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Of course [the Johannesburg Summit] is about the environment: the issues of climate change, sustainable industrial growth, preservation of forests, fishing stocks and a range of other familiar issues. But it is not just about the environment. It is about sustainable development as a whole. It is about the reduction of poverty, relief from debt, widening educational opportunity, tackling disease and linking these goals to those of conserving the natural resources upon which the poorest depend for clean water, food, fresh air and their living.

UK PRIME MINISTER TONY BLAIR

In its 1987 report, *Our Common Future*, the World Commission on Environment and Development set out the nature and scale of environmental, social and economic problems to be confronted. It placed the concept of sustainable development at the heart of its proposals for action to tackle pressing issues such as climate change, poverty, deforestation, and economic inequality between countries. Its powerful criticism of prevailing policies and practices, and the institutions that supported them, was broadly accepted by official audiences – it seemed that the idea of sustainable development had arrived. The UN approved it, its agencies adopted it, and many governments set up commissions or committees charged with assessing how their policies should conform to it.

In 1992, the UN Conference on Environment and Development (UNCED) provided further global evidence of commitment. Over 100 Heads of State and Government attended the Rio Summit, while global conventions were signed and a 'sustainable development blueprint' (Agenda 21) was endorsed.

In this chapter, we briefly encapsulate some key IIED issues that were either influenced by the Rio Summit or will be on the agenda of the Johannesburg Summit.

LOCAL AGENDA 21s

One of the most significant innovations in addressing urban environmental problems since the Rio Conference in 1992 has been the emergence of a new kind of initiative – the Local Agenda 21. Although more common in Europe and North America, there are growing numbers of cities with Local Agenda 21s in Africa, Asia and Latin America. The term was coined in Agenda 21, which called on local authorities to undertake 'a consultative process with their populations and achieve a consensus on a Local Agenda 21 for their community' through which they would meet the other goals in Agenda 21.

Local Agenda 21s are about 'good governance' for environment and development. At their best, they provide a means by which environmental issues become more integrated within the planning and management of an urban area. They combine meeting human needs with good practice in resource use and waste management, but within development plans rooted in local priorities and an understanding of local ecological context. They usually involve the production of a particular document – the Local Agenda 21 – but this should be developed through a broad, inclusive consultation process that seeks to draw in all key interests ('stakeholders') and to develop agreement between different (conflicting or competing) interests.

Local Agendas 21s can help address limitations in local development planning and environmental management, especially where citizens, community organisations and NGOs feel that these represent their needs and encourage their participation. They also have some potential to integrate global environmental concerns into local plans. But there are three major limitations:

- Their effectiveness depends on accountable, transparent and effective local government (although they can also become a means for promoting these qualities) and most national governments are reluctant to allow local governments sufficient power and resources to be effective;

- Many Local Agenda 21s have difficulties in ensuring adequate attention to less obvious environmental issues such as the transfer of environmental costs to other people and other ecosystems, both now and in the future;

- Many Local Agenda 21s have difficulty engaging with and addressing the needs of the most deprived urban dwellers, although they are typically most at risk from local environmental health burdens such as inadequate water, sanitation and waste management.

The very name Local Agenda 21 implies international engagement. Organisations such as the International

Council for Local Environmental Initiatives (ICLEI) have made a concerted effort both to draw attention to the importance of local authorities in the international arena, and to create a network that can support new local initiatives.

If international support for Local Agenda 21s is to be successful, it is important that:

- national governments and international agencies give more support to their development and implementation;
- the consultation processes inherent to Local Agenda 21s be employed to increase stakeholder participation in relevant international funding decisions;
- suitable means be found both for financing initiatives emerging from Local Agenda 21s, and for evaluating them.

SUSTAINABLE TRADE

The importance of integrating trade and environment objectives into policy-making has grown vastly in importance since the first hesitant discussions in the Brundtland Report in 1987. Both Agenda 21 and the preamble to the Marrakesh Agreement establishing the World Trade Organisation (WTO) speak of trade and sustainable development – but these high-level political statements of intent have not prevented policy deadlock within the WTO and other negotiating arenas.

At the international level, discussions on trade and sustainability now focus around the WTO – its rules, remit and implications. The debate has often become polarised into a stand-off between 'developing countries and development versus developed countries and environment'. It is clear that the central message of the Rio Summit – that sustainable development requires the integration of social, economic and environmental dimensions of decision-making – has not become instinctive in the world of trade policy.

