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THE EARTHSCAN READER
IN SUSTAINABLE
DEVELOPMENT



EARTHSCAN

Earthscan Publications Ltd, London

First published in 1995 by
Earthscan Publications Limited
120 Pentonville Road, London N1 9JN

Web site at <http://www.earthscan.co.uk>
Email: earthinfo@earthscan.co.uk

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A catalogue record for this book is available from the British Library

ISBN: 1 85383 216 2 (Paperback)
1 85383 223 5 (Hardback)

Copy-edited and typeset by Selro Publishing Services, Oxford
Printed in England by Clays Ltd, St Ives plc

Earthscan Publications Limited is an editorially independent subsidiary of Kogan Page Limited and publishes in association with the International Institute for Environment and Development and the WWF-UK.

■ Sustainable Development: An Introduction

History of the Concept

The World Commission on Environment and Development (WCED, 1987) Report, (commonly known as the Brundtland Report after its chairwoman), produced after 900 days of deliberation by an international group of politicians, civil servants and experts on environment and development, is the key statement of sustainable development. It marked the concept's political coming of age and established the content and structure of the present debate. The United Nations Conference on Environment and Development (UNCED) commonly known as the Rio conference of 1992 was the follow up to Brundtland and sought to move towards the achievement of Brundtland's aims.

The concept of sustainable development first appeared in the World Conservation Strategy (WCS) (IUCN, 1980), which had argued from a dominantly conservationist environmentalist standpoint (see Adams, 1990 for a history of the emergence of sustainable development). Issues raised by sustainability had been discussed for several years by WCS, and the clash between the interests of environmental conservation and development was very clear in the Stockholm Conference on the Human Environment in 1973.

Following the Brundtland Report, the ideal of sustainable development quickly became politically orthodox. Institutions giving grants or loans for development projects routinely demand an investigation of the sustainability and developmental components of the project. Many writers consider that the term is so widely and loosely used that it has now been devalued.

Definitions

According to Holmberg and Sandbrook (1992), 70 definitions are now current. Pearce et al (1989) include "A gallery of definitions" as an appendix to their book. The most widely quoted definition and effectively the official one is that of Brundtland (WCED, 1987) "[development that] meets the needs of the present without compromising the ability of future generations to meet their own needs". Many other definitions are variants of this, reflecting the disciplinary standpoint of the particular author — many of them say the same thing at much greater length. The apparently simple and clear Brundtland definition has caused heated discussion among theoreticians and

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practitioners of environment and development. To the authors' knowledge it has also launched a thousand student essays.

Clearly the Brundtland statement has a strong people-centred ethical stance, concentrating on the satisfaction of human needs (not human wants), rather than, for example, on protection of the environment in general, as WCS did, or on other species, as deep ecologists would. Redclift (1992) points out that the Brundtland Report does not specifically examine exactly what is meant by human needs. Basic needs to ensure survival are obviously included — nutrition, health and shelter, but it is not clear how much more than survival is involved in “needs”. The concern with balancing the interests of present and future generations, the intergenerational criterion, is an ethical issue. Many people consider that it is presumptuous to make assumptions about future human needs beyond the simple biological ones. In fact Brundtland is concerned also to secure intragenerational equity, in other words relative redistribution of resources towards the poor. Since the North is in general not interested in donating more than a token amount to the South, an improvement in their living conditions can be achieved only through economic growth in the South.

