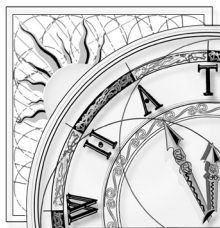


Governance for a Sustainable Future

A Report by the World Humanity Action Trust

Governance for a Sustainable Future

Reports of the Commissions
of the World Humanity Action Trust



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Foreword

The World Humanity Action Trust (WHAT) is an independent think-tank seeking practical solutions to global problems. It was founded by Sir Austin Bide and Sir Maurice Laing following a lecture by Sir Austin at the Royal Society, which warned of the cumulative effect of the growing array of threats to world security. Global population growth, the international trade in illicit drugs, pollution and climate change, globalisation of markets and increasing pressure on resources generally are combining to create new challenges. Doubts are growing about the ability of existing systems of governance to meet those challenges and enable humanity to survive and thrive. The WHAT has defined governance as ‘the framework of social and economic systems and legal and political structures through which humanity manages itself’. The reports in this volume are derived from the work of three Commissions set up by the WHAT to study the governance requirements respectively for water, fisheries and agricultural genetic diversity. These subjects were chosen because of the ‘global commons’ nature of their problems. Although different issues arise, they all relate to resources that have been generally seen as being freely available for use by mankind. Therefore, it was argued that conclusions and recommendations were likely to have wide application to social and political as well as environmental problems.

These problems include changes in demography, and the effects of unsustainable consumption, especially in the developed world, coupled with the natural aspirations of the rest of the world to move towards the lifestyle associated with those levels of consumption. The result is an increasing threat to world security. There have been many successes in the way in which the world community has evolved systems to deal with specific problems, and the UN continues to carry the hopes of people the world over. However, the increasing rate of change of so many aspects of life, some irreversible, convinced the WHAT that there was a need to look afresh at the world’s governance systems. One important subject to emerge is the way in which resources are valued, and the effect that conventional economic valuations and fiscal systems have on governance at the local, national and international scale. At the level of the business corporation, there are clear rules about distinctions between capital and revenue, but at national level, nations treat exploitation of capital resources such as fossil fuels and minerals as contributions to the gross revenue of the country.

In attempting to produce practical governance proposals, the three Commissions set up by the WHAT included membership drawn from many disciplines and many regions. The work of the groups focused on relating key environmental trends to governance issues in the three resource areas chosen: water, fisheries resources and genetic

diversity in relation to food crops. The work was informed by experts from such cross-cutting themes as human behaviour and economic/trade policy.

The WHAT recognises that many governance successes can be found in the past. For example, pollution prevention laws in the UK have existed for more than 700 years, and systems for protection of public health have developed steadily all over the world, some over more than 200 years. In other areas, bodies like the UN and the WHO have major achievements to their credit helping to demonstrate humanity’s capacity to survive and thrive.

Similarly, the success of World Administrative Radio Conference (WARC) may point towards a template for other governance areas. In the 1930s, when radio interference first became a problem, the use of the radio frequency spectrum was divided between governments. Some frequencies were reserved for general activities (e.g., marine distress calls) but most were parcelled out for use by national broadcasting organisations. The use to which the radio spectrum is put has expanded considerably since the original agreement, which is subject to periodic reviews to keep pace with changes in use. Remarkably, these agreements have succeeded without real political complication, even during the Cold War, when there was a high degree of deliberate interference with radio transmissions. The radio spectrum is unusual in that use does not consume the resource, and so WARC is more about regulated access to a resource than about consumption. But given that the principle of regulated access is one that many believe should determine the use of certain resources, especially the global commons, there may be much to learn from the success of the initiative.

Apart from the question of the economic valuation of global common resources, other important principles to have emerged in the WHAT Commission process include

- the need to strengthen feedback systems so that governments analyse the results of their actions and respond more precisely to those who suffer from them; recognition of the effects of ‘perverse’ subsidies (such as those for the fishing and agricultural industries) is particularly important;
- the need to strengthen non-authoritarian governance systems, rather than always seeking to increase government powers;
- the need for governance to be based on good science;
- the need for more innovative thinking and experiments: for example, why not try to apply the WARC procedure to allocation of access to fisheries?

Success can be achieved, but it will require debate on a worldwide scale informed by open access to accurate information. Where information is inadequate, techniques of risk analysis will have to be applied in a way that enables global assessments to be made of the overall impact on humanity of prospective decisions. Only in this way is it possible to avoid single-issue decisions that too often may be absurd when viewed in a wider context.

The three WHAT Commissions, although each concentrating on a particular resource of critical importance to the planet as a whole, were encouraged to range widely in asking questions, seeking solutions and examining best practice. Each has produced a report that makes an important contribution to the debate on the subject and offers conclusions that point the way towards solutions. They are valuable in their own right and the WHAT will do all it can to facilitate their promotion. Together, they have provided Michael Carley and Ian Christie with many ideas that they have blended, using their own knowledge and experience, to produce an integrative paper. Whilst the WHAT does not necessarily support every detailed point in the reports and the paper, together they should shift the focus of discussion on the development of global governance.

The WHAT intends to be at the forefront of this process, using the full range of information communication and discussion techniques. We aim to provoke and facilitate debate on the development of the principles and practice of a globally acceptable governance system capable of delivering a sustainable future for us all.

Without the support of the Maurice Laing and Rufford Foundations, the extended programme of work that made this book possible could not have been carried out. The WHAT is grateful for that support, and for the patience and understanding demonstrated by those foundations. We also express our gratitude to our Patron, our Honorary Advisers, our Expert Affiliates and Corresponding Members and all those individuals who contributed their time so generously in the work of the Commissions, especially the Chairs and Rapporteurs. Finally, thanks to John Ashworth and Peter Warren who, as Chair and Director respectively of the WHAT at the time, proposed the Commission process that has proved to be so fruitful.

Jack Jeffery CBE, Chairman.

I

The World's Commons: The Challenge of Governance

Integrative Paper Commissioned by the World Humanity Action Trust

Authors *Michael Carley and Ian Christie*

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1. International Risks and Policy Responses in the New Millennium

The present course is unsustainable and postponing action is no longer an option. Inspired political leadership and intense co-operation across all sectors will be needed to put both existing and new policy instruments to work.

Global Environment Outlook 2000 (UNEP, 1999)

1.1. Introduction

This is a report on the challenges to our systems of decision making and governance posed by the global reach of industrial production and consumption. How can we manage natural resources in a sustainable way? How can we coordinate our actions better across sectors, countries, and between the international, national and local levels? The paper summarises and discusses key issues from the work of expert Commissions established by the WHAT.

The report begins with an overview of the impacts of global change (Section 1). We then summarise the work of the Commissions in Section 2. In Section 3 we consider the nature of the global commons—the key shared resources of the planet. Section 4 explores the pressures on the commons and the failings of resource management policies and systems to date but also recognises that there have been successes: for example, the development of systems to control water abstraction and license discharges. In Sections 5 and 6 we set out the main challenges for the existing system of global governance, and the issues which demand action as a priority.

Sections 7 and 8 respectively look at the potential for action and innovation at the global and national levels. In Section 9 we set out proposals for change. Section 10 summarises the challenge set by the Commissions and points to ways forward from their analysis.

Our focus is on three key issues:

- the need for an ethical framework for resource conservation, which takes into account North–South relations and equity, the needs of future generations, and new systems for economic valuation of environmental resources and the educational implications of developing such a global values framework;
- reforms for improving the responsiveness of regulatory systems and markets to environmental constraints on harvesting of key resources;
- institutional innovation to improve capacity across sectors and at all levels from the global to the local in managing resources in a sustainable fashion.

1.2. Globalisation: Benefits and Risks

The dawn of the new millennium has been accompanied by much analysis of the powerful trends towards ‘globalisation’. Increasing exchange of information, ideas, people and goods, highlighted by rapid growth in use of the Internet, offers hope of moving towards a new regime of international co-operation—and even of global governance. Ideas about ‘cosmopolitan’ democracy and new forms of global management of our common problems have flowed from the recognition in the last twenty years that we face a worldwide agenda of environmental and social challenges.

Human networks are being enabled by the relentless communications revolution, which breaks down isolation and allows rapid exchange of information and ideas. For example,

BOX 1-1. HUMANITY'S RISING SHARE OF GLOBAL RESOURCES

The growing human population accounts for a large and growing share of ‘primary productivity’—the total solar energy captured by organisms through photosynthesis.

Today humans take for their use somewhere between a quarter and a half of all plant material that grows on Earth each year. From the tropical rain forests, across the grain fields of America, Europe and Asia, to the Arctic tundra, fully half of all the atoms of nitrogen, and of phosphorus, that are annually fixed in new plants come from human intervention in the form of fertilisers rather than natural cycles. In the sea, we take 10% of all its annual production, and more like 30% in rich areas of nutrient upwelling.

Sir Robert May, ‘A new beginning’ (May, 2000)

...agriculture and forestry to meet our requirements for food, fibre, timber and other natural resources take up four-fifths of the total energy available to the millions of species we share the planet with...Humans appropriate 8 per cent of net marine primary production but this rises to 25–35 per cent in the estuarine and continental shelf environments, the source of 96 per cent of the global fish catch.

(McLaren *et al.*, 1998)

indigenous tribes in the South American rainforest are linked via satellite to health centres and support groups around the world. They can campaign for their own, and the global, future. This reminds us that in the new era, development prospects at the local and global level are inescapably linked.

Yet the rise of the Internet also brings with it new risks and uncertainties. Who will guarantee its security and monitor its standards of information and ethical responsibility? At present the Net is a largely unregulated, sprawling innovation, creating many benefits but also posing new questions and bringing risks (such as large-scale tax evasion, or the global spread of online pornography). This global innovation thus reminds us that the new era of globalisation also carries with it the baggage of previous centuries in terms of risks to international harmony and progress. Categories of international risk include risk of armed conflict, political destabilisation of governments and economic, social and ecological risks (Herring, 1983). The most fundamental and pressing challenge is the need for more sparing and prudent use of the world's common resources, such as freshwater, fish stocks and biodiversity—all of them vital for sustaining human life as we know it. Increasingly urgent problems of management and maintenance of the global commons include the degradation of natural environments, loss of genetic diversity and natural capital, and pollution of land, water, and air. These all stem from humanity's increasing appropriation of nature's resources, leaving ever less for the other species with which we share the world (see Box 1-1).

These problems raise huge questions about how far we can sustain present patterns of development. One set of issues may be described as *ecological*: how can we avoid irreversible degradation in the basic 'life support systems' of the planet (the climate system, soils, freshwater sources and natural mechanisms for recycling, diluting and dispersing wastes)? World leaders have acknowledged, over the last decade, that if we are to have sustainable development which preserves the critical natural 'capital' of the Earth, then major changes in production and consumption will be needed, above all in the developed countries. But the rhetoric runs far ahead of the action we have taken to move away from our current, unsustainable, path of development.

Another set of issues is *social*. More than a billion people are afflicted by 'absolute' levels of poverty, growing levels of malnutrition, and ill-health caused by lack of access to clean water. These households are often reliant on what is a diminishing local resource base to meet basic needs. Even if economic development is succeeding in lifting millions of people in developing countries out of deprivation, the persistent dire poverty of a fifth of the world's population is a fundamental challenge and reproach to policymakers. Overall, the gap between rich and poor is growing, both between and within nations, and this could heighten social tensions.

Yet at the same time the *interdependence* of North and South is also growing. Consider, for example, the growing

vulnerability of developing countries to climate disruption caused by emissions from the rich world and the increasing risk to the North of economic, social and environmental instability in the South—for instance, the possible spread to the West of diseases such as malaria as global climate change sets in. Similarly, the risk to public health in the developed world from poverty-related third-world diseases carried across the globe through ever-increasing air travel should encourage self-interested—if not altruistic—attempts to close the gap.

It is hardly surprising that vital long-term environmental concerns receive scant attention from the poor or their political leaders, given that the needs for day-to-day survival press so heavily (UN, 1998). In the rich world, scarcity of water and fisheries are issues which are just beginning to rise up the political agenda, an unfamiliar and disquieting development for societies which feel prosperous and which are dominated by traditional economic valuations and financial and technological priorities. But the scarcity of key resources such as water and fish stocks is fast becoming a potentially explosive political issue, above all in the developing world. Countries increasingly see access to resources, particularly freshwater, as a matter of national security. By 2025 the number of people living in countries at risk of water stress (inability to mobilise enough water to meet all their food, household and industrial needs) is projected to rise from 470 million now to some 3 billion, a sixfold increase, with Africa and South Asia most affected (Postel, 2000).

