# Internet Governance and Sustainable Development

## Towards a Common Agenda

Don MacLean, Maja Andjelkovic and Tony Vetter

iisd International Institute for Sustainable Development / Institut international du développement durable

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International Institute for Sustainable Development
161 Portage Avenue East, 6th Floor
Winnipeg, Manitoba
Canada R3B 0Y4
Tel: +1 (204) 958-7700
Fax: +1 (204) 958-7710
E-mail: info@iisd.ca
Web site: http://www.iisd.org/

Internet Governance and Sustainable Development: Towards a Common Agenda

By Don MacLean, Maja Andjelkovic and Tony Vetter

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Cover photo: iStockphoto

# About the attached CD

On the inside back cover of this booklet, you will find a CD that contains 10 exploratory papers that informed the development of this publication.

IISD wishes to thank the following authors for their contributions to this project. Their papers appear on the attached CD:

*Issue area: Governance processes*
Jovan Kurbalija and Don MacLean, Internet Governance
Arthur Hanson, Global Governance for Environment and Sustainable Development

*Issue area: Economic barriers to development*
Abi Jagun, Economic Barriers to Development: Cost of access to Internet infrastructure
Hugo Cameron, Internet Governance and Sustainable Development: Economic barriers to development

*Issue area: Capacity of developing countries to participate in international governance*
David Souter, Capacity of Developing Countries to Participate in ICT International Governance
Peter Doran (with Johanna Gloel), Capacity of Developing Countries to Participate in International Decision-making

*Issue area: Access to knowledge as a critical input to decision-making*
Tony Vetter and Eddan Katz, Access to Knowledge in the Information Society
Ashish Kothari, Traditional Knowledge and Sustainable Development

*Issue area: Indicators for development*
Christoph Stork, Sustainable Development and ICT Indicators
Clark Miller, Creating Indicators of Sustainability: A social approach

Early in 2007, in collaboration with partners and stakeholders, IISD commissioned these exploratory papers to be written in pairs to provide some insight into five issue areas from the perspectives of the Internet governance and sustainable development communities. Each of the papers defines its issue area; describes the relevant governance structures and processes; identifies the main issues currently

being debated; articulates actual and potential links between Internet governance and sustainable development; and proposes areas for further study.

The goal with these papers is to facilitate a discourse around linkages among the issues considered under the Internet governance and sustainable development topic umbrellas, through examining how specific questions in Internet governance discussions to date interlink with those in the sustainable development arena.

From September 15 to 28, IISD hosted an e-conference to offer the opportunity for researchers and practitioners to review the papers and to participate in online discussions specific to each issue area to further the aim of facilitating dialogue between the two communities, as well as to inform our analysis of the papers. See http://www.iisd.org/infosoc/gov/igsd/

This booklet features the outcome of this analysis in the form of short editorials on each set of papers, which explore common positions, mutual challenges and differences between the issues discussed in the papers, and outlining where lessons from one side might inform progress on the other.

IISD gratefully acknowledges the generous support of Canada's International Development Research Centre (IDRC) for our ongoing work in this area.

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# Introduction

In 2003, the World Summit on the Information Society (WSIS) declared its challenge "to harness the potential of information and communication technology (ICT) to promote the development goals of the Millennium Declaration"[1] with a "commitment to the achievement of sustainable development."[2] Internet governance, a key issue emerging from this process, is defined as "the development and application by Governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programs that shape the evolution and use of the Internet."[3] By simultaneously highlighting sustainable development as a critical goal, and Internet governance as a critical debate to the evolution of the information society, the WSIS process brought to light the nexus of sustainable development and Internet governance.

The difficulty in defining that nexus is not the lack of connections between the two fields, rather, it is the pervasive, complex and intricate nature of the linkages. From the point of view of sustainable development, Internet governance can be described as the decision-making process through which global communications and knowledge exchange over the Internet develop and evolve. In a broad view, sustainable development cannot be conceived without global communications and knowledge exchange. The closer we consider today's communications channels, the more aware we become of the paramount importance of the Internet to the flow of information and knowledge around the world. The Internet governance debate, which includes issues of access, multistakeholder participation, openness and security, among others, is essential for global communication and knowledge exchange, in that its outcomes will affect our ability to manage the social, environmental and economic aspects of sustainable development. On a more detailed level, the connections between Internet governance[4] and sustainable development can seem obtuse,

1 WSIS Declaration of Principles, December 12, 2003, http://www.itu.int/wsis/docs/geneva/official/dop.html (accessed August 30, 2007).

2 *Ibid*.

3 Report of the Working Group on Internet Governance, June 2005, http://www.wgig.org/docs/WGIGREPORT.doc (accessed August 30, 2007).

4 With the Internet Protocol becoming the standard of choice for an increasing number of information and communication technologies, governance of the Internet encompasses a significant number of other technologies, in addition to applications we most often think of in relation to the Internet (e-mail and the World Wide Web).

partly, as IISD has written,[5] because the two communities of practitioners have spent over three decades working in relative isolation from one another, creating gaps in vocabulary and culture.[6]

Early in 2007, in collaboration with partners and stakeholders, IISD commissioned exploratory papers to be written from the perspective of each community. Our goal with these papers is twofold. First, we aim to facilitate a discourse around linkages among the issues considered under the Internet governance and sustainable development topic umbrellas, through examining how specific questions in Internet governance discussions to date interlink with those in the sustainable development arena. Second, we continue to test a method of informing each practitioner community of the major policy and research questions and findings in the other field, a method IISD piloted in an earlier compilation of papers on similar topics.[7]

Five pairs of papers were commissioned, each consisting of one piece written about a topic from an Internet governance, or, more generally, an ICT perspective, and the other from a sustainable development point of view. From September 15 to 28, 2007, IISD hosted an e-conference to offer the opportunity for researchers and practitioners to review the papers and to participate in online discussions specific to each issue area to further the aim of facilitating dialogue between the two communities, as well as to inform our analysis of the papers.

This booklet features the outcome of this analysis in the form of short editorials on each set of papers, which explore common positions, mutual challenges and differences between the issues discussed in the papers, outlining where lessons from one side might inform progress on the other. Electronic copies of the original papers have been included in a CD accompanying this booklet.

