

Global Governance for Environment and Sustainable Development

DRAFT FOR DISCUSSION

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DRAFT

Purpose

IISD is exploring conceptual and policy linkages between Internet governance (IG) and sustainable development governance (SDG). This paper is one half of one pair among five pairs of short scoping papers intended to identify issue areas of mutual interest between the worlds of IG and SDG. The areas of interest include: (1) similar governance challenges and (2) issues in one domain that have the potential for positive or negative influence on the other. This short paper is an impressionistic piece based on personal and institutional experience on environment and sustainable development over the past 40 years, incorporating a variety of views of others. It is intended to bring out key points that might be of interest for follow-up. The terms of reference call for “a meta-level discussion of what has emerged as global environmental governance (or, more broadly, global decision making for sustainable development).” The paper is to cover institutions, state-centred negotiations, the rise and influence of civil society, multistakeholder processes and related mechanisms. The strengths, flaws and the future of global decision making are to be reviewed. The paper is paired with one having parallel terms of reference but covering ICT (Information and Communication Technology) governance relevant to the Internet.

Defining Global Governance for Environment and SD (E&SD)

Given the range of views about SD, how it should be defined, its linkages to environment, and its growing influence on global policies, any definition of governance for environment and sustainable development (E&SD) is likely to be controversial. Certainly the following statement might be of some value. Global E&SD governance is organized action on the part of individuals, and organizations such as governments, intergovernmental bodies, private sector, community and NGO bodies taken to achieve E&SD objectives concerning problems of global interest, including those affecting the global commons and those of global interest that occur at sub-global or country levels.

More difficult is the matter of defining governance action not primarily intended to address E&SD problems, but which might have significant impacts on E&SD outcomes. Examples include perverse economic incentives; non-tariff trade barriers and specific international trade agreements and investment initiatives including foreign direct investment (FDI); and governance of ICT which has put in place a tremendous array of enabling tools for E&SD globally. These indirect influences are included in this scoping paper along with action intended to have an effect on E&SD.

Building Blocks for Today’s E&SD Global Governance System

It is important to recognize that the underpinnings for today’s E&SD governance are derived from more than a hundred years of effort—that global sustainable development

efforts have roots in conservation, public health, and integrative efforts such as those intended to deal with governance of human use of the oceans.

The main elements developed in several waves during 20th century. Early precedents such as those noted below laid the groundwork of international understanding and cooperation for later, more complex efforts to develop and be accepted. At present there is perhaps a general perception that global E&SD problems are rapidly outgrowing the global governance system intended to address them.

- Conservation and natural resource management
 - 1900-20 (National Parks, Conservation Agencies, Water Laws)
 - 1950-90 (Rise of innovative analytical approaches based on bio-economic analysis, scarcity, etc; global institutions such as FAO, IUCN, disaster response, Development Banks with resource management objectives, regional UN-linked bodies for fisheries management, etc.)
- “Modern” public health and infectious disease control 1920-present
 - By the 1920s the well established recognition of the immense value of vaccines, sanitation as a means for epidemic control, and drinking water treatment led to coherent public health programs that became the later basis for global efforts after WWII and especially with the establishment of the World Health Organization.
 - Attention shifted during the 1970s and 1980s to include a better understanding of the ecological basis for many tropical diseases in particular, and the importance of addressing vector (e.g, malaria-bearing mosquitoes) and habitat issues, leading to reasonably governed regional efforts such as control of the disease onchocerciasis afflicting people and cattle in West Africa through global cooperation.
 - During the 1990s, and to the present, emphasis has been placed on understanding zoonoses (diseases moving from animals to humans) such as those involved with the transfer of AIDS to humans, SARS and Avian Flu. Some of these have turned out to be very expensive endeavours now intended to reduce the potential of epidemics through pre-emptive rather than reactive action, and require a sophisticated global governance response. This response includes innovative public-private sector brokered deals.
- Environmental management 1970-present
 - The Stockholm Environment Conference, plus the rise of national and international environmental bodies (including UNEP) during the 1970s and early 1980s set the stage for an ever-increasing level of complexity in E&SD governance, and for dialogue continued under UN and national auspices. The preparations for the Stockholm Conference built the first truly global consensus of the significance of environment to all nations.
 - Organized international environmental lobbies, professional organizations and other non-governmental contributors to global E&SD became particularly significant forces mainly from the 1980s, often with financial backing from US foundations (e.g, Ford Foundation), as well as from people through bodies such as WWF and Greenpeace.
- Biodiversity management 1980-present