1.3. Globalisation Demands Governance

The problems are interrelated and cannot be dealt with in isolation, even by the most powerful countries (Simai, 1994). What these issues have in common is that they force us to recognise the pressing need for better *governance* of vital environmental resources. This must include opportunities for participation of relevant stakeholders (all those, rich and poor, who have a direct interest in the quality of the resources and their distribution), and innovation in managing the development process. The various kinds of global commons needing better governance include not only the planet's fish stocks, biodiversity or freshwater supplies, but even the atmosphere of the planet itself.

Sustaining the common resources for the benefit of present and future generations will depend very much on how governments, in partnership with all sectors of civil society, organise, coordinate and implement policy at all levels of action: the international, national, ecosystem, and town and village levels. It will require positive, *vertical integration* of action—that is, collaborative action between the different levels—so that 'top-down' and 'bottom-up' efforts are working for the same outcomes, even if the measures taken vary considerably between levels and sectors.

This might be called 'the net of sustainable development'—a mesh or network of relationships which is only as strong as its weakest link. Good governance also requires *horizontal integration* of economic, environmental and social objectives to achieve a harmonious, human–ecological balance. This means co-operation between sectors (government, business and voluntary/community sector organisations) within and between countries.

Another way of describing this is the need for 'nesting' of institutions—as explained in the Commission reports. Local agencies need to be nested within wider frameworks of regional, national and international regulations, standards, accountability and shared values concerning processes and policy outcomes. Without such coherence, we stand little chance of effective 'joined-up' policy to tackle the complex 'joined-up' environmental, economic and social problems which span boundaries and levels of action; and we stand every chance of exacerbating conflicts of interest and priority-setting between, for instance, local and national levels and between different departments of government at all levels.

Action by the state alone will not resolve these problems. Partnership is required—governments working with business, the research community and the voluntary sector at all levels. In particular, there is a vital need for institutions which *transcend* political conflicts and interests, which can act as brokers and consensus builders in the many cases where local governance and higher levels come into conflict with one another, where corruption and inefficiency vitiate government action, and where sectors are at loggerheads. 'Transcendent' organisations capable of this role might include independent panels of professional experts and nonexpert citizens drawn from many sectors and disciplines, such as the WHAT Commissions, educational institutions, independent scientific

centres, international agencies and standards bodies, and institutions concerned with ethical doctrine and debate, including religious faiths and humanist organisations.

In addition to being responsive to pressing, immediate demands, policies and programmes must be sufficiently flexible to meet *intergenerational* needs, preserving vital resources for future generations. Taking such a long-term perspective can be very difficult when politicians' timetables seldom stretch more than five years hence. Yet conservation of the global commons, which have developed over *millennia*, demands both better governance and a long-range perspective which takes account of the legacy of resources we bequeath to future generations. These need to be nurtured by forms of valuation, education and culture that develop an appreciation of what Stewart Brand has called the 'long now' (Brand, 1999): an extension of our sense of the present to include the last and next two hundred years at least, and ultimately to equip humanity to plan with millennia in mind.

Governance does not only imply good regulation, but also the effective operation of markets, which operate in the short term and cannot on their own take account of the needs of future generations. Markets and fashion, in Brand's scheme, generate innovation and excitement; they cannot at present respect the slower, deeper rhythms of the 'long now' in which civilisations and nature co-evolve. But rejecting the market is no solution to problems of overexploitation of resources and of heedless short-termism. As the example of the former USSR shows, top-down planning and control of economic relations is no guarantee of environmental protection against the market—if anything, it produced in that case many examples of ecological degradation even worse than have been seen in market economies.

BOX 2-1. BIODIVERSITY ISSUES

Many of the planet's species have already been lost or condemned to extinction because of the slow response times of both the environment and policy makers; with one quarter of the world's mammal species now at significant risk of total extinction, it is too late to preserve all the biodiversity that our planet once had.

Global Environment Outlook 2000 (UNEP, 1999)

...agricultural biodiversity faces an uncertain future. The availability of wild foods and populations of many wild relatives of crops is declining as wildlands are converted...If these species go extinct, a pool of potentially crucial future benefits for global agriculture will also vanish.

Tuxhil (1999)

While awareness of [biodiversity] issues is increasing, attempts to find solutions are made more difficult by failures of governance...market prices fail to signal the importance of genetic diversity in farmlands...for the most part, the energies of the private sector have not been enlisted in support of conservation. Agricultural subsidies have had perverse effects on farmer's choices and farmers have been encouraged to ignore the environmental consequences of crop choices...Genetic conservation for agriculture is ... a public good. Governments and intergovernmental organisations have consistently underinvested in it...(and)...have failed to coordinate their response to the challenges of links between biodiversity loss and agricultural development.

WHAT Genetic Diversity Commission Report, 2000.

Regulation *per se* is not enough: it must be designed to produce long-term desired outcomes, rather than the distortions so often seen in regulatory and subsidy systems which focus largely on boosting outputs or keeping down prices for consumers. Well designed and managed markets can in principle produce good long-term results in resource management, and market-based solutions must be part of the toolkit of effective global governance of resources in the new century.

2. The Response of the WHAT

2.1. The Commissions

In the face of these profound challenges to policy making, production and consumption, the WHAT has organised a number of Commissions. Their purpose is to pose key questions, examine issues and make recommendations which might lead towards better systems of governance of the world's commons. Three Commissions were appointed to examine freshwater, fisheries and agricultural genetic resources. These areas are among the most complex and vital for the development of more sustainable patterns of consumption and governance. Boxes 2-1, 2-2 and 2-3 highlight key facts and issues.

The Commissions brought together experts on these topics from around the world, to share experiences and develop a common agenda for action. The Commission reports provide an authoritative overview of the state of fisheries, biodiversity

and freshwater resources around the world, and of the ways in which we can improve their management. All set out ideas for action which will take us towards sustainable development of these fundamental resources, and which can enhance their governance at international, national and local levels.

2.2. This Paper

Building on the work of the three Commissions, this paper sets out to integrate some common themes of governance that arise from their consultations. Four main questions are addressed:

- (1) What are the challenges of resource management and governance identified across the fields of freshwater and fisheries management, and the conservation of agricultural genetic resources?
- (2) Are existing forms of global, regional and national governance adequate to the challenges identified? If not, what are the key constraints on better governance?
- (3) What is the range of appropriate options for improving the processes of governance?
- (4) By what means of communication and education could an appropriate mix of these options be promoted and implemented?

The paper's task in addressing the first two questions is straightforward: to formulate in a systematic way the political and institutional challenges to better governance which arise as a common thread in the work of the Commissions.

Questions (3) and (4) present an additional difficulty. In an area as complex as global governance, there is an enormous diversity of suggested options for change. These range from

BOX 2-2. FISHERIES ISSUES

Years of relentless exploitation in the oceans have taken their toll: 11 of the world's 15 most important fishing areas and 70 per cent of the major fish species are either fully or over-exploited...Despite a steadily growing human appetite for fish, large quantities are wasted each year...FAO estimates that discards of fish alone – not counting marine mammals, seabirds and turtles – total 20 million tons, equivalent to one fourth of the annual marine catch.

(Anne Platt McGinn, 'Charting a new course for oceans' (McGinn, 1999)

Even if a common understanding of problems and solutions is arrived at, the resource and time that will be necessary to produce the potential benefits of well managed fisheries, requires substantial commitment of energy and resources on a global scale.

The Commission calls for...rights-based management systems and transition processes...and a global summit on fisheries and the people that depend on them to forge a global action plan, to be implemented by a partnership of governments, international donor organisations (e.g., the World Bank), NGOs and the fishing industry, in order to reshape governance of fisheries...The opportunities that will result from such a summit, and the risk to survival of millions of people dependent on fisheries, are too great to delay action.

(WHAT Fisheries Commission Report, 2000)

BOX 2-3. WATER ISSUES

The world water cycle seems unlikely to be able to cope with the demands that will be made of it in the coming decades. Severe water shortages already hamper development in many parts of the world, and the situation is deteriorating.

Global Environment Outlook 2000 (UNEP, 1999)

...there is a growing number of problems associated with water...locally, nationally, regionally and internationally...issues range from lack of safe drinking water and sanitation, through flooding to disputes about water for irrigation...each year millions die from water-borne diseases, large numbers lose incomes, the environment is degraded and stress is generated between those sharing a river basin.

...more than one billion people worldwide lack access to safe drinking water... annually up to four million die prematurely from water-borne diseases... The shortage of quality drinking water is often related to the failure to treat wastewater. A World Bank report estimates that the amount of water made unusable by pollution is almost as great as the amount used to meet human needs.

The rapid growth in the human population, coupled with increasing per capita use and rising aspirations for improvements in living standards, indicate that solutions need to be found quickly...the likely impact of climate change on the hydrological cycle, although uncertain in extent at present, adds to the urgency.

...In many (probably most) parts of the world, present patterns of water use are not sustainable. The resource that limits the growth of any population is the resource that runs out first. With increasing frequency, water will be this limiting resource.

(WHAT Water Commission Report, 2000)

Although only 17 per cent of farmland is irrigated, it provides almost 40 per cent of the world's food. Around 40 per cent of the precious water used for irrigation is lost on the way to the fields. The amount of irrigated agricultural land per head of population has been declining due to water shortages since 1980.

(*Environmental News*, the Netherlands, March 2000)

the global to the local, and all points in between—including ideas for regional resource management, such as for watersheds, and for improvements to national policy systems (Carley, 1994). They also cover factors ranging from the highly specialised and technical, such as fishing technology, to broader economic, social and institutional issues, including education, democratic participation and fundamental changes in values.

No single person or organisation, or even expert Commissions as experienced and well informed as those of the WHAT, can expect to develop a unified, systematic solution covering all the dilemmas of governance. Even if this were to be accomplished, it would be likely to be so complex that its message would be lost in the details. In this report, we set out a limited but still ambitious range of options for action. These reflect priorities, explicit or implicit, in the work of the Commissions, and also the priorities of the WHAT as an organisation concerned with fostering good governance at all levels.

3. The Commons and Global Governance

3.1. The Nature of the Commons

The term 'commons' is derived from the shared grazing systems on the village greens of feudal England. It refers to an important form of resource management involving land and natural resources held communally. These pose a special economic problem, in that the natural resources are a form of *public good* subject to degradation or even destruction from overuse. In the example of common grazing, if there is no local regulatory authority, individuals will tend to maximise self-interest by putting more sheep on the commons, leading to overgrazing and the degradation of the quality of the commons for all (Henderson, 1995). This has come to be known as 'the tragedy of the commons' (Hardin, 1968).

In the case of a common resource, whether it be fish in the high seas or up-river sources of freshwater, it is seldom in the short-term self-interest of any harvester or consumer (or firm or country in the modern world) voluntarily to limit their consumption. Therefore, in the absence of an effective regulatory structure, it is very difficult to stop overexploitation of the commons.

Brand sees the tragedy of the commons as ‘a classic case of pathological feedback—where each player is rewarded rather than punished for wasting the common resource’ (Brand, 1999). He cites research into commons management by Elinor Ostrom which suggests that successful commons are ‘maintained (and maintainable) neither by the state nor the market but by a local set of community feedbacks adroitly tuned to ensure the system’s long-term health and prosperity’ (Ostrom, 1990). Ostrom’s principles for sustainable management of local and regional commons include clear boundaries, locally appropriate rules, collective agreement, monitoring systems, graduated sanctions to punish infringements, conflict resolution mechanisms, rights to organise and nested enterprises. These last are enterprises which operate within what we described earlier as a nested structure, with each level of activity supported by the one above and working within rules set at higher levels. We will return to many of the issues raised by these principles.

In relation to the *global* commons, effective regulatory authorities are few and far between, and therefore such regulatory structure can only be sustained by *consensual*, co-operative rules controlling access or by the establishment of a supranational authority, but again only by consensual means (Cable, 1999). Management of the global commons implies some form of global governance, and thus a sharing of local and national sovereignty. There are some examples at the global level: for example, the Antarctic Treaty, the Law of the Sea Convention and the Montreal Protocol (which attempts to control ozone depletion in the upper atmosphere).