The first set of papers examines emerging multistakeholder **governance processes**, tested in both the sustainable development arena and in the new Internet Governance Forum. Arthur Hanson provides an overview of the evolution of global governance for environment and sustainable development, covering institutions, state-centred negotiations, the rise and influence of civil society, multistakeholder processes and related mechanisms. In examining the evolution of Internet governance, Jovan Kurbalija and Don MacLean focus on the process around the World Summit on the Information Society and point to the leadership of civil society and the technical community in the Internet governance debate.

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5 Willard, Terri and Michael Halder. *The Information Society and Sustainable Development: Exploring the Linkages*. Scoping Study. Winnipeg: IISD, 2005. http://www.iisd.org/publications/pub.aspx?id=598

6 Kapur, Akash. *Internet Governance: A Primer*. Elsevier: UNDP-APDIP, 2005. p. 29.

7 Willard, Terri and Maja Andjelkovic (eds.). *A Developing Connection: Bridging the Policy Gap between the Information Society and Sustainable Development*. Winnipeg: IISD, 2005. http://www.iisd.org/publications/pub.aspx?pno=740

> "*Notably, one of the strategic imperatives for sustainable development in the Brundtland Report is 'reorienting technology and managing risk,' an objective under which improved access to Internet resources in low-income countries falls squarely.*" – Hugo Cameron, from "Internet Governance and Sustainable Development: Economic barriers to development."

The second set of papers focuses on **economic barriers to development.** Abi Jagun considers the cost of access to the Internet infrastructure, as an "indispensable" resource for general development and economic growth by identifying and describing factors that contribute to the prohibitive access costs in developing countries. Hugo Cameron considers access as a "vector" for sustainable development—he outlines a number of infrastructural, systemic and regulatory impediments to ensuring the spread of information and knowledge, business opportunities, administrative efficiencies, employment and transparency, including those in what Cameron calls "the wider systemic setting," like the WTO.

Both of the papers in the third set focusing on the **capacity of developing countries to participate in international governance** note that recent changes—whether in the governance systems, or in the international "geopolitical context"—have brought about specific challenges for participation of developing countries in governance negotiations. David Souter discusses the differences in challenges facing developing countries to participate in intergovernmental models of governance employed in the management of traditional ICTs (for instance, the ITU and WIPO) and governance models emerging around the Internet, where there has been "little involvement of the powers-that-be." From the sustainable development angle, Peter Doran looks beyond the capacity to participate in governance processes, and treats "knowledge" itself as a (geo)political concept, which is always implicated in formations of power and "governmentality."

The fourth set examines **access to knowledge as a critical input to decision-making**. Tony Vetter and Eddan Katz focus on the "access to knowledge" campaign that challenges current information infrastructure systems. Vetter and Katz point out several examples of advocacy and agenda setting that represent a pivotal shift towards global intellectual property policies that balance economic principles with the development dimension. Ashish Kothari suggests ways to revive or maintain knowledge that is critical to sustainable development beyond intellectual property regimes. Focusing on the relevance of traditional knowledge (TK) to the human quest for sustainable living, he shows how essential contributions of traditional knowledge can be made to various sectors of human welfare and development.

The fifth pair of papers considers the topic of **indicators for development**. Christoph Stork and Clark Miller describe some of the existing ICT and SD indicators, and suggest ways to make them more meaningful for evaluating results. Stork distinguishes between access, usage and impact indicators, among other types,

pointing out that impact indicators, as derivatives of primary or secondary data, are most useful in gauging the impact of ICTs on sustainable development. Miller examines traditional indicators of sustainability, and points to the need to establish indicators customized at the community level—an observation that could be especially useful for designing effective derivative indicators noted by Stork.

Beyond illustrating intersections between Internet governance and sustainable development, a common feature of the sets of papers presented here is that they identify building blocks originating in one field that are useful, if not crucial, for continuing research in the other. These building blocks seem to originate more frequently in the ICT or Internet governance field, but the reverse is also true: lessons from the sustainable development field, such as in the area of indicators development, can inform Internet policy.

It is also useful to compare these papers from a values perspective. The WSIS Declaration of Principles expressed a "common desire and commitment to build a people-centred, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life, premised on the purposes and principles of the Charter of the United Nations and respecting fully and upholding the Universal Declaration of Human Rights."[8] These values parallel those expressed in the Johannesburg Plan of Implementation of the World Summit on Sustainable Development, where it was declared that "peace, security, stability and respect for human rights and fundamental freedoms, including the right to development, as well as respect for cultural diversity, are essential for achieving sustainable development and ensuring that sustainable development benefits all."[9] Therefore the values expressed in the WSIS Declaration of Principles also serve the purpose of achieving sustainable development in that their promotion as a foundation of the evolving information society serves to embed them in our social, economic and political systems.[10] The sets of papers, therefore, also help to illustrate specific examples of how the values of the Internet governance policy community are shared by those of the sustainable development policy community. Such acknowledgement of shared values could help bridge the historic gaps in vocabulary and culture between these two communities.

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8 WSIS Declaration of Principles, December 12, 2003, http://www.itu.int/wsis/docs/geneva/official/dop.html (accessed August 30, 2007).

9 Johannesburg Plan of Implementation, August 11, 2005, http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm (accessed September 17, 2007).

10 James Goodman. *Communication: the missing link in sustainable development*. openDemocracy, December 11, 2003, http://www.opendemocracy.net/media-edemocracy/article_1628.jsp (accessed September 17, 2007).

In today's great small world of global communication, the questions of sustainability cannot be analyzed in isolation from Internet policies that affect information flows, exchange of knowledge and global trade. The importance and speed of ICT and Internet development, and the profound changes that these have caused worldwide, require the cooperation of these two groups of researchers. We hope that this booklet and the papers accompanying it on CD are signs of their future fruitful cooperation.

## Governance processes

The first pair of papers in this collection, "Global Governance for Environment and Sustainable Development" by Art Hanson and "Internet Governance" by Jovan Kurbalija and Don MacLean, shows that there are interesting similarities between international governance arrangements in these two areas, as well as striking differences.

As the papers demonstrate, the two governance universes are very complex. Both "sustainable development" and "Internet governance" are umbrella concepts that cover a wide range of issues, some of which are closely related, others less so. As a reflection of this diversity, both universes are populated by a large number of governance instruments, institutions, organizations and processes that have been set up to deal with these issues.

### Global Governance Building Blocks

The Internet governance and sustainable development universes are populated by a large number of governance instruments, institutions, organizations and processes. These communities have been evolving their governance processes over decades through precedent-setting global governance initiatives that have resulted in key globally-negotiated building blocks. *Please see the Appendix* for background narratives on how these building blocks have contributed to the formation of the global governance systems that each community continues to evolve.

