



SUSTAINABLE DEVELOPMENT: A CRITICAL ASSESSMENT OF PAST AND PRESENT VIEWS

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RESEARCH REPORTS

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- The water management processes will become increasingly more and more complex in the coming years.
- Tomorrow's water problems cannot be solved on the basis of analyses of yesterday's problems and using day before yesterday's solutions.
- Increasingly many of the emerging water problems and their solutions will come from outside the water sector and the water profession.
- Implementable solutions have to be case specific. For example, solutions that are feasible in France, Germany, UK or USA may not be applicable in China, India, Egypt or Mexico, because of differing climatic, physical, economic, social, environmental, legal and/or institutional conditions.
- A single paradigm may not be equally valid, or operationally applicable, for all countries of a non-homogenous world, which are at different stages of socio-economic development, irrespective of its conceptual attractiveness.

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INTRODUCTION

The development landscape has evolved during the second half of the last century due to the fact that practices of development have not worked as expected. There has been a tendency to equate the development goal with the more narrowly conceived objective of economic growth as measured by the rise in gross national product. While in the decade of the 1970s the debate was about environment versus economic growth, during the 1990s, it was about growth and development, where development was seen as improvement on the quality of life of the populations (Pearce, et al., 1999).

Policy-makers have realised that development should go well beyond economic growth to encompass social goals, focusing not only on poverty alleviation and income distribution but also on issues like increased employment generation and provision of better social services like education and health facilities trying to eliminate the different forms of malnutrition, disease and ignorance. The end objectives of development being to improve quality of life of people and a better environment.

Today, it is usually recognised that high economic growth, necessary and essential as it is, does not by itself guarantee the easing of urgent social and human problems (Gillespie, 2001; Easterly, 2001; Soderbaum, 2000). In fact, in many countries high growth rates have been accompanied by increasing unemployment, rising disparities in incomes both between groups and between regions, and the deterioration of social, cultural and environmental conditions (Easterly, 2002).

While gross domestic product (GDP) is a monetary and one-dimensional indicator, development has to be considered (and, if possible, measured) also in social and environmental (or ecological) terms. Approaches to decision-making have to reflect this multi-dimensional idea of development. Social and environmental impacts should be carefully considered and separated from financial concerns. Economic analysis, while still being important, is regarded only as a partial analysis. Policies should embrace wider dimensions than the growth of GDP alone, and include some of the major environmental problems that arise in the context of urban and rural poverty such as food security, education, health, transportation and communication facilities, bad housing, poor water supply, inadequate sewerage, and so on. Goals and objectives in these fields should be incorporated into development plans as much as targets for the growth of outputs (Soderbaum, 2002).

In developing sustainable goals, both the social and environmental dimensions should be considered. Social sustainability is essential because poverty is both a cause and an effect of environmental degradation. A society festering with social tension will not have the means or inclination to make the consideration of the social and the environmental issues a priority. It is necessary to remember that the environmental degradation is not a necessary outcome of development. It results from a set of historically contingent choices for technology, production processes, and consumption patterns. Similarly, poverty and extreme inequity are not inevitable, but are the outcome of a specific set of social policy choices. Reversing the negative trends, and creating a transition to global sustainability will not be easy. It will require a widespread conviction that action is necessary and will depend on finding sufficient political will for action. The institutions, policies and technologies for translating intentions into real world solutions must be harnessed. The primary agents for change are governments, businesses and the new institutions of civil society, the proliferating collection of non-governmental organizations engaged in addressing the full range of environmental and social issues (Hediger, 2000). Sustainability efforts should be judged by the quality of processes, the ability to build relations

between the appropriate stakeholders that reflect trust, and enhanced learning and understanding of different values and meanings. Support of the policy and its capacity to endure over time is the material outcome (Meppem, 2000).

Regarding policy formulation and implementation as well as institutional arrangements, most of the developing countries face fundamental problems which relate to issues as basic as the definition of goals and objectives (ECLAC, 1998). Both the planning and management of natural resources are plagued and constrained by concepts that often cannot be implemented because they cannot be properly defined and thus operationalised. In spite of these shortcomings, the governments often insist in using certain paradigms, such as sustainable development, simply because they are part of the current global thinking, even though they represent more of a concept than an implementable reality (Dragun and Jakobsson, 1997; Meppem and Bourke, 1999; Meppem and Gill, 1998). It is somewhat unlikely that any government pursuing sustainable development, as it is defined at present, would be able to develop feasible plans that can be properly implemented.

There is an urgent need to move from concept to implementation. Global paradigms like sustainable development are unquestionably conceptually attractive but their actual implementation in operational terms has left much to be desired. It is important to objectively analyse its applicability: conceptual attractiveness alone is not a solution. Rather than ignoring the need for alternative conceptual frameworks which are implementable, individuals and institutions collectively should welcome constructive analyses and criticisms of the existing mainstream approaches. Some of the current conceptual frameworks and theories on development should thus be carefully analysed, and, if necessary, reconsidered (Soderbaum, 2000).

SUSTAINABLE DEVELOPMENT

Evolution of the concept

Even though the concept of sustainability has been used extensively since the mid-1980s, the idea is not new. For example, the term “sustainability” has been widely used in fisheries and forestry for nearly a century to define long-term management techniques for harvesting reproducible natural resources. Thus, terminologies like maximum safe yield have been common for many decades in the fields of fisheries and forestry.

Contrary to the popular view, the concept of sustainable development did not start with the publication of the report of the World Commission on Environment and Development (WCED, or the Brundtland Commission Report) in 1987. In fact, by the mid-1980s, well before this report was published, the concept of sustainable development had already become popular, initially through the work of the United Nations Environment Programme¹ (UNEP), and later by the activities of the World Bank.

The earliest reference to the concept of sustainable development, as well as the use of this terminology, goes back to at least over half a century. It is possible that other authors may have used this terminology before 1948, even though no such reference was found during the course of research for the present paper.

¹ UNEP was established in Nairobi, Kenya, as a direct result of the United Nations Conference on the Human Environment that was held in Stockholm, Sweden, in June 1972

In 1948, Fairfield Osborne, the founder and the then President of the Conservation Foundation, wrote in his book *Our Plundered Planet* that:

“We are rushing forward unthinkingly through days of incredible accomplishment...
...and we have forgotten the earth, forgotten it in the sense that we are failing to regard it
as the source of our life.”