At the root of the conflict is the feeling that, despite its multilateral, rules-based nature, the WTO is effectively run by rich countries, and in the interests of rich countries. The failure of the WTO's Seattle Round to reach a successful conclusion is seen by many as the result of this division.

Meanwhile, as multilateral trade policy negotiations struggle to come to terms with the complex relationship between trade and sustainable development, social and environmental factors are becoming increasingly important to market access for many export-oriented businesses in the South. This is driven by a combination of commercial expectations and regulatory requirements.

Although these higher standards are sometimes associated with premium prices in export markets, they are often simply an 'entry ticket' rather than a source of added value for producers. Many producers and countries fear that eco-labelling and other social market instruments are a

barrier to market access rather than a source of competitive advantage. These fears are heightened by the complexity of existing product regulations and labelling. Meanwhile, many developing countries have a comparative advantage in certain "sustainable" products but are unable to grasp export opportunities due to a lack of capacity.

There is a crucial need for a positive response to these concerns through guidance to stimulate sustainable trade, through import facilitation, information sharing and capacity building services. This guidance needs to include the following critical elements:

- Cultivating demand: Consumer preferences for social and environmental values will often need to be cultivated through creative public education and social marketing.

- Encouraging local awareness raising and involvement: The awareness of producers and other local stakeholders has to be enhanced, through carefully targeted workshops and other initiatives at local and national sector level, backed up by clear and accessible information on market requirements and opportunities.

- Investing in process and product innovation: Moving to sustainable patterns of trade requires investments of time, commitment and finance, and new support mechanisms for producers and other agents involved in trade.

- Rewarding improvement: Crucial to stimulating sustainable trade is the need to find ways of rewarding producers and traders that invest in more sustainable business practices, and to enable entrepreneurs in the North and South to build markets for sustainable products.

- Co-evolving standards: If producers and communities in developing countries are to capture the benefits of sustainable production and trade then they will need to be fully involved in shaping the standards. This will help to address suspicions of 'green protectionism'.

- Sharing governance: Sustainable trade requires different forms of governance for international trading networks, which ensure greater transparency and accountability of commercial transactions, and enable participation and involvement from hitherto marginalised stakeholders.

The Johannesburg Summit provides an opportunity to re-establish the links between the trade and sustainability policy debate and the realities of global trading relationships. Looking ahead, the priorities are to rebuild the trust so badly

damaged at Seattle and assemble the issues to make real trade-offs possible. This will mean reforms of the WTO to ensure internal and external transparency and accountability; much can also be done at the national level to open up trade policy and make better links with other policy areas. Sustainable development must also become part of all aspects of the WTO agenda. The time has come for the WTO to articulate that the end purpose of trade liberalisation is sustainable development. Much work needs to be done in looking at the real sustainable development impact of existing as well as future WTO agreements.

CORPORATE SOCIAL & ENVIRONMENTAL RESPONSIBILITY

Globalisation is putting corporations at centre stage. This has encouraged corporations, their stakeholders and others to consider their potential roles in eliminating poverty, building accountable systems of governance and ensuring environmental security. Companies are being subjected to unprecedented scrutiny from NGO campaigns, the media, consumers and investors, on a range of social, environmental and ethical issues. Many of these campaigns focus on multinational or global companies' operations in developing countries, underscoring the direct links between production in the South and consumption or returns on investment in the North.

This greater awareness of the impact of business on environment and development in the South is not restricted to Northern consumers, nor indeed to multinational corporations. Local campaigns against poor working practices and environmental performance are on the rise in many Southern countries. Yet in many export sectors the greatest pressure for change comes from Northern buyers further down the supply chain seeking to protect their brands, and imposing codes of conduct on their suppliers, or introducing private certification regimes as a result.

The rise of these initiatives among large companies has been dramatic. The language of corporate social and environmental responsibility (CSER) has entered the lexicon of mainstream business, and there is a burgeoning corporate consultancy sector providing advice to large corporations on reputation assurance, stakeholder dialogue and designing and implementing codes of conduct.

Although many of these initiatives are intended to improve environmental performance and social conditions in developing countries, southern perspectives on corporate social and environmental responsibility are not adequately represented in current debates, and there are few mechanisms which enable southern stakeholders to inform and influence corporate policy and practice. Critical voices are starting to question the verifiability of the

commitments that companies propose and the extent to which they genuinely assist sustainable development.