Whatever their specific form, sustainable development and Internet governance arrangements often include representatives from government, the private sector and civil society—the three main stakeholder groups that are now widely recognized as having legitimate and complementary roles in global governance. However, there is considerable variation in the rights and responsibilities enjoyed by these different stakeholder groups in sustainable development and Internet governance structures.

In some cases, one stakeholder group holds decision-making power, and the others are involved only in a consultative capacity. In arrangements of this kind government is usually the dominant stakeholder, although there are notable exceptions

particularly in Internet governance. Kurbalija and MacLean point to the Uniform Domain-Name Dispute-Resolution Policy (UDRP) as an example of a fast, efficient and multistakeholder reaction to the Internet governance issue of cybersquatting. In other kinds of arrangements, though, there is no dominant stakeholder and each group considers the others as full partners. As an example, Kurbalija and MacLean see the concept of multistakeholder governance as a key achievement of the World Summit on the Information Society that may be applicable in areas other than Internet governance.

Most sustainable development and Internet governance structures have been purpose-built to deal with broad issue areas or specific governance challenges. As a result, their actions are not always well coordinated in terms of overall objectives, guiding principles or simple efficiency. Although nominally universal in aim and generally open to participation by all countries, sustainable development and Internet governance arrangements tend to be dominated by governments and other stakeholders from developed countries and the emerging giants of the developing world, with little effective participation by most of the world's poorest countries. In the case of Internet governance this is further complicated by the tendency, as noted by one e-conference participant, for the governments of developing countries to lack the motivation to take an interest. Viewing the Internet as a domain they cannot control, this lack of interest creates a vacuum in developing country Internet governance policies and decision-making. In contrast, another e-conference participant observed that efforts to link national ICT policy to the achievement of the Millennium Development Goals has helped to push Internet governance issues like access, security, open standards and information rights to the policy foreground for some developing country governments.

In spite of these superficial similarities, there are at present significant differences between the worlds of sustainable development and Internet governance.

The universe of sustainable development governance arrangements is, on the whole, older than the universe of Internet governance. It is also more mature in terms of the range of instruments, structures and processes that are in play. These points are illustrated by the chronology provided by Hanson, which traces the evolution of today's complex web of sustainable development governance arrangements back to the early decades of the 20th century. In contrast, in spite of the large number of arrangements inventoried by Kurbalija and MacLean, and although one of these arrangements—the International Telecommunication Union—dates back to 1865, most of the key elements of international Internet governance were put in place in the last decade and are still in relatively early stages of development.

One other significant difference worth noting is the timeframes over which governance issues evolve in these two domains. Hanson mentions that environmen-

tal and sustainable development problems often take 20 to 30 years to be recognized and as long again for effective action to be implemented. In contrast, issues in the Internet governance domain tend to be recognized over much shorter timeframes with effective action taken rapidly. Returning to the example of the UDRP, Vetter and Katz[11] cite this as a successful use of a "soft law" approach by stakeholders to rapidly deal with the issue of cyber-squatting (as opposed to having only the option of proceeding towards the adoption of a new treaty, i.e., hard law). Hanson suggests that experimentation with "soft law" and other governance initiatives like those currently functioning in the IG should be considered in the context of the general incompatibility between global economic growth models, globalization agreements and sustainable development.

Sustainable development governance appears to be more solidly rooted than Internet governance in science and other forms of systematized knowledge. Scientific tools and indicators have been important vehicles of the sustainable development community for influencing policy-makers. Multidisciplinary forecasting methodologies have also been developed by sustainable development researchers and policy-makers over the past three decades by drawing from the knowledge of social and physical sciences, as well as law, management and political disciplines. At the moment, Internet governance appears to rest on a more fluid knowledge base that mixes engineering with economics, social sciences, philosophy and other branches of the humanities in different proportions, depending on the issue being considered and the point of view of the researcher or policy-maker.

In part because of its greater age and maturity, and in part because of the issues it deals with, the sustainable development governance universe appears to be more heavily populated by intergovernmental arrangements of one kind or another than the world of Internet governance. As Kurbalija and MacLean make clear, national governments and intergovernmental organizations are recent arrivals on the Internet governance scene, and are still viewed with suspicion by important segments of a community that has long been used to governing itself, even though the need for their active participation with respect to some issues—such as cybercrime and other Internet abuses—is now more or less universally accepted.

As stated in the Introduction, the overall purpose of this collection of essays is to facilitate a discourse around linkages among the issues considered under the Internet governance and sustainable development topic umbrellas in order to see if the two communities could benefit from closer cooperation and, if so, how this might be achieved. In this spirit, the essays by Hanson and by Kurbalija and MacLean suggest that the following governance-related questions may be worth pursuing:

11 See section "Access to knowledge as a critical input to decision-making."

1. *Are there lessons the Internet governance community can learn from the experience of the sustainable development community in relation to the development of internationally-agreed frameworks for facilitating the development, implementation and coordination of policies that cut across institutional and disciplinary boundaries? In particular, is there merit in the proposal put forward by the Internet Governance Project to develop a framework convention on Internet governance modelled on the United Nations Framework Convention on Climate Change?*[12]

2. *Are there lessons the Internet governance community can learn from the experience of the sustainable development community in using multidisciplinary modelling and forecasting techniques to develop alternative scenarios of the future, as a support for Internet governance decision-making?*[13]

3. *Are there opportunities for shared learning between the sustainable development and Internet governance communities on the basis of their respective experience with private-public partnerships and multistakeholder approaches to governance?*

12 See "A Framework Convention: An Institutional Option for Internet Governance" at http://www.internetgovernance.org/pdf/igp-fc.pdf (accessed September 17, 2007).

13 See "Great Transition: The Promise and Lure of the Times Ahead" at http://www.gsg.org/ (accessed September 17, 2007).

# Economic barriers to development

Motivation for collaboration between two policy communities can be driven by an awareness of how the governance decisions taken by each community can affect the other, as well as how these decisions can be influenced in order to help achieve mutually-beneficial results that are greater than either community could realize on its own. With regards to the Internet governance and sustainable development policy communities it appears that this awareness is highest in relation to the issue of economic barriers.