Osborne was concerned with the “accumulated velocity with which (man) is destroying his own life sources.” He insisted that the only kind of development that makes sense is “development that can be sustained.”

In 1962, the United Nations General Assembly (UNGA) passed a resolution which recognised that ‘to be effective, measures to preserve natural resources should be taken at the earliest possible moment simultaneously with economic development’ (UNGA Resolution 1831 XVII, 1962. UNGA Official Records, 17th Session, Supplement No 17, p. 21). Later on, both during the African Convention on the Conservation on Nature and Natural Resources in 1968 ((UNTS Vol. 1001, No. 14689, pp. 3-33) and the United Nations Second Development Decade in 1970 (UNGA Resolution 2626, at 39. UN Doc A/8028, 1970), it was mentioned again that economic development should take into consideration the preservation of natural resources. In 1971, the Founex Report (UNEP, 1981) stated that, ‘the recognition of environmental issues is an aspect of this widening of the development concept’. The Founex report concluded that the questions of development and the environment must be linked, as they were at the 1972 Stockholm Conference, where it was realized that ‘States should adopt an integrated and coordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve the human environment for the benefit of their population. (Stockholm Declaration, 1972, Principle 11). (Gillespie, 2001).

Intellectually, however, the concept of sustainable development was promoted by UNEP. A small group of environmental scientists, meeting under the aegis of UNEP in Nairobi in 1975, extended the concept of sustainability from fisheries and forestry to the development process itself.

Shortly after this meeting, in 1976, Mostafa Kamal Tolba, the then Executive Director of UNEP, in an address in London pointed out (Tolba, 1982):

“A new kind of development is needed because it is essential to relate development to the limitations and opportunities created by the natural resource base to all human activities. It is also required because it is now clear that past patterns of development in both developed and developing countries have been characterized by such serious environmental damage that they are simply not sustainable.”

Tolba (1982) then went on to argue:

“The most pressing objective of environmental management is to meet basic human needs within the potentials and constraints of environmental systems, including natural resources. Environmental management brings two new dimensions to the development process: it broadens the concept to include environmental quality, and it expands it in time to include development over the long-term on a sustainable basis.”

Tolba’s eloquent arguments for a new form of development process which is sustainable over the long-term, touched a chord in the environment movement. In 1981, A.W. Clausen, the

then President of the World Bank, gave a major statement on “Sustainable Development: the Global Imperative” (Clausen, 1981). A year later, during the commemoration of the 10th anniversary of the Stockholm Conference, in Nairobi, 10-18 May 1982, the world community of states unanimously recommended “sustainable socio-economic development.” The Nairobi Declaration, that resulted from the commemorative meeting, concluded by urging (Tolba, 1988):

“... all Governments and peoples of the world to discharge their historical responsibility, collectively and individually, to ensure that our small planet is passed over to future generations in a condition which guarantees a life in human dignity for all”.

In 1987, in its report entitled Our Common Future, the WCED recommended the concept of sustainable development, which was loosely defined as “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs.”

Even though the WCED report made continual references to sustainable development, it was totally silent on how the concept could be operationalised: sustainable development was expected to be achieved in an unspecified and undetermined way, some time in the future. Nor did the definition include the realization of an equitably distributed level of economic well-being², without which no development can be sustained over the long term (Biswas, 1997).

The UNGA considered both the WCED report and a report UNEP had prepared on Environmental Perspective to the Year 2000 and Beyond. In the General Assembly Resolution 42/186 of 1987, it noted that “different views exist on some aspects” between the WCED and UNEP reports. It, however, welcomed:

“... as the overall inspirational goal for the world community the achievement of sustainable development on the basis of prudent management of available global resources and environmental capacities and the rehabilitation of the environment previously subjected to degradation and misuse...”

Following the work of UNEP and the WCED, and the passing of the above-mentioned resolution of the UNGA, sustainable development became “the” paradigm for development. The various United Nations agencies, all the development banks and the bilateral aid agencies, and nearly all the governments, embraced the paradigm of sustainable development, even though it was never properly defined, except in a broad and general way. Additionally, no serious discussion ever took place as to how the concept could be operationalised in the real world, so that a development process could be planned and managed from the very beginning in order that it becomes inherently sustainable.

The ideological debate about ways of integrating environmental considerations into policy-making also did not start with the publication of the UNEP and the Brundtland Commission reports. During the 1970s and 1980s, attempts were made to articulate alternatives to an almost exclusive reliance on conventional indicators such as economic growth in terms of GNP, balance of payments, employment, index of inflation, etc. Among other catchwords, “qualitative growth” was one of the first to signal a new direction of societal interest. It was argued that growth exclusively in terms of GNP for some activities is incompatible with environmental goals, while growth in other activities (with related goods and services) is basically beneficial (Soderbaum, 1998).

² The issue of equity is especially important for developing countries.

The discourse

As mentioned before, in response to the perceived threat of impending ecological crisis during the post-1970 period, a dominant environmental discourse constructed itself. Certain words were favoured for their ability to evoke images of consensus, unity and common purpose, like sustainability, diversity, democracy, community, globalisation, and environment. An important consideration within this overall general environmental discourse has been the concept of sustainable development and mechanisms to address it. So far, however, there is still no agreement even on the meaning or definition of sustainable development. Thus, it is not surprising that little consensus exists with regard to formulating and operationalising sustainable development policies, except in broad and general terms (Meppem, 2000; Meppem and Bourke, 1999; Dragun and Jacobsson, 1997; Goodland, 1997; Biswas, 1996).

Nor surprisingly, in the translation of the principle of sustainable development into specific targets and action, the philosophical consensus has shattered into a cacophony of definitional debates, interpretations and slogans. The concept is sufficiently rich and protean to refract the full diversity of human interests, values and inspirations. Nevertheless, sustainability remains an irreducibly holistic concept that compels integration over perspectives, spatial scales and time (Raskin et al., 1998).