As the work of the WHAT Commissions demonstrates, not all commons are global commons, although all should be of global interest. It is useful to distinguish between types:

Global commons: those outside national territorial limits, such as the high seas, the atmosphere and Antarctica, with rights invested (in theory) in all countries, but more commonly in those with the opportunity and technology to exploit resources on this scale;

Regional commons: watersheds and basins (such as the Great Lakes, North Sea or the Nile Basin) and other ecosystems (such as the Sahara or the South American equatorial rainforest) crossing national borders and under the potential control and management of a group of nation states and

National commons: local resources within the territory of a nation state, such as fish stocks in lakes, almost all agricultural genetic diversity, soil stocks, or rain- or temperate forests under the control of nation states or

subnational governments. Environmental degradation here, such as loss of biodiversity, deforestation, airborne and marine pollution can also influence the health of the global commons and, while not under global jurisdiction, are therefore frequently of wider interest.

All types of common resources face mounting pressure from technological ‘improvements’ resulting in more intensive harvesting methods, increasing levels of *per capita* consumption of global resources in the developed and newly industrialising countries (the NICs), population growth in less developed countries and both local and global environmental degradation, including climate change.

3.2. Dynamic Pressures on the Commons

These pressures have a dynamic aspect: they can be magnified or reduced by their interaction with other forces. One factor has to do with the relationship between national prosperity and the per capita intensity of resource consumption. On current patterns, the residents of the developed countries, accounting for around 17% of the world’s population, consume annually about three-quarters of overall global resources (Carley and Spapens, 1998). Since the middle-income range of NICs (around 60% of the world’s population including China and India) reasonably aspire to current Western consumption patterns, pressures of consumption and environmental degradation will intensify greatly unless there is a radical change in resource use and the efficiency with which we produce and consume.

At the same time, wherever biodiversity, including genetic diversity for agricultural use, is diminished, the resilience of ecosystems is reduced, making them more vulnerable to disruptions (such as climate change). In the words of a WHAT Commission report, ‘civilisation is changing things at an alarming rate’.

BOX 3-2. THE NEED FOR GLOBAL COORDINATION

The current international economic ‘order’ does not support the rational use of global common resources – oceans, freshwater, fisheries and the atmosphere...The process of ‘globalisation’ today reinforces the unrestricted, irrational use of essential resources by individual enterprises, and—without coordination—undermines the complementarity of resources needed to sustain the integrity of the whole.

WHAT Water Commission Internal Report: ‘Towards an architecture for governance’.

While the very definition of a well managed commons implies some regulatory, or governing, authority, management of the commons is also set against a backdrop of an increasing role for the private sector in international and national economies. This is at the end of two decades of multilateral and national policies favouring deregulation and reduction of government intervention in markets. For example, the WHAT Commission concerned with biodiversity and genetic resources notes that in decentralised market economies, crop genetic resources are largely in the hands of private farmers, agents, seed companies, agribusinesses and plant breeding and other biotechnology companies. This role for the private sector is increasing under trends to globalisation and privatisation. But, as the Commission notes:

...with rare exceptions, private companies do not see themselves as having a responsibility to conserve genetic resources. On the contrary, the trend is toward homogenisation of global seed supplies, especially in the major food and industrial crops.

Finally, another problem with management of the commons in market-oriented economic systems is the continuing assumption in national accounts that resource depletion is positive for national development—a virgin forest cut down increases GNP. This failure to incorporate the true economic and social costs of depletion into pricing structures makes waste minimisation and recycling less likely. While there is a large literature on this problem going back two decades and more, the size of the research base and the power of its analysis have had little or no effect as yet on the thinking of the powerful decision-making networks at the helm of national and global economic development processes (see, for example, Pearce and Barbier (2000)).

Although there are many similar factors in the management of commons at various spatial levels, different institutional responses may be indicated for global resources, as opposed to, say, regional or national commons. These are discussed later. But it is also true to say that good governance at any one spatial level reinforces the need for equally sound governance at other levels: local excellence in governance is of limited value if higher tiers are ineffective, corrupt or seeking quite different outcomes. As noted earlier, we need effective ‘nesting’ or coordination of levels of governance.

In other words, the phrase ‘good global governance’ implies not only good governance at the multilateral level, but good governance at the national and local levels as well. It is unlikely that sustainable management of the global commons, such as the high seas, could occur in conditions where national commons, such as freshwater resources, were being mismanaged or destroyed. It is for this reason that the recommendations of the individual Commissions range across spatial levels, as they must if good governance is the goal.

3.3. Commons, Globalisation and Governance

If there are to be solutions to the problems of management of the commons, then, in the words of a former Executive Director of the World Bank:

...there is a need for the recognition of the need for significant policy and institutional changes at the level of global governance so as to arrest and reverse the deplorable and dangerous trends that are global in scope.

(Miller, 1995) (our emphasis).

On the positive side, globalisation may provide better opportunities for finding solutions through supranational organisations, such as the UN and the EU, as well as the better dispersal of good practice in improved national policies. The emerging global communications networks may provide a means for mass education and debate on resource management issues, giving rise to new possibilities for building a consensus.

Fortunately, interest in global governance has grown recently. In 1995, the Commission on Global Governance, an independent group of 28 world leaders, proposed seven core values for such governance: respect for life, liberty, justice, equity, mutual respect, caring and integrity (CGG, 1995). It proposed a *global civic ethic*, a point to which we will return in Sections 7–9. At the same time, the UN Development Programme (UNDP) has initiated a research programme on the management of global public goods, or ‘items of global value’, including those under common responsibility, but also goods such as peace and financial stability (ODI, 1999; UNDP, 1999). The UNDP identifies three gaps in the system of international co-operation for dealing with public goods: a *jurisdictional* gap, where responsibility lies beyond state boundaries; a *participation* gap, in which civil society or even less powerful countries are excluded from global management systems and an *incentive* gap, insofar as there are few, if any, incentives for government or others to coordinate action for resource management.

3.4. Defining Governance

It is important to understand what is implied by the term *governance*, and to distinguish it from *government*. Traditional definitions conflate the two: for example, the Oxford Dictionary refers to ‘the manner or act of governing, of exercising control or authority over actions of subjects; a system of regulations’. In other words, the emphasis is on how people are ruled and how the affairs of state, or inter-state affairs, are administered or regulated.

However, because of the very nature of the problems discussed here, and the evolving nature of the world system,

good governance cannot be achieved by governmental, or intergovernmental activity alone. The ‘world system’, as noted above, is now taken to work at three influential levels: the world economy, in which players may be states, companies or multilateral or other organisations, states themselves, or groups of people who intervene in the world economy or affairs of state to protest against (or alternatively intervene to profit from) the inequalities and inefficiencies of the world market, or to highlight the inadequacy of government or intergovernmental systems (i.e., the three interlinked components of social, economic and political systems (Hoffman, 1991)). The recent riots in Seattle, during the abortive WTO talks, are one example of the latter, although there are many more less visible, including many years of work by global NGOs in combating anti-environment and anti-labour aspects of the Multi-Fiber Agreement.

Good governance therefore requires co-operation (or even, in the best circumstances, partnership) between government and civil society, including global corporations and local firms, and NGOs (trade unions, voluntary and educational bodies, religious organisations, etc.) which represent the broad diversity of interests in any given society. The latter are a political constituency to which politicians in democratic systems increasingly must respond. Equally key is the network of links between civil society and economic systems, consumers and business.

Governance, then, can be understood as referring to national political *systems* and international political relations and their functioning in relation to law, public administration and democratic participation of key stakeholders and the public at large. It is about the interaction between institutions in all sectors, that must set goals and co-operate in achieving them and creating an orderly framework for action—not only at the global level, but also at regional, national and local levels, all of which could contribute to (or undermine) achievement in management of the commons.

It is also about *learning* from action and reshaping policies and priorities in the light of experience and changes in the wider environment. Long-term management of resources calls for *lasting and learning* institutions. By this we mean the independent agencies of diverse kinds (which earlier we termed ‘*transcendent*’ institutions) capable of offering themselves as brokers and repositories of *disinterested and expert* information and analysis, able to highlight how knowledge and environments are changing and to learn from this.

3.5. The Players in Global Governance

Within this context, and looking ahead to options for improving governance, the potential players in global governance can be mapped out as follows:

- *Multilateral organisations*: such as the UN, IMF, World Bank and WTO;
- *International associations*: such as G8, OECD, the Commonwealth and NATO;
- *Inter-regional groups*: such as APEC and the Trans-Atlantic Partnership;
- *Regions*: (stronger) the EU and NAFTA etc.; (weaker) ASEAN, Nordic Union, OAS, OAU, etc.;
- *Private governance*: such as global companies, self-regulatory organisations (e.g., ISO), transnational pressure groups (e.g., Greenpeace, WWF, Amnesty International), trade unions and other representative trade and labour organisations;
- *National governments*: of which there are approximately 230 in the world;
- *Subnational governments*: some, such as US states, Canadian provinces or the German *Länder*, with considerable legal and economic authority over resources, and local governments and voluntary organisations. The latter two are the focus of much of the sustainable development action plan, Agenda 21, agreed at the 1992 Earth Summit in Rio (Cable, 1999).

In what follows, we review the challenges that together face all these actors and make proposals for changes to improve the governance of resources. We acknowledge that there are many successes on record in transnational governance: the establishment of a global human rights regime (however qualified by breaches by governments); the establishment of international war crimes tribunals; the development of international standards regimes; the development of global environmental accords such as the Montreal Protocol for ozone layer protection and the Kyoto targets for reductions in greenhouse gases and the global Biodiversity Convention developed at the Rio Earth Summit of 1992.

These are real achievements. They point to the fact that there is potential for progress, rather than simply for pessimism, in the face of global resource problems. The following sections seek to analyse the weaknesses of the governance regimes we have, so as to improve them to deal with the resource crises we confront, and to design equitable and sustainable systems of resource management.

4. Constraints on Progress

4.1. Introduction

Having firmly established the need for good governance, the WHAT Commissions’ reports also make it plain that there is a very long way to go in its realisation. Constraints on progress, which extend to most challenges of governance for resource management, are discussed in this section in generic

terms rather than in terms of specific problems such as those of fisheries management, for which the reader is directed to the relevant WHAT Commission report.

Consideration of these issues is important because, although much lip service is paid to development which is 'sustainable', its achievement, even in a modest fashion, is continually held back by political and institutional factors, most of which remain little discussed.

4.2. The Lingering Hold of a Frontier Mentality

In terms of human development, industrialisation and the health of the global commons, there has been a significant a shift in the late twentieth century from what former World Bank economist Herman Daly calls a 'frontier economy' to a 'full world economy' (see Carley and Spapens, 1998). Despite the amply demonstrated reality of this shift, there is a powerful, lingering hold of values associated with frontier economics. This outdated perspective assumes that we can draw on an inexhaustible supply of natural resources, and that man-made capital can invariably substitute for natural capital in improving human quality of life.

However, the world has shifted into an era where there are few or no substitutes for the *critical natural capital* being depleted by the exploding rates of resource consumption associated mainly with economic growth in 'developed' societies. The frontier is gone—no place on earth remains untouched by human activity, as the presence of pesticides in ecosystems as diverse as the high Arctic and the South Seas indicates. No resource or ecosystem is immune from conversion to profit in an increasingly integrated global production and consumption system. Even areas which in theory enjoy protected status are subject to development pressures and cannot avoid damage from migrating pollutants.

Yet 'frontier assumptions' continue to condition the activity of modern economies. For example, as the WHAT Fisheries Resources Commission notes in its report, the false, but still potent, assumption that fishing intensity and technology have negligible impacts on fish stocks continues to hold sway—even though we have growing evidence of the steady, dangerous depletion of many species below replacement levels in fisheries where fishing fleets have 'open access' (that is, where there are no restrictions on the size and nature of the catch).