The papers by Abi Jagun and Hugo Cameron on the theme "Economic Barriers to Development" provide complementary perspectives on a question that should rank high on the agendas of both the Internet and sustainable development governance communities—the question of what steps are needed, in policy and in practice, to enable people in developing countries (a) to get affordable access to the Internet and other information and communication technologies (ICTs); and (b) to use these technologies to support sustainable economic growth and development, particularly through trade.

Jagun's paper deals with the first part of this question by examining the economic barriers that stand in the way of affordable access to the Internet and other ICTs in developing countries. These include five major and distinctly different kinds of costs: the cost of deploying the telecommunications infrastructure of copper wires and cable, satellite and fibre optic links, and wireless connections on which the Internet runs; the cost of accessing the Internet in developing countries because of high international interconnection charges; the cost of accessing software-based applications and electronic content that are needed to add value to the bit streams made available by the Internet; the cost of dealing with spam and other Internet abuses, which is relatively much higher in developing than in developed countries because of their more limited bandwidth and other resources; and the cost of developing the human, technological and financial capacities required to build, maintain and effectively use an Internet/ICT-based communications, e-commerce and knowledge infrastructure.

As Jagun's paper points out, the experience of the past two decades has consistently shown in both developed and developing countries that the most effective approach to addressing the first of these issues—the cost of deploying telecommunications infrastructure—is to introduce competition in the supply of telecommunication networks and services under the supervision of regulatory

authorities that are independent of government and whose mandate includes protection of consumers and achievement of universal access, as well as promotion of competition and investment. However, as her paper also acknowledges, equally effective strategies have not yet emerged for overcoming the other costs of Internet access in developing countries. Although other papers in this collection will touch on some of these questions—for example, the cost of accessing applications and content arising from the current intellectual property regime, and the question of capacity-building—it appears that there is not yet a "general theory" to help guide governance of the full range of economic issues related to Internet access.

Cameron's paper deals with the second part of the question posed above—namely, the steps that are needed in policy and practice to overcome the cost barriers to using the Internet and other ICTs in developing countries to support sustainable economic growth and development, particularly through trade.

Cameron begins by noting the positive correlation between ICT investment and economic growth, and summarizes the main ways in which the Internet and other ICTs can contribute to economic growth by helping improve the efficiency of production processes in all economic sectors, creating new business opportunities, improving access to markets and reducing transaction costs. He goes on to describe policies and programs that have been designed to help developing countries use the Internet and other ICTs to achieve these benefits. These include: aid aimed at building both the physical and institutional infrastructures needed to engage in trade (aid for trade); agreements in the World Trade Organization (WTO) to facilitate trade in telecommunications and other services that are supplied using telecommunication networks; regulatory frameworks that facilitate investment in telecommunications and other ICTs promote the development of Internet-based e-commerce; measures to encourage the adoption of ICTs by the small- and medium-sized enterprises that are the backbone of the non-agricultural economy in many developing countries; and measures to build the human capacities required to use the Internet and other ICTs.

On a cautionary note both papers also acknowledge the reality that telecom infrastructure in developing countries tends to be concentrated in urban areas due to the lack of economies of scale, a phenomenon further exasperated by unrestricted global competition as noted by Cameron. Rural areas of developing countries also tend to be limited more than urban areas in terms of the availability of electricity supply, and the frequency of breakdowns and associated power outages. As one e-conference participant noted, repeated electricity failure and interruption not only leads to frustration and annoyance but sometime results in great loss in terms of damage to ICT equipment.

Such issues are problematic for both the goals of Internet governance and sustainable development since three-quarters of the developing world's poor still live

in rural areas.[14] Given that agriculture is often the only means of making a living in rural areas, agricultural development researchers have suggested that agricultural growth that benefits the poor more than growth in other sectors should be accelerated, an area where science and technology and rural infrastructure can play key roles.[15] Cameron notes that the agriculture sector can experience large efficiency gains through relatively small investments in ICT infrastructure. The experience of one e-conference participant was that the value chain in agriculture is the most effective approach for introducing technology solutions to rural people as they quickly see the potential for income improvement. These ideas and observations should inform policies that aim to mitigate uneven patterns of development within, and between countries by ensuring services that can support such policy initiatives reach rural areas along with complementary human capacity-building initiatives.

The complementarity of the Jagun and Cameron papers shows that there is a solid basis for cooperation between the Internet governance and sustainable development communities on issues related to building telecommunication networks in developing countries and regions, extending access to their services, and using the Internet and other ICTs to support economic growth, in national and regional markets as well as through the global trading system.

This is perhaps not surprising, given the large amount of attention these questions have received in the past 10–20 years, in international organizations such as the WTO, the United Nations Conference on Trade and Development (UNCTAD) and the World Bank; in major United Nations conferences, such as the World Summit on Sustainable Development (Johannesburg, 2002) and the International Conference on Financing for Development (Monterrey, 2002); and in less formal settings such as the World Economic Forum (WEF), the G8 Digital Opportunities Task Force, the UN ICT Task Force, the Global Alliance for ICT and Development (GAID) and the New Partnership for Africa's Development (NEPAD).

With this base in place, what are some of the main challenges facing the sustainable development and Internet governance communities in the short, medium and longer term in relation to both existing and emerging economic barriers to ICT-enabled growth and development? The following questions may be worth exploring:

1. *Should we be striving to achieve a global consensus on reducing barriers to affordable Internet access?*

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14 Ravallion, M., S. Chen and P. Sangraula. 2007. New Evidence on the Urbanization of Global Poverty. Washington D.C.: World Bank, http://ideas.repec.org/p/wbk/wbrwps/4199.html (accessed October 6, 2007).

15 Joachim von Braun. *Focus on the World's Poorest and Hungry People*, IFPRI 2006–2007 Annual Report Essay. October 2007. http://www.ifpri.org/pubs/books/ar2006/ar2006_essay01.asp (accessed October 6, 2007).

Although there is now global consensus on the framework policies and regulatory measures needed to support widespread, affordable access to *telecommunication networks and services* in developing countries, there is not yet a similar consensus on the framework policies and regulatory measures needed to support widespread, affordable access to *Internet services* in these countries. From both an Internet governance and a sustainable development point of view, this means that the job is only half done.

Affordable access, particularly to wireless networks and services, has brought major economic and social benefits to many developing countries over the past decade. As the experience of developed countries during this same period of time has demonstrated, affordable access to Internet services would likely bring relatively comparable benefits to developing countries. To maximize these benefits, though, it will likely be necessary to achieve a global consensus on Internet governance similar in scope to the consensus that is already in place for telecommunications governance—for example, in relation to charges for interconnection to the Internet backbone and arrangements for managing core Internet resources.