The rapid acceptance of the ideal of sustainable development is not surprising since it is interpretable in so many different ways. It fits nicely into political soundbites compared with its predecessor “ecodevelopment”; it is something with which everyone can agree, like “motherhood and apple pie” (Pearce et al, 1989, p1). But note the enigmatic quotation at the start of Pearce et al (1989) “Where are the lollipops in sustainable development? (Canadian politician 1988)”. The European Union recognized a good slogan when it entitled its Fifth Environmental Action Plan, intended to run from 1994 to 2000, “Towards Sustainability”. Both “sustainable” and “development” are rational and enlightened concepts. It is difficult to imagine that anyone, except out of perversity, could agree with the reverse. While no one would be likely to aim for the reverse — except as part of a war strategy (see below) — not everyone approves of the notion of sustainable development. Beckerman (1995, p1) regards it as a “catch phrase . . . repeated parrot fashion by environmental policy makers” and on page 8 says that “the value of the concept is vastly overrated”. He prefers the obtaining of the highest feasible welfare as a more appropriate aim for society and believes that economic growth is the best way of achieving this. Forget environment and development and go for growth. Surprisingly, many environmentalists hate the term “sustainable development” precisely because “it appears to license economic growth” (Holmberg and Sandbrook, 1992, p21).

The acceptance of sustainable development as a basic aim for the world may also be explained by the perception, from the late 1960s, that the world is facing a meta crisis, including crises of development, environment and security.

The Crisis of Development

Though continuing attempts have been made through aid programmes since the Second World War to accomplish development in the South, it is clear that relatively little has been achieved. Dumont (1988) catalogues the failures of development initiatives in post-colonial Africa. The number of desperately poor people “the global underclass” (Eckholm, 1982) has remained steady at about one fifth of the human race. These are people who live on the edge of survival, at the mercy of the apocalyptic riders — death,

famine and disease (see Chapters 4 and 6 on health, urbanization and agriculture). Their living conditions, housing, health, nutrition are an insult to notions of equity. Since the 1960s, deterioration in the terms of trade for the South has intensified poverty. During the 1980s the growth of state debts and the impact of International Monetary Fund restructuring programmes (see Onimode, 1989) have caused governments to reduce their social programmes, with less expenditure on health, education and welfare, further depriving the poor. Increased emphasis on the production of agricultural commodities for export has reduced the scope for production of food for local consumption, again disproportionately affecting the poor.

Political economic changes within the countries of the South have increased the relative poverty of the poor (Patnaik, 1990; Harriss, 1990). Power and capital have been gained by merchants and the larger landowners. Urban elites have been able to acquire formerly common property land, as in eastern Sudan, to create large commercial farms, thus depriving pastoralists of their grazing lands. Commercial farms are usually mechanized so that few jobs are available. Utting (1993) shows how the rich and the multinational corporations have reduced people's access to forests in Central America. Commercial logging, large-scale cattle ranching, the "hamburger connection" and the expansion of export crops — coffee, bananas and cotton — have replaced forests, led to the breakdown of traditional resource management systems and to the marginalization and exclusion of the poor.

For the last 20 years it has been understood that underclasses can be recognized within the global underclass itself — people who find it even more difficult to survive. Three of these groups are indigenous people, children and women. Kemf (1993) draws attention to the predicament of the world's 300 million indigenous people, most of whom live in marginal areas far from economic core regions, who are politically impotent but in many cases seen by state governments as troublesome. Many of them live in marginal environments such as mountains, swamps or relict forests, which are ecologically valuable ecosystems. Outsiders, greedy for minerals or the products of the ecosystems, destroy their environments and in so doing, destroy their societies; indeed their diseases destroy the people. The indigenous people are excellent environmental guardians: if untouched their lives are infinitely sustainable. The loss is twofold: the loss of people (their distinctive livelihoods and unique languages, understanding and knowledge systems) and the loss of their environments.

"Every year 14 million children under the age of five die in the developing world, not in a drought or famine year, but in an ordinary year" (Timberlake and Thompson, 1990, p1). This is the stark end of the "children crisis", which Timberlake and Thompson attribute to underdevelopment itself — the effect of an international economic system favouring rich countries. Environmental degradation and the debt crisis contribute to the poverty, and consequent lack of access to resources, that creates the "children crisis". Seven million children, the street children, survive as they can with no support from adults. They are regarded as undesirable and are persecuted, even murdered by the police.