- Earlier themes of conservation, endangered species (e.g., CITES), and preservation of natural areas continue to be of major significance, but with the 1980 World Conservation Strategy, academic work on biological diversity (E.O. Wilson, Norman Myers), and rising fears that humans might create mass extinctions of species, there has been a global shift towards biological diversity, including the 1992 Global Framework Convention on Biological Diversity (CBD). It has opened complex genetic issues to global governance (Cartagena Protocol), and set the stage for the recent Millennium Ecosystem Assessment, with implications for a modern framework of ecosystem-based natural resources management.
- Sustainable development 1980–present
 - The move towards global acceptance of an integrated approach to governing relationships among environment, economy and social issues began with the World Conservation Strategy, but it received broad political support only after the 1987 report of the World Commission on Environment and Development (WCED – the Brundtland Report) and the subsequent 1992 Rio Earth Summit. Certainly the Earth Summit was a pivotal point for national sustainable development (given some direction by the consensus on Agenda 21) and by the Global Framework Conventions on Climate Change and on Biological Diversity, plus other more specialized agreements. The Earth Summit set out a new standard of transparency, openness and non-governmental participation of immense significance to global governance. It was the first global governance meeting to take advantage of ICT for document and results dissemination. Unfortunately the institutional follow-up was weak at both global (e.g., CSD, Convention Secretariats, Earth Council) and national levels (national SD implementing bodies and plans). The influence of the Earth Summit and SD on global economic agreements was relatively weak (e.g., WTO, failure to reach agreement on a robust global investment agreement).
 - The 2002 World Summit on Sustainable Development (WSSD) brought consensus on a number of themes, especially on the need to address as a means of improving and safeguarding global and local environmental conditions, on the need for protecting ecosystems, and on the need for better partnerships to implement sustainable development.
 - The Millennium Development Goals (MDGs) provide a comprehensive basis for addressing poverty reduction globally, and link environmental quality and protection, human development and economic well-being. These goals provide for a specific timetable (2015) and specific sub-goals that are a test of the global communities resolve and capacity to deliver.
- Managing human use of the global commons
 - 1982 UN Convention on the Law of the Sea (LOS) 1957–present. The 1982 Convention is often referred to as the Constitution of the Ocean. It builds upon a body of law and precedent extending from the 16th Century, but particularly from unilateral declarations of extended economic zones, negotiations from the 1958 Geneva Conventions on LOS, and especially from the 1973-1982 negotiations of UNCLOS 3. UNCLOS set precedents for today's concern for atmosphere and climate change, and for other global

issues. But the LOS is hardly a global agreement for E&SD. Indeed, today many of the provisions need to be reconsidered. And the LOS opened the door to many unsustainable maritime activities, especially in relation to fisheries. Some of these are now being dealt with through derivative agreements that likely could not have been put in place without the LOS, for example, the UN Convention on Straddling Fish Stocks and Highly Migratory Fish Stocks. The World Maritime Organization (WMO) is a particularly significant body for marine shipping and environmental protection, with many achievements for pollution prevention, ship design standards, safer navigation and other contributions relevant to E&SD.

- Atmosphere and climate 1987-present. Arguably the most successful of the global environmental agreements has been the 1987 Montreal Protocol on Substances That Deplete the Ozone Layer. It has operated in an adaptive fashion, has involved a range of incentives and policing measures to guide action, and has involved both rich nations and developing ones. Decision-making has been science-based, and knowledge has been shared widely. Most importantly, the implications of inaction have been clearly understood by citizens, politicians and industry. Many people considering action on climate change wonder why this larger challenge cannot be governed in a similar way, with fast results. The problem addressed by the UN Framework Convention on Climate Change and the follow-up Kyoto Protocol is, of course, far more complex and embedded in current models of economic growth, consumption and globalization. While there is great frustration at the limited achievements concerning climate change, another view is that a revolution is taking place in global environmental governance. Climate change has been the vehicle to make an irrevocable and significant connection between environment and economy in public policy. It will be the leading edge for dialogue on future environmental governance with implications for many other global agreements involving trade, public health, and environment, among others.

This list of precedent-setting global governance initiatives identifies only some of the key globally-negotiated building blocks. Agreements such as those covering trade in endangered species (CITES), movement of hazardous wastes (Basel Convention), those agreements covering migratory species of birds and marine mammals, and other multilateral environmental agreements (MEAs) have come into force over the past 30 years. Undoubtedly other MEAs will be negotiated, but there is a lot of concern about making those we already have much more effective.

“Building the ship while sailing it”

(a favourite quote of Emil Salim, Chair of the WSSD, and former Minister of the Environment, Indonesia)

Putting E&SD governance systems into place nationally and globally has occurred over a period of unprecedented human population growth, unprecedented global economic growth

and rapid technology change, and over a period when the world's political systems have dealt with World War, decolonization, the Cold War, transformation of communist systems and now a war on terrorism. Today's E&SD governance developed at a time when confidence in the UN system and Bretton Woods institutions has been severely tested.

It could be said that the presence of any sort of global governance system developed under these circumstances is a success story. But that response is inadequate given the seriousness of the planet's environmental decline, and the urgent and on-going need for development compatible with ecological limits. What are the problems and most obvious success factors in the current use of our negotiated global building blocks?

Problems

Three major conclusions emerge from the many analyses concerning negotiated building blocks for global E&SD.

- Countries have not fully integrated internationally negotiated agreements into their domestic law and policies in an effective fashion, nor have they provided sufficient funding either to support the international institutions established to implement activities (with the possible exception of the Global Environmental Facility) or to adequately fund domestic E&SD initiatives contributing to global objectives.
- Implementation of MEAs is generally weak, with limited power for dispute resolution, limited ability to monitor compliance, and limited authority to impose sanctions. Important countries have chosen not to ratify some major agreements (e.g., USA – UNCLOS, CBD, Climate Change, Basel Convention). Coordination for implementation among the MEAs and certainly among the various categories of E&SD initiatives (e.g., between those related to health and those concerned with environmental protection) has been quite limited, and both learning and capacity development have been insufficient.
- Systems for regulation and stimulation of economic activities, and for a number of globalization matters have neglected environmental impacts, and have paid lip service to E&SD over the past three decades. This has generally been the case with major trade arrangements, arguably including the WTO, despite its trade and environment committee, and the commitment to SD in the preamble of its founding constitution. It is also the case for some technologies, which have largely avoided their environmental responsibilities. Examples include the electronics industry which has failed to deal adequately with end of product life issues, including where the toxic material found within computers is likely to end up (e.g., in Chinese villages); and the global ship-breaking industry which is not well regulated in health, safety or environment. In general economic activities still trump environmental controls, and globalization abets the process (e.g., via cheap and poorly regulated shipping of containers worldwide, with inadequate safeguards against environmentally damaging smuggling, and alien invasive species). MEAs are rarely fully compatible with economic agreements, and there is a reluctance to actually address such problems, although much discussion takes place.