Two tightly inter-linked questions appear central to progress on bringing CSER initiatives in line with sustainable development goals:

Who decides? Beyond the basic policy framework, decisions in international trading chains are taken on the basis of commercial relations. Those with the strongest position are able to determine the terms of trade, not just for price and quality, but also for social and environmental dimensions.

Who benefits? Social and environmental improvements can be a 'double-edged sword', bringing technical improvements at the cost of socio-economic setbacks for some social groups. As trade liberalisation progresses, expands the supply base and places severe deflationary pressure on producer prices, suppliers – for example, in the food or garment sectors – can find themselves in the position of investing to improve performance, while receiving lower prices for their goods.

Aligning these two questions will require a much broader conception of a company's stakeholders than is currently the norm. For CSER to work in favour of sustainable development, corporations will need to take account of the interests of many constituencies that they have not traditionally dealt with, including vulnerable and marginalised groups. They will also have to come to terms with complex trade-offs and dilemmas. For example, should a mining company avoid operations in an area of rich biodiversity to prevent damage to this natural resource, or are the employment and foreign exchange earnings foregone more significant?

Answering these complex questions and harnessing corporate social and environmental responsibility for sustainable development will require greater investment in research, capacity building and partnerships between corporations, the state and NGOs in North and South.

URBAN DEVELOPMENT

Most of the world's urban population is now in Africa, Asia and Latin America; so too is most of the urban poverty. Urban areas also concentrate a high proportion of resource consumption, waste generation and greenhouse gas emissions in virtually all countries, and future levels for all these will be strongly influenced by the scale and form of urban development. However, urban centres also offer potential advantages for combining healthy and safe living conditions with resource-conserving, waste-minimising patterns of production and consumption.

Urban Opportunities

Well-managed cities contribute much to strong and adaptable regional and national economies. Cities reduce the cost of meeting the basic needs of many of the world's low-income citizens as

high densities and large population concentrations usually lower costs per household for the provision of infrastructure and services. The concentration of industries should reduce the unit cost of making regular checks on plant and equipment safety as well as on occupational health and safety, pollution control and the handling of hazardous wastes.

Cities can also set new standards in resource conservation and waste minimisation. For instance, the concentration of production provides more scope for minimising wastes or re-using or recycling them. In addition, well-managed cities can greatly reduce the dependence of higher-income groups on private automobile use. Making sure that these opportunities are secured in an increasingly urbanised world is one of the key challenges of the twenty-first century. A further challenge will be to ensure that the rights of the urban poor are recognised and that they can form more effective relationships with local government and other decision-makers.

Environment and development policy for cities should be integrated into wider regional concerns. Resource flows and waste streams into and out of any city show a scale and complexity of linkages with rural producers and ecosystems which demonstrates that 'sustainable urban development' and 'sustainable rural development' cannot be separated. The linkages can be positive in both developmental and environmental terms. Demand for rural produce from urban enterprises and households can support prosperous farms and rural settlements, where environmental capital is not being depleted.

Rural-urban linkages

The interactions and linkages between city and countryside are increasingly recognised as central factors in processes of social, economic and cultural change. In both cities and countryside, a significant proportion of households rely on the combination of agricultural and non-agricultural income sources, often involving the migration of one or several members over varying periods of time, or commuting between built-up and peri-urban areas. In addition, many urban enterprises rely on demand from rural consumers, and access to urban markets and services are crucial for most agricultural producers.

Getting urban issues onto government/donor agendas

Both urban poverty reduction and urban environmental issues have received a low priority from most development assistance agencies and many national governments. This reflects a long-established belief that development problems would be more easily addressed if people remained in rural areas where they can grow their own food. It misses the key economic role of well-functioning urban systems and

reflects an inaccurate assumption that urban populations are privileged with government expenditure on basic services. Urban areas (especially major cities) may receive above-average levels of public expenditure on infrastructure and services but a large proportion of the urban population does not benefit from this.

Effective urban interventions depend on effective and accountable urban governments – but urban governments remain weak in most countries. The scope for success is greatly increased in countries with effective decentralisation programmes and where local democracy is strong. Another key part of the context for urban development is increased private sector involvement in the provision of basic services and infrastructure (such as roads, public transport, water, sanitation and waste management).

In addition, governments and international agencies do not give appropriate support to the many ways in which cities are built 'from the bottom up'. The informal sector remains critical for employment and livelihoods for many of the lowest-income urban residents, and many citizens also develop 'informal sector' solutions to their housing needs.