Government, corporate and other decision-makers are more often being urged to “act sustainably” and to pursue policy paths toward “sustainable development”. These admonitions and instructions appear to express a significant societal commitment to alter current practices. And yet these widely supported admonitions provide little guidance to policy makers and other actors, because the term “sustainable” embodies deep conceptual ambiguities. These ambiguities cannot be easily resolved because they rest, in turn, on serious theoretical disagreements about the interactions of humans with their environment that transcend disciplinary boundaries (Toman, 1999).

If the conflicts of interpretations in sustainable development planning are a reflection of increasing diversity of people’s interests and meanings attached to place and space, how are we to accommodate the politics of these divergent claims for attention? If the relations between citizens, companies, business and “the state” are increasingly interdependent, diverse and uncharted, through what process and with what politics will various interests be asserted to arrive at the form and content of strategies for development? (Meppem, 2000). Compromises have to be sought by negotiations. But will consensus built on negotiation can guarantee sustainable development, or any kind of stability? It can only be possible to try to lower the risk of future problems by considering possible side effects. One way of looking for consensus on sustainable development is based not only on theoretical and ideological arguments, but also on experience. Consensus building for and about sustainable development can be approached through negotiations because all parties can expect to gain something from a development that lowers the risk of future problems (de Graaf et al., 1996).

It is clear then that the ongoing debate about sustainable development and its various meanings is very much ideological. The diversity of discourses on sustainable development do not necessarily reflect conflicts over content, but on interests and in opinions on the processes through which the different sectors of the societies want to assure that their own needs and interests are represented in the development decision-making. Thus, sustainable development may not refer to a quantifiable goal that can be achieved at any specific moment in time: it may refer instead to the possibility of establishing a balance between environmental, social and economic interactions (Soderbaum, 2000). This process, which requires compromises from all

parties, is expected (at least in theory) to improve the quality of life of the human beings, and simultaneously maintain the integrity of the environment

Sustainable development may be considered to be more of a desirability with regard to future human development, in which case it may represent a constraint to the present development. Sustainable development may assure certain life opportunities in the future, but at the cost of the modification or sacrifice of life opportunities in the present. The concept of sustainable development at the first instance may appear somewhat simple, but in reality it is very complex, since it is expected to result from a series of decisions taken by several generations of human beings in different parts of the world, at different levels of governments and the society, with changing socio-economic conditions, differing cultural values, uncertainties, and socio-economic goals which are seldom shared by all the members of the different societies, since people tend to work at the individual level (Dourojeanni, 1999). In addition, the nation states have their own interests, which often vary with time. This complexity may result in a permanent gap between the current understanding and the one necessary to address evolving economic, social and environmental planning and management issues comprehensively, as well as the institutional, legal and even participatory considerations. Working with the concept of sustainable development means embracing ambiguity, since it deals with societal values, which are diverse, and may often vary with time. If the conflicts in interpretations of sustainable development reflect the diversity of the concerns and interests of the populations in time and space, it is fundamental then to learn how to accommodate the politics of these divergent claims for attention. Additionally, if the relations between citizens, the private and the public sectors, are increasingly interdependent, necessary processes and polices should be developed in order to approach the various interests from an integral viewpoint (Meppem, 2000; Meppem and Gill, 1998).

It is also suggested that the rhetoric of sustainable development will simply put acceptable glosses on an essentially discredited idea. In fact, after years of rhetoric, the conventional paradigm of development remains intact. This implies that without serious reconsideration of a number of underlying concerns, all of the rhetoric pertaining to social and environmental sustainability may come to nothing and we may be doing little more with the label of sustainable development than 'deluding ourselves' (Gillespie, 2001).

Bottlenecks for its implementation

There is a long history dealing with the inability of policy makers to implement sustainable development effectively. Some of the barriers in progressing sustainable development include the political unacceptability of most actions, the opposition of entrenched interests, and the inadequacy of institutional mechanisms for integrating environment and development (Meppem and Gil, 1998).

Despite the urgency of the ecological crisis, the continuous environmental degradation suggests that new ways of interpreting problems and acting with environmental integrity may need to be considered. The conventional conceptualisation of environmental problems has remained a large disciplinary-based exercise that has relied on abstracting the environmental issues from their complexity in the real world. A practical articulation of the main environmental narratives reveals self-referential discourses whose disciplinary-based practices have insulated these approaches from a broad range of contemporary theorizing and different ways of knowing. The dominance of these approaches in environmental policy development has lead to the continued acceleration of environmental degradation despite widespread political and social interest in its abatement. The complexity and indeterminacy of the term of sustainability is

seldom taken into account by the dominant agents within the environmental debate. Part of the difficulty is that sustainability as a conceptual notion is often limited and constrained by “ways of knowing” which are discipline specific. A dominant scientific/economic discourse has played a significant role in “creating” the environmental problems we face. Therefore, relying on this same discourse to define and initiate sustainable practices may be itself a dubious and “unsustainable” practice. This is, there is a pressing need to think beyond the discipline-specific restraints of scientific/economic discourse and to open up the sustainability issue to a trans-disciplinary approach, which, because of its potential analytical range and diverse perspectives, offers the chance to break away from the mono-logical habits of entrenched and specialized disciplines (Meppem and Bourke, 1999).

About the design of appropriate policies for sustainable development, the goals must be expressed in terms of specific indicators. However, these choices are to a certain degree subjective by nature, and are dependent to a great extent on the cultural preferences and interests of an individual, a community, or a country. This implies that different societies, with differing social, economic and cultural conditions, may choose different sustainability criteria and may even select different paths to sustainability (Raskin et al, 1998). Thus, one of the greatest difficulties to achieve sustainable development lies in the lack of indicators for measuring it, since none of the three objectives of sustainable development (economic, environmental and social objectives) is currently measured using compatible parameters. The indicators used to quantify the economic, social and environmental objectives do not have a common denominator, nor do universal conversion formulae exist: economic growth is measured using economic indicators, social equity is determined on the basis of social parameters, and environmental protection is measured in physical and biological terms. Given the absence of suitable indicators, and the fact that each of these objectives is measured according to different criteria, it does not seem that it would be possible to interlink the three objectives in a single plane. Quantification of economic, social and environmental objectives may not be possible, unless compatible quantifiable parameters are available for all the three sectors. At the same time, sustainable development would not be achieved if emphasis is placed on either of the economic, social or environmental objectives at the expense of the others. Thus, the stakeholders must contribute simultaneously to economic growth, social equity and environmental protection, most likely through tradeoffs, negotiations and by modifying every day practices. The agreements between the various stakeholders are likely to be more productive, equitable and workable, if there is an understanding of the actual value of the specific resources and products for each one of them (Dourojeanni, 1997). However, values are often subjective, and hence inter-comparison of subjective values can be a most difficult task under the best of circumstances.