During the United Nations Decade for Women (1977–87), according to Sen and Grown (1988) women's living conditions deteriorated as commercialization devalued even further their contributions to human welfare. De Jesus (1990) in the three-year diary of a poor Brazilian woman living in a São Paulo *favela*, describes in detail her

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struggle to survive and support, unaided, her three children. This she did by gathering and selling scrap paper and scrap metal. Millions of women live in such conditions. As Boserup (1989) shows, one quarter of households in the South are female-headed; even if they are able to find paid employment, women are discriminated against and have to accept unskilled or semi-skilled low-paid jobs. Since men control most of the powerful institutions in the South (as in the world generally) (Seager, 1993), the only hope for women to improve their conditions is through self-empowerment and action at the grass roots, a conclusion reinforced by contributors to Shiva (1994). Lewenhak (1992) calls for a reevaluation of women's work, most of which is unpaid and thus disregarded, for example in national economic accounting systems. Women are the main providers of childcare, education and health services (all unpaid). They are also the main producers of agricultural products and food and the main providers of fuel and water (also unpaid). This lack of payment for production, reproduction and social reproduction, together with the many limitations on their freedom of action strikes the Western mind as immoral. However, as Boserup (1989) found, there are problems of empathizing (across cultures) from a Western ethical framework. For example, 85 per cent of Ivory Coast women prefer polygamy to monogamy and, though Westerners regard polygamy as exploitative, it is acceptable to local women. The notion, prevalent among Western liberal observers of the Third World during the 1960s, that there was an untapped pool of female labour, is clearly ridiculous.

The Environmental Crisis

Since the publication of *Limits to Growth* (Meadows, 1972) and the United Nations Conference on the Human Environment, many people have been persuaded that the earth's environment is rapidly deteriorating. Thus, while population rises by 100 million a year, earth's capacity to support humankind is reduced (see Chapter 3 on population). Two reasons are given for holding this pessimistic view: that resources are being consumed at an unsustainable rate and that resources are being degraded.

The world has an effectively finite stock of mineral resources. To some extent these are substitutable (for example oil for coal and vice versa) but the total stock is fixed. Similarly, there is a limit to the amount of land that might be cultivated or farmed in some way. An optimist might claim that intensification of inputs could raise productivity, as has happened in the North — yields per hectare doubled in the last generation — but this demands extra resources (see Chapter 4 on agriculture). In the early 1970s total population numbers were regarded as the main cause for concern and since population growth was fastest in the South, it was possible to blame the people of the South for increasing stress on environment. Deeper analysis showed that if there was a population problem (see Chapter 3) it was caused by rates of resource consumption. The resource depletion cost of individual people in the North is much greater than that in the South: 80 per cent of the world's resource consumption is by 20 per cent of the people. This 20 per cent live mainly in the North. Since many resources are transferred (at prices favourable to the purchaser) from the South to the North, much of the cost in resource depletion is paid in the South.

For more than a century people have wanted to preserve species and ecosystems, but during the last few years the loss of biodiversity (see Chapter 1) has been viewed as a threat to sustainable development. This was a major concern at the UNCED conference

in 1992. Over the last 20 years, increasing rates of forest loss, particularly species-rich moist tropical forest (Grainger, 1993), have also been identified as an alarming trend. Forests are probably important carbon sinks, reducing the effect of global warming; they are the homes of indigenous people; they are a protection against soil erosion and the siltation of reservoirs; and they moderate the severity of floods. Forests, and trees outside forests (Munslow et al, 1988), are valued as a source of fuelwood. Their disappearance leads to a crisis in energy production for the poor.