As the paper on Internet governance arrangements has sought to demonstrate, this will be no easy task. Since reduction of the economic barriers that stand in the way of affordable access to the Internet and other ICTs is a necessary condition for sustainable development in the information society, cooperation on this challenge should be a top priority for the Internet governance and sustainable development communities.

2. *How do we develop the economic models needed to support policies aimed at reducing or eliminating economic barriers to accessing the Internet and other ICTs?*

To be effective, policies aimed at reducing or eliminating economic barriers to accessing the Internet and other ICTs, and to using them to support sustainable development must be based on sound economic models of the relationship between inputs, in terms of investments in ICT development and use; the prices of services, applications and content; and outputs, in terms of economically, environmentally and socially sustainable activities.

Construction of such models is a challenge for the Internet governance community. After many years of study, there is now consensus among economists that there is a positive relationship between, on the one hand, investments in telecommunication networks and services, other elements of ICT infrastructure, and human and organizational capacities and, on the other hand, productivity at the level of firms, industrial sectors and national economies. However, as indicated above, there is at present no consensus on other

Internet governance-related issues that have important economic dimensions and significant implications for sustainable development. One example is the question of what kinds of economic models and policy mechanisms are likely to be most effective for encouraging investment in the development of electronic applications and content, determining their price and ensuring their widespread use, so as to maximize their benefits in terms of economic, environmental and social sustainability.

Construction of new economic models to help guide policy-makers is also an important challenge for the sustainable development community—for example, "green accounting" models that include environmental costs in the prices of goods and services, as well as the direct costs of production.

Developing new economic models that would help improve policy-making is a longer-term challenge facing both the Internet governance and sustainable development communities. There might be merit in exploring the possibility of collaborating on at least some elements of this venture—for example, in areas where the cooperative development of complementary Internet governance and sustainable development policies would maximize positive externalities and minimize negative ones.

# Capacity of developing countries to participate in international governance

In spite of the differences between the Internet and sustainable development governance universes described earlier in this book, the papers by David Souter and Peter Doran papers show that the two communities face similar challenges in seeking to build the capacity of developing countries to participate effectively in international governance arrangements in their respective domains.

Developing countries make up a majority of the membership of many international organizations involved in the governance of sustainable development. This is also the case if a broad view is taken of Internet governance, so that it is not limited to the technical and managerial bodies directly involved in Internet governance, but also includes international organizations such as the ITU, WTO, WIPO and UNESCO whose activities have important direct and indirect influences on the development and use of the Internet.

As recent studies cited by Souter and Doran demonstrate, membership of developing countries in the various intergovernmental organizations involved in Internet and sustainable governance and attendance by developing country representatives at the meetings of these organizations is not the same thing as effective participation in the complex set of governance processes that set international policy agendas, negotiate agreements, and follow up on results. In addition, particularly in the world of Internet governance, important decisions are made by organizations that have very little, if any, developing country representation—for example, by private sector standardization fora or by individual companies or consortia of companies that enjoy significant market power, and whose "code is law."

Taken together, the papers suggest that there are both horizontal and vertical dimensions to international governance processes—"horizontal" in the sense of a more or less sequential series of steps, or path that needs to be followed at the international level, each of which requires different skills and capacities; and "vertical" in the sense of the underlying structures that are needed at the national and regional levels to participate effectively in international decision-making processes.

Doran's paper explores the sequential requirements of capacity-building, or path that should be followed to build the capacity of developing countries to participate

more effectively in international negotiations related to questions of sustainable development. It distinguishes the various steps that typically take place before, during and after a negotiating process, in order to identify the skills and capacities that negotiators need to participate effectively at each stage of the process. In addition, Doran identifies a number of underlying economic, social and political factors that help determine a country's negotiating capacity. These factors include various endogenous resources, international connectivity and geopolitical status.

Souter's paper probes a similar set of capacity-building questions and issues as they arise in relation to Internet and ICT governance, but from a structural point of view rather than a sequential one. It identifies the underlying capacities that need to be in put in place by developing countries at the national and regional levels so that they can participate effectively at each stage of the negotiation process. These include the capacities to formulate and implement policies, particularly those involving the multistakeholder approaches that are increasing common in Internet and ICT governance, as well as "deep policy structures" that include the capacity to track trends, forecast issues, analyze their implications for national development objectives, conduct policy research and analysis, and evaluate the effectiveness of policy implementation.

In both the Internet governance and sustainable development communities, provision of background information and other briefing materials on issues being negotiated, training in the science and art of negotiation, and assistance in implementing the results of negotiating processes traditionally have been considered the principal means of capacity-building, corresponding to the needs of developing countries at each of the main stages of international governance processes. Doran's paper provides a comprehensive overview of the capacity-building supports of this kind that are available to developing country negotiators at each stage in this process. It focuses in particular on identifying training approaches that have proved most helpful in preparing negotiators to protect and advance their interests in sustainable development negotiating fora.

The statement in Doran's paper that "from the perspective of developing countries the language game is sometimes 'fixed' from the outset and 'incapacity' is built into the rules of the game as a fait accompli" captured the mood of one of the more dominant debates of the e-conference. Many participants felt quite strongly that a top priority of capacity-building assistance for developing country negotiators should be the accommodation of languages competencies through the acceptance of a broader range of recognized languages for negotiation and the translation of supporting documentation. Some participants suggested, as mentioned by Doran, that lack of support for such accommodations at international meetings ignored the distinct advantage to exercise authority over the meaning of words in ones native language and was symptomatic of a wider context over meaning and power in the global community.

Souter's paper builds on this analysis by suggesting that although training is an important part of capacity-building, other things are also needed to enable developing countries to participate effectively in international ICT decision-making. In addition to training, Souter suggests that more needs to be done to provide developing country negotiators with timely, reliable and easily understandable information on issues being negotiated; to establish consultative processes within developing countries and regions that include non-governmental stakeholders in the development of policy proposals and negotiating positions; and to create informal spaces where decision-makers can engage in creative thinking outside the pressure-cookers of negotiating fora. These suggestions appear similar in spirit to some of the success factors identified by Doran, such as transnational connectivity, but take an additional step by emphasizing the importance to international performance of national and regional structures, and the fundamental importance of an informed citizenry at the national level.