Regarding public participation and sustainable development, it is a terminology that has been widely discussed and promoted at the various national and international levels. Irrespective of the rhetoric, however, not very much has been achieved to ensure its implementation. It seems that in many developing countries, and even in certain international institutions, the discourse of public participation has become an end by itself. Its fundamental importance, that of looking for more realistic analyses of the problems and richer sets of alternatives, as well as its direct linkages with the development process, have not yet been fully appreciated by the central institutions concerned. Institutions at the international, national, regional and local levels, have not realised that in order to achieve an effective and realistic participation by the society, many other needs like education, training, information and communication must be met concurrently. Participation for the sake of participation, may produce results, which may not necessarily be beneficial for the same individuals. The participation of an educated, informed and organised society is likely to be more constructive than that of an uninformed and indifferent population

who may not be able to make significant inputs to any development plans or processes (Bourke and Meppem, 2000).

To design and test appropriate policies, the broad goals must be expressed in terms of specific quantitative objectives. To establish quantitative objectives, three sets of choices must be made: first, which indicators are to be used to measure progress toward sustainability; second, which values of these indicators represent sustainable conditions and hence provide targets against which to measure progress; and third, how rapidly these targets are to be achieved. These choices are to some degree subjective by nature, dependent not only on the interpretation of uncertain scientific information, but also on the cultural preferences and interests of an individual, a community or a country. This implies that different societies might choose different sustainability criteria.

In addition, the complexity of the ecosystems makes it impossible to predict all possible effects of a certain societal activity. While some problems, constraints and damages are known, many others have not yet been identified. Most of the sustainability indicators suggested so far are formulated with respect to known effects in the environment. However, there are many effects that are still not known. Hence, one possibility could be that indicators of sustainability are formulated with respect to general principles or conditions of sustainability (Azar et al., 1996).

Another major issue confronting sustainable development is the risks and uncertainties that are inherently associated with complex systems. For example, it is now universally accepted that food production must be maximised to feed an expanding population base in developing countries. Accordingly, resources such as land and water must be used intensively to maximise food production. Hence, a fundamental question, for which there is no clear-cut answer at present, is up to what level can the food production system be intensified, in terms of land and water, without sacrificing sustainability? There are other difficult questions as well. For example, in the area of water, what early warnings could indicate the beginning of a transition process from sustainability to unsustainability? What parameters should be monitored to indicate that such a transition is about to occur, or indeed is occurring? Existing knowledge bases and databases are inadequate even to identify all the relevant parameters that could indicate passage from one stage to another. Thus, concurrently it is not possible to accurately detect, much less predict, the transition of a sustainable system to an unsustainable one and vice versa (Biswas, 1996).

In terms of new technology, this is increasingly making possible substitutes for many traditional resource base materials. The concept of resources itself is dynamic, since many things become resources over time. In fact, the expansion of the last hundred years could not have been sustained but by the new resources of petroleum, aluminium and energy. Hence, in order to plan for the future, the possibilities of tomorrow in terms of technology also have to be considered (Gillespie, 2001). At the same time, it is important to remember that technology may have a major impact on the global development process, but may not necessarily solve demographic, social and environmental problems. The impacts of technology often depend upon its social context, in terms of how, when and whether it is used. Technological innovations may have important economic effects, lowering costs through improved efficiency, making alternatives possible which were not feasible before, and accelerating economic growth. However, the development of new technology is often less important than its appropriate use. Whether technology will solve all, or most environment-related problems, remains to be seen, since social factors have the definitive say in its implementation, and it may take decades for new technology to be adopted, and for societies to benefit from it (Hammond, 1998).

The integration of the environmental concerns in development planning requires action at the national level. Some of the major policy areas may include location (or relocation) of industries, land use policies, community development, etc. Proper planning of infrastructures is important so that individual development projects are integrated within an overall framework for regional development planning and management. The social benefits and costs of projects, including their favourable and unfavourable impacts on the environment and the populations, should be fully reflected in these policies. Too often the negative impacts of many projects have been ignored in the initial planning stage, and so the awareness of the society of many of the environmental disruptions resulting from these projects has come at a very late stage, when the construction has already been completed, and the adverse impacts have already surfaced. Cost-effective alternatives available at such late stages to take ameliorative measures are likely to be limited. Accordingly, it is important to analyse comprehensively both the favourable and the unfavourable social and environmental impacts before implementing development projects, so that the society is able to compare them against the economic and social benefits expected from the project. Feasible alternatives can then be considered (Modak and Biswas, 2001; Tortajada, 2000).

Regarding developing countries, in order for these to formulate and implement sustainable environment and development policies, a lot more knowledge, expertise, data and information are needed compared with what they currently possess. Thus, one of the first priorities should be to broaden their knowledge and information bases in the technical, economic, social and environmental fields. Research, training and capacity building, both for individuals and institutions, should be developed, keeping in mind the type of environmental problems that are likely to face during the process of development over the course of the next several decades. Developing nations should base their development agendas on their own administrative, technical, scientific and economic capacities (Serageldin, et al., 1998).

Actually, in third world countries, the importance of institutions does not seem to have been understood. Properly managed, institutions can accommodate mixed structures, incorporating not only public arrangements but also initiatives from different sectors, like the private groups or the nongovernmental organizations. Institutional arrangements can result in the success or failure of the planning or implementation of public policies, as well as planning or execution of specific projects. Institutional arrangements are important not only to improve education or health care, but also to ensure a more effective participation of the society in economic and political activities, which in turn will result in a more responsible society. Institutions can reach both the macro and microlevels of any society in terms policies and services, and also in terms of human resources development through employment generation, knowledge, training, education, dissemination of information and communication.