Resource degradation through misuse and pollution is the second component of the environmental crisis. In the North, pollution of air, land and water has long been identified as a problem: smoke control legislation was introduced in London in the thirteenth century. In the South the effects of pollution are also recognized as locally catastrophic (see Chapters 5 and 6). It is claimed, for example, that breathing the air of Mexico City for a day carries the same cancer risk as smoking 40 cigarettes a day. Atmospheric pollution through acid rain has been known since 1852 (McCormick, 1990), though it was 100 years before R A Smith's warning of the damage caused by acid rain was heeded. Acid precipitation, either as rain or dry fallout, is now a global phenomenon. It kills trees (more than two-thirds of Britain's forests are affected), acidifies soils, reduces crop yields, acidifies lakes, causes human health problems and corrodes stone buildings. Damage is most severe in industrial belts and during the last generation has intensified.

Emission of greenhouse gases (see Chapter 2 on climate change and energy) are possibly leading to changes in the earth's climate that will have major impacts on human welfare within the next generation. Decreases in the amount of ozone in the stratospheric ozone layer, first predicted in 1974, when it was calculated that chlorofluorocarbons (CFCs) would cause ozone depletion, were confirmed in 1985, first in southern and then in northern polar regions (Brown, 1994). The ozone layer shields against cancer-causing ultraviolet (UV radiation). CFC production increased greatly from 1960 to a peak in 1989, which was ten times the 1960 figure. There is now little doubt that human health is seriously threatened by increased UV radiation. At UN-sponsored conferences in Montreal (1987), London (1990) and Copenhagen (1992), governments agreed to phase out CFC production by 1996. Ozone loss will, however, continue because much CFC is already available in the atmosphere. The rapidity of the international response to ozone depletion is an encouraging sign that cooperation to maintain environmental quality is possible. But that a potentially catastrophic environmental problem could develop within less than 20 years is, to say the least, worrying.

Desertification is probably the most widely recognized form of resource degradation. It may affect as much as one-third of the world. Grainger (1990) discusses the causes, effects and possible remedial actions. Increased soil erosion, badly managed irrigation systems, fluctuations of climate, inappropriate land use, removal of trees, suppression of vegetation, over-use of ecologically sensitive environments, provision of water boreholes in semi-arid environments are a few of the vast number of factors that may cause desertification. The phenomenon is complex and it is not surprising that attempts to reverse desertification have had little success. Although desertification has occurred for thousands of years, it was recognized as a serious problem demanding immediate action only in 1977 at the United Nations Conference on Desertification. The United Nations Environmental Programme's Desertification Control Unit has recorded serious

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degradation of environments and people's lives, but experts are now questioning whether desertification is better regarded as a special case of environmental degradation. Certainly, areas of the world thousand of miles from deserts, and with high rainfall, show very similar patterns of degradation.

The Crisis of Global Insecurity

This is the third and probably most serious threat to sustainable development. Some of the broader aspects of global insecurity are considered in Chapter 8 (and Prins, 1993). When, 50 years ago, the United Nations Organization and the Bretton Woods institutions were created, it was hoped that an era of world peace and prosperity would follow. In fact, conflict, in the form of wars and trade wars have continued and possibly increased. Even the end of the Cold War has failed to lead to peace and cooperation. Constant competition between old and emerging super powers ensures the continuation of conflict. The creation of more powerful weaponry with greater killing power makes the devastation even greater. For tens, if not hundreds, of millions of people in the South, even survival is virtually impossible because these wars mainly take place there. Proxy wars, such as between Somalia and Ethiopia, colonial wars, post-colonial wars, resource wars such as the Kuwait conflict, and ethnic wars as in Rwanda devastate vast areas of the South. At a different level, wars within states, such as the secessionist wars in Ethiopia, Nigeria and Sudan have dominated people's lives for the last 50 years. All these wars include the deliberate killing of civilians, sabotage, the planting of mines, destruction of cities, towns, villages, irrigation systems and power installations, interference with planting and harvesting, and theft of food and livestock: in short, wars are destroying people, environments, livelihoods and any hope of sustainable development. Resources that might have been used to create development are used for destruction. Each year \$1 trillion is spent on armies. Urdang (1989) describes the experience and effects of war in Mozambique and Wilson (1991) the effects of war in Eritrea. Refugeesism has become a way of life for millions. The number of refugees and displaced people is now about 70 million: at best they live in suspended animation. Aid for the South is now diverted from development to humanitarian assistance, from improvement of living conditions to achieving bare survival.