Other important factors, such as the value of genetic conservation in agriculture, have been largely ignored in market systems based on frontier assumptions. As a result, highly damaging agricultural production patterns continue to be subsidised by what are now frequently referred to as perverse subsidies. For example, subsidies for activities known to damage biodiversity are estimated at around US\$750,000 million a year in the Genetic Diversity

Commission's report. The Commission argues that genetic diversity and biodiversity now either need to be realistically valued through our pricing structures or redefined as valuable public goods worthy of legal protection. On this point, Hazel Henderson notes that although economic theory is highly developed in relation to markets and market failures, it has consistently overlooked the global commons and our systems for allocating rights of access to them as a subject of serious study, beyond making simplistic, politically unworkable suggestions for its privatisation (Henderson, 1995).

4.3. The Paucity of Sound Scientific Advice

A second constraint on good governance relates to the complexity and dynamic nature of our interactions with particular ecosystems. Many outcomes of the experiments we have made in introducing wastes into the environment are proving to be unpredictable in their ultimate impacts, and therefore not amenable to risk assessment. Where even a modicum of uncertainty exists in scientific knowledge, politicians can hide beyond this in avoiding difficult decisions or postponing confrontation with strong vested interests.

During this period of vacillation, environmental problems can worsen and critical resources become further depleted. For example, the WHAT Water Commission notes that climate change will probably increase freshwater consumption in arid regions and therefore create pressures for more use of highly energy-intensive desalination plants. It will also promote more intensive and extensive use of energy-hungry air conditioning throughout the world, all of which will add to the greenhouse gas emissions implicated in the threat of climate change.

This complexity reinforces the importance of scientific rigour in analysing problems, with as high a degree of reliability as is possible in an uncertain world. Unfortunately, the more dynamic and complex the issue, the more likely that the availability of independent scientific information will tend to lag behind the impacts and implications of growing environmental pressures, sometimes by decades.

The record of environmental policy suggests that much scientific advice is not taken on board until pressure groups mount a campaign around it, although these same groups are sometimes accused of bending scientific evidence to suit their purposes. They would argue that, on the basis of the *precautionary principle*, preliminary evidence may have to be sufficient for policy decisions.

The precautionary principle is sometimes invoked as a means of banning particular innovations with long-term implications for the environment—such as GM food crops, for example. But the principle is not a 'preventatory' one, designed simply to block innovations. It should be understood as a *condition on innovation*. Before we accept an innovation, we need, on the basis of the principle, to assess and debate the

understanding we have of the risks and the benefits which might flow from any proposed change that has long-term and possibly irreversible effects on health and the environment. The principle is best seen as a tool for ensuring that proposals open up debate about risks compared with benefits and on the range of alternative courses of action. As noted in the glossary below, it also needs to be complemented by a principle of *proportionality*, according to which measures to deal with risks are designed to be appropriate in scale and cost, proportionate to the risks in question.

Policy decision making based on the precautionary principle involves anticipating problems, in conditions of uncertainty, and opening up wide-ranging dialogues in society on the risks *and* benefits of alternative measures and innovations. This requires courageous political leadership—such as is needed to introduce changes to resource harvesting regimes, which *may or may not* be damaging the resource base, before scientific proof catches up with the policy agenda. Consensus is likely to be difficult to achieve in the absence of sound and *independent* scientific knowledge.

4.4. The Failure to Respond to Scientific Advice

Even where good independent scientific information exists, political and bureaucratic factors, and the existence of strong vested interests and/or long-established practices, condition decisions and often win out. One reason is that, despite the presence of science advisors in government, scientific thinking is frequently detached from political decision making, being viewed as less practical and therefore carrying little weight. The WHAT Commission reports all emphasise that a better understanding of the nature of scientific inquiry, and how it can be linked productively to political decision systems, is necessary and worthwhile.

Greater support is needed for the role of independent internationally well regarded scientific advice, and monitoring and policing of resource issues. The science base has a role to play in governance that must be recognised and fostered by political, economic and social structures as well as by scientists themselves. The politically sensitive nature of risk assessment and application of the precautionary principle make it essential that scientific research institutions independent of the state and commercial interests be fostered. Without sources of information and analysis which can be acknowledged on all sides as independent and trustworthy, debate of the risks and benefits attached to innovations affecting the commons will tend to be partisan, creating a climate in which suspicion flourishes and trust is eroded to the detriment of conflict resolution and open sharing of data and ideas.

4.5. Institutional Overcomplexity and Failure of Coordination

Failure to achieve integrated resource management, or even an agreed agenda among key stakeholders, can stem in part from the plethora of uncoordinated organisations which address issues. For example, in relation to water management at the international level, the WHAT Commission on Water cites more than 20 bodies and specialised agencies within the UN with water programmes. At all levels of governance, national governments and multilateral organisations are plagued by institutional proliferation. While it would be nice to think that this means that water policy issues are integrated into a diverse range of policy processes, it is more likely that institutional proliferation represents a lack of coordination between agencies and a lack of coherent thinking about resource management.

Similarly, although intergovernmental, and regional, groupings of countries can appear to represent progress towards transnational governance of a sort, too frequently their discussion is not followed by any positive action. Major international meetings such as the World Water Summit of March 2000 are at risk of being seen invariably as ‘talking shops’ which do not pave the way for decisive action. The problem is hardly new, but it is persistent. The effect may be corrosive, as a former member of the Joint Inspection Unit of the UN suggests:

[Intergovernmental] integration groups mainly provide the occasion for a large number of meetings, either at an administrative level or at that of officials, but because of the poverty of their means of action, the limitation of their level of jurisdiction and the failure of the models used to adapt to local problems, they frequently do not do more than increase the complexity of handling national problems without helping to either identify or take over the specific problems of the region.

(Bertrand, 1985, p. 56).

Globally and regionally, organisations suffer from the same range of problems of political and administrative constraints which foster poor coordination: heterogeneity of national and special interests, inconsistency in focusing on issues, little or no professional or political rewards for co-operation, inadequate financial and human resources, rigid bureaucracies and so on. Unlike, say, private-sector companies, which tend to have a clear and uniform mission across the world, and across subsidiaries and departments, national governments bring to round-table discussions all the divisions and failures of policy integration between their own departments. It is too often the case that environmental agreements brokered by a weak environment ministry may be undermined by divergent initiatives of economic and industrial ministries, even while they are being written.

There is also a fundamental political issue. Coordination followed by action requires intervention, and intervention in market operations has been frowned upon in recent years. Even now, as the WHAT Genetic Diversity Commission notes, WTO-member governments are unable to implement policies and programmes intended to conserve agricultural genetic resources where this might be construed as an infringement on free trade. And yet such a process for coordination within nation states, and across international boundaries, is urgently needed as genetic diversity in agriculture continues to decline. There is an urgent need for an independent body drawing on expertise from all sectors of research and advocacy to develop a detailed brief for such coordination between the WTO and bodies overseeing international biodiversity agreements.

4.6. The Administrative Trap

Related to institutional proliferation is the problem of the *administrative trap* (Baker, 1989). This describes a mismatch between the nature of resource management problems and the sectoral problem-solving structures in national governments and multilateral agencies, which divide up ecological problems into issues which can be assigned to different departments, recognise and treat symptoms as the problem itself, and generally remain inadequate to the task. The 'trap' has been described in this way:

Administrative structures typically organised vertically between sectoral, or functional, ministries and departments (Agriculture, Education, Health, etc.). This works reasonably well until the system encounters a problem of a very broad and highly integrated nature—such as desertification. Then it tackles only the parts which are identifiable to each ministry and each ministry tackles the symptom as a problem in, and of, itself.

(Baker, 1989).

Government departments caught in the trap single-mindedly tackle complex ecological problems by way of their vertically integrated, single-sector systems. For example, in agriculture problems are defined through a number of levels of organisation and action: farmer; Extension Service; Ministry of Agriculture; UN FAO. The result is a consistent, expensive failure to resolve resource management problems which, by their very nature, require multisectoral responses—the 'joined-up' thinking, policy making and action which the New Labour government in the UK considers vital to effective policy analysis and practical measures in relation to complex 'cross-cutting' issues.

Similarly, for many developing countries, a persistent problem is the failure of donor coordination, which has been called the Achilles heel of development aid from the West:

Countries with a weak institutional base, exposed to multiple donors' institutional development efforts (sometimes contradictory) and presenting conflicting guidance, face a potential nightmare.

(ACIPA, 1986)

Coordination among donors is unlikely, due to differences in long-term goals and even short-term local objectives, but it is also sometimes due to no more than a sense of competition. For example, Whittington and Calhoun (1990) argue that donors who regularly and rhetorically call for better coordination simply do not mean it, and that it is one more exercise in what they call 'the ritual of planned development'. They argue that at the heart of the problem is a patronising attitude of donors based on a mistaken belief in their own bureaucratic efficiency and in the inefficiency of the host country's bureaucracy.

In developed countries, administrative, scientific and professional systems reinforce separation between departments, agencies and scientific disciplines, limiting the necessary integrated approach. There is also a failure to link government, business and voluntary and community sectors and, within government, as has been suggested, a frequent and debilitating separation of environmental and resource management policy systems from the more powerful economic and financial ministries and their vested interests.

4.7. Organisational Failure to Innovate Structurally

As the plethora of organisations and initiatives documented in the Commission reports demonstrates, one aspect of a failure of governance is the failure to organise fewer, more strategic institutions to deal with 'joined-up' problems. This issue affects many parts of the policy system—initiatives in watershed management or the development of the economy of marginal fishing communities or small-scale agriculturists are seldom linked to wider economic or social development initiatives, although policy makers' objectives are unlikely to be achieved without such connections (Carley and Christie, 2000).

It is also important that organisational innovation at least matches the pace of global environmental change—but innovation in organisational structures is seldom a compelling issue to politicians, being a dry subject unlikely to arouse public interest and translate into votes. An institutional framework itself, for example one designed for the management of freshwater resources, can be highly complex, with a plethora of bodies at local, regional, national and supranational levels. State-run, public and private bodies and NGOs are involved, but once set up such organisations can become inflexible—part of the problem they were intended to resolve.

BOX 4-1. THE GREAT LAKES COMMISSION: INTEGRATED GOVERNANCE OF A MAJOR FRESHWATER RESOURCE

The Great Lakes of North America include the world's largest freshwater lake (Lake Superior) and four others which rank among the biggest on Earth. These constitute a vast basin which connects eight US states and two Canadian provinces and which issues into the St Lawrence river, a major international waterway. The Great Lakes have been the focus of trade for centuries and have also seen major industrial development on their shores for the last century. Pollution has been severe, especially in Lake Erie, from chemicals and waste, and numerous alien species have invaded the Lakes' ecosystems after being transported in ships from other countries. Mounting pressures on the Lakes led in 1955 to the establishment of the Great Lakes Commission (GLC), a unique cross-national governance system for the management of the whole basin and the St Lawrence river. The GLC, based in Ann Arbor, Michigan, was originally run by the eight US states bordering the Lakes but since 1968 it has included the Canadian provinces of Ontario and Quebec as associate members. It is unique in the world as a combined state/province authority spanning national borders and is enshrined in law at US federal and state levels.

Each jurisdiction appoints a delegation of between three and five members (e.g., specialist agency members, legislators, appointees of the state/province governments). The aim of their work on the GLC is to promote the 'orderly, integrated and comprehensive development, use and conservation of the water and related natural resources' of the basin and the St Lawrence. The GLC seeks to promote sustainable development of the regional economy and has three key roles:

- information sharing among the members and the whole community of the Great Lakes and St Lawrence region;
- policy research, development and coordination on issues of regional interest;
- advocacy of policy positions on which members agree.

The Commission establishes task forces and committees to examine issues of environmental protection, transport, resource management, economic development and quality of life. Its work involves participation by observers from federal, local and tribal governments in the region. (Source: Great Lakes Commission, www.glc.org)

On the other hand, as the successful management of the North American Great Lakes system demonstrates (see Box 4-1), a coordinating organisational structure and political commitment are sometimes all that is required to make real progress on difficult, cross-boundary issues, harnessing the capabilities of many organisations in a coherent manner.

Internationally, organisational mechanisms have to do more than offer a forum for technical discussion among experts. Current institutional mechanisms of global governance from the UN to the WTO are characterised by political disputes reflecting the deep fault lines in economic geography, geopolitical alliances, and value systems: North-South; rich-poor; long-term-short-term, conservationist-exploitative and so on. Organisational mechanisms need to be created to allow the full variety of views to be expressed, for conflicts and divisions to be faced, for the consequences of action and inaction to be recognised and for consensus to be sought.