Sustainable development is a complex issue and there will always be a gap between current understanding and the one necessary to address evolving environmental management issues comprehensively. An appropriate facilitated learning process will most adequately fill the gap. Hence, a participatory process is also required in order to evolve stakeholder perceptions and values through learning. The development of evolutionary institutional arrangements is as much a part of the facilitated learning process as the development of added insights into the underlying causes of issues of problems. Perceptions and values are treated as structural preconditions for social change, even though they are amongst the most difficult of all factors to change through deliberate effort. As social participation increases in decision-making, a strong emphasis on the socio-cultural context provides a necessary recognition of the importance of attitudes, perceptions and values in driving the economic and institutional relationships that form the fabric of a functioning society. Hence, the operationalisation of sustainable development also requires

moving from the scientific definition toward a process that recognizes diversity of perspectives (Meppem and Gill, 1998). In addition, the understanding of the roles and relationships between corporate business, politics and “the state”, as well as the civil society in development planning, requires participatory processes to interpret and develop different meanings as to how to articulate sustainable development policies. This position highlights the importance of more closely considering the role of institutional structures (communicative arrangements) in participatory strategies for sustainable development planning (Meppem, 2000).

It is also proposed to go beyond traditional conceptions of sustainability that are either based on a value principle of maintaining some aggregate of capital ('weak sustainability'), or stationary-state criteria of maintaining social, ecological, and economic assets constant over time ('strong sustainability') (Hediger, 2000; Serageldin, 1996). Along with individual preferences and micro-economic objectives, the proposed welfare function integrates principles of basic human needs ('critical economic capital'), integrity of the ecosystem ('critical ecological capital') and the socio-cultural system ('critical social capital'). This implies restrictions of the social opportunity space within which sustainability development can proceed and the new value function is defined. The terms of sustainability cannot exclusively be defined from an environmental point of view, or on the basis of attitudes. Rather, the challenge is to define operational and consistent terms of sustainability from an integrated social, ecological, and economic system perspective (Hediger, 2000).

“Pricing” the environment

A way of life is a complex bundle of values, objectives, institutions and activities, with ethical, environmental, economic and social dimensions. While current concerns about unsustainability have mainly an ecological basis, ways of life can also be unsustainable for social and economic reasons. From the environmental perspective, can environment contribute to human welfare, and can it sustain the human economy? From the economical viewpoint, can today's level of wealth be sustained? And from the approach of the society, can social cohesion and social institutions be sustained? (Dragun and Jakobsson, 1997). An important factor behind environmental degradation is that costs and prices of commodities often do not fully reflect their social cost (including that of environmental destruction). In certain cases, natural resources such as water and air are treated as virtually costless. As a result, incorrect price signals are given to producers and consumers. This leads to significant distortions, over-exploitation and mismanagement of resources (Gillespie, 2001).

Now, if the environment is viewed primarily as an economic resource, then the techniques of environmental economic valuation will be perceived as the most important environmental inputs into decision-making processes. Methods have been developed to try to put money values on environmental assets through establishing tradeoffs between money valued goods and environmental amenities or damages. In this way, through the enlargement of Cost-benefit Analysis (CBA) to the environmental domain, it has been hoped to reconcile economic output growth with the concerns of quality of the environment. The appropriate package of instruments, including eco-taxes, market mechanisms, regulations, income transfer, human capital investment, technology transfer, economic simulation, information campaigns will vary with the issue, level of governance and local concerns (O'Connor, 1997). For example, the Polluter Pays Principle (introduced to by OECD countries in 1972, but by no means fully implemented), is not only a maxim of economic efficiency, but also a statement of moral responsibility where the economic tools intersect with the social dimension

It is widely known that economic progress at present is mainly evaluated by policy-makers in terms of changes in GDP. However, even though the growth rate of GDP has arguably become the single most important economic indicator, it has proved to be insufficient to summarize economic performance by itself. In fact, the emphasis of the national accounts on economic activity has been a source of much criticism, since it almost ignores the broader concerns related to the quality of life of the people (Pearce et al., 1999).

When efficiency and resource allocation in society is concerned, neoclassical economics, i.e. mainstream economics, claims to have the answers. CBA is an extension of neoclassical theory to cover decision-making at the societal level and therefore the tool proposed. It is argued that a common denominator is needed to handle complex problems and that money is well suited for this purpose. Alternatives of choice to build or not build dams, roads etc. are systematically compared and a ‘present value’ or ‘benefit-cost ratio’ is estimated for each alternative. As a result of this comparison, the analyst claims to be able to point out the best alternative from a societal point of view, which would reflect the fact that people have started to think on the advantages and disadvantages and benefits and losses of their actions on the environment. This is, by trying to give monetary values to some aspects of environmental quality, people get the message that the so-called “environmental services” are not free, even when many cannot be valued in monetary terms and when there is not a market for them (Soderbaum, 2002).

CBA exemplifies a highly aggregated approach, the idea being that one can deal with all kinds of impacts in one-dimensional terms. However, Positional Analysis (PA) represents a highly disaggregated approach in the sense that impacts are made visible in multidimensional terms. CBA is furthermore an ideologically closed approach since it is built on some ideas about how to identify ‘correct’ values or prices from a societal point of view for each impact as part of a summation procedure. PA is, as we will see, an ethically and ideologically more open approach where conclusions are conditional in relation to potentially relevant ideological standpoints and future scenarios (to allow for uncertainty) (Soderbaum, 2002). However, since it is more important to protect the environment than to protect the neoclassical paradigm, then, if the chances of getting closer to a sustainable society increase by reconsidering values, concepts and paradigms, then this has to be done. When economists disagree at the level of paradigms or within the scope of one paradigm, the reasons are as much ideological as scientific (ideology as ‘ideas about means and ends’). Hence, the ‘truth’ is partly a matter of ideology in the broader sense. While all competing (or complementary) theoretical perspectives offer scientific and ideological guidance, neoclassical economics is more of a problem because of its dominant position (Soderbaum, 1998).

A narrow cost-benefit approach to sustainability evaluation is inadequate because it does not address important distributional concerns both within and across generations, or concerns people may have with decision-making procedures themselves, like how fair they are. In addition, the sole reliance on monetary measures of benefits and costs cannot adequately address important impacts that are not easily monetised. In the case of environment, there is a high level of nonquantifiable uncertainty and the possibility of very adverse effects. Hence, various kinds of sensitivity and multicriteria analytic techniques may be useful complements to the economic assessment (supplement economic information with information on the incidence of various effects, social values and priorities –like political processes-, where issues like fairness can be explored). In the case of ecological information, could not in itself establish a course of action, social values must give context to that information. This is why ‘sustainability indicators’ can only be meaningful with a set of explicit axioms about what is important to measure and why (Toman, 1999).