It is possible that new causes of conflict may arise in the future. The control of oil supplies has caused several conflicts in the past and it seems probable that in the Middle East further wars over oil may occur. But it is possible that conflict will also occur in the Middle East over the control of water supplies (Clarke, 1991). Clarke identifies the basins of the Tigris, Euphrates and Jordan as possible areas of conflict and considers that the water of the Ganges and Paraguay rivers may also be contested in the future.

As Brundtland (WCED, 1987) shows, these three crises interconnect and reinforce each other. The complexity and strength of the interconnections ensure that progress to sustainable development will not be easy and that, either incrementally through numerous small changes or radically through large structural changes, the functioning of the human system must change. Clearly, the prevailing economic, political and social systems are responsible for the misfit between the earth (nature) and the world (humanity). Changes to human systems can be achieved only on the basis of changes in ethical value systems; changes in what is regarded as acceptable behaviour in relation to people and to the environment. Some believe that it is only possible to achieve this

through a centrally-driven, directive, command economy and society, dominated by a central government advised by experts. Alternatively, or possibly additionally, the emphasis might be on grass roots action, using the abilities of individuals, households and small communities. Whichever approach is used raises questions of equity, power and democracy.

The International Response to the Challenge of Sustainable Development

Two major attempts have been made by the international community to respond to the widely accepted need for a coordinated response to the triple crisis discussed above. These were the UN General Assembly's commissioning of WCED, chaired by Gro Harlem Brundtland to produce "a global agenda for change" (WCED, 1987, p ix), to propose long-term strategies, recommend ways of achieving international cooperation, consider ways by which international environmental concerns could be tackled and create a long-term agenda for action. The second, five years later and 20 years after the first global environmental conference in Stockholm in 1972, was the UNCED conference in Rio sometimes called the Earth Summit. This conference was also convened by the UN General Assembly. The following analysis of the two events draws on Grubb et al (1993); Middleton et al (1993), O'Keefe and Kirkby (1995) and O'Keefe et al (1993).

The Brundtland Analysis

Brundtland's analysis of the present state of the world starts from the identification of a mismatch between the capacities of the natural systems of the earth and humanity's ability to fit its activities into this framework. This has led to an interlocking series of crises of environment, development, security and energy. This interaction between global economy and global ecology entails environmental degradation, fuelled by a dramatic growth of population, particularly in Third World cities and by accelerating rates of economic activity. Poverty in the Third World, to a large extent the product of international and national economies, is the agent of environmental destruction.

The Brundtland Report suggests that the catastrophe of environment and development could be averted through sustainable development within a framework of equity. But inequity "is the planet's main environmental problem; it is also its main development problem" (WCED, 1987, p6). Power, the other side of the equity coin, is thus also the planet's main development problem: too much power in the North, with its grotesquely over-protected agriculture; too little power among the South's rural poor, whose artificially low farm produce prices subsidize politically dangerous urban areas, and too little power among the South's urban poor — yesterday's rural poor.

Two concepts underpin the Brundtland Commission's ideal of sustainability. First, and an overriding priority, is the achievement of basic needs for all humankind — in effect the uplift of the living conditions of the Fourth World — those living in absolute poverty in the Third World. Second, limits to development are seen as technical, cultural and social. Implicit in this is a rejection of the notion that limits to growth, as identified by the Club of Rome, are environmental (Meadows, 1972; Meadows et al, 1992). At the heart of the Brundtland Report is the belief (or is it a hope?) that equity, growth and environmental maintenance are simultaneously possible with each nation achieving its full economic potential and at the same time enhancing its resource base. The sunlit uplands indeed! A desirable end, but we must seriously question whether it

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is achievable. If equity is explicitly the overriding priority (in satisfying basic needs) then necessarily we downplay growth and environment (see Figure 1). Can technology and social change deliver the equity rabbit from the magician's hat and also encourage growth and the maintenance of environment as claimed by Brundtland? Figure 2 illustrates some aspects of Brundtland's components of sustainability. In general, mankind creates environments through management of both living and inanimate resources. Such environments may then be maintained or further improved. Failure of the maintenance programme leads to degradation. Growth occurs at different scales; it is possible, for example, to have growth at the global level, but not necessarily in each nation or within the rural and urban sectors of each nation. The issues of equity also entail global and intranational levels.