CLIMATE

The International Panel on Climate Change was established to investigate growing concerns that human activities might be affecting the global climate – and it has helped to generate a considerable degree of consensus on climate change.

This growing consensus encouraged the 1992 UN Framework Convention on Climate Change, while the 1997 Kyoto Protocol added mandatory reductions in emissions of carbon dioxide, methane, nitrous oxide and other powerful greenhouse gases, with an overall target of a 5% reduction from 1990 levels in the first commitment period, 2008-2012. But countries differ in their ability or willingness to forego carbon emissions in favour of global benefits, especially since 70% of all carbon emissions have been contributed by the USA, EU and the former USSR. Moreover, each country has its own priorities, for example China has abundant coal deposits that it wishes to burn, while the USA is not as enthusiastic as Europe about pricing gasoline so as to reduce consumption.

The stated objective of the 1992 convention was to return greenhouse gas emissions to 1990 levels by the year 2000. Although the Kyoto targets are far below the 60-80% emission reductions needed to achieve this, they did establish the principle that business as usual is not acceptable. Kyoto also laid the groundwork for future agreements based on the spread of technologies and other innovations (such as tradable permits to pollute) that will make it easier for countries to comply with more rigorous emission targets.

The apparent inevitability of continued climate change and the likelihood of

particularly serious impacts on particular countries or regions suggest more attention should be paid to adaptation - investing in limiting the loss of property and threat to livelihoods and in being able to respond rapidly and effectively when extreme weather events occur.

ENERGY

The World Energy Assessment recently stated that the productivity of one-third of the world's people is compromised by lack of access to commercial energy, with an additional third suffering economic hardship and insecurity due to unreliable energy supplies.

At least two billion people, mainly in poor, rural areas, lack access to electricity. This does not mean that they do not use energy, but that they can only utilise it in very inefficient forms, and often in ways which are damaging to both human health and the environment. Inferior fuels such as charcoal, crop residues and cow dung make up about a quarter of the world's total energy consumption, and three-quarters of all energy used by households in developing countries.

A recent World Bank analysis shows the costs of such fuels: the urban areas of China alone lose about 20% of potential economic output because of the effect on human health of inferior energy use. In India, indoor air pollution from dirty fuels causes as many as two million premature deaths a year. However, the liberalisation of energy markets, shifts away from large-scale energy projects by donors, and the emergence of grass-roots initiatives to secure energy provision all point to the possibility of more decentralised and cleaner energy infrastructures which are more likely to serve the needs of the poor.

It is a mistake to assume that the poor cannot or will not pay for energy. In both North and South, energy companies are aware that their 'social contract' depends upon delivering on-demand, clean, safe and unobtrusive energy, and there is evidence of willingness to pay for it. At present, costs for inefficient energy sources often entail much higher prices per kilowatt than is incurred by richer consumers who benefit from subsidised grid energy. Schemes in Bangladesh and India have demonstrated that users will pay for decentralised energy provision, often through extension of credit through microcredit initiatives. However, international agreement to support these approaches has been minimal. The Inter-governmental Group of Experts, convened by the UN Commission on Sustainable Development, has made little progress in developing a framework for the promotion of these approaches. A key challenge is to shift from a carbon-based energy strategy towards one that makes increasing use of renewable energies. If the Southern 'driver' for renewables is energy poverty and the need for 'off-grid' energy for livelihoods and economic growth, the Northern driver is environmental concerns.

WSSD should offer ways to bring these agendas together.

SOILS

Fertile soil and water are the two natural resources of most immediate importance to development. Although soil is a 'renewable resource' in that good farming practice and pasture management maintain its structure and fertility, the world's stock of good soil is declining – through soil erosion, salinisation, deforestation, desertification, pollution and conversion to urban or other uses.

Falling soil fertility threatens continued agricultural production in many parts of the developing world. In Africa, soil fertility decline is reducing the capacity of farmers to meet national food needs and increasing their vulnerability to crop failure. In West Africa, this has been aggravated by the marked decline in rainfall and harsh droughts experienced since the late 1960s.

Farmers seek to maintain the fertility of their soils through a variety of means – for instance through the use of different nutrient sources, choice of crops and use of different patches within the landscape. Typically, farmers focus limited supplies of soil nutrients on small plots where high value crops are sown, while lesser value crops allocated lower quality land.