As part of mainstream neoclassical economics, current environmental problems are regarded as instances of market failure or possibly government failure. The focus is on trade relationships and on actors in markets. “Externalities” are defined as impacts on interested parties other than seller and buyer of a commodity and “market failure” is connected with non-consideration of impacts on third parties. As part of this specific conceptual framework, it is believed that environmental problems can be solved by internalising externalities. When the producer and seller of a commodity act on the basis of “total social cost”, the market mechanism will function smoothly and correctly. The current environmental crisis, for instance, may suggest a number of more fundamental issues than those connected with ‘optimal levels of pollution control’ and other marginal adjustments. However, at the same time that there is a role for neoclassical thinking as part of a pluralistic strategy, there should be room for other perspectives as well (perspectives emanating from economics, social sciences, planning sciences included). This is, in addition to market failure and government failure, there may be failure of world-view, failure of ideology, failure of science, on technology, institutions and organisations, groups and individuals. Even business corporations and environmental organizations may fail (Soderbaum, 1998).

Policy makers should have a reliable source of data and information if environmental management is to be achieved. Accounting frameworks represents one option: the physical and the monetary one. During the last 15 years, different kinds of environmental accounts have been developed, such as the experiences in Norway, France, UK, etc. The monetary approach links the use of environmental resources to the national income accounts, which intends to value the goods and services produced within any economy in a given period of time. The physical framework instead is basically a classification of natural resources that includes emissions (air, water and land), and a state account that describes the state of the environment at different points of time and changes in the environment in the periods between time. However, so far, none of the frameworks have been evaluated in terms of impacts and results. What is needed is a combined framework with elements of both the physical and monetary aspects. There seems to be a general consensus that on this topic of environmental accountability, much more work needs to be done (Pearce et al., 1999).

Of ecological economics it has been said that it could provide the tools to map a new route to sustainable development; drawing attention to the design and adoption of institutions and attitudes that recognise natural, social and biophysical limits. This broader framework would shift attention from people as consumers to their roles as citizens and participants in communities. The most promising approaches to well-being in this context are those that focus on connecting underlying human needs to current problems and possibilities. Such underlying needs accounts have the potential to guide policies for sustainable development in the very different circumstances of the nations of the North and South, and to explain the intuition of declining well-being in the face of increasing affluence (Dodds, 1997).

One of the first references in literature related to environmental accounting dates to the efforts of the World Bank (Serageldin and Steer, 1993), where the several authors explain that some of the main changes that are needed for the forceful introduction of environmental values, are the everyday incentives facing citizens, corporations, and policy-makers. Charges, taxes, and national income accounting need to reflect scarcity values of environmental and natural resources. However, it seems that inefficiency arising from asymmetric valuation occurs at all levels. At the project level, the computation of net social benefits is distorted unless environmental impacts are properly valued. At the sectoral level, there are no mechanisms for comparing sectoral priorities unless there is some idea of relative net social gains from sectoral investment and change. And at the national level, the GNP is likely to be used as an indicator of

national well-being until there is an acceptable measure of GNP modified for the depreciation of environmental assets, some sort of ‘green national income’.

In 1993, according to the World Bank, the objectives of integrated environmental and economic accounting included, i) the segregation and elaboration of all environment-related flows and stocks of traditional accounts. ii) The linkage of physical (natural) resource accounts with monetary environmental accounts and balance sheets, where natural resources accounts provide the physical counterpart of the monetary stock and flow accounts of the System of integrated Environmental and Economic Accounting (SEEA)³. iii) The assessment of environmental costs and benefits such as the use (depletion) of natural resources in production and final demand, and the changes in environmental quality (resulting from pollution and other impacts of production, consumption, and natural events, as well as environmental protection and enhancement). iv) Accounting for the maintenance of tangible wealth, where the SEAA extends the concept of capital to cover not only human-made but also natural capital. Capital formation is correspondingly changed into a broader concept of capital accumulation allowing for the use/consumption and discovery of environmental assets. v) Elaboration and measurement of indicators of environmentally adjusted product and income. The consideration of the costs of depletion of natural resources and changes in environmental quality permits the calculation of modified macroeconomic aggregates, notably an Environmentally adjusted net Domestic Product (EDP).

Regarding green national accounts, Bartelmus (1999), mentions that these accounts capture the interaction between environment and economy, the objective being to assess the long-term sustainability of economic performance, where the opaque concept of sustainability can be operationalized in terms of produced and non-produced (natural) capital maintenance. Integrated environmental and economic accounts expand therefore the asset boundary of the conventional national accounts. Consensus building through standardization of measurement and (e)valuation would improve the rational assessment of possible limits to growth and development. Such consensus might also overcome the dichotomy between environmentalists and economists. The difficulty would still be to foster standardization and not to discourage pluralism in methodological research and experimentation. Actually, the revision of the SEEA by the Statistical Commission of the United Nations, in collaboration with the so-called “London Group” of national accountants, is a significant step towards harmonizing environmental accounting methods.

The ‘London Group on Environmental Accounting’ of ‘London Group’ has focused his activities on the revision of the United Nations Handbook on Environmental and Economic Accounting (the so-called SEEA manual), as well as on the System of National Accounts (<http://www.un.org/Depts/unsd/citygrp/london.htm>). The London Group has adopted the approach based on capital, with a focus on produced, human and natural capitals.

Sustainability as opportunity

The differences in the wants and the needs of the people within a society are very different, not to mention the differences between the North and the South. It is not realistic to think that the same amount and composition of natural capital can be left to the next generations

³ The nation-wide adopted System of National Accounts (SNA) provides standard concepts and definitions for the international comparison of economic indicators. The System of integrated Environmental and Economic Accounting (SEEA), advanced by the United Nations, makes use of these advantages.

compared to the present ones. Hence, instead of trying to reach a non-achievable objective, that of de facto conservation of the natural resources, one could try to achieve a more feasible goal. This is, to consider sustainable development as an opportunity. The concept of sustainability as opportunity is based on the idea that '*Sustainability is to leave future generations as many opportunities as we ourselves have had, if not more*' or, "in the more conventional language of the economics profession, 'expanding the capital stock'" (Serageldin, 1996:2), where the next generations find the same or more opportunities than the present ones in the form of stocks of capital (man-made, natural, human and social capitals), and where one form of capital partially complements or substitutes each other. The needs can be shifted for opportunities since the aggregate amount of the four capitals increases with time, or at least it does not decrease. This means that sustainability as an opportunity translates into providing future generations with as much capital per capita than the present generations have had, if not more.