Many of these same points were echoed by e-conference participants when the challenges of promoting online participation in international meetings as a means of achieving capacity-building objectives were raised for discussion. One solution presented for overcoming the lack of skills and resources in developing country communities for effectively participating in preparatory meetings and international negotiations was the formation of regional centres to support effective remote access. It was felt that these centres could also facilitate more cost effective capacity-building initiatives, coalition building, alleviate travel restrictions as a barrier to participation, as well as create informal spaces like those mentioned above. The biggest challenge with such a proposal universal to both the Internet governance and sustainable development communities would be to find an appropriate organization that can represent regional interests that stakeholders from all countries in that region can agree to.

Souter makes an important point when he notes that ICT capacity-building initiatives traditionally have rarely addressed the intersection between ICT/Internet policy and other areas of public policy. He suggests that Internet and ICT decision-makers will make better decisions, from an overall developmental perspective, if they learn more about the wider implications of their decisions. He also suggests that decision-makers outside the world of the Internet and ICTs could benefit by learning more about the governance of these all-pervasive technologies. His suggestion that one way of achieving these two objectives would be to establish better spaces for dialogue between ICT and non-ICT decision-makers at both the national and international levels seems well worth pursuing.

To do this, it might be useful to begin by exploring the following questions:

1. *Are there existing dialogue spaces where the Internet/ICT governance community could learn more about the implications from the sustainable development com-*

*munity of Internet/ICT governance decisions, and the sustainable development community learn more about the governance of Internet/IC technologies, in a focused and systematic fashion?*

2. *If not, what options exist for creating such a space?*

# Access to knowledge as a critical input to decision-making

The activities of both the Internet governance and sustainable development communities are motivated by a basic conviction that in order to reach a desirable future, fundamental changes are urgently needed in global economic, social, and governance structures, and that these transformations imply equally fundamental changes in human perceptions, values and behaviour.

So far, the two communities have tended to see this desirable future and the obstacles to realizing it from very different points of view that are not only contrasting, but in some senses appear to be diametrically opposed.

In the case of the Internet governance community, the future has generally been seen in a very positive light, from the perspective of the apparently limitless possibilities created by the Internet for improving the generation, communication and sharing of information, knowledge and cultural expression. From this point of view, limitations on Internet access and use are the main obstacles to progress that must be removed. In other words, from the point of view of the Internet governance community, the glass that represents the future is already half full, with plenty more to come.

The vision that has motivated much of the activity of the Internet governance community is captured in the following passage from the *Tunis Commitment* of the World Summit on the Information Society:

> We reaffirm our desire and commitment to build a people-centred, inclusive and development-oriented Information Society, premised on the purposes and principles of the Charter of the United Nations, international law and multilateralism, and respecting fully and upholding the Universal Declaration of Human Rights, so that people everywhere can create, access, utilize and share information and knowledge, to achieve their full potential and to attain the internationally agreed development goals and objectives, including the Millennium Development Goals.[16]

16 See Tunis Commitment, November 18, 2005, WSIS-05/TUNIS/DOC/7-E, http://www.itu.int/wsis/docs2/tunis/off/7.html (accessed October 6, 2007).

In the case of the sustainable development community, since the 1972 Stockholm Conference on the Human Environment and the publication in the same year of the Club of Rome's *Limits to Growth*, the future has generally been seen in a somewhat different light—from the perspective of the harm that has been done to the natural and human environment by industrialization, and the consequent limitations that need to be placed on economic activity in order to preserve and improve the natural and social environments on which sustainable life also depend. From this point of view, the complex set of relationships among economic, social and cultural structures that developed in some regions of the world in the modern industrial era and which have been extended on a worldwide basis through the process of globalization are all, to a greater or lesser extent, obstacles to progress. In other words, the glass that represents the future is at present half empty and draining rapidly.

The vision that has motivated much of the activity of the sustainable development community is captured in the definition given in *Our Common Future*, the 1987 report of the Brundtland Commission:

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.[17]

In spite of these apparent differences, the visions of the Internet governance and sustainable development communities share a number of common elements. One is a belief in the power of technology and other forms of innovation to support the realization of their respective visions—a theme that was explored in the previous section of this paper. Another is a shared belief in the transformative power of knowledge and the absolute importance of using technology to improve access to knowledge.

The papers by Tony Vetter and Eddan Katz on "Access to Knowledge in the Information Society" and Ashish Khotari on "Traditional Knowledge and Sustainable Development" point to another possible point of convergence in the visions guiding the Internet governance and sustainable development communities. Both papers raise fundamental questions about whether the models for governing knowledge generation and access developed during the industrial era are the most appropriate approaches for moving forward. Vetter and Katz raises these questions with respect to the intellectual property rights (IPR) model that largely governs access to knowledge via the Internet and other communications media, while Khotari focuses on the role that could be played by traditional knowledge (TK) as a complement to scientific knowledge in sustainable development activities.

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17 Report of the World Commission on Environment and Development: Our Common Future, http://www.un-documents.net/wced-ocf.htm (accessed October 6, 2007).

As the Vetter and Katz paper shows, the historical conjuncture of new needs for widespread, affordable access to information and knowledge that are created by the rise of the global information society; the obstacles to such access created by traditional proprietary approaches, particularly in developing countries; and the opportunities presented by the Internet and other information and communication technologies for reducing the cost of information products and services and improving ease of access have had two main consequences, both of which challenge the sustainability of traditional IPR-based approaches.

On the one hand, this conjuncture has given rise to widespread violations of IPRs, particularly in developing countries and regions and by youth everywhere. These violations range from traditional forms of "piracy" (i.e., making physical copies for other than personal use without paying licensing fees or otherwise having permission to do so) to innovative technologies for sharing electronic files on a peer-to-peer basis (P2P) or creating "mash-ups" from different information sources for distribution via social networks.

On the other hand, this conjuncture has led to the development within the Internet and ICT governance communities of new models for governing the generation, dissemination and use of information and knowledge products that are based on a cooperative approach designed to lower the cost of accessing these products, as well as to encourage users to add value and in turn make the results of their work freely available. Underlying these new models is a belief that in the global information and knowledge society, cooperative approaches to generating and disseminated knowledge will yield greater overall economic and social benefits than the traditional proprietary approach embedded in IPR regimes, which allows creators to control access to their products through prices and other mechanisms. Creative commons licensing and open source software are examples of these new approaches that are designed to lower the cost of access to information and knowledge products and to increase their value to society by facilitating innovation and the widest possible use. It is interesting to note that these new approaches have attracted considerable attention in the sustainable development community.