There are many other problems in addition to these three matters. Not all the problems can even be mentioned in this short paper. But several important examples are provided below along with some of the ways the barriers are being tackled.

Older ways of conduct sometimes get in the way of potentially better governance mechanisms. An example is the long-standing effort to promote ecosystem-based management for natural resources such as forests and fisheries, and for protection of ecological services such as water supply and flood control. It has taken initiatives such as the World Commission on Dams and the World Water Forum to change perspectives on water management; and a long series of meetings through FAO and many other organizations to move from inadequate population models towards potentially more effective ecosystem-based management of fisheries.

The great convening power around key global E&SD issues has led to genuinely global debates from the time of the Stockholm Environment Conference. The success of attracting people and opinion is unprecedented, but also a problem. It has become very difficult to draw closure to the debates. Even on matters such as technical standards. And on matters such as citizen and nations' redress for environmental damage, progress is very limited, especially for globally significant concerns. The institutions are not there to hasten progress on key matters, to resolve disputes, etc., and those in existence such as the World Court are rarely used. A significant number of trade disputes now involve environmental matters. Some of these can be addressed through trade panels via the WTO, but sometimes this is done on narrow technical grounds without full reference to the MEAs or other environmental perspectives.

There are important expectation gaps generated through global meetings that tend to settle on goals that are really aspirations rather than serious, implementable objectives. The example of the Kyoto Protocol is cited by some as the most egregious case. However, that is contentious. Another is the unrealistic objective originally proposed (but not unanimously agreed at the WSSD) to reduce biodiversity loss by 2010. At a global level this would not appear possible, although it is actionable, for example, by some European nations. Similarly, the efforts to reduce destruction of global fisheries by 2015. If anything, the effort to destroy marine fisheries seems to have accelerated in reality. This dilemma of substituting high-sounding rhetoric for more modest but potentially achievable efforts is important because it gives the naysayer community good grounds to denigrate agreements and even the system of governance. On the other hand, by setting targets that are too modest, it is sometimes difficult to get away from incrementalism and "business as usual" so that innovation can prevail.

Important knowledge required for good decisions is lacking on many global E&SD governance matters. This problem has many facets including lack of basic scientific evidence (e.g., transboundary movement of mercury and transformation within atmospheric and aquatic ecosystems); reporting systems dependent on national or local information of highly variable quality (e.g., China's production-oriented data system, Canada's lack of comprehensive state of the environment reporting); and strong advocacy positions that distort real situations and delay consensus-building efforts (e.g., opposition to IPCC reports by some fossil fuel interests).

It is hard to escape the conclusion that the existing international E&SD formal agreement and convention system, although now quite comprehensive, is still immature. Negative characteristics include the following:

- Lacks full participation of nations; free rider problem; unilateralism undermines multilateral action.
- Monitoring and enforcement are limited; non-compliance results in limited sanctions.
- Poorly funded.
- Lags behind economic governance mechanisms.
- Institutional basis is weak and sometimes disorganized; weak secretariats to administer complex global agreements; lack of a true World Environment Organization (WEO); and UNEP is kept weak by nations and by other agencies in UN.
- Very limited dispute resolution.
- Implementation capacity weak for most nations.

The E&SD agenda, however, is becoming more and more complex. This situation will persist, since the full extent of environmental problems unfolds gradually and shifts over time, including who benefits and loses. Problems often take 20 to 30 years to be recognized and as long again for effective action to be implemented to the point where there are globally significant results. The main exceptions have been the Montreal Protocol and some specific marine issues, such as catastrophic oil spills by tanker ships. Why did global governance work in such cases? Good analyses are available. More generally, there are a number of encouraging signs of how global cooperation can bring about long-term change towards sustainable development, even when short-term progress appears limited.

Success factors

Perhaps the most obvious source of success is to set clear goals and then to act on them. There are a number of examples where goal setting has led to action plans, which can then be reviewed and updated periodically to address barriers, changing needs and circumstances, etc. This adaptive approach is important, permitting long-term consistency and but also a means to introduce fresh approaches.

The global effort on clean drinking water and sanitation is a good example. This began with the 1977 UN Mar del Plata Conference and Action Plan, followed by the International Drinking Water and Sanitation Decade, a focus on water in parts of Agenda 21 and in the early years of the Commission on Sustainable Development, and more recently at the WSSD. It led to vigorous review of the value of public private partnerships for delivery of water and sanitation, community-based wells, and many other efforts that have reduced significantly the fraction of the world's population without potable water supply and sanitation. The World Water Forums, which started in the 1990s, with the fourth held in Mexico in 2006, now bring together ministerial decision-makers, stakeholders and others to promote and act on an expanded agenda that still bears remarkable resemblance to the 1977 initiative. The MDGs provide an important link between water and broader anti-poverty and

environmental goals. There is no globally-binding convention on water, and yet action has been relatively strong.