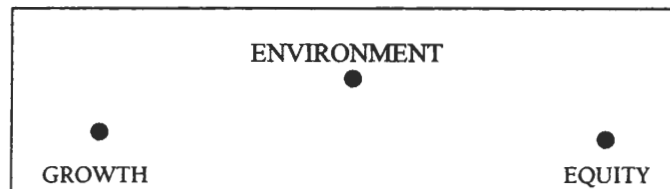


Figure 1 The Main Components of Sustainability

Possibly by "priority" Brundtland means the first aim to be achieved but not necessarily the most important. If this were so, UNCED as successor to Brundtland would surely address equity as its first aim too. UNCED did not start by asking questions about equity.

Figure 1 shows the main components of sustainability as interpreted by Brundtland. Different workers have conceived sustainability as relating to one only of these three variables, hence sustainable growth or sustainable environment. Brundtland believes that all three may be achieved as sustainable development.

Brundtland offered seven major proposals for a strategy to sustainable development which are listed in Table 2. It sought to revive growth but to change the quality of that growth; it sought to meet basic needs for employment, food, energy, water and sanitation but for a sustainable "population base". It sought to conserve and enhance natural resources but with an emphasis on refocusing technology to better manage risk. It sought to merge environment into economic decision making but realized this was impossible without transforming attitudes and practices.

Figure 2 breaks down the components of sustainability to indicate the complexity of sustainable development. It is possible, for example, to have growth at the global scale but not necessarily growth in each nation, or in both components of each nation.

It was unclear how growth would be revived or how a change in the quality of growth could be stimulated. The commitment to meet basic needs was a commitment to a subsistence level economy rather than a modern economy. Similarly the commitment to stabilize population, where there was little acknowledgement of the fact that population only seemed to stabilize with a high level of economic development, was rather vacuous. Discussion of the conservation and enhancement of natural resources

Table 1 Brundtland Takes Irreconcilable Positions

-
- Revive Growth
 - Change Quality of Growth
 - Meet Basic Needs
 - Stabilize Population
 - Conserve and Enhance Resources
 - Reorient Technology and Manage Risk
 - Put Environment into Economics
-