The definition of sustainability would be then in terms of the maintenance or increase of the four types of capital, separately and collectively, and their relationship to the expanding population, which produces an income stream per individual that is at least the same, if not grow. It is clear that measurement and valuation of the capitals, as well as the understanding of how the different types of capital can be substituted by each other, are very important issues. The complexity of valuation increases if we consider that the benefits to the humans are not only direct and indirect, but also known and unknown, taking into account that some may appear in future.

The four types of capital are partially substitutes and partially complements: man-made (usually considered in financial and economic accounts), natural capital (as discussed in many works of environmental economics), human capital (investments in education, health, and nutrition of individuals), and social capital (the institutional and cultural basis for a society to function). Naturally, the composition of the capital for the next generations will be different than the capital the present generations have, mainly in terms of its four constituent part. However, it is important to recognize the limits of substitution, since it is impossible to conceive of any type of activity if any of the four kinds of capital is driven to zero.

Natural capital is defined as the stock of environmentally provided assets (soil, atmosphere, forests, water, wetlands) that provide a flow of useful goods or services. The flow of useful goods and services from natural capital can be renewable or non-renewable and marketed or non-marketed. Sustainability means maintaining environmental assets, or at least not depleting them beyond some limits. Any consumption that it is based on the depletion of natural capital should not be counted as an income. Unless such adjustments are introduced, there is continuing risk that such analyses could promote patterns of economic activity that are inherently sustainable. Natural capital is distinguished from other forms of capital, namely human capital (people, their education, their health and capacity levels), social capital (institutions, cultural cohesion, collective information, knowledge), and man-made capital (houses, roads, factories, ships). Natural capital is used in combination with other types of capital in any production process. Now that economic expansion has made such significant claims on the environment, the limiting factor for much economic development has often become natural capital (including the capacity of ecosystems to recycle human waste) rather than the man made capital: fish, rather than fishing boats, have become limiting. As natural forests and fish populations become limiting, it is invested in plantation forests and fish ponds. This introduces a hybrid category that may be known as cultivated natural capital. Some steps towards a better conceptual framework have been taken, as evidence by the recent revision of the SNA of the United Nations.

Human capital, investment in people is seen to be a very high-return investment, especially in developing countries. The mainstream paradigm of development has been expanded to include investment in human resources as an essential ingredient of a development strategy. Investments in health and education and nutrition are now increasingly recommended parts of a national investment strategy.

Social capital, is based on inclusion, participation, and the promotion of an enabling environment. In the case of civil communities, this is defined as voluntary horizontal associations in contrast to hierarchical vertical associations, and the density of these voluntary horizontal institutions throughout the society.

In order to apply the concept of sustainability, there are two separate problems named physical measurement and indicators and valuation. First it is the issue of physical indicators, where there are issues of definitions, methodologies, and practical considerations. There are still many gaps in spite of major advances. Second, it is the issue of valuation, which is a very complicated exercise, since it requires the estimation not only of the direct benefit of humans (for example, productivity benefits of good soils and health benefits of clean water) but also the indirect benefits (for example, watershed protection provided by woodlands). Furthermore, some natural assets, such as biological diversity, have ‘option’ values that are still unknown, like providing new medicines in the future, and that are particularly difficult to estimate. Finally, it is believed that the natural world has an intrinsic worth above and beyond its value to human beings; here the best that can be done is to estimate human perceptions of that value. However, measuring natural capital is a two-sided proposition. The monetary value of comparable land in developing and advanced countries must reflect the vast differences in per capita income, while non-monetary value must reflect the far greater importance of developing countries as homes for biodiversity. Hence, the estimates therefore should be viewed as complements rather than alternatives.

Valuation techniques are usually employed to inform decisions at the project and sectoral levels, but they also need to influence decisions and how progress is measured at the national level. Conventional national accounts do a poor job of measuring sustainable income or changes in the productive capacity of the countries. That includes estimates of depreciation of man-made capital but not that of natural capital, which in some countries is more important. For example, when tropical forest is logged, no estimate is made for the loss of an irreplaceable asset. When land cultivation increases the loss of topsoil, which subsequently accumulates in a reservoir, no allowances are made for the harmful effects on soil and water storage. The World Bank has been collaborating with the UN Statistical Office and others to develop a new system of environmentally-adjusted national accounts. These include physical accounts, which are non-monetary accounts measuring resource depletion and environmental effects. Non-monetary impacts are calculated, which are estimated impacts on non-monetary indicators for health, agricultural production, global warming and ozone depletion. On the other hand, monetary valuation is carried out, which includes environmental impacts measured in monetary terms through evaluation techniques. The ‘greening’ of national accounts is an important step that needs to be considered not only for the impact it has on the income measures, but also for the policy signals that it sends concerning saving and investment.

Hence, sustainability as opportunity not only considers the importance of the different kinds of capital as complements and substitutes. It also looks at wealth, not just at income.

According to Serageldin (1996), detailed case studies have to be carried out to assess the viability of the methodology and the confidence limits of methods used. In addition, testing the

approach on a number of country scenarios would show the extent to which this kind of analysis would in fact result in different policy signals. Broader dissemination and discussion of these results would also enable a more meaningful dialogue on method and substance. Methodologically, future work must also start addressing the issue of social capital. It must seek to integrate the concepts of poverty and equity in assessing the viability of the measurements that are being made of the state of a country.