On the other hand, two other prime examples where goal-setting has been at least partially successful do involve binding international goals and obligations. These are the Montreal Protocol and CITES (Convention on International Trade on Endangered Species). It is difficult to cover all aspects of their success. Some of the important matters are that:

- Key provisions of the global agreements have become embedded in national decision-making.
- Cooperation and differentiated responsibilities exist between richer and poorer countries.
- Strong science and reporting document both needs and level of success.
- On-going public awareness and public concern, aided by media interest.
- Coordinated international efforts are involved to address global problems of compliance, including smuggling, corrupt behaviour on the part of officials, etc.
- Funding exists for capacity building and for the development of alternatives to undesirable activities.
- Regular revisions to the basic agreements (at least five in the case of the Montreal Protocol).
- Continued political ownership of the problem at the global level by the UN and by non-governmental bodies, and to some extent by industry; and at the national level by governments, including prime ministers.

These examples, and others not mentioned, suggested that progress on issues of global significance will have a 20 to 30 year period of problem definition and consensus building, followed by 30 to 60 years or more of action to bring about a favourable outcome.

Over such time spans the characteristics of the problems will change, and also the range of possible solutions. For example, in the case of CITES, the potential for applying DNA tests, bar coding and electronic surveillance, plus electronic communications between exporting and importing country customs and other enforcement officials should allow for much greater control over illegal transport of endangered species.

Some problems with characteristics and potential success factors not dissimilar to those mentioned above have been remarkably resistant to progress on global accords. An example is the failure of the global community to save tropical forests, large predatory fish such as sharks, and coral reefs. There has been limited appetite for a global agreement on forests. The efforts of the World Commission on Forests and initiatives within the UN have failed. Another is the limited progress being made to control the negative effects of small-scale gold mining around the world, even though the mines operate to meet a global demand for this precious metal. A common characteristic of these obstinate problems is that both impacts and environmental control mechanisms are mainly in the hands of national and local governments. Secondly, they are problems where there are extremely powerful economic intermediaries engaged in exploitation, driven by strong demand from export markets. And commonly, corruption and illegal activities are rampant.

An unprecedented level of cooperative global environmental science is now linked to environmental governance mechanisms. Prime examples include the following:

- Ozone monitoring in support of the Montreal Protocol and assessment of chemicals for ozone-depleting potential.
- IPCC – scientific assessment panel operating inter-governmentally, but setting the research agenda on climate for thousands of scientists around the globe. The IPCC has undoubtedly knocked decades of time off what might otherwise have been required to understand the complexity of climate change
- Global Ocean Observing System via bodies such as the IOC (Intergovernmental Oceanographic Commission), the World Maritime Organization (WMO) and ICSU (International Council for Science).
- Integrated Global Observation Strategy that links data gathered by satellites with ocean, terrestrial and atmospheric information. One contribution is the Argo oceanographic floats that monitor ocean conditions throughout the world. Argo involves international collaboration of scientists from 23 countries. It is an example of science dependent on ICT, unheralded in public, but essential for understanding complex issues such as the role of the oceans in climate change.
- Millennium Ecosystem Assessment.

These initiatives and many others provide a credible scientific basis required for every international agreement, help to build scientific capacity within developing nations, and help to make science and technology innovations more widely accessible. In some instances, such as the February 2007 report of the Intergovernmental Panel on Climate Change (IPCC), the knowledge is immediately leading to transformative change in attitudes of many governments throughout the world.

Many E&SD topics have benefited from the new ways in which knowledge is generated and flows. These new ways are highly dependent on ICT, including sophisticated modeling and use of remote sensing information; on research and influencing networks that take full advantage of Internet communications; and on watchdog mechanisms concerned about environmental and social justice. A major role of ICT has been to enable organizations to build interest and awareness, capacity and transparency/openness for dealing with E&SD. Certainly initiatives such as the Earth Negotiations Bulletin and the International Centre for Trade and Sustainable Development (ICTSD) are examples in which IISD has played a major role. But there are many more. Arguably, the myriad of partnerships that now exist to support on-the-ground implementation of global MEAs, for example, could not operate without the Internet.

The global institutional renovation that should have taken place with the roll-out of MEAs by and large, has not occurred. The proponents and opponents of proposals for creating a powerful World Environment Organization (WEO) seem to be roughly equal, and it is unlikely that such an initiative will come into existence soon. Certainly overworked and under-funded UNEP cannot be said to be that organization. However, the successful endeavours of UNEP do need to be recognized, including its role in dealing with an agreement to limit persistent organic pollutants (POPs), land-based sources of marine pollution, cleaner production in industry, its ground-breaking GEO publication, the early successes of the regional seas programme, etc.

More difficult to assess are current intergovernmental mechanisms for financial transfers such as the contribution of the GEF (Global Environmental Facility). This facility provides developing nations and regional bodies (e.g., PEMSEA, Partnerships in Environmental Management for the Seas of East Asia) with funding for activities that support globally-defined E&SD interests. It is a financial transfer mechanism from rich nations to poorer, and also helps to transfer relevant experience. However it is a ponderous mechanism, operating via several UN bodies, often with extensive national level negotiations. Given the very wide range of supported initiatives, it is sometimes difficult to understand the bigger picture of what is indeed successful. But it is a hopeful direction to pursue. Other types of transfer mechanisms such as the Clean Development Mechanism (CDM) of the Kyoto Protocol, carbon offsets and, in the past, debt-for-nature swaps have been promoted. All these financial mechanisms deserve intense scrutiny in terms of their performance and efficiency in contributing to global solutions. They should be viewed as necessary but insufficient (in terms of scale and current level of effectiveness) financial components of the global E&SD governance framework.