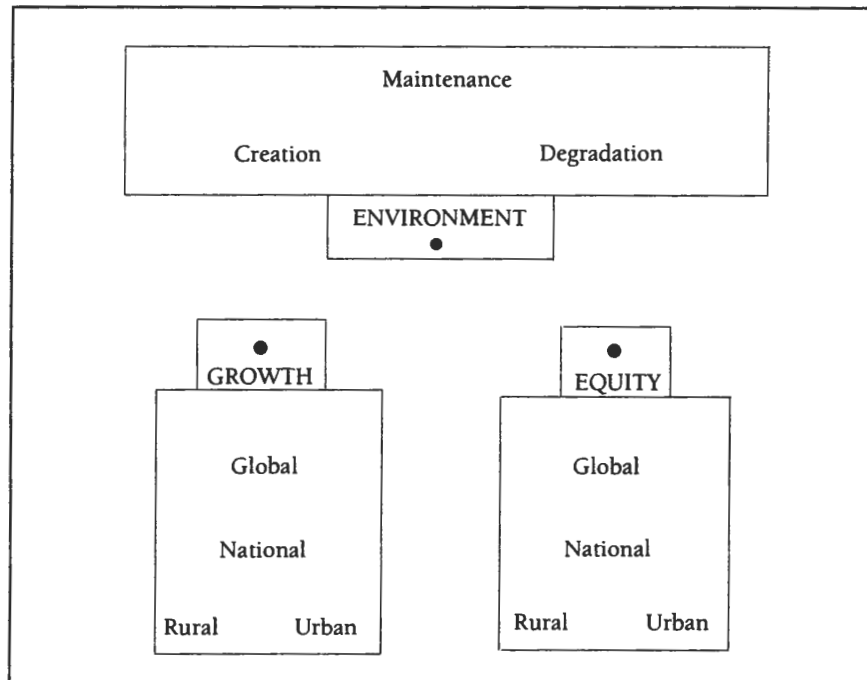


Figure 2 The Complexity of Sustainable Development

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But Brundtland was an important political initiative not least because unlike other social democratic initiatives — the Pearson, Brandt and Palme Reports — it reported directly to the General Assembly of the United Nations. In turn, the United Nations General Assembly asked for a report back on progress in sustainability after five years. This report back was known as the United Nations Conference on Environment and Development (UNCED) which was held in Rio de Janeiro, Brazil in 1992. What is striking about UNCED is how far the agenda had been turned “green” and anti-developmental in the five years from the Brundtland Report. Details of this change are shown in Table 3 where the agendas of Brundtland and UNCED are compared. This change in agenda was not simply because the lawyers had taken over but because the sustainable debate had been driven by Northern governments, using Northern environmental NGOs such as Friends of the Earth and Greenpeace to pursue a status quo development framework that was essentially against the South. The North turned “green” and the South was turned away.

Table 2 Brundtland — Major Proposals

-
- Reviving Growth
 - Changing the Quality of Growth
 - Meeting Essential Needs for Jobs, Food, Energy, Water and Sanitation
 - Ensuring a Sustainable Level of Population
 - Conserving and Enhancing the Resource Base
 - Reorienting Technology and Managing Risks
 - Merging Environment and Economics in Decision-making
-

Source: WCED (1987).

The Rio conference was the largest environmental conference ever and some 30,000 people attended. It was also the largest ever meeting of heads of state (more than 100). The intention was to build on Brundtland’s hopes and achievement, to respond to pressing global environmental problems, to agree major treaties on biodiversity, climate change and forest management; and to achieve agreement on principles and actions for sustainable development. Over two years at a series of four preparatory committees (prepcoms) an agenda was agreed and agreements substantially achieved so that only the more controversial sections were discussed at Rio (Grubb et al, 1993).

During the Rio conference there was continuous dispute over finance, control and the relative importance of consumption rates and population. Within the North there was also a conflict between the desirability of voluntarism as opposed to control. The final outcome from the conference was better than was feared during the conference itself, though the fundamentally different priorities of the Northern states demanding environmental sustainability and the Southern states demanding development ensure that agreements will be reached only with difficulty.

The unholy alliance between Northern money, Northern self-interest and soft green concerns with the conservation of “pure” ecosystems has ensured that Rio 1992 is predominantly about the unimpaired growth of the North, implying accelerated extraction of resources from the South (driven by IMF adjustment programmes) and it

is about maintenance of the global commons, at present being degraded largely by the North. Current interest in “debt for nature” exchanges has concentrated on narrowly conceived biosphere conservation, with implicit exclusion of the interests of Third World people. (What use are biosphere reserves to them?) Why not some “debt for equity” agreements to help the urban poor of the Third World — or for that matter to help any Third World people? Cosmetic identification of reserves for aboriginal people reveals a limited view of equity. Perhaps the indigenous knowledge held in these museums will hold a cancer or AIDS cure for MNCs? The real Northern concerns of trade, economy and foreign policy wormed their way into the environmental and development agenda constructed by Brundtland. In fact, as a comparison between the report and the conference shows (Table 3), the lack of relationship between them is bewildering, when one is explicitly a follow-up to the other.