While recognising that soil degradation is a risk to poverty and livelihoods, local diversity favours more decentralised, participatory approaches over seeking general solutions through national policies. These approaches seek the best means to help farmers and pastoralists (especially those with very limited land resources) enhance broader livelihood opportunities while enhancing soil fertility and building up assets. This requires a combination of macro-policy shifts and forms of intervention well tailored to the needs and constraints of particular farmers and settings.

It has often been hard to integrate national policies which affect soils management, because they span many different ministries. It has also been hard to inform national level policy debate by local field experience and perceptions. There are too few channels for information flow and communication linking bottom-up and top-down processes. These should now be strengthened, to create systems of 'soil security' for those who depend most upon this fundamental asset.

WATER

The future availability and quality of global freshwater supplies is a matter of increasing concern as populations grow and demand rises. The primary issues facing governments and societies are resource scarcity and resource degradation. In many countries growing demand for water to provide domestic supplies, to feed populations and to service export agriculture, industry and commerce is causing increasing scarcity in and

pollution of the water environment. In addition, in many of the world's regions with the highest population growth rates, physical unavailability of water is periodically exacerbated by droughts, most notably in sub-Saharan Africa.

As resource scarcity increases, competing economic uses may become a cause for conflict at a local level (such as the irrigation-pastoralist interface in the Horn of Africa) with negative effects on the livelihoods of the poor. While there have been few instances of 'hot' conflict over water resources shared between countries, inter-basin competition for resources between countries may increase and should be addressed by the international community.

The challenge facing planners is to ensure that the poorest have access to sufficient quantities of water, not simply for consumption, but to combine with other assets in order to furnish sustainable (rural and urban) livelihoods. Freshwater ecosystem resources are a significant component of rural livelihoods throughout the world, but they are probably of greatest importance in semi-arid regions, in terms of food security.

Not only do rivers and lakes constitute abundant sources of protein in areas where it may be in short supply, such as the West African Sahel, but they may also represent concentrations of biodiversity within their region. However, they are subject to multiple threats through habitat destruction, upstream water abstraction, chemical and thermal pollution, the introduction of alien species and excessive harvesting. Future management of both surface and groundwater resources will increasingly need to include measures to control pollution from industrial, domestic and agricultural processes and the degradation of natural forest cover and range-land environments.

However, good local practice in water management allied to supportive national policy can reduce the gap between water needs and supplies. Indeed, the inefficiency with which water resources are used and managed in most commercial agriculture, industry and urban areas (often allied to under-pricing) gives great potential for effectively increasing water supplies without drawing more on finite reserves. Good management is often the cheapest means of 'increasing' supplies. The constraint is not so much water availability as the capacity to manage it effectively.

Current moves towards a global effort at addressing the problems are being prepared for the December 2001 International Conference on Freshwater to be held in Bonn, Germany. Key issues should include identifying the best means of meeting the water needs of poorer groups within a broader policy framework of a 'sustainable water cycle' linking conservation, supply, use and reuse. Consultation across a range of stakeholders and livelihood systems and

between urban and rural 'water environments' will be necessary.

FORESTS

Only a fraction of the world's natural forests are being managed in ways which allow current yields of all goods and services to be sustained. Many policies, laws and markets still reflect only the forest values of dominant groups and notably timber or land reserves. Pursuit of these values alone is frequently the cause of local disenfranchisement and consequent poverty. Markets for timber and land do not encourage long-term maintenance of forests by local stakeholders, but support asset stripping, usually by external interests.

The overall trend remains towards deforestation – the annual rate of deforestation of 13 million hectares from 1990-95 for tropical forests appears to be on the increase. Any long-term deforestation trend has worrying ecological consequences – and in many places it also brings a serious loss of employment, income and consumption goods for rural settlements and small towns.

However, deforestation does not necessarily imply soil erosion or reduced water retention – this depends on the use to which the land is put, the quality of its management, and its spatial relation to remaining forests. There is a global trend towards stabilisation – presenting the possibility of a mix between intensively managed forests, plantations and agro-forestry for products, and natural forests for environmental services.

Forestry policies can contribute much to poverty reduction if they enable local shareholders to be effective forest managers, through improving the security of their access to forest goods and services. This can imply that the state must transfer (or return) the control of forest resources to local people and accountable local institutions. Alternatives include binding partnerships between local groups and forestry corporations.