One of the greatest difficulties to achieve sustainable development, as it is defined at present, lies in the lack of indicators for measuring it, since none of the three objectives of sustainable development (economic, environmental and social) is currently measured with compatible parameters. One could measure physical accounts (non-monetary account measuring resource depletion and environmental effects), compute the non-monetary impacts (estimated impacts on non-monetary indicators for health, agricultural production, global warming and ozone depletion), and measure environmental impacts in monetary terms through evaluation techniques. The outcome is a green national account with which it could be possible to examine the total of national wealth, as well as the differences between countries. However, it is still necessary for policy makers to identify the relation between economic policies and the environment in order to create more favourable environmental outcomes as well as promote rational assessment of the remaining tradeoffs between growth and environmentally sound objectives. The way sustainability is considered at present by the Brundtland report represents a non-operational concept, which results only on ideological confrontations. Sustainability as an opportunity represents more alternatives.

CONCLUSIONS

There is no question that in the international political fora, sustainable development has become a powerful and all-embracing slogan during the past 15 years. Every government is for it, as are all the major international organisations and all the environmental NGOs. This is in spite of the fact that there is no agreement as to what is meant by sustainable development, whether it works, and if so, under what conditions, and what are its impacts (positive, negative or neutral) on human lives and appropriate development indicators.

The previous issues are an application of ‘scientific’ policy analysis with social discussions. This is, there should be an interaction between science and the process of values formation and education. There should also be a further identification of whether and how social values or norms beyond the quantified benefits and costs may be affected by a decision. Engagement of public discourse about the consequences of the different actions and the applicable social values, especially where operable norms are not clear-cut or are conflicting (this acknowledges that the decision process is not purely scientific).

In addition, the world is heterogeneous, with different cultures, social norms, physical attributes, skewed availability of renewable and non-renewable resources, investment funds, management capacities and institutional arrangements. The systems of governance, legal frameworks, decision-making processes, and types and effectiveness of institutions often differs from one country to another in very significant ways. Countries are also at different stages of development, and thus their needs and requirements are also different. These needs also vary with time. Accordingly, and under such diverse conditions, another fundamental question that needs to be asked is if it is possible that a single paradigm, that of sustainable development, can encompass all countries, or even regions, with diverse physical, economic, social and cultural conditions. Can a single paradigm like sustainable development be equally valid for technological

giants like the United States and Japan, world's most populous countries like China and India, and for countries as diverse as Burkina Faso and Vanuatu? Can a single concept be equally applicable for Asian values, African traditions, Japanese culture and Western civilization?

It would be honest to recognise that decisions on 'sustainable development' are political decisions, and they may strongly influence the more technical parts of a strategy. Hence, any strategy can only result in workable instruments if one has at least some idea about who and how they will be used. However, unfortunately, there are very few strategies that include information-based decision-making processes.

The point of departure for the development process is different from one country to other for technical, economic, historical, cultural and other associated reasons. It is clear that each country needs to formulate its own environment and development strategies based on its specific conditions, requirements and expectations. However, in many parts of the world, practices, processes and legislations are being copied from other countries, without adapting them specifically to their own conditions. Institutional frameworks are being structured which often respond to the latest international thinking, without any detailed review of their applicability and usefulness in the national context.

In terms of environmental sustainability, irrespective of the rhetorics, and although most developing countries have tried to protect their image at the international level, poor management of environment and natural resources will continue to have serious social, economic and environmental implications at the local and national levels over in the short- and the long-terms. Many times, such mismanagement has contributed to increasing poverty, and deterioration of the quality of life of the populations, especially in terms of health. Many developing countries have claimed that their main constraint to fulfil their commitments of Agenda 21 has been primarily lack of financial support. While lack of funds is certainly a constraint, it seems that even bigger constraints have been absence of leadership and managerial and technical capacities, almost exclusive top-down centralised approach, absence of stakeholder participation, and lack of any long-term vision in any field. Not surprisingly, progress in improving environmental management practices has been somewhat limited during the last 30 years in the developing world. In fact, much more could have been accomplished with the budgets that were available, if the leadership had a clear vision as to what should be accomplished and their relative priorities. Not surprisingly, environment in developing countries has deteriorated significantly.

Policy reforms should include economic and environmental instruments which can successfully target issues like environmental degradation and extreme poverty in implementable terms. Since environmental issues are closely intertwined with economic and social ones, policies should not exclusively focus on individual and static topics. Policies should be formulated within a framework of comprehensive approaches, establishing linkages between human needs, their fulfilment and their overall impacts on the environment. Policies should also be dynamic and should be refined periodically according to changing trends, requirements and availability of information.

Hence, regardless of the widespread use of the rhetoric of sustainable development and environmental sustainability, it has to be admitted that even after 15 years of use, it has not been possible to define a development process which could be planned and implemented in such a way from the very beginning so that it could become inherently sustainable, however it may be defined. Nor is it possible to identify the parameters that should be monitored and evaluated to indicate the beginning of a transition process from sustainability to unsustainability, and vice

versa. After over 15 years of rhetoric, it is still not known how sustainability can be measured, analysed, judged, or implemented.

Any development expert knows, at least intuitively, that no single pattern of development is the most appropriate for all countries of the world at any specific point in history. There simply is no one single path to development, which can be successfully followed by all countries at all times. Thus, the fundamental question that needs to be asked and unambiguously answered is, if it is possible that one, and only one, single paradigm, that of sustainable development, is valid for the entire world.

The development landscape is undergoing radical changes. Policy-makers have realised that development should go beyond economic growth to encompass social goals, which should focus not only on poverty alleviation and income distribution but also issues like increased employment generation and provision of better education and health facilities: the end objectives being improved quality of life of its people and a better environment. A major objective of current policy-making is to how best to reconcile economic, social and environmental goals in various areas of development so that the overall benefits to the society can be maximised and costs can be minimised. Since environmental problems cannot be solved by technical-economic means alone, interrelated factors like human activities, perceptions and cultures must be considered. Modifications and strengthening of institutions should be an important and necessary requirement for formulation and implementation of national environmental policies.

Finally, in the mid-1970s, the then president of the Bank, McNamara, announced that the development record should not be judged by economic growth, but by the extent that poverty was reduced. McNamara suggested that ‘development is about people. The only criterion for measuring its ultimate success or failure is what it does to enhance the lives of individual human beings. Therefore, if development does not alter malnutrition, disease, illiteracy, unemployment and early death, it can be said to have failed. ‘People are the reason and the means of development. Their cultures, societies and organisations provide the foundation on which the development programme rest’.

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