of resources, and be able to manage, adjust and correct for external and internal shocks and unexpected outcomes.

It is clear that sustainability does not imply resistance to change. Observation of all kinds of natural systems shows

that change, decay, conflict and the emergence of new forms and new relationships is going on all the time; if this is not so, the system is terminally sick. Sustainability of a system does not mean that all its parts must or will be sustained: they consume, procreate, replace each other continuously, at many levels and in systematically complex ways, some in micro-seconds, some over aeons of time. In a social and economic sense too, change is essential to survival. Technology, relative costs, human skills, resource availability are all in a state of perpetual change, and continuously cause the rise and fall of firms, social classes and nations.

Equally, sustainability does not mean self-sufficiency, but that any elements of dependence must themselves be sustainable. Systems commonly regarded as sustainable routinely operate under stimulus from external forces, or by drawing resources from elsewhere. The heat of the sun powers the earth's climate. World demand for manufactured exports drives the Japanese economy. The sun's sustainability is not in question (or if it is, there are no policies for fixing it). But world trade is a man-made phenomenon requiring constant attention so that it can continue to power a myriad of interlinked economic systems.

Stability and sustainability

There is a natural tension between the desire for stability, often thought of as akin to sustainability, and the desire for change. In politics, well-placed people may advocate stability, perhaps in the name of sustainability, because they fear change will redistribute costs and benefits to their disadvantage. Poorly-off people may advocate - even die for - change, on the grounds that anything, including what the rich people castigate as unsustainable, would be better than what they have now. In the technical area, central bankers in developing countries have long had to advocate 'stability with growth', while their development planner colleagues espoused 'growth with stability'. Both have been conscious that growth and stability are conflicting objectives, but they have been understandably cautious about specifying the trade-offs implicit in their statements.

Explicit concern about sustainability came to public notice in the context of the interaction between population and environment. There was awareness that the planet's natural resources are finite and under mounting pressure from a hungry, wasteful and growing population. It quickly became apparent that even here sustainability is not a simple concept. Technology, education and costs change the volume and

value parameters of resource use for a given population. Simple ratios of tonnes or cubic metres per head are inadequate criteria of sustainability. At one extreme, it is argued that correct pricing will restore supply-demand. Experience with oil pricing and fuel consumption offers some support for this, but the required market reforms have in turn been politically unsustainable.

Estimating the sustainability of social and economic relationships and balances is even more complex, and, like the practice of development planning, is likely to be impossible unless it is confined within artificial, and periodically adjustable, boundaries. Current moves to apply chaos theory, founded in the natural sciences, to the management of firms and economies throw useful light on this. Parker and Stacey (1994), review the notions of positive (destabilising) and negative (stabilising) feedback and 'bounded instability'. They argue that the non linear interactions of a multitude of economic agents are such that their consequences are potentially system-wide and unpredictable. There is evidence of chaotic instability (in the sense that this is found in natural systems) in the way economies behave. Creativity and change are essential to progress, and occur more often in out-of-equilibrium, turbulent (unsustainable) conditions.

Stability and economic policy

The implications of this for economic policy makers are that policy should encourage decentralised and innovative enterprise, avoiding measures that penalise unusual, mould-breaking changes in established patterns and structures. While broad economic principles still explain, even help to foresee, performance of firms and economies in explicit circumstances, policy makers would recognise that detailed long-range planning is futile because the knowledge it requires is unattainable². If the future is intrinsically unknowable, the role of planning in development management is not to pretend to know it. Rather it is:

- to define goals in a manner that combines political and technical credibility;
- to arrange short-term operations efficiently;
- to allocate resources intelligently in the light of available knowledge; and
- to stay alert, armed with economic common sense and a versatile tool kit to respond to the inevitable (but specifically the unpredictable) shocks, surprises and new information that the future will bring.

Planning and predicting sustainability

Plans are essential tools of management, and public sector plans are valuable sources of information and accountability, but the predictive power of national economic plans is limited to broad directions. This prescription is already

current among practitioners, with growing stress on the need to be able to respond creatively. Planners should avoid becoming prisoners of their own paradigms.

These arguments are relevant to monitoring the sustainability of development. The task seems to imply that the future outcome of an existing or proposed set of policies, actions and investments, undertaken by a range of domestic and external agents, can be foreseen with sufficient certainty to assess its 'sustainability'. But examination of sustainability itself requires definition of the system whose ability to be sustained is in question. Is it the firm, the individual sector, the national economy? Unsustainability can be externalised, and frequently is. One policy or set of actions may be sustainable only at the expense of others. This is implicit in the dynamics of market-oriented economies. The relative social value of competing activities may not be represented by market prices. Consumption and investment may be valued differently by today's market participants, as well as by our external sustainability monitor.

Monitoring sustainability and chaos theory

A comprehensive monitoring task, on the face of it, would require the setting of standards of sustainability in the area of environment, use of technology, social and political structures, health, access and empowerment, income levels and distribution, external trade and indebtedness, government finance, monetary conditions, prices and incomes and, no doubt, more. In the light of the proven impossibility of planning the future of society and the economy, standard-setting on such a scale may also be futile in any but the broadest terms. Application of chaos theory supports this intuitive conclusion: uncertainty, turbulence and changing relationships are endemic to social and economic growth. What are we to say is a sustainable form or level of activity, when none of the measures we might establish now may be relevant in 10 or 20 years time? By setting the criteria wrongly (highly probable) we may inhibit creativity and evolution of a better way for society to use its resources. Yet 'bounded stability', within which unmanageable but productive turbulence (chaos) prevails, by definition requires relatively broad and enduring boundaries. The risk that unmanaged activity, driven by escalating human appetites, might destroy the boundaries themselves, is apparently real enough in natural systems (eg, the ozone layer) to require attention in social and economic fields too. All this is completely new ground for economic planners.

Monitoring the unknowable

The post-Barbados monitoring is to report on progress in fourteen fields, ranging from environmental disasters through waste and resource management, energy, tourism, transport, technology to human resources. Each of these

fields will turn out, on closer examination, to have multiple connections with other fields of social and economic activity that make the outcomes of a particular action unknowable, beyond the simplest mechanical result, eg, we dig this hole, it fills with water. Governments whose actions in one field are assessed as unsustainable may simply dispute the assessment, or they may argue that they are taking steps in other fields to offset the unsustainability in this one. It will be impossible to prove one way or the other. As this becomes apparent, a case may be made for broadening the surveillance operation to more fields, in an attempt to capture this complexity in a coherent overview of the sustainability of development policy³.

Yet there is still no solid basis for asserting that we know what is sustainable and what is not, outside of some broad and basic principles of economics - the boundaries within which, on the chaos analogy, turbulence is a normal state. Even these can be significantly obscured by unstable activities and flows within the systemic boundaries⁴. For example, large and persistent fiscal deficits lead to inflation; balance of payments deficits must be financed by changes in external assets or liabilities; an excess of demand over supply leads to increased prices or increased imports, or both. Separating out the causes and effects of endemic turbulence, external and internal shocks and general statistical 'noise' to reveal underlying trends requires long time series and sophisticated analysis. Even then we are assuming that the future will resemble the past. This means that not only can it be extremely difficult to prove the unsustainability of an existing line of action, but it is equally difficult to base detailed policy recommendations on a simple sustainable/unsustainable choice.

Establishing monitoring criteria

Much remains to be found out about the feasibility of this task. A step-by-step approach will probably make the most sense, starting with measurements against relatively easy and uncontroversial criteria, while thinking through the complexity of comprehensive monitoring. At least two broad phases may be foreseen. First, a restricted operation focused on the stocks and flows of natural, human and financial resources, using a limited set of easily-measured and reported indicators as triggers for more detailed diagnosis of a suspected problem area when a warning light flashes on the monitor board. Second, a more comprehensive, and necessarily looser, surveillance of social and economic change, providing a periodic input to national policy debate, perhaps in the form of an annual 'report card' for the region and individual countries.

Conclusion

Even when procedures and communications are established, with regular and special reports from the regional monitor reaching the appropriate persons in national governments and global fora it is far from clear what the effect will be. Struggles for political power and conflicts about distribution of wealth are stronger drives to action than concern about the environment, or the future costs of sustaining today's patterns of consumption, waste or oppression. Nevertheless, the spread of education, mobility of people and ideas, and the growing ability of communities to scrutinise their own governance, provides a more promising context than has existed before for practical use of the kind of information that this monitoring process is likely to produce.

End notes

- 1 That is, the quality of being capable of being sustained (continued, maintained, perpetuated) in certain identifiable circumstances. It does not mean that it will necessarily be sustained nor, presumably, that it can be sustained regardless of the circumstances.
- 2 Many practising planners have realised this, though most of us have lacked such an elegant explanation. Econometric modelling has lost credibility as a predictive tool as the complexity and interactivity of relationships and the number of explanatory variables and equations that had to be specified became apparent. Carefully used, though, such models can provide an explanatory picture of past performance, from which useful lessons can be learned.
- 3 An advisory post is being established in ESCAP's Pacific Operations Centre in Vila, Vanuatu, specifically to look at the sustainability of PIC development policies, with a view to timely policy advice being available to governments.
- 4 Like the weather, as Parker and Stacey (1994) remark. The weather is inherently unpredictable, but within boundaries, eg, it won't snow in the Sahara. Nevertheless, prolonged and pervasive turbulence can be more striking than the persistence of the boundaries. And what if it begins to look as if it might snow in the Sahara?

References

Parker, D. and R. Stacey 1994, 'Chaos, Management and Economics', IEA (London), Hobart Paper 125, London.