Table 3 The Mismatch of Agenda

BRUNDTLAND	UNCED
A Threatened Future	Conventions on Climate Change
Sustainable Development	Forests
International Economy	Biodiversity, Biotechnology, Land Resources
Population and Human Resources	Hazardous Wastes
Food Security	Toxic Chemicals
Energy	Freshwater
Industry	
Urbanization	Action for Sustainable Development into the Twenty-First Century
The Commons	Environmental Awareness
Conflict — environment and development	Poverty and Environment
Proposals for Institutional and Legal Change	Finance
	Agenda 21 — Cross Sectoral Issues
	The Earth Charter

Source: Middleton et al (1993).

The outcomes from Rio (Grubb et al, 1993) were:

1. Convention on Biological Diversity
2. Framework Convention on Climatic Change
3. Principles of Forest Management
4. Agenda 21
5. The Rio Declaration on Environment and Development

The Convention on Biological Diversity was negotiated independently of UNCED

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under the UNDP, but was signed at Rio. It is a legally binding treaty. It seeks to conserve biodiversity, species and ecosystems and sets rules for their use. The North feared the restriction on the development of biotechnology and the USA refused to sign largely for this reason. Other Northern countries, while signing, were uneasy that they could be committed to large expenses in paying for programmes to protect biodiversity. There were 155 signatories at Rio.

Response to climatic change was also negotiated outside the UNCED structure. The Framework Convention agrees an outline legal response to what are resolved to be serious issues and accepts the need for a precautionary approach pending further scientific knowledge. Northern countries agreed to pay the full incremental cost of measures taken by the South. Northern countries agreed also to stabilize their output of greenhouse gases at 1990 levels by 2000, 153 states signed the Framework Convention on Climate Change at Rio.

Principles of Forest Management are strong on well meaning statements but weak on commitment. They stress the right of states to manage their own resources and fail to set up a legal framework for forest management for sustainability.

Agenda 21 is a vast document of 40 chapters. It may be regarded as a broad action plan for sustainable development and/or a manual of good practice for sustainable development. Four groups of topics are considered:

1. *Social and economic development*, including: international cooperation, poverty, sustainable consumption, population, health, settlements, and integration of environment with development.
2. *Resource management*, including: atmosphere, land resource planning, deforestation, fragile ecosystems, mountains, rural development, biodiversity, biotechnologies, oceans, freshwater, toxic waste, hazardous waste, solid wastes and sewage and radioactive wastes.
3. *Strengthening the participation of major groups*. This includes virtually everyone: women, children, indigenous people and NGOs are among the groups specified.
4. *Means of implementation* includes finance, institutions, technology transfer, sciences, education, capacity building, international institutions, law and information for decision making.

Agenda 21 also recommended creating an international Commission for Sustainable Development.

The *Rio Declaration on Environmental Development* comprises 27 principles for the achievement of sustainable development. On the surface they appear bland and uncontroversial: they were in fact bitterly contested. Many stress development issues. The first and presumably most important is "human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature". On the surface at least, it appears that Brundtland's equity cornerstone has been incorporated in Rio.

Conclusion

The world has made a start in developing a programme for sustainable development, though the dilution of Brundtland's high ideals at Rio has been a setback. *Realpolitik*

rules and justice is the advantage of the stronger. There are, however, some hopeful signs. At least the world is now aware of the political economic nature of the debate and of the need for coordinated action at the international level. The success of negotiations for a reduction of CFCs shows that states can act in the common interest. Environment is on the media agenda, development, unfortunately less so. Even here, the increased awareness of the plight of children, women in the South, indigenous people and refugees may broaden into a concern for all disadvantaged people who see development rather than humanitarian aid as the long-term aim. For the editors, though, the greatest successes are those achieved at the grass roots by ordinary people showing their ability to create, rebuild and maintain their own bits of environment, cooperating to build sustainable lives. Empowerment is the key and the challenge.

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