This requires, on the one hand, measures to restrain the power of those in whose hands forests are largely concentrated and who are looking for short-term gains. On the other, it requires incentives – for instance, market-based instruments such as certification and fair trade - to influence corporations seeking positive long-term investment. Achieving security of forest environments, and supporting sustainable livelihoods for those who draw on forest resources, are thus not so much technical exercises as political processes.

Recent assessments of forest problems reveal considerable consensus on the significant challenges for making the transition to sustainable forestry. They could be summarised in one challenge: to build the institutions necessary for sustainable forestry. Such institutions will centre around multi-stakeholder processes, agreed principles and criteria for forestry management, a mature mix of regular

and market-based instruments building on recent practice.

BIODIVERSITY

Biodiversity sustains livelihoods and life itself. An estimated 40% of the global economy is based on biological products and processes. Human dependency on biodiversity is nowhere more keenly felt than in the communities of people who live in close association with it, drawing upon the enormous range of biological products and services to meet their daily needs.

Most of the volume and range of the world's biological diversity is to be found in the tropics. For example, there is more biodiversity on one tiny island off the coast of Panama than there is in all of Great Britain and a mere 7% of the Earth's surface holds between half and three quarters of the world's biodiversity. Many of the countries located in the tropical zone are economically poor and bear the costs of its continued existence but benefit the least. Powerful industrial interests are using these biodiversity rich countries as reservoirs of biological and genetic resources to develop new products such as crop varieties, drugs, biopesticides, oils and cosmetics or as sources of other 'goods and services', such as timber, wild animal skins and 'clean' air.

Biodiversity provides the range of resources necessary for maintaining natural resource productivity and good nutrition and is implicated in mediating those environmental processes in soils, forests, wetlands, agroecosystems, rangelands and coastal zones that sustain livelihoods. However, plant and animal diversity is most valuable in supporting dynamic and complex livelihoods. A diverse portfolio of activities based on the contributions of wild and agricultural biodiversity (such as crop cultivation, harvest of wild plant species, herding, fishing, hunting) can help sustain rural livelihoods especially in the face of adverse trends or shocks.

On a global scale, the rapid changes in biological diversity may threaten the maintenance of fundamental ecological processes on which we all depend for our survival. The clearance of forests contributes to the destabilisation of the world climatic system and the erosion of plant and animal genetic diversity undermines the potential of agriculture to adjust to future pest epidemics and changed circumstances.

In the past, attempts to curb biodiversity loss involved setting up protected areas to which access is restricted. These management measures did, however, have negative effects on many peoples' livelihoods. For example, the Maasai of the Serengeti Plains in Tanzania, dispossessed of their lands, have been forced to migrate elsewhere, sometimes causing serious conflicts with agriculturalists in other regions of Tanzania.

Recognition of the need for multiple actions at all levels, from local to global, led to the formulation of the Convention on Biological Diversity (CBD). This Convention was negotiated with a view to combating these biodiversity loss trends by conserving and sustainably using biodiversity. It provides a legal framework for countries to develop policies, strategies and action plans, and to co-operate in protecting property rights and other interests on the basis of the equitable sharing of costs and benefits. Thus, it has to deal with several complex and politically explosive trends.

Prominent among these is biosafety. Negotiation of a Biosafety Protocol under the aegis of the CBD in 2000 means that the UN should oversee rules governing imports of genetically modified (GM) foods. Governments will be within their rights to ban imports of GM seeds and crops, if they believe these threaten the environment or people's health. Biosafety and TRIPS (trade-related aspects of intellectual property rights) are also issues on which the global movement towards free trade has clashed with groups expressing concerns on environmental, health and labour standards during the Seattle WTO conference in 1999. However, the Biosafety Protocol does not address means to ensure safe experimentation with GM crops, which is taking place on an increasingly wide scale in developing countries. The CBD and related issues, such as bioprospecting, TRIPs, and GM crops are at the centre of the environmental debate.

A new approach to wildlife conservation?

Over the last 20 years, over-extended government ministries have been unable to provide sufficient resources for wildlife conservation. At the same time there has been a growing realisation both from the conservation movement and within development theory of the importance of understanding the needs and perspectives of local people. This influenced a shift in international conservation policy. Some programmes based on participatory approaches to wildlife management were initiated in Africa in the 1980s. These have provided both inspiration and models for a wide range of participatory wildlife management projects and initiatives around the world. More recently the CBD emphasised three equally important objectives: conservation, sustainable use, and fair and equitable sharing of benefits – thus reinforcing the role of local people in wildlife conservation and management.