4.8. The Failure to Link Top-down with Bottom-up

Poor vertical integration is the result of the common failure of understanding and information flows between the policy

levels of government and multilateral organisations and small-scale production units or individual resource harvesters, say in fishing or agriculture, who may generate substantial cumulative environmental impacts. A challenge is to maintain the economic contribution of small producers, while also keeping to acceptable environmental standards. But the sheer number of producers and their independence of government control systems challenges traditional approaches to management. Often the motivations and constraints under which such small producers operate are little understood at the policy making levels of government. For example,

Millions of small-scale household-level actors produce most of the environmental degradation in the lower income countries. But policy planners are almost entirely unaware of details about whether and how current practices that are encouraged by government destroy or conserve natural resources.

(Montgomery, 1990).

This ignorance results in policies which appear reasonable but often prove difficult or impossible to implement. Failures of vertical integration can be compounded by a large economic and cultural gap between a policy-making elite and the reality of life at farm or village level, a reality which is often

dominated by the fundamentals of simple *survival*, let alone development and innovation. The fine distinctions of policy and law are not applicable, and governmental structures are weak or nonexistent.

The trend to globalisation, in so far as it links senior policy actors better with each other, but not with their citizenry, can reinforce top-down management approaches, but the many millions of small-scale resource harvesters may respond much better to *bottom-up* approaches. Long-established traditional systems at community level for stewardship of common resources often work effectively to safeguard the commons. There are many examples of effective management systems and local governance regimes for the local commons, in areas such as water abstraction rights, fisheries management and low-cost small-scale irrigation (see, for example, Postel (2000)).

A key element in such schemes is the development of new pricing and marketing systems which give clear signals to producers and consumers about the value of resources such as water. Postel reports on the development of new local management systems for irrigated land in Mexico, where farmers' associations have taken over much of the responsibility from government, and where subsidies have been reduced, with a corresponding rise in water fees. Increases in water prices, when well designed to give incentives for careful use, and when implemented by locally trusted and representative bodies, are a vital part of more sustainable water management at the grassroots level. As Postel remarks,

In many areas, raising water prices can be a political high wire act. But a spectrum of options exists between full-cost pricing, which could put farmers out of business, and a marginal cost of nearly zero to the farmer, which is a clear invitation to waste water...Lifting barriers to water marketing can also help promote more efficient use and allocation of water, although checks are needed to guard against worsening inequalities...Formal water markets only work where farmers have legally enforced rights to their water (either private or communal) and where those rights can be traded. Australia, Chile, Mexico, and many western states in the United States now have laws and policies that allow for water markets.

(Postel, 2000, pp. 56–7).

Cross-boundary initiatives, whether for watershed management, fisheries management or conservation of agricultural biodiversity, can require both top-down and bottom-up approaches. Unless there is both coordination and subsidiarity (pushing decisions down to the lowest level of governance possible, subject to achieving their aim) throughout the system, confusion at the level of global governance inevitably leads to fragmented and incoherent action at the national level, and so on down through the institutional system. Finally, the different organisational

cultures and objectives of business and government can add to the problems of achieving effective coordination between the top-down and bottom-up dimensions of policy making and public participation in assessing 'joined-up' problems and seeking solutions.

On a positive note, regional organisational structures, perhaps designed to operate at the ecosystem level (such as a watershed or a fishery), could be a bridge between top-down and bottom-up approaches, and between bilateral and global co-operation. This is because *regional* environmental challenges, such as management of a common river system, are often easier for many people, including most bureaucrats, to grasp than less tangible *global* issues. Regional structures may be more transparent and more familiar to member states: they enjoy the cohering effects of common cultural and economic ties, and they allow the gains and losses that co-operation produces to be more evenly balanced (Simai, 1994).

4.9. The Failure to Develop a Shared Ethic

Underpinning these organisational and institutional constraints, and bringing us back to the issue of the lingering hold of frontier economics, is the failure to develop a *consensual philosophy of resource conservation* that enables us to devise workable solutions to the challenges of managing the commons. By 'consensual' we mean a philosophy which bridges nations and cultures and, perhaps more difficultly, which links the interests of the world's rich, poor and middle-income residents in a common concern for resource conservation.

Such a philosophy would also have to link ethical concerns about intergenerational equity and social justice to practical and quantitative systems for allocating opportunities for resource harvesting on the basis of scientific assessments of the 'carrying capacity' of ecosystems. In other words, as the WHAT Commission reports make clear, the future of governance of key environmental resources depends not only on better *scientific* knowledge to inform technical policy making, but on richer *political* processes which open up debate about fairness and the long-term effects of different approaches to resource management. These should include new economic and fiscal approaches that seek to reflect the value of environmental goods more effectively and clearly in market pricing. Such a shared value set is a challenge to all human beings, not just policy makers, and the relative paucity of institutional ways to develop and support such shared values is a major 'governance gap'.

At first sight this seems to be a utopian aspiration with little prospect of success, and no precedents on which to build. Yet the institutionalisation of human rights law and war crimes law at the international level offers an example of how a global ethic can be devised and implemented: the fact that human rights abuses and war crimes persist is not an argument against the existence of the legal framework and its

ethical basis. We have developed a rich, though obviously flawed, set of processes and institutions for promoting human rights and identifying and punishing breaches (such as war crimes and genocide), and this plays its part in the gradual development of respect internationally for rights and due process. The design and implementation of mechanisms for promoting sustainable stewardship of resources, based on a common set of environmental rights and responsibilities applicable at the individual and institutional level, could help promote an ethic of 'sustainable stewardship'.

A review of the evolution of environmental policy making suggests what the next steps could be in such a global programme. At a general level, industrialised societies have passed through two phases of environmental policy making. The first, which can be called environmental negligence, saw the natural environment perceived as something to be 'tamed' and as an inexhaustible source of natural resources—the frontier approach. Institutionally and legally, there was no little or no infrastructure in this phase for promoting sound human ecological development, with the exception of the public health systems which were built in most developed countries in the nineteenth and twentieth centuries.

A second, 'environmental management' phase has focused on tackling problems of end-of-pipe pollution and in attempting to mount environmental impact assessments (EIAs) of projects, such as large dams, for which decisions were to be taken almost entirely on economic grounds. Here environmental (and social) issues received grudging recognition, but only in the sense that 'mitigation' might be proposed for the worst excesses. However, if the dam was a bad idea in the first place, no amount of mitigation would alter that fact. Tackling pollution and undertaking EIAs is worthy in itself, but this phase saw little progress in tackling the more fundamental issue of the economic basis of global environmental degradation in the rising rates of resource consumption which accompany prosperity.

A third phase of ideas and practice is emerging, and this offers some hope of human societies working out the consensual philosophy of resource conservation which must underpin sustainable development and successful global governance. This can be seen as a phase of thinking and action which takes seriously the need to prevent ecological harm and to draw on ideas for development from many stakeholders, not simply from scientists, technical and political experts. It is a movement which recognises the need for *integrated human ecological development and participation*.

This implies overt linkage of economic, social and biophysical development, a long-term perspective to back up short-term action, and an inclusive, participatory framework with a high degree of political commitment behind it. In the Netherlands, the development of the country's National Environmental Policy Plan over the past ten years is an example of this approach (Carley and Christie, 2000). The

Dutch government is now committed to incorporating sophisticated concepts of pollution prevention and cleaner production for the *dematerialisation* of the economy into its national development philosophy, in an attempt to cut back on the global 'environmental space' or 'footprint' which the country occupies in terms of its use of the world's resources.

The philosophy behind this approach is important because currently a major conflict exists between the functional requirements of the global political-economic system and what has been defined as the *global ecosystem* (Simai, 1994). The ecosystem requires that humans create opportunities for ecological self-regulation, for example to let fish stocks recover or freshwater systems to purify themselves, whereas the requirements of the global economic (and thus political) system is for dynamic expansion of markets and growth of production and consumption, frequently achieved at the expense of the ecosystem. Until the global ecosystem is recognised as an integral component of the overall global political and economic system, currently dominated by economic interests, environmental issues will remain stranded on the fringes of politics and policy, and ecological institutions will be equally marginalised.

Given the risk of a recurrent 'tragedy of the commons', open-access regimes, as discussed by the WHAT Fisheries Resources Commission, invariably deplete the planet's stock of essential resources. But, given the multiplicity of national and special interests, we will never be able to reform open-access regimes without first building up a widespread consensus on the principles and operation of a globally equitable system for allocating rights for harvesting resources. The inability to achieve sustainable fisheries management even in a highly organised and regulated system such as the EU is a good example of what needs to be confronted: here, short-term thinking and horsetrading between the demands of special interests have usually won the day over scientific analysis of the stresses on fish stocks and over proposals to rein back catches so that fisheries can recover.

At the global level, an additional problem is that values (such as relate to the conservation of species) may not have the same resonance in many developing countries as they do in parts of the West. (This is not to imply that all interests in the West have fully accepted the need for conservation of biodiversity as a priority). The historical legacy of political colonialism in harvesting and consumption of the world's natural resources means that the developing countries, with the majority of the world's population, can argue justifiably that they are entitled to compensation prior to any agreement on a reallocation of open-access rights. They can also argue that they are entitled to achieve the level of development (i.e., income, resource consumption and pollution) of the OECD countries before they limit their take-up of resources, however scarce those may be.

This issue of *international equity* between countries, and between peoples, is at the heart of debates on sustainable

management of the Earth's key resources. Unless there is agreement on principles of equitable distribution of resources, and how opportunities for resource harvesting are to be taken up, now and in the future, there is unlikely to be any agreement in the short to medium term on economic or technical instruments for managing common resources.

A recent review of global governance for the Royal Institute of International Affairs sees this issue as the most challenging of all the problems posed by the global commons:

Perhaps one of the most difficult of all the ethical issues is international inequality. It is also one of the most pressing since some important international agreements, notably those related to the environmental 'commons', hinge upon achieving a shared sense of a 'fair' distribution of obligations and benefits. This issue has lurked at the back of international relations throughout the post-war era.

(Cable, 1999, p. 120).

The author argues that relatively poor countries are unlikely to agree to have what they see as western definitions of 'fairness' imposed upon them, particularly when even NGO campaigners for fairness invariably exclude the world's poor from negotiating processes.

4.10. Facing up to the Constraints

This is a powerful list of constraints on global governance. If current arrangements for global governance have been unable to overcome these, what better options are available? It is important to note here that, although most people may prefer simple solutions, complex human ecological problems may well require equally complex, multifunctional solutions.

So we will need a rich 'toolkit' of policies for governance, and there will be few solutions that work across the board, given the huge variety of local problems and environmental conditions. Better global governance will not simply depend on new mechanisms for seeking international consensus, but also on new processes for national and local resource management and distributive justice.

5. Enhancing Global Governance: the Challenge

5.1. The Need for Global Governance

The debates over the benefits and costs of the contemporary wave of 'globalisation' of trade, technology transfer,

communications and mobility have highlighted a fundamental problem of governance. It is that while economic globalisation has developed at a striking rate over the last 20 years, bringing with it increased influence for transnational corporations and many complex social and environmental impacts, we lack a political framework at the global level that can help manage the process and tackle the problems it generates. We have a global market and some global regulators, but, all the Commissions agree, not enough *effective ones*—and not enough coherence between them. The systems at the national level which seek to regulate business and harness market forces to benefit communities and the environment do not exist at the global level.

Awareness of the mismatch between economic globalisation and the persistence of fragmented political decision making at the national level has grown rapidly in recent years. The process has been driven by several factors:

- Recognition that globalisation of industrial production and consumption is contributing to global threats to the integrity of the environment, and that these can only be tackled by coordinated action at the international level as well as within countries and locally.
- The increasing scale and market power of transnational corporations (TNCs): some now outweigh the economic output of whole countries, and wield far more influence over policy makers and consumers. National governments are realising that the global influence of the largest TNCs in sectors such as information technology, media and energy can only be effectively regulated through international agreements and agencies.
- The disruption in the world economy in 1997–8, when a combination of currency speculation, computerised financial trading and domestic policy crises in SE Asian economies caused financial collapses and political turmoil from Indonesia to Russia. The world woke up to the 'contagion' effect, whereby the global economic linkages we have made can transmit financial instability around the planet. The crisis led to renewed calls for better governance of the new global economic order.