Like IPRs, the scientific model for generating knowledge was a product of a particular historical period; its development both coincided with and contributed to the rise of the industrial model of economic and social development—a model that is being challenged by both the Internet governance and sustainable development communities through their post-industrial visions of the global information and knowledge society, and a common future in which balance is restored between the human and natural environments.

In challenging different aspects of the industrial model, members of the sustainable development community have called attention to the important roles that

traditional knowledge can play—in supporting environmentally-sustainable economic practices, preserving communities and innovation.

During the industrial era, traditional knowledge was devalued and largely displaced by scientific knowledge. However, many of the fundamental attributes of TK are well suited to the needs of communities, particularly in developing countries. Traditional knowledge tends to be local and adapted to specific economic, environmental and social contexts. It aims at achieving a mutually-beneficial relationship between the natural and human environments, so that both will be preserved from the past into the future. It is generated and disseminated cooperatively and as a part of the process of maintaining a community across generations.

The argument for traditional knowledge is of course not an argument against scientific knowledge. As the current debate about climate change demonstrates, the natural sciences and other forms of systematized knowledge play a central role in the development of economic, environmental and social policies aimed at achieving long-term sustainability. Rather, the argument for traditional knowledge is simply that it be given due weight alongside scientific knowledge in the development of policies and programs. In support of this view, Khotari provides numerous practical examples of how traditional knowledge can play an important role in helping communities develop and maintain sustainable relationships between the human and natural environments.

Superficially, steps being taken by the sustainable development community to preserve and strengthen traditional knowledge may appear to have very little in common with the new approaches to governing access to knowledge that are emerging in the Internet governance community. However, in the context of the shared belief in the transformative power of knowledge and the absolute importance of using technology to improve access to knowledge, one e-conference participant questioned whether the tendency of technology to create a common cultural plane, and the threat this could pose to traditional knowledge, would be tolerated by the sustainable development community. In contrast, another e-conference participant offered an excellent example based on the use of ICTs to improve the efficiency of the value chain of rural milk production that suggested that technologies solving particular needs get easily absorbed into lives without threatening local traditions.

Through a reflection on the issues, the Vetter and Katz, and Khotari papers suggest that the following questions may be worth exploring with the aim of strengthening cooperation between the two communities to their mutual benefit.

1. *At a practical level, it may be worth systematically exploring how the Internet and other ICTs can be used to help preserve and strengthen traditional knowledge. What kinds of policies regarding access and use are needed to support this objective?*

2. *At a policy level it may be worth exploring the underlying similarities between the access to knowledge (A2K) and the TK movements (e.g., their rejection of the proprietary model of knowledge and market-based mechanisms for obtaining access in favour of alternative models and incentives), in order to identify opportunities for building on strengths and minimizing weaknesses (e.g., Can the A2K movement recommend approaches that would protect TK against third-party exploitation? Can the TK movement help the A2K movement understand the economic and social conditions required to ensure that creative commons and open source are sustainable?)*

## Indicators for development

The papers by Clark Miller on "Creating Indicators of Sustainability: A Social Approach" and Christoph Stork on "Sustainable Development and ICT Indicators" are similar in that each paper proposes new approaches to designing indicators that differs from current practice in their respective fields. At the same time, the papers present contrasting views of the kinds of information, and the nature of the epistemic processes, which are needed to create indicators that not only measure the current state of affairs in a given area, but also provide tools that can help decision-makers shape policies and strategies for moving towards desired goals—in particular, by reflecting relationships among the different factors measured by individual indicators through composite indexes and more complex development models.

Miller argues that to be useful in this broader sense, sustainable development indicators must be much more than macro-level numbers designed to measure where things stand in relation to the various categories that typically are used to analyze and compare the economic, social and environmental performance of different groups of people, whether they are grouped as country populations, demographic cohorts or market segments. Instead, in Miller's view, sustainable development indicators should be developed from the ground up by communities in light of needs and objectives that they themselves define. Communities may be either geographical or virtual, and they may be constituted at different governance levels ranging from local to global. Reflecting this point of view that sees good indicators as intentional constructs rather than as objective measures, Miller also makes the interesting suggestion that good indicators are usually the result of policy decisions rather than a prelude to policy-making.

Stork is equally iconoclastic in relation to much of past and current practice in the field of Internet and ICT indicators. He argues that to be effective, ICT indicators need to be holistic in a number of different senses. In view of the convergence that is taking place between formerly independent ICTs—largely, although not exclusively because of the Internet—it is important that indicators not only provide information on the many different technologies, services and applications that make up the ICT sector, but that indicators also provide a sense of how the sector is changing overall as a result of technological convergence. To do this, in Stork's view, it is necessary to complement the supply-side measures that have traditionally dominated ICT indicators with equally robust but more difficult to collect information on the demand side, since market forces are now driving all areas of the ICT sector. Finally, to help governance bodies

make the link between, on the one hand, policies and strategies aimed at developing markets for ICT goods and services and, on the other hand, policies and strategies aimed at achieving sustainable development, it is essential that ICT indicators help decision-makers measure and evaluate the impact of ICTs on economic, social and environmental development goals and objectives—an even more complex challenge.

To some extent, the differences in the approaches advocated by Miller and Stork may reflect general differences between the sustainable development and Internet governance communities, some of which have emerged in the papers presented in previous sections of this report.

One such difference may be the contrasting points of departure for indictors work in the two governance communities.

It seems fair to say that sustainable development governance processes have been concerned from the beginning with developing a holistic approach that included economic, environmental and social factors and was aimed at achieving an appropriate balance among them. If this is so, it seems natural that work on sustainable development indicators would reflect this goal and aim not only at measuring these different factors, but also at illuminating the relationships among them. As Miller suggests, given the great diversity of the world, this is perhaps something that can be done most effectively from the viewpoint of specific communities and in light of their common purposes.

ICT governance processes, on the other hand, have been primarily concerned with facilitating the supply of technologies, applications and services—latterly, through the creation of open, competitive markets. It is, therefore, perhaps not surprising that ICT indicators work has tended to focus on measuring supply and demand within the ICT sector, and has been less concerned to this point with developing a holistic view of the relationship between the development of ICTs through markets and other mechanisms, and the use of ICTs to achieve sustainable development objectives. From this perspective, Stork's call for a holistic approach is timely.