What is still missing in this discussion of success factors is the role of the private sector. Without a doubt business now plays a controlling role in globalization, including the development and dissemination of advanced technologies, capacity development, influence on policies and on-the-ground action, and on the directions of sustainable development investment and international trade. Potentially, the greater responsiveness and efficiency of business could accelerate progress on E&SD globally. In fact without very active engagement of business, it is difficult to imagine how any amount of intergovernmental and NGO/community action could meet the challenges we see today. Yet the roles played by national and multinational corporations in E&SD governance are not well understood by comparison to the attention given to intergovernmental processes and to NGO initiatives.

In the case of multinationals there is a complex blend of home country, host country and international marketplace considerations, and relatively scanty international laws governing behaviour. The financial sector operates globally with relatively few E&SD considerations, and, while stock markets in regions such as North America and Europe now tend to give at least some consideration to environmental track records, the same cannot be said for Asian or other stock markets. Similarly with commercial banks. Organizations such as the International Chamber of Commerce, and the World Business Council for Sustainable Development have played a useful, sometimes defining role, by highlighting positive experience of corporations that have developed global E&SD strategies. But even the more advanced of these can run into difficulties as BP discovered, when rhetoric did not match performance.

It is quite clear that for newly emerging powerhouses such as Brazil, China and India, their domestic and international private sectors will have to develop a greater level of accountability not only domestically but also internationally, as their influence on market supply chains and through overseas acquisitions increases.

What is most intriguing is the role of local business initiatives, including those such as Grameen Bank model of microcredit for businesses operated by the very poor. It is clear that advanced models for financing local enterprise provide one of the most important

elements in modern global governance, but their full potential to support global E&SD governance is not yet well explored. For example, the compensation that could be provided to farmers willing to plant trees and grasses as sources of bioenergy, for carbon sequestration in the soil, and for biodiversity conservation. In urban areas there is potential for pro-poor initiatives involving recycling and re-use, including small business enterprises that can turn waste into new products.

Addressing what appear to be intractable problems through a combination of visionary solutions and dogged work involving better deployment of existing approaches seems to be the way forward for E&SD. This leads to “glass half-full, half-empty” perceptions, with considerable confusion about what is actually being accomplished today. The state of global E&SD governance reflects this division, with mighty celebrations over minor successes, major gaps in action on certain key matters such as E&SD obligations under private sector investment (the remarkable lack of adequate regional environmental assessment and monitoring in Canadian oil sands development is an example with global ramifications), and the ability of some countries to assert that although they may have a growing ecological footprint abroad, they are still complying with international environmental laws—recognizing that the legal framework is weak and without teeth.

Opportunity for “Soft Law” and “Voluntary” Initiatives to Thrive

The on-going weaknesses of the intergovernmental system of negotiated agreements has provided massive opportunities for NGOs, the private sector, professional and scientific bodies, and individual governments to be creative in seeking precedents and new solutions for global E&SD governance. In some cases these represent end-runs around the intergovernmental process (e.g., USA-inspired Asia-Pacific Climate Initiative) but often they present a genuinely new or alternative approach (e.g., certification processes such as ISO 14001 Environmental Management; Forest and Marine Stewardship Councils; Responsible Care; carbon markets; Internet-based transparency mechanisms; international non-governmental environment and conservation organizations such as WWF, Conservation International and The Nature Conservancy with capabilities to organize at national levels throughout the world in support of global objectives such as expanding the area and effectiveness of protected areas).

The reality that global economic growth models and globalization agreements generally are still incompatible with global E&SD provides an incentive for experiments that result in “soft law” and other governance initiatives which gradually could move societies to consider new directions. Some specific drivers include:

- On-going concern that MEAs are trumped by economic agreements, with conflicting provisions.
- Inability for E&SD initiatives operating through intergovernmental channels to keep pace with other aspects of globalization, especially in rapid economic growth situations, and situations where substantial illegal activities and corruption exist.

- Absence of E&SD factors in criteria and agreements for global investment flow.
- Rampant consumerism in rich countries and soon likely also in rapidly expanding economies such as Brazil, India and China, all based on increasing material consumption and increasing energy use.
- An increasing focus on international market supply chains and ecological footprints in order to act on distant environmental impacts, and on both producer and consumer responsibility.
- Weak standing of national governmental E&SD institutions that carries over into the global governance arena.
- The ease and relatively low cost of spreading new ideas and accountability initiatives via global communications including the Internet. This has permitted many small E&SD organizations to have a large voice internationally. Through networks and national developing country organizations, the digital divide is to some extent being addressed in relation to environment and development matters.

Crises, Ordered Responses and Sustainability

Crisis is an important, albeit complex driver for E&SD governance. Truly global acute environmental crises in the form of natural disasters are still rare, thankfully. Yet events such as the Avian flu outbreak of 2005-present, the 2004 tsunami in the Indian Ocean region, impacts of El Niño, and environmental change in the Antarctic and Arctic result in global concern and concerted action by intergovernmental, national governmental and non-governmental bodies. These forces have resulted in several important innovations, or protocols for dealing with issues. These include: the recruitment of “star” status global figures such as Bill Clinton (tsunami, AIDS cheap medication), involvement of well-funded and private foundations that can massively invest in a focused way (Bill and Melinda Gates among others), cooperation and partnership between private organizations (private and non-profit) and intergovernmental UN bodies, growing involvement of the insurance sector to identify long-term damage-reduction strategies, and action plans that focus on longer-term outcomes rather than only short-term mitigation. Some of these innovations appear to be potentially very helpful in long-term resolution of convergent crisis situations towards sustainability pathways.