To be sure, we have a sophisticated set of international institutions: the UN and its specialist agencies, the WTO, the IMF and World Bank, and the summits and conventions which frame international treaties and discuss global issues. But this collection of organisations has a number of basic limitations.

5.2. The Shortcomings of the Present Regime

The current international governance regime has several shortcomings. First, it lacks a democratic dimension. To whom are institutions such as the IMF accountable for their

decisions on financial support for client states—decisions which have massive implications for the social policy and economic make-up of developing countries? Why did the OECD attempt to create a multinational framework to govern investment by TNCs, with little or no public consultation? The damage done to the reputation of international agencies by their lack of ‘transparency’ was obvious in the collapse of the WTO summit in Seattle in late 1999.

Second, it lacks coordination across policy areas. The WTO has been heavily criticised, as have the IMF and World Bank, for failing to consider the environmental implications of their policy decisions, many of which work to undermine international agreements and commitments on the environment; and the OECD’s proposed framework on investment by TNCs was withdrawn after a hail of criticism from NGOs and Southern governments, focusing on its incompatibility with international accords on sustainable development.

Third, it lacks basic mechanisms of effective governance—for enforcement of laws and for collecting and redistributing revenues. International institutions have been effective at imposing economic conditions on vulnerable Southern governments, but lack systems for ensuring that the more powerful states live up to their commitments in international treaties. The international order also lacks regulatory systems that the developed world considers essential at national level: for example, bodies to regulate competition policy. While we can make vast financial transactions in milliseconds and transmit billions of dollars via IT networks across boundaries, we do not have international tax gathering and inspection systems which can perform the same task for the global community that they do for the nation state. There is a lack of common systems of resource accounting and auditing of environmental ‘stocks’ to allow comparison over time and across countries’ national sustainable development strategies.

Finally, the current regime is dominated by the perspectives of Western policy makers and specialist expertise, and by the assumptions implicit in Western economic policy which give priority to individual consumption power over *community-level* consumption decisions and valuations. While no-one is arguing that these Western perspectives are incapable of analysing complex problems of resource management and devising sustainable solutions, it is essential to acknowledge their limitations within the present systems of economic valuation.

Affluent and specialised staff from Western agencies often find it hard to understand fully the needs and capacities of poor Southern communities. They may underestimate or misunderstand the local knowledge and skills that indigenous people possess (and indeed, developing country governments may also dismiss local expertise in their desire to modernise). The nature of decision making in non-democratic countries and unfamiliar cultures may be a barrier to collaborative action. Policy makers from the affluent West can find it hard

to grasp the dynamics of societies where *scarcity* dominates everyday life in a way long forgotten in the rich world.

5.3. Priorities for Action

This state of affairs points us towards two key challenges for the new century. First, we need urgently to consider how we can democratise and strengthen the coherence of the existing institutions of global governance. The reform of global governance is a task which will take decades: it must begin now, and we have little room for delay. Building on the analyses and proposals of the WHAT Commission reports, in Sections 6 and 7 we highlight ideas for policy change and for institutional reform to improve the management of the key resources studied by the WHAT Commissions. We also have to focus on the second challenge—improving the national level of governance to ensure sustainable management of basic resources (see Section 8).

6. Global Priorities

In this section we identify a few priority areas around which a global consensus should be fostered, and then (in Section 7) propose specific policy changes to improve global governance.

6.1. Rethinking the Global Market System

The ‘contagion’ crisis of 1997–8 in the world economic system and the failure of the 1999 WTO summit in Seattle have underlined the need for the global economic actors to incorporate ecological and social justice factors in decision making. While some TNCs have begun to report on their environmental and social impacts, and to adopt corporate policies to promote sustainable development, voluntary approaches are both unevenly spread and lacking in consistent standards. There is a need to promote faster progress in this direction, through a combination of carrots and sticks. This means, in part, defining conditions on the operation of the open market economy, and ensuring that it works in support of international agreements on environmental and social protection. In part, it requires also the definition of a set of values shared by humanity, international agreements to underpin that set of values and then regulation of the market economy to ensure that it is directed towards meeting humanity’s needs rather than individual’s demands.

6.2. Enhanced Institutional Coordination

While not a panacea for every problem and at every level, enhanced coordination between international agencies could

generate benefits at reasonable costs compared with many other proposed solutions. At present we lack coherence between agencies, as demonstrated by the failures of the WTO and OECD to take proper account of environmental agreements, and the lack of clarity about which agencies have the leading role in key economic and environmental areas. We need better coordination between UN agencies and other bodies, and within the whole UN system. There is also a need for the international agencies to engage in more open and challenging dialogue with other sectors and interests which can play a pivotal role in changing attitudes and policies on resource use—such as business associations, faith communities, trade unions and NGOs generally.

6.3. New Development Models

Development has been dominated for the last two decades by emulation of Western models of industrial production. But in the West there is growing recognition of the need for models of development which take full account of sustainable resource use and ecological constraints, and this needs to be reflected in the programmes and priorities of international agencies. There is also a need for models of development *appropriate* to local conditions and capacities, in North and South alike. Top-down economic development, which neglects the perspectives of local communities and their expertise, is all too often unbalanced and unsustainable.

Thus we need more recognition of, and support for, *alternatives* for development, models which link social and economic development with resource conservation. At the international level, there is a need to create more productive partnerships between North and South for resource management in individual sectors. We also need urban and rural models for regional and local development based on governance systems and technologies which promote sustainable development and resource conservation.

6.4. Transitional Plans

An important task for international agencies and their partners at the global and national level is to identify *transitional steps* to better global governance which must be taken in the next ten years, to set the stage for long-term improvements. The creation of better resource management systems demands coordinated planning and action, and needs to be based on a common set of principles to govern the transition from current practice. Transitions to new patterns of production are painful for producers and harvesters, and also for consumers: the need for careful support to provide alternative livelihoods and preserve social 'capital' of communities is especially pressing in the case of many fisheries.

A key element should be the precautionary principle mentioned earlier, which states that where there is good evidence of a risk of unsustainable exploitation of a resource

or damage to an ecosystem, we should take 'insurance' action to avert damage, even in the absence of definitive scientific confirmation of the threat. And at all times this should be applied in the light of the *proportionality* principle, which states that precaution and preventive action needs to be proportionate to the scale of the risk identified, so that precaution does not block innovation which could support sustainable development, or divert resources from areas where they would have a more beneficial effect on society.

7. Global Infrastructure

In what way can the present system of international organisations and regional co-operation structures be reformed or altered to undertake effective governance of global and regional tasks? How can the basis of responsibility and accountability be altered to encompass the participation and interests of a broader range of players? Here we outline some of the main areas for action identified by the work of the WHAT Commissions.

7.1. Market Operation

How can market prices be made to signal the importance of the value of freshwater, biodiversity and sustainable fisheries management? At present, most consumers in the rich West do not receive price signals which reflect the fragility of the resources in question, or which provide any incentive to conserve resources and use them efficiently. A case in point is water. In many countries, including the UK, a lack of proper price mechanisms has led to water being seen as a 'free good' which is wasted in considerable quantities by utilities, industry and domestic consumers.

An obvious step is to take decisive steps to phase out 'perverse' subsidy arrangements (see Section 7.6), such as the US\$800,000 million spent annually worldwide to support environmentally damaging farming practices. The environmental scientist Norman Myers has estimated that global subsidy for unsustainable practices in agriculture, transport and energy is over US\$1 trillion a year—a diversion of money and effort which distorts markets and institutionalises unsustainable resource use patterns (Myers, 1998).

We also need to establish viable market pricing systems which reflect better the true values of resources and cost recovery, and to use discount rates which value longer-term solutions. This is a Holy Grail of policy for sustainable development, and a focus for many research projects around the world, involving academics, NGOs, businesses and public agencies. How can we create a common toolkit for valuing economic goods, environmental services and the social dimension of goods and services? As noted earlier, there are

many examples at the local and regional level of fruitful management systems combining bottom-up and top-down elements. There is an urgent need for the institutions of global governance to collaborate with TNCs and NGOs and leading academic researchers in *reviewing best practice and using it to build a common set of valuation tools*, acceptable in North and South, that can be used by planners and economists globally, so that the environmental and social dimensions of development can be better weighed up in the design and implementation of policies.

7.2. Global Institutional Framework

Perhaps the biggest task from an institutional point of view is to clarify the roles of global institutions in the development of policy on sustainable resource management, workers' rights, environmental protection including the UN (GA, UNEP, UNDP, FAO, CSD, GEF and so on), global membership organisations (WTO), and bodies controlled by the rich countries (IMF, G7, EU, OECD, NATO). There is a need for a global governance audit to identify omissions in those roles, and to put forward either incremental modifications in this system of governance, or a new institutional architecture of global governance which balances fairly North–South interests, and economic, social and environmental concerns.

Each agency should be encouraged to establish an inter-sectoral perspective and method of working and to promote best practice internally and among its peers. This process should aim to learn from advances in 'joined-up' policy making being made by national democratic governments (see, for example, Perri 6 (1997), Perri 6 *et al.* (1999), PIU (2000) and Bardach (1998)) and by new combinations of interested parties such as the Emissions Trading Arrangements under the 1997 Kyoto Agreement on greenhouse gas emission reductions.

The outcomes of such an audit are likely to include recommendations for much stronger integration of environmental policy considerations into the project appraisals and strategic policies of the WTO, IMF and the World Bank, although the latter has made concerted efforts to embrace the sustainable development agenda in the last decade (French, 2000). In addition, there is a strong case for strengthening the UN Environment Programme and greatly increasing the size of the GEF as a budget for promoting sustainable development in the South and for transferring resources from North to South.

This should involve establishing far stronger policy frameworks for the integration of sustainable resource management into the mainstream policy systems and goals of the WTO, World Bank and IMF, as the key economic governance agencies. One outcome might be a biennial joint 'State of the World' report by the UN's key development and environment agencies (such as FAO, UNDP, and UNEP) with the WTO, IMF and World Bank: this report could focus on

the progress made and the outstanding problems in developing truly sustainable policies on development, resource use, trade and environmental protection, and require these agencies to account for the degree of coordination and integration of policymaking they had achieved.

Consultative fora and governing bodies of international conventions need to be strengthened. One possibility is the establishment of a second chamber of the UN to bring together representatives of civil society (NGOs, business, faiths, trade unions, educationalists, individual citizens) to debate the long-term and 'joined-up' issues of sustainable development and to assess the proposals of international agencies for supranational policy. This might be termed the 'House of the Global Commons' (Christie, 1998). Other leading international organisations from the NGO sector and business, such as the World Business Council on Sustainable Development, the World Water Council, CGIAR, IUCN and WWF, should be involved.

A similar proposal has been advanced for a UN second chamber which would represent peoples rather than governments—a Peoples' Assembly. The aim of such an innovation would be to give a voice in debate and a role in designing solutions to the 'bottom-up' forces of civil society around the world (Archibugi, 1995). How the proposed second chamber should be selected or elected, and what powers it could have, are issues for another report. But the potential of such an assembly to inject new energy, ideas, information, experience, skills and inadequately acknowledged perspectives into global governance is immense. The forthcoming Millennium Assembly of the UN will include a version of a People's Assembly, and thus an opportunity to rethink the role of the UN in tackling global problems (ODI, 1999).

This proposal might also be extended to lower levels of the political system, establishing similar assemblies to focus on management of the commons at national, regional and local levels to inform the work of representative assemblies. A base of experience now exists in the form of the many experiments in North and South in establishing consensus-building forums: for example, in relation to Agenda 21 and Local Agenda 21, the action plans set up by the Rio Summit of 1992 on environment and development; participatory events for appraising development plans; and the 'water parliaments' which have been set up to forge consensus on freshwater management in some regions of the developing world. In authoritarian or anarchic states, embedding innovations of these kinds will be hard or impossible without radical reform of national governance.

Whatever reforms are undertaken to improve the accountability of international bodies and to make their deliberations more accessible to civil society representatives and to developing countries, there is a need for more funding to allow poor countries and NGOs to participate meaningfully in negotiations. Aid for 'capacity building' in the South is

urgently required so that delegations can prepare for, visit and engage in international negotiations on a fair basis.

Overall, it is unlikely that the deep problems of resource management at the international level identified by the WHAT Commissions will be successfully tackled unless we have radical reform of the global institutional framework. Such reform will not be enough on its own to put us on a sustainable development path, but is an essential ingredient of the wider mix of policies. Managing the 'global public goods' of water, fisheries and biodiversity, and also of atmospheric quality, requires 'joined-up action' on a global scale (Kaul, 1999). Yet our international agencies are not linked in a coherent framework, and pursue largely disconnected agendas. A global governance audit is needed to begin the task of connecting them.

7.3. Improved International Management

Considerable scope exists to manage freshwater on a watershed basis, providing a level of interaction between the global and the national levels. Water resources are likely to be a flashpoint for conflicts between nations which share a watershed, especially where water is scarce and demand for irrigation water is high (UNEP, 2000). As the WHAT Water Commission notes, nearly 40% of the world's people live in more than 200 river basins that are each shared by at least three countries. Institutions have to design and run integrated systems of basin-wide water management—based on principles of decentralisation, continuous improvement of efficiency (especially in irrigation), consensus building, participation by all affected parties and sustainable stewardship (Calder, 1999).

As cross-boundary management is also needed to manage biodiversity reserves which span frontiers and to handle fisheries management across national jurisdictions, integrated water management systems can offer valuable lessons in other areas. Already, many mechanisms for coordination between nations on resource management have been set up, but more needs to be done to strengthen them and create more (Postel, 1996). Special attention will need to be paid to institution building at this level, and developing capacity among national governments to take part effectively in resource management fora which can defuse tensions, negotiate equitable resource-sharing deals and protect vulnerable resources. Institutions of global governance, with the World Bank and the regional Development Banks, can play key roles in spreading good practice.

Finally, there is an urgent need for a large *global sustainable development fund* which can be used to support the transition to more sustainable technologies, governance and resource use in the South and the former Soviet bloc economies. This should be established in parallel with measures in the North to eliminate subsidies for unsustainable production and to price resources in ways which will promote conservation and efficiency in use. It should also be established using new

income, since the existing funds for support of sustainable development in the developing world are far below what is needed.

There is growing support for such a fund—a much increased version of the existing GEF—to be financed by a global tax on financial transactions and other global transactions such as airline flights and currency trades. This is the basis of the 'Tobin tax' proposal for a tax on global currency transactions. An airline tax could be levied by national governments on a standard pattern and pooled for distribution by an agreed broker, such as UNEP and the UNDP jointly, and the Tobin tax could be levied by stock exchanges and pooled for distribution by, for example, the same agencies or a special multisector organisation established by the UN (perhaps reporting to the proposed House of the Global Commons mentioned earlier). This fund could be paralleled by regulations designed to restrict bodies such as the World Bank, IMF and national donors from backing unsustainable projects. By using independent professional advice on such proposed projects, greater viability and accountability could be achieved.

7.4. The Role of Law and Regulation

It is not sufficient to tighten environmental controls at the national level unless these are also built into international trade and competition rules, such as those promoted by WTO. Rules are essential to the management of the global commons, whether they are managed in limited open-access regimes or as private property. In either case, they must be managed according to agreed rules to prevent exploitation, but also because issues of equity always have to be adjudicated, since otherwise the poor and the powerless will be denied fair access (Henderson, 1995).

Thus, international aid to national governments to improve environmental management must include both a global and a local dimension: global, because we need to ensure that environmental factors are built into the regulatory frameworks of the WTO; local, because we need effective local capacity to implement regulations within countries and to support the enforcement of agreements entered into by developed countries, for instance under the banner of the OECD.

7.5. Ownership, Access and Property Rights

A fundamental issue for resource management is the allocation of rights for access to and use of freshwater, fisheries and biodiversity resources such as crop seed. Open-access systems, most obviously in fisheries, tend to lead to a race for resources, to overexploitation, and to the marginalisation of the weak and to inequitable results. But outright privatisation of resources also leads to problems: it

gives no guarantee of sustainable use, it can entrench inequitable patterns of use, and it will be politically and culturally intensely controversial in many contexts. For example, patenting of genetic resources acquired from, say, tropical rainforests, may lead to situations in which the private owners of the patents (Western agribusiness TNCs, for instance) can exploit their rights and leave Southern farmers wholly dependent on them.

There is an urgent need for a global conference on ownership and access rights, to clarify the options and to spread awareness of good practice and of innovative solutions to these problems. This should be a key theme for the 2002 UN Conference on Environment and Development, and for the suggested House of the Global Commons, which might be established in the wake of the forthcoming UN Peoples' Assembly.

A potential way ahead is to identify mechanisms which have proved successful in allocating shares to users of resource systems such as fisheries, and in allowing trading of shares between users. In such systems there needs to be a recognised 'owner' of the resources—a respected and accountable public agency, or a mutually owned co-operative, or a multisector stakeholder partnership—and a transparent and equitable means of allocating rights of use and trading them. This is already a system used in many fisheries, and it is emerging as a favoured mechanism for reducing pollution and for international and intranational trading of greenhouse gas emission quotas. It could be applied to water management and use of bioresources. But we need better processes for identifying good practice, transmitting it and applying it in widely varying cultural, political, environmental and economic settings.

7.6. From Perverse Subsidies to Ecologically Sound Incentives

Closely linked to this point is the need to phase out public subsidies that encourage unsustainable harvesting, such as for fishing equipment, inefficient irrigation or unsustainable logging of forests. Such 'perverse subsidies' will warp any new regimes for integrated resource management and trading of shares in resources.

Western governments need to set an example by redirecting subsidies towards sustainable resource use (for example, in agriculture), redesigning economic valuations of the environment, developing positive fiscal incentives for sustainable resource use and making sure that aid for sustainable development in the South should include conditions on and transitional support for the removal of subsidies which encourage overexploitation of resources.

7.7. International Conventions

The UK foreign policy expert and parliamentarian Vincent Cable speaks of a 'regulatory deficit' in global governance (Cable, 1999). Governments should make it a priority to ratify and implement existing conventions, such as the 1997 UN Convention on the Non-navigational Use of Water, and promote regional resource management organisations focusing on innovative solutions to conservation problems. There is also a need to develop further, via the WTO and other agencies, a global regulatory framework for the operation of TNCs. This would set global standards for environmental and social performance, and extend corporate liability to cover environmental damage.

However, the ratification and implementation of global conventions cannot simply be left to governments, which may ignore them (as in the case of the US Congress's treatment of the Kyoto Protocol on global warming) or fail to act on them. Many governments are authoritarian and/or barely capable of action throughout their territory. Increasingly, power, influence and legitimacy attach themselves to other bodies: regional governments, city governments, NGOs and TNCs committed to social and environmental excellence. There is a need to establish global 'civil society conventions' to which these bodies, as well as nation states, can sign up. An example exists in the form of the Marine Stewardship Council and the Forestry Stewardship Council established by WWF with business partners to promote sustainable harvesting of fisheries and forests. By-passing the nation state where necessary, and making strong connections between communities and the private sector, must also be part of the development of new forms of governance of the global commons.

8. Change at National Level

A central problem of global governance is that however far and fast international economic integration proceeds, political authority remains vested in national governments and national politicians.

(Cable, 1999).

Whatever innovations we introduce at the global level, national governments will have a major role in the process of implementation for the foreseeable future. So we need to promote national policy change by all available means. In part this must be achieved by recognising the need to define collectively the global policy, and certain externalities, before setting and implementing national policy in a nested fashion that delivers policy outcomes at both levels.

8.1. National Policy Frameworks

More coherent national policy frameworks are needed to institutionalise horizontal linkages across sectors and ministries, as well as partnership arrangements that encourage business and voluntary-sector participation in national and sectoral sustainable development strategies. We also need better coordination between national and regional/local governments, not only to empower local action by citizens and local government but also to redefine the strategic role of national governments to promote intelligent cross-disciplinary perspectives on critical issues. Such coordination has as a prerequisite the broadening of membership so that more appropriate and inclusive ranges of stakeholders are concerned.

8.2. New Economic Indicators

New economic indicators and other governmental innovations in 'sustainability signals' are needed to better signal the state of key resources and the environment in general. These tools include better indicators of resource stocks and flows, ways to assess the 'total economic value' of natural capital (see the Water Commission report, Section 3.6) and valuation of natural capital assets. They need to be linked to appropriate tax regimes and/or resource 'royalties' hypothecated to conservation funds. Differential land use taxes could be devised to encourage conservation of landraces and wildlife habitat. They could involve reallocation of resource/public property rights to communities and/or users committed to sustainable development.

In many cases this could mean restoring *traditional* rights to resource use as allocated by informal local governance arrangements. Systems should institutionalise incentives for conservation and demand management so that benefits 'snowball' over the years. To give national governments incentives to change, donor countries and international aid and lending agencies should promote direct public investment in, and higher levels of, bilateral and multilateral aid flows to conservation programmes around the world and ensure that all aid flows are vetted for their impact on sustainable development and resource use.

8.3. Technological Improvement, Product Substitution and Eco-efficiency

These are all crucial features of twenty-first century economic development. Governments need to be encouraged to subsidise technological improvements and product substitution for scarce resources, to promote cleaner production and more efficient use of energy and materials. Business can play an important role in investing in

environmentally sustainable technologies both in the North and, equally important, in the South.

In addition, governments should respect and support the commitment to implementation of international agreements such as the Kyoto Protocol, and ensure that subsidies, where applicable, favour the development of technologies favourable to the full implementation of such agreements. Aid and lending programmes to governments should promote take-up and diffusion of appropriate sustainable technologies.

9. Building Networks and Changing Values

9.1. The Importance of Networks

The development of better systems of resource management and sustainable use depends not only on global institutions and national governments, but also on networks of voluntary, private and other civic organisations. Sustainable use of resources can, in the last analysis, only work if businesses, individual citizens and the key cultural institutions with which they live all support it and have a stake in it.

Networks which connect governmental organisations to civil society organisations, and which link citizens in different sectors and countries, are also vital to effective learning, debate and consensus building which can underpin better systems for the governance of the commons.

9.2. Strengthening Networks

The legitimacy of organisations engaged in global governance depends on their political acceptability, and therefore on the development of a broad consensus on the need for such mechanisms. Education and communication will be vital to the development of this consensus, suggesting an important, catalytic role for WHAT and its partners overseas in this process.

The strengthening of civil society at national and international levels can foster both commitment to, and democratisation of, new governance systems. Some NGOs, such as the WWF or Amnesty International, already wield some authority on a world stage. Whether the need for global governance, and better governance at all levels, can be made attractive enough to be a message in its own right is a good question. Already, there is a movement in the UK (Charter 99) which seeks to promote an international debate on the democratisation of global governance. The issues raised by such initiatives need to be built into civic education and public debate as far as possible.

9.3. Towards a Global Ethic?

A global civic ethic and/or a world citizenship movement was called for by the 1995 Commission on Global Governance. Perhaps the most important (if toughest) task of all is to promote a new ethical, consensual philosophy of global stewardship and citizenship, in the face of the rapid expansion of worldwide consumerist society. It is easy to call for such a thing, but far harder to define it and perhaps impossible to promote it.

But the fact of globalisation, and the emergence of common global risks and interests, *do* help to promote new forms of co-operation across cultures, and new shared critiques of the existing global order—shared even between TNCs, NGOs and some governments. It is not impossible to imagine a ‘highest common denominator’ ethic of sustainable development, based on the message of Agenda 21 and the analysis of global risks which is now shared by NGOs, some leading TNCs and many governments of all kinds.

Such an ethic would need to be based on widespread public participation in decisions over sustainable resource use, possibly via fora on the Internet. But it would also need to direct attention to global political leadership and foster a marked shift to a long-term (say fifty-year) perspective in public debate, and in policy making and investment decisions—for the benefit of the world of our children’s children. This new philosophy could be the common link among global civic society, based on sustainable production and consumption, ethical South–North relations and sound information of the implications of current and alternative patterns of human action.

It might be argued that a consensual ethic based on wide participation by stakeholders would simply reflect Western values and priorities, and thus deepen existing inequalities between North and South, and between the West and the rest. But this need not be so: a key element in the emerging consensus on the global risks of development is that Western ‘business as usual’ cannot continue. We need a profound shift towards a low-carbon, resource-conserving economy.

While the gap between rhetoric and action in the West is huge, nonetheless the realisation is spreading among decision makers and TNC leaders that radical change must come in the next decade or so. This ‘self-critique’ of Western production and consumption opens up the possibility of a shared agenda and a shared ethic across the planet, that challenges current assumptions and asks fundamental questions about the market, the democratic process and about social values underpinning human societies. Markets, now widely seen as the driver of innovation, prosperity and a better future for all are, after all, not separate from society. They must always rest on a social foundation of rules, and their operations reflect the goals we set for them. Currently, markets are too detached from social aspirations and collective wellbeing, and too much is expected of them. Markets need governance, for their

own effective operation as well as to ensure that they deliver environmental and social benefits. As Peter Warren of WHAT has said, ‘...our morality does not mesh with our economic system...we cannot ask the market to define a desirable future.’

9.4. Communication with Consumers

Some progress has been made in encouraging consumers to play a critical role in ensuring the sustainability of resources (as in the case of forestry products) but far more needs to be done to develop consumer interest in the implications of the globalisation of trade, and the need for global resource husbandry and participative international organisations. It is also important to develop shared understanding of problems in specific sectors, from forestry to fishing. Here governments, NGOs and businesses have a key role in developing public information and debate, and in changing their own consumption patterns to promote more sustainable products and habits and to set an example to citizens.

9.5. Formal Education

Solutions to intergenerational problems lie with coming generations. The challenges of global governance should be part of the curriculum of formal education worldwide, with messages geared to the age group so that understanding develops cumulatively from an early age. This is essential to inform the debate seeking to build consensus on the need for sustainable resource management and global governance.

Mass media and the Internet can play key roles, as can business schools and all higher education institutions preparing the new generation of decision makers in North and South. The curricula of financial and legal professions need to include learning about sustainable resource use and the valuation of environmental resources. Governments in the EU could set an example by developing a common twenty-first century citizenship curriculum, to include the principles and practice of sustainable resource use, the rights and responsibilities of citizens in relation to the environment, and an understanding of the messages of Agenda 21. This could be applied and tailored locally (within broad guidance from the EU level) and could generate learning materials to be made available worldwide.

9.6. Networks for Action

‘Action networking’ (Carley and Christie, 2000) should be fostered by governments: this means promoting links between sectors to generate practical action for sustainable development. Governments need to forge more partnerships between the public sector, business and the voluntary and community sectors, and to link local action (for example, through Agenda 21) to national action (through national

sustainable development plans), and ultimately to global action: for example, through the UN's Sustainable Development Commission.

9.7. Cross-cutting Research

Cross-cutting analysis is essential if we are to develop political debate and organisational capacity to manage complex human ecological systems for long-term benefit. Professions and organisations involved in global governance, such as the UN, should encourage (and institutionalise) such analysis, and promote the development of environmental and social health indicators which are understandable to a wide variety of people. State governments could coordinate overall national development, and integrate economic, social and environmental factors, within much more sophisticated national sustainable development strategies, as currently submitted to the UN's Council on Sustainable Development.

10. Conclusion

10.1. The Diagnosis

The WHAT Commissions have highlighted urgent issues in the management and overexploitation of three of the world's key resources: fisheries, agricultural biodiversity and freshwater supplies. The common conclusion is that action is needed now, at both the global and national levels, to improve radically the systems we have for governing the use of these resources.

The action needed is of two kinds. First, we need to make our existing institutions (governments, agencies, markets and laws) work much better than they do. The existing framework does not promote sustainable harvesting, give accurate signals to consumers and harvesters about the limits to consumption, or implement adequately the environmental laws which have been framed to date globally and nationally.

Second, we need innovations in governance—new market mechanisms, systems for regional management of resources, public information and education initiatives and better linkages between government departments and across sectors—if we are to make the transition to sustainable resource use in the twenty-first century. Governance is too important to be left to the governors; we need processes through which producers, consumers, NGOs, businesses and many other stakeholders from civil society can have a voice in the design and implementation of solutions. Because conditions vary so much, there is no top-down blueprint which can be imposed: we need open experimentation and innovation, and mechanisms for learning across sectors and cultures.

10.2. From Analysis to Action

The analysis presented here and in the work of the WHAT Commissions makes it plain that measures to promote sustainable resource use cannot be developed in isolation. They depend on a richer framework for the governance of the commons, at all levels from the global to the local. Whatever the specific policies we might wish to develop, we need to ask first, what are their implications for governance, and can they be introduced on the basis of existing institutions and networks of policy makers and practitioners?

What are the priorities for action within a new framework of governance? Practical action at any level depends on having a network of organisations and people in place which can ask the right questions, assess risks and benefits of an innovation, engage with the stakeholders affected by a proposal, and inform and educate all the interests involved. What emerges from the work of the Commissions is a recognition of the need for attention to the fundamentals of the governance of common environmental resources, without which specific policies cannot help us make progress towards more sustainable development, namely:

- the need for debate on the mechanisms by which we value the environment and through which we can price scarce resources;
- the need for policies to rest on a democratic basis of meaningful dialogue and involvement in framing problems and solutions on the part of a much wider range of stakeholders than are generally engaged in policy making on environmental resources;
- the need for consensus to be fostered and conflicts to be tackled with the assistance of independent, 'transcendent' organisations beyond the control of the State, political parties and business, capable of commanding trust, expertise and resources for impartial research;
- the need for debate and learning to be informed by a shared ethic of resource conservation and equitable access to resources, without which conflicts will persist and consensus on problems and solutions will continue to be shallow and imperfectly realised in practical policy.

Governance reforms need to focus on these core areas, fostering changes in the operation of existing institutions and developing new organisations and networks where necessary. What practical steps might flow from this? First, we need to focus on building new forms of resource valuation into the policies and institutions governing the commons. This will involve better pricing of scarce resources, devising policies to enable a transition to new valuation and pricing systems for vulnerable groups, providing incentives for sustainable production and consumption, and identifying and eliminating the perverse subsidies which promote unsustainable resource

use (such as support for food production via inefficient irrigation in desert areas) and instead funding sustainable development schemes.

Second, we need mechanisms for bringing all the key stakeholders into dialogue which can lead to urgent action: for example, through a global audit of our present governance institutions and global conferences on fisheries, water and biodiversity which focus on innovation and practical action in North and South. Above all, there is a need for institutions engaged in top-down delivery of policies to learn from and engage with bottom-up initiatives for resource management and conservation, which have much to teach the former. These mechanisms all need to be nested in a mutually supportive and reinforcing network of feedback and shared values.

Third, we need to identify independent sources of learning, research data, analysis and interpretation of risks and benefits which can serve as trusted brokers of debate and policy innovation, transcending as far as possible the specific resource interests of the state, business, harvesters and consumers. These may be existing bodies, such as educational or faith institutions, or they may be based on new networks of stakeholders, linking business, NGOs, Government and other actors.

Finally, we need urgent measures to promote public education and understanding, North and South, and to build better networks of information and ideas between sectors. The basic underpinning for this should be the development of a common resource conservation philosophy, and this is a priority for articulation by independent bodies such as WHAT and its partners.

The WHAT Commission process has sought to innovate in the development of such an ethic and in the debate on governing the commons, bringing together experts and citizens, business and public agencies, NGOs and scientists, to debate the issues and seek to build a consensus on the solutions. Experts in government and business may often find it hard to break out from their institutional and disciplinary perspectives; the dialogues and conferences built into the WHAT process helped to break down barriers and encourage participants to see the issues in a more rounded, joined-up way.

The WHAT process gives a pointer to the design of future initiatives to promote more sustainable resource use. Governments alone cannot take on the whole of the agenda of governance of the Earth's commons: they need to give a voice to the expertise and insights of citizens and resource users at the local level. We need more varied participation in conferences and dialogues, and in 'parliaments' on resource use.

The WHAT Commissions will promote their work through their members' networks across the world. The WHAT itself

will take up their key messages and promote them to decision makers and to the public via the mass media. The WHAT will also seek to help establish new mechanisms which can make governance work to promote sustainable development, at the global and the national levels. The WHAT is ready to act as a partner with any organisation committed to pursuing the agenda for action set out in the work of the three Commissions. The task is huge, but the potential for positive change is equally great.

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Glossary

agricultural genetic resources

the diversity of crop seed and strains of plant life and domesticated and wild animals harvested and otherwise used for food production and other practical human purposes; genetic diversity is threatened by removal of habitats and breeding of domesticated animals with wild species of the same family, and by failure to conserve seed and breeding stocks of rare populations of crop plants and animals

biodiversity

The general term for the rich variety of plant, animal, insect and micro-organism life found globally and within specific ecosystems: for example, plant biodiversity, rainforest biodiversity

civil society

sometimes defined as the realm of social activity and organisations falling outside the spheres of government and business; here defined as all sectors and activities falling outside the public sector, and thus embracing the work of business, voluntary and community organisations, trade unions, faiths, professional bodies and consumer organisations

ecology

the study of living creatures in interaction with each other and their habitats, and of the organisation of whole habitats and populations of creatures as dynamic *systems* which cannot be understood simply as the sum of their parts

ecological problems

problems of pollution, overexploitation or mismanagement of aspects of the environment which pose dangers to the integrity and stability of *whole habitats*: for example, deforestation can undermine the capacity of species to survive, can lead to soil erosion and avalanches, and changes in local climate

ecosystem

the totality of interactions in a particular type of habitat, linking its components (soils, water currents, animals, plants etc) to wider environmental systems (such as the local climate patterns); thus: mountain ecosystems, desert ecosystems, freshwater ecosystems, etc.

global ecosystem

includes the atmosphere, the hydrosphere, the geosphere and the biosphere; it is both the natural environment that sustains human society and the sum of interrelations between society and that environment

globalisation

short-hand term for an intensification of the interdependence of nations and cultures through trade, and capital and information flows; the heightened level of economic activity implied by globalisation is exerting growing pressure on the world's resources, of all kinds

governance

the strategic guidance of a particular organisation, set of organisational relationships or network of governmental and other institutions; governance is thus distinct from the work of governments: it is a process of strategic oversight of organisations and of the implementation of their goals; governance of resource management systems refers to the legal and other institutional arrangements for setting the broad policies which regulate the use of resources

horizontal integration

processes intended to improve the coordination of policy making across an organisation—such as a national or local government; for example, attempts to promote joint planning and coordinated initiatives between related departments such as environment and transport, or health and environment

joined-up policy

term coined in the UK in the late 1990s to refer to a systematic programme across government at all levels to ensure coordinated approaches to complex, multifaceted or 'joined-up' problems (such as endemic poverty, crime and poor health in inner city districts). Joined-up policy depends on effective *horizontal* and *vertical* integration (see separate definitions)

precautionary principle

controversial principle now incorporated in a number of international agreements on environmental protection; the principle is reflected in Article 15 of the Rio Earth Summit declaration: 'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'. The principle is supported as a vital means of preventing over-hasty adoption of innovations (such as GM crops) before comprehensive risk assessment and testing, but it is often criticised as potentially preventing beneficial innovations from being tested; in EU policy the principle is invoked alongside a *proportionality* principle, which states that measures designed to insure against threats and risks must be proportionate to the risks; for example, interventions in the market to protect the environment from potential risk must be shown to go no further than they need to in order to achieve their goal, and the benefit gained must be at least equal to the cost incurred by the restrictions imposed.

region

in discussing levels of governance, the term region is used not only to describe a tier of government and spatial organisation below the nation and above the local, but also to describe international zones above the level of countries but below that

of continents and the globe as a whole; thus we have not only the alpine region of France, but also the transalpine region of Europe, spanning several countries; or the subcontinental region of West Africa or SE Asia; some analysts also use the term to describe a 'bioregion', which is the area covering a particular ecosystem or watershed within a county or spanning national borders: for example, the rainforest region of South America

risk assessment

systematic procedures for evaluating the risks to human health and the environment from a proposed development (such as a scientific test, technical innovation, construction project) and the expected benefits, and for weighing the balance of risks and benefits; increasingly, risk assessment is viewed as a process which needs to take into account a wide range of views from across civil society rather than be restricted to deliberation by technical expert specialists

vertical integration

processes intended to improve the coordination of policy making between different spatial levels of an organisation, such as between a national government and the regional and/or local tiers below it, and between national governments and international agencies: for example, attempts to promote horizontal integration in a coordinated fashion at national and local levels, or to implement an international environmental plan seamlessly at national and local levels of government or a business