BIOTECHNOLOGY

Decades of selective funding to transform the biological sciences have fuelled a technological revolution in which life processes can now be engineered for commercial ends. Bacteria can be genetically modified to make human proteins and utopian cloning techniques

make possible the duplication of millions of copies of a single plant. Genes can be recombined to yield new organisms, products and processes that fit into an industrial mode of production. In this context, life itself is acquiring new meaning and is viewed as a strategically important raw material for new biotechnologies such as genetic engineering, tissue culture and enzyme technologies.

The new biotechnologies and bio-industrial products are expected to play a key role in the restructuring of prevailing systems. Two thirds of all biotechnology companies are focused on therapeutic or diagnostic applications and one in ten is applying biotechnology in food and agriculture. With few exceptions, scientific and technical capacity in the biosciences is centred on high-income nations, with transnational corporations being the leading players. As a result, biotechnology research focuses little on the food and health needs or interests of poor people and nations who have little or no purchasing power. Farmers, consumer and environmental organisations in the developed world also point out that the priorities of the biotechnology industry do not always coincide with those of the wider society.

Transnational corporations seek continued access and monopoly control over the biological and genetic wealth of developing countries. The extension of intellectual property protection, including patents, on the resulting products they market usually fail to take into account the informal contributions of indigenous peoples and farmers to the maintenance and development of genetic diversity through years of cultivation and husbandry.

Developing countries point to the interdependency of all nations and argue that sustaining biological diversity depends on their getting a fair share of the benefits derived from the biotechnological use of genetic resources that originated within their borders. However, the monetary and other values of current flows of genetic resources from the South to the North are not matched by an equitable transfer of funds and appropriate technologies from North to South.

FARMS AND AGRICULTURE

Although modern agriculture has successfully increased yields in many parts of the world, it has relied on technologies and practices not generally accessible to the poor. Some 1.9 billion people still rely on agricultural systems that remain largely unimproved with very low yields. With the number of hungry and malnourished people currently exceeding 800 million, the dual challenge is to produce more food at lower cost without increasing the extent of agricultural land, and to increase the income and livelihood options of all rural people.

What is Sustainable Agriculture?

Sustainable agricultural systems emphasise management – and knowledge-intensive technologies, and biological relationships and natural processes over chemically intensive methods. It integrates the use of a wide range of resource-conserving technologies for pest, nutrient, agro-forestry, soil and water management. By-products or wastes from one component or enterprise become inputs to another. As natural processes increasingly substitute for external inputs, so the impact on the environment is reduced.

More from Less

There are three types of benefits from sustainable agriculture:

1} A sustainable food system means that more food is produced from fewer external inputs, thereby reducing dependence on exogenous technologies and subsidies, and value is added locally through agro-processing and marketing, thus retaining economic surplus in the countryside.

2} More food is produced by production systems that work with, rather than against the natural environment, thus enhancing biodiversity and natural processes of regeneration.

3} More poorer producers or poor rural dwellers have access to productive technologies or income and employment possibilities, contributing to overall poverty reduction and diversified rural livelihoods.

The greatest output increases have occurred following a transition to sustainable agriculture in rain-fed agriculture largely missed by 'modern' agriculture. In the so-called Green Revolution areas, yields can be maintained or even increased following substitution of knowledge and management intensive technologies for external inputs. And in industrialised agricultural regions, yields may come down slightly, but farmers' economic margins often improve. In these three types of areas, poor farmers have benefited substantially from the transition. But even though more than two million farmers are now farming sustainably in many parts of the world, these remain relatively small 'islands of success'. New programmes of action are required to turn these 'islands' into 'continents'.

MINING AND MINERALS

From the aluminium in the microchips powering the Internet revolution to the abandoned mines polluting streams, the mining and minerals sector touches the lives of many – in positive and negative ways.

Despite yielding the minerals that set in motion the 'new economy,' this sector faces a number of critical challenges.

Over one quarter of all developing and transitional economies generate at least 10% of GDP from mining and at least 40% of their foreign exchange earnings from mineral exports, but these economies, as a group, have been less successful than others in moving along the path of economic development.

At the community level, mining and mineral processing have important economic and social impacts. On the positive side, mining projects can bring jobs, infrastructure, modern medicine and other benefits to remote regions. However, these benefits may well be inequitably shared – or partly or wholly offset by damage done to existing livelihoods and cultures. Moreover, if communities are not perceived to have been treated fairly, mining can lead to new social tensions, and resistance to mineral development, sometimes erupting in violence.