In spite of these differences in approach, there are important similarities in the nature of the policy visions that have guided indicators work in the two governance communities over the past couple of decades. During this period, an important part of the work of both communities has involved helping people see the world in a new light, so that they could better understand the challenges facing them as individuals, citizens and members of a global community, develop appropriate policy responses, and change their own behaviour.

For the sustainable development governance community, the central challenge has been to strike a new balance between economic growth, social development and preservation of the natural environment. For the Internet and ICT governance community, the central challenge has been to ensure that people everywhere are

able to use technology to improve the lives and further their development. In spite of their differences, the policy visions of a "sustainable common future" and a "global information society" share a similar fundamental purpose—to move beyond the approaches to economic and social development that emerged during the nineteenth and twentieth centuries, towards the development of new governance frameworks that will better serve the long-term interests of people everywhere by recasting rights, responsibilities, incentives and commitments in light of twenty-first century needs, threats and opportunities.

If it is true that the sustainable development and Internet governance communities share similar fundamental "policy intentions" of this kind, and that good indicators are an essential support for good policy-making, it seems worthwhile in the context of this project to identify steps that could be taken to improve cooperation between the two communities on the development of indicators. To this end, the following questions may be worth exploring.

1. *What mechanisms are needed to develop more holistic approaches to both ICT and sustainable development indicators by designing improved sets of indicators that would help policy-makers measure and evaluate the relationship between the development and use of ICTs and various aspects of sustainable development?*

2. *To what extent are the challenges involved in developing more holistic approaches conceptual—i.e., requiring fresh thinking about what kinds of things should be measured and the relationship between different variables in the ICT/sustainable development equation? To what extent do they raise practical issues of data gathering and analysis? To what extent do they entail the development of new policy approaches explicitly linking ICT and sustainable development governance?*

3. *What are likely to be the most effective strategies for developing more holistic indictors? The macro-level top-down, institutional approaches that typify much of current sustainable development and ICT indicators work? Micro-level, bottom-up, community-based approaches? Or blended approaches that incorporate both dimensions?*

In consideration of blended approaches, one e-conference participant suggested that we sometimes create difficult situations for ourselves when we try to develop the best criteria for selecting indicators (macro-level, top-down) while at the same time trying to engage the community in indicators development and selection (micro-level, bottom-up). While clearly defining what makes a good indicator is incredibly useful, this participant cautioned that the length of the list of criteria is directly proportional to the size of the barrier created for community participation. In their opinion, really good indicators tell a story you can do something about and that motivate you to action. Such an emphasis helps to avoid discouraging community members who are often made to feel ignorant or impotent by overly complex indicator criteria, resulting in resentment toward the process.

# Conclusion: Towards a common agenda

As discussed in the Introduction, this collection of essays is part of a larger project that originated in the observation that the communities of researchers, policymakers and practitioners involved in Internet governance (IG) and sustainable development (SD) live in largely separate governance universes.

The reasons for this are understandable. The SD governance universe had its origins in the environmental movement of the 1960s and 1970s. The Internet governance universe grew out of the information revolution that began to occur at about the same time, as a result of advances in computer and communications technologies. These two parallel but largely distinct movements—symbolized by the archetypes of the "tree-hugger" and the "techie"—began on the fringes of industrial society. Today, they are part of the policy mainstream in both developed and developing countries, and rank high on the international governance agenda.

As the economic, social, scientific and technical challenges that preoccupied the members of the IG and SD communities moved from the periphery of public life towards its centre, and as these challenges became concerns for all countries whatever their level of development, the range of issues addressed by the policy visions guiding the work of the IG and SD communities has steadily expanded.

Today these visions—which were most recently articulated by the World Summit on Sustainable Development (Johannesburg, 2002) and the World Summit on the Information Society (Geneva, 2003 and Tunis, 2005)—encompass most of the main security and development challenges facing the global community. The IG and SD communities share a common ambition to find global solutions to global problems.

The visions that guide the two communities are largely complementary. One deals primarily with the challenges of the material world, while the other deals primarily with the challenges of the world of ideas and knowledge. Together, they hold out the promise of a better future for our planet and its peoples. However, there are as yet very few practical linkages between their proponents—in terms of policy research, public advocacy, or participation in governance processes. The fact that WSSD paid relatively little attention to the Internet and other ICTs, while WSIS made only passing reference to environmentally-sustainable development, suggests that there is indeed a "governance gap" between the IG and SD communities.

Recent IISD publications have demonstrated that policy frameworks with the potential to bridge the activities of these two communities are beginning to emerge, and that there are increasingly strong connections on the ground between the evolution of the Internet and sustainable development practices.[18]

While these are encouraging signs, the fact remains that over the past two decades, international discussion, debate and decision-making about governance of the Internet and other information and communication technologies (ICTs) has taken place more or less in complete isolation from discussion, debate and decision-making about the policies needed to ensure that economic development takes place in ways that preserve and enhance the quality of the natural and human environments on which long-term sustainability depends.

This isolation does not mean that the IG community has been completely oblivious to the Internet's economic, social and environmental impacts and implications. Nor does it mean that IG activities have been focused exclusively on advancing the development of Internet technology and on resolving the increasingly complex legal and regulatory issues surrounding the deployment and use of IP-based networks—issues such as convergence, network neutrality, privacy and cyber-security.

Quite to the contrary, the Internet Governance Forum, WSIS follow-up activities, and other events dealing with Internet and ICT governance invariably include broad economic and social development questions in addition to Internet- and ICT-related technical, legal and regulatory issues, and usually make at least passing reference to environmental concerns.

What this isolation does mean, however, is that Internet governance activities often take place without the active participation of people who have expertise in these broader economic, social and environmental issues—either through participating in research on sustainable development policies and practices—or through experience exercising political, administrative, or business responsibilities in these areas—or by being engaged in sustainable development activities as members of civil society.

This lack of regular engagement with the sustainable development community means that members of the Internet governance community generally do not have ready access to evidence-based research, or to the kinds of practical insights that come from first-hand experience, when they attempt to address general issues of sustainable development or seek answers to the following kinds of questions:

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18 See Willard, Terri and Michael Halder. *The Information Society and Sustainable Development: Exploring the Linkages*. Scoping Study. Winnipeg: IISD, 2005. http://www.iisd.org/publications/pub.aspx?id=598, and Willard, