

Chapter 2

DEVELOPING INDICATORS OF 'SUSTAINABILITY'

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2.1 Introduction

Nods, smiles, scowls and winks are characteristic of the indicators each of us use to guide our behaviour and assess our relationships. Indicators are equally well-established as an ingredient of public policy. Indeed, the Domesday Book commissioned in England after the Norman Conquest in 1066 was essentially designed to generate measures, or indicators, as a basis for taxation. In the modern world indicators have become a favoured policy tool, used by governments to legitimise, support, or justify their decisions. Economic indicators, such as the Gross National Product (GNP), the Footsie and Hang Seng, have all become popular, if incomplete and often misunderstood, measures of the health of the national and international economy. Some social indicators are also well established and receive broad consensual agreement as measures of regional or national wellbeing – rates of unemployment and levels of infantile mortality are cases in point. There are fewer accepted environmental indicators, although the wind-chill factor, pollution indices, burn-time and temperature are daily features of media weather reports in different parts of the world.

The demand for indicators of sustainability is an almost inevitable corollary of the political (policy) context within which the concept of sustainability has evolved. Any United Nations (UN) document, such as the Brundtland Report (World Commission on Environment and Development 1987), must be viewed in this light. The debate on sustainability continues within a public policy forum, and meaningful moves to secure sustainability are likely to occur through coordinated action requiring a policy shift. The UN, national governments and non-governmental organisations (NGOs), therefore, champion the development and use of indicators of sustainability as a basis for decision-making and to monitor change.

Implementing sustainability poses particular challenges to decision-makers that shape indicator needs. Although grounded in science, and in particular in the burgeoning knowledge of systems theory, human behaviour, and biology, sustainability is also shaped by norms and values, as well as cultural traditions. Consequently, although securing sustainability rests on effective public policies, the shape of these policies, their objectives and their implementation, require an effective integration of scientific evidence and understanding with diverse human values and goals. For these reasons, indicators are

required which not only deliver concise, reliable information as a basis for public policy, but which can be used to educate and inform non-experts so that they can make their own, informed decisions.

As frequently noted, the Brundtland Report (World Commission on Environment and Development 1987:8) defines sustainable development as that which “meets the needs of the present without compromising the ability of future generations to meet their own needs”. This definition has allowed overwhelming acceptance of the concept of sustainability across different sectors of society and across ideological, national, and cultural divides. Such success is a measure of the seductive nature of the Brundtland Report, and of the inherent ambiguity in sustainability that has made it easy for everyone to ‘buy-in’. Equally it is this ambiguity that compounds the problem of developing an operational definition of sustainability and establishing indicators as tools to define, measure and monitor performance along the path to a more sustainable future.

2.2 Why is it so hard to establish good indicators?

The characteristics of good indicators are well established: they should be cheap to measure, persuasive, sensitive, timely and clear. But it is much harder to develop indicators that meet these ideals. The difficulties centre on definitional problems and selecting the data for monitoring sustainability.

2.2.1 DEFINITIONAL PROBLEMS

Given the discussion in Chapter 1, it is not surprising that no single view of sustainability has so far gained universal acceptance. Indeed Fowke and Prasad (1996) cite over 80 definitions of the term. Although scientific concern about the impact of human activities on the environment lies far back in time (Grove 1990), the emergence of scientific concerns as popular issues, high on the political agenda, is new. Therefore, in part at least, the concept of sustainability simply has not been around long enough to achieve definitional clarity. Perhaps more importantly, the concept is derived from many different sources, tries to secure diverse goals, and describes an inherently complex and dynamic process. Nevertheless, despite the diversity of interpretations, most supporters of sustainability agree that it involves a fundamental concern for the health of the physical environment, economic prosperity, and social wellbeing, and achieving a balance in these objectives over time.

2.2.2 SELECTING DATA FOR MONITORING SUSTAINABILITY

Recognition of the different dimensions of sustainability, and acceptance of its inherent complexity, are necessary steps in shifting thinking from a narrow, specialised, fragmented mode to a holistic, systems-based approach. Sustainability is premised on the fact that the state of the environment is inherently dependent on social and economic conditions and that these conditions are, in turn, impacted by the state of the environment. In effect, these linkages, rather than their component parts, must become the focus of study. Paradoxically, therefore, just as all members of society face an almost overwhelming increase in information from research advances in many fields, now we are

told that everything is connected to everything else and that this must be more explicitly recognised.

Efforts to express the holistic nature of sustainability are evident in diagrammatic attempts to describe the concept (Figure 2.1). Such conceptual efforts highlight the need for any indicators of sustainability to take into account both the different dimensions of sustainability and their interconnectedness. Developing meaningful indicators of sustainability, whether for an individual town or city, region or nation, or for a global system, was never likely to be easy. Despite evidence of deteriorating environmental conditions that suggest an increasing threat to sustainability, our knowledge of what is important for the health of biophysical systems is not great, nor as yet are we well equipped to identify the extent to which individual components in these systems contribute to sustainability.

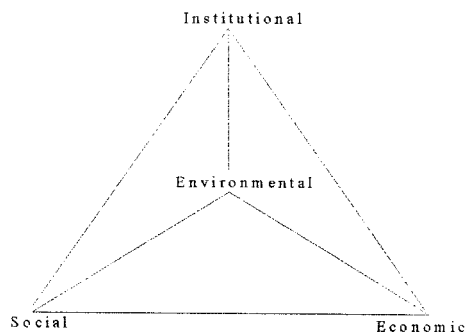


Figure 2.1 Four dimensions of sustainability (after Spangenberg and Schmidt-Bleek 1997)

As Bossel (2000:10) points out, accepting the need for a systems approach to the development of indicators of sustainability determines two primary requirements for these indicators. They must provide information about the current state and viability of that system; and they should provide sufficient information as to the contribution of that system to the performance of other systems that depend on them. Thus, in those systems managed or used by people for their own ends, such as fishing, forest or farms, we need indicators of the state of that specific system. In addition, we need indicators to allow intervention where necessary to correct behaviour within that system and ensure the health of those systems dependent on it (Figure 2.2).

Ideally, an indicator of sustainability would be one simple, composite, numerical measure. This would function as a clue or pointer to the sustainability of a much larger system (or systems). It would provide a measure or benchmark to assess environmental trends, to establish policy targets or goals, or to monitor progress. In other words, the ideal index is a simple, readily understood measure of a much more complex phenomenon.

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Geographical Interpretations

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