As world population grows, the demand for land increases for many uses, including conservation of biological diversity, recreation, farming, and watershed which are often seen as competing with or inconsistent with minerals development. Uncertainty over the ability to access land for mineral development imposes serious risks to industry, local communities and indigenous peoples who all have vital interests in how land is used and who makes the decisions. In many cases, legal regimes are unclear, contradictory and poorly administered.

On the environmental front, the impacts of mining are visible and can result in profound, often irreversible destruction of ecosystems. Indeed, mining operations have the potential to impact seriously the environment at every stage of the life cycle from exploration to closure (and rehabilitation). The environmental impacts of minerals extend beyond the mine site to include the damage caused during the manufacture, transportation, consumption and disposal phases.

All of these concerns are exacerbated by the fact that individual consumers do not generally buy minerals *per se*, the industry is characterised by little vertical integration and minerals markets are anonymous, which leads to an economy-wide problem of a disconnect between production and consumption. Thus, there is little or no room for consumers to make choices – or companies to be rewarded – for good practice in production.

The Mining, Minerals and Sustainable Development (MMSD) Project

In 1998, ten large mining companies formed the Global Mining Initiative (GMI) as a leadership exercise seeking to explore how the industry could contribute to sustainable development. A year later, these companies – through their membership in the World Business Council for Sustainable Development (WBCSD) – commissioned IIED to carry out an independent two-year project of participatory analysis seeking to understand how the sector as a whole could make this transition.

Operating in full independence from the industry, the Project has set its foundations on the participation of the widest possible cross-section of groups holding a stake in the sector. In this way, MMSD aims to integrate some of the issues facing the mining and minerals sector at the global level with the target of proposing an agenda for change.

The Project is unprecedented in many ways, including its geographic scope, and the great diversity of people, institutions, and cultures with which it interacts. The central product of MMSD will be its Final Report which will document the state of the mining and minerals sector from the perspective of the transition to sustainable development and propose an agenda for future change in that direction. The Final Report will be published in March 2002 and will be available to participants at the Johannesburg Summit.

TOURISM

International travel and tourism is one of the world's biggest and growing industries. Developing countries currently have only a minority share of the international tourism market (approximately 30%) but the industry is growing (by an average of 9.5% per year since 1990 compared to 4.6% worldwide). The tourism industry makes important contributions to the economies of developing countries, particularly to foreign exchange earnings and employment. The economic significance of tourism varies greatly, with those economies most highly dependent on tourism tending to be small island states.

The World Tourism Organisation defined sustainable tourism as "leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems". Since then, the major – but not exclusive – emphasis of the tourism industry has been on environmental sustainability.

Following the 1992 Earth Summit, the World Tourism Organisation and the World Travel and Tourism Council (WTTC) produced *Agenda 21 for the Travel and Tourism Industry*: Towards Environmentally Sustainable Tourism.

Myriad certification, environmental management and rating schemes now exist – both nationally and internationally, but again the focus has largely been on environmental issues. Relatively little attention has been paid to the social and economic aspects of sustainable development and even less to the role of tourism as a contributor to poverty reduction. Yet tourism currently affects the livelihoods of many of the world's poor. Indeed, in most countries with high levels of poverty, tourism is a significant part of the economy. Out of 12 countries accounting for 80% of the world's poor (living on less than $1 a day), tourism is important in nearly all.

Sceptics would argue that tourism, driven by foreign private sector interests, is not an activity suited to poverty elimination, that economic benefits are not maximised due to high level of foreign ownership, high leakages and few linkages, and that it imposes substantial non-economic costs on the poor, in terms of displacement, lost access to resources, and cultural and social disruption. However, many of the disadvantages associated with tourism are actually characteristics of growth and globalisation.

The industry agenda is evolving – both independently and in response to NGO campaigns for "fair trade", "responsible" or "ethical tourism". The World Tourism Organisation has put considerable energy into the sustainable tourism agenda and developed a Global Code of Ethics for endorsement by the UN. The private sector is taking a leading role in developing many new sustainable tourism initiatives.

Tourism has continued on the international UN agenda since the Rio Earth Summit and the CSD in April 1999 urged governments to 'maximise the potential of tourism for eradicating poverty by developing appropriate strategies in co-operation with all major groups, indigenous and local communities.' At the WSSD, the poverty focus needs to be stressed in the current debate as a balance to the considerable effort made to address the green agenda.