But there are other matters associated with crisis resolution that are less promising for sustainable development. Specifically, the militarization of development and the crossover between efforts to create stability and resolve crisis through war seem perverse, costly, and generally unlikely to succeed. This type of ordered response in which governance is attempted in the most costly way possible (Iraq, some African nations and Afghanistan) using force, is the antithesis of E&SD.

More generally still, over the past decade much attention has been given to developing a better understanding of the relationship between environment and security. One view is to broaden security from a military-oriented approach to a much broader base of human and environmental security. Another approach is to interpret acute conflict as an outcome

influenced by environmental scarcity such as access to land and water. A third approach is to look at specific human actions such as overfishing, removal of wetlands and forests, etc., as factors leading to long-term ecological decline on the planet. It is clear that all three perspectives have some validity, but rarely is the relationship simple. The role that environment and security should play in addressing global E&SD governance is not well understood, despite some good academic work by various researchers, and despite the efforts of military establishments to understand the subject from their narrower view.

The debate about environment, militarization and development centres on a couple of key governance approaches. One vision, driven particularly by civil society, is to work from the bottom-up and top-down in a transparent, participatory and cost-effective way. These are hallmarks of governance from an SD perspective. The other is an ordered response approach: to work in a secretive and costly military-supported approach to impose views generally from the outside. Bilateral aid agencies, and even the United Nations are caught between these two approaches.

The current situation in Afghanistan is an example; where the cost of the most basic development has soared since it must be delivered through military means, and, of course where decades of warfare have reduced the Afghan environment to a very fragile and unproductive condition. Now this country is Canada's largest recipient of development assistance, likely with consequences for some time to come on expenditures elsewhere in support of E&SD initiatives, and with limited hopes for creating E&SD within Afghanistan itself. This is a dilemma seen elsewhere—not just in Afghanistan—and which could affect outcomes of development spending by many countries for many years to come.

At the conclusion of the Cold War in the early 1990s there was a strong hope and even the expectation of a substantial “Peace dividend” since the stupendous expenditures for arms races and containment policies would no longer be needed. The dividend could be invested in development, especially poverty reduction, and for improvements in the environment nationally and globally. But the hope for such a dividend was quickly dashed. It simply evaporated. Little money was allocated for follow-up to the Earth Summit, bilateral development agencies were squeezed, regional wars replaced the Cold War, and then, in the aftermath of 9/11, a new round of militarization began in order to fight the “War against Terrorism.”

It is disturbing that the global effort for E&SD was more or less sidelined over the past five years, while attention focused on acute conflict and destabilization within various parts of the world. If the situation persists, then it is difficult to see how adequate and cost-effective approaches to E&SD can be instituted to deal with issues such as climate change mitigation. Yet climate change itself is destabilizing and one of the greatest factors likely to affect environment and human security. Thus it will be a factor in future militarization and governance efforts through ordered responses. In the worst case scenarios, positive feedback loops may lead to very expensive crisis management and governance based on reactive emergency responses characteristic of a “fortress world” scenario in which the richest and most powerful attempt to reduce their risk, while ignoring equity considerations and setting terms for maintaining stability among the less powerful.

Furthermore it is possible that convergent crises affecting environment, economy, social and political stability will be seen more often in the future. In the late 1990s, there was a combination of the Asian meltdown, plus a series of El Niño events in the Pacific that led to deliberate burning of drought-stricken Indonesian forest lands for conversion to oil palm estates, regional health and environmental impacts from smoke, and an enormous contribution to global carbon dioxide emissions. These problems contributed to the end of the Suharto regime and to unsettled political and declining ecological conditions that still persist within the region. In the years ahead, within the same region, a combination of destabilizing governance conditions might arise from further ecological deterioration, avian flu outbreak, and perhaps extremist terrorism in the world's largest Muslim country. In such a situation, could E&SD prosper? Already Indonesia has called for global assistance to stop forest destruction within its boundaries. And could destabilization spread globally if public health efforts to contain avian flu are unsuccessful? This case is only one of several regional events in various parts of the world that might turn into global governance nightmares. Funding for long-term matters such as biodiversity or climate change, and the elaborate structures established for E&SD governance could fail, with immense implications.

These various factors influencing environment, crises and governance responses hardly are pleasant, nor are they likely to give comfort to those hoping for a better world through sustainable development. They do highlight that global E&SD governance still ranks well below governance for traditional defence and security concerns and likely below those for public health—whether it is debate by the UN Security Council, or action by a country such as the USA, or even action by global health authorities.

Strengthened Mechanisms for Global E&SD Governance

This review of E&SD governance would not be complete without some consideration of what might be done in the coming 5 to 10 years. This time frame is perhaps the last chance to influence positive outcomes for E&SD during the critical decade of 2020 to 2030, given the lengthy lead time to mobilize global action. The second quarter of the 21st Century is significant because it is when full expression of problems associated with declining biodiversity, unsustainable water use, global climate change, consumption within major fast growing economies such as China, etc., will occur. It is the time by which the identified weaknesses of the E&SD governance framework need to be fully addressed. There are various means to do so, including the suggestions below.

- Place emphasis needs on partnership models (e.g., WSSD Type 2 Partnerships; public-private partnerships to more efficiently deliver services for water, sanitation, urban and rural infrastructure; foundation-business-intergovernmental partnership models such as those intended to deliver medications and vaccines more cheaply; co-management models for sustainable natural resource management and for nature reserve and park management, etc.)
- Improve governance of the Millennium Development Goals in order to make them achievable within the 2015 time frame originally suggested. The improvements in

governance of these global goals should be of direct value for other E&SD governance initiatives.

- Build the current wave of global interest on environment into a functional climate change action plan that has much fuller participation of all major nations. The negotiations for the post-2012 period provide the entry point for major innovations, including such matters as governance for technology transfer and co-development on leading edge matters such as carbon dioxide sequestration and coal gasification; strengthening of participation by China and other rapidly growing countries; and, in general, building an adaptive framework approach that might be more credible with both rich and poor nations.
- Prepare for the wave of innovation technologies including many associated with ICT, biotechnology, nanotechnology and possible advanced forms of energy technology. These technologies are poorly assessed by current environmental assessment approaches. Yet they are likely to play a greater role in achieving E&SD objectives. Innovation technologies may need their own E&SD monitoring framework, and dialogue mechanisms in order to overcome public distrust that translates into non-tariff trade barriers, boycotts, etc.
- Expand knowledge generation, and strengthen clearinghouse and dialogue mechanisms operation at global levels for both scientific and policy information. As well, much of the knowledge required is now integrative, for example, ocean-atmospheric interactions, market supply chains, etc. The need is to provide the most relevant decision support information required for complex governance processes in a timely way, and to all important stakeholders. This will be a challenge that can be met only through ICT innovation.
- Intellectual property rights (IPR) could become a more serious barrier to global E&SD governance, but there also are opportunities to build more workable solutions, especially for latest generation technologies in countries that are building new infrastructure. Integrative efforts are needed to (1) add IPR provisions within E&SD global agreements, (2) provide for financing arrangements in various ways, sometimes on a concessional basis, (3) combine international public-private sector arrangements with national-level legal requirements and incentive systems, and (4) develop a robust international investment agreement with suitable IPR terms.
- Obviously the creative energy that surrounds voluntary initiatives and “soft law” will continue to produce new ideas and many of these might be adopted more quickly into the intergovernmental governance processes. However, there is wariness about their effectiveness and possible financial burdens related to compliance. More could be done to address such matters, and also to build capacity. This would help to make the transition to that point where new ideas such as certification actually involve the majority of producers or retailers rather than just a limited number of leading edge firms.

- Hybrid organizations will play a greater role in global E&SD governance in the future. These are bodies that link different sectors, and levels from local or national to global. Prime examples are the IUCN, and the Davos World Economic Forum. Also, institutions that are sometimes described as “border organizations”. Such organizations sit between sectors, and between sectors, often linking different bodies of knowledge. IISD is certainly one such body, another is TERI. These institutions are generally small but nimble, with a capacity to shape global policy and governance debates in creative ways. They tread where sectoral bodies and intergovernmental organizations may have difficulty for a variety of reasons. Unless they are innovative, their reason for existence is questionable.

The problem of resolving environment and globalization relationships is looming as an ever-larger element in most E&SD governance and problem-solving. As noted in IISD’s recent publication *Five Propositions*, the influence between E&SD and globalization is two-way. They are intrinsically linked issues and therefore governance of both is interlocked. Parallel action on environment and on economic growth is not enough. As the discussion on environment, crises, and security has revealed, however, it is important to recognize these factors in future global governance adjustments. This will be an even trickier effort than the propositions outlined in the IISD paper.

Several of the solutions proposed in *Five Propositions* are worth repeating here, sometimes in modified form:

- Manage institutional fragmentation and lack of coordination among institutions that each hold part of the solution, or are in competition with each other.
- Link progressive market-based and civil society bodies that are often at the cutting edge of “soft law” with intergovernmental and other state-driven processes.
- Carry out international institutional reform at the level of sub-systems involving support systems for finance, economic development, environment, etc.
- Look for permanent links among these sub-systems in order to build a better shared vision based on sustainable development.
- Build new instruments based on interactions among two or more dynamics (e.g., trade and environment, ITC and environment).
- Improve assessments of global conditions, including topics such as ecological services, and the full benefits associated with them, who needs to receive those benefits, compensation mechanisms for their protection, and trends in their use, deterioration, restoration and protection.

This section has placed emphasis on making the existing global governance system perform better, including those elements directly related to E&SD. The alternative is to suggest a more radical makeover. While this second option is tempting to consider, it is a dangerous proposition because it could lead to a hiatus in action for a prolonged period. That is a danger with the proposal for development of a World Environmental Organization. The lesson learned so far is that it is important to create responsibility centres within all the key sectors and bodies that have a stake in sustainable development. Otherwise, it will be too easy for bodies such as the WTO to disengage from E&SD governance responsibilities,

Crossover of E&SD with ICT

E&SD global initiatives are inextricably linked to ICT, as noted through examples in various parts of this paper. This has been the case certainly since the early 1970s when satellite remote sensing (e.g, Landsat and ocean remote sensing) became available for scientific use. During the 1980s the use of desktops and supercomputers as enabling, synthesizing tools created a recognition of the value of massive data bases on which meta-analysis could take place. These tools were invaluable, for example, in discovery of the ozone hole in Antarctica. Nowadays complex simulation and computational models are the mainstay for climate change, pollution distribution, and many other E&SD problems. In the years to come, the sophistication and value of such models will be increased further. As well, tools such as GIS (Geographic Information Systems) inform decision makers on problems at various scales ranging from very local ecosystems to global concerns.

Surveillance at all scales for tracking global illegal activities, pollution flows, disease factors, migration of fish stocks, accurate identification of species, etc., has been revolutionized by IT tools such as bar codes, and by use of techniques such as DNA analysis. These efforts are path-breaking, promising enormous advances for sustainability, and for credible tracking of trade-related E&SD, for accountability (e.g., for carbon credits) and for dealing with many biodiversity, pollution and other transboundary and global environmental matters. Likely, the whole field of environmental and resource management will be transformed in the coming 20 years, but most intergovernmental and national agencies are poorly prepared, in both rich and poor countries.

The presence of the Internet and particularly the World Wide Web has led to:

- The opening of institutions to public review and better transparency.
- New watchdogs (Transparency International, etc.) capable of spreading knowledge of violation of human and environmental rights, and able to examine performance of the international, national and local governance systems.
- Institutions such as the ENB that can document E&SD global negotiation processes and outcomes and processes more or less in real time, and in a fashion that builds understanding among all key players and stakeholders, whether or not they are actually taking part in the negotiations.
- Electronic clearinghouse functions that now allow key studies and other information to be instantly accessible around the world.
- Networking among self-selecting “communities of interest.”
- Participatory video and other ICT mechanisms that “show all–tell all,” using a variety of techniques including You-tube, cell phones, and likely many other modalities in the future.

There is likely no end to future innovation in communication possibilities, with many having direct benefits for E&SD knowledge dissemination and development of points of view.

This revolution in ICT that supports global E&SD knowledge, action and governance undoubtedly has helped with accountability since transparency is now an expected part of decision making. But governance specifically related to the use of E&SD is limited. E&SD is

only one of many fields that benefit from the Internet and other ICT applications, and generally would be subject to the same constraints as other user types.

The most significant governance efforts are probably those related to scientific and management protocols related to data sharing from global monitoring programs, and in the use of surveillance and information sharing for enforcement, for example in relation to policing of endangered species, hazardous waste, pollutants, etc.

The watchdog function of Internet use is subject to increasing levels of scrutiny. China and some other countries have tried, with some success, to block websites that carry information deemed to be detrimental or controversial to governmental positions. Watchdogs could be sued by businesses or others who feel false statements have been made. And, if IPR rights are violated, or perceived to be violated, lawsuits may occur. So far, despite the millions of pages of varying credibility available on E&SD subjects, there has been surprisingly little legal action. Efforts such as the Conservation Commons that set out protocols for the use of data and information are helpful, and we might expect to see more of this.

The existing Internet governance system promotes equality between the small and creative, and the big and perhaps ponderous. It leaves the viewer to decide on the value of information. Perhaps this is the best way, since it opens opportunities to build independent screening mechanisms and appropriate ratings. Yet the increasing, even overwhelming volume of available information is creating issues that may need to be addressed. On the other hand, there are many constraints on access for people living in remote areas, for poor people, and for those whose language is not English. With the availability of instant translation likely in the near future, what are the implications for important texts that might be incorrectly rendered?

A bigger issue is whether intergovernmental and powerful national or business bodies are willing to leave the interpretation of their activities in the hands of others, or will work proactively to gradually shape delivery mechanisms, advertising standards, filtering mechanisms, etc., to better display their particular points of view. There is also the matter of standards and protocols as they might apply to user-shaped information sources such as Wikipedia.

These few examples of how E&SD governance interacts with Internet governance are illustrative rather than comprehensive. They are only a starting point to a complex topic.

Conclusion: Some important matters for good global governance of E&SD

The following characteristics are important for any initiatives on global E&SD governance: consensus-building and inclusive, participatory within reasonable limits, and with partnerships; clear and feasible objectives and well-defined implementation authority; supported with suitable knowledge and capacity development; adaptively managed to

consider changing situations and progress assessment; appropriately funded; with transparent accountability mechanism; plus perceived and actual effectiveness.

The dynamic tension between negotiated intergovernmental E&SD accords, of which there are now several hundred, with more added each year, and the broad range of “soft” law and volunteer initiatives is valuable since it creates a testing ground for new ideas while providing a body of consensus-based international law that can gradually find its way into national decision making. What is needed desperately is a way of making this patchwork effort into a more responsive and accountable system operating globally and within both rich and poor nations and regions. New efforts should focus particularly on creating a workable overall system rather than focusing mainly on individual agreements.

The biggest challenge remains the integration between environment and economy, and now, environment and security. While E&SD now has more standing than at any point in the past, it is clear that this field is still the junior partner when it comes to dispute resolution among the various types of international agreements, and in terms of funding. At the present time, global governance in all fields of environment and sustainable development play second or third fiddle to these other elements of the international governance system. E&SD agreements have been drawn up in ways that constrain their effectiveness, and are continually subject to national-level efforts to hold back action. It is quite possible that the situation will change, especially in the global governance of action on climate change. But it is not clear whether the movement will be towards effective multilateralism, or towards unilateralism, or power blocs with particular vested interested interests.

The most innovative work over the next several years for an effective global E&SD governance system is likely to be on topics such as market supply chains, various aspects of climate change, and possibly on E&SD technology transfer via partnerships. The role of countries such as China, India and Brazil in global E&SD governance may turn out to be pivotal.

As noted throughout the text of this short paper, there are many points of intersection between ICT and E&SD initiatives, locally, nationally and globally. ICT is an enabling factor in most cases, permitting rapid dissemination of ideas, tracking of products and pollutants across continents and globally, monitoring of illegal activities, even identifying previously unknown species and protein combinations. ICT also is the basis of many technology innovations for resource management and pollution control devices and systems. In the future ICT will be a major factor in transforming industrial processes, transportation systems, homes and offices towards low energy, non-polluting outcomes. Globalization will have to be reshaped to ensure that these benefits are widespread and occur much more swiftly than in the past. And that truly is the point of convergence for a number of global governance concerns, including those for E&SD and for the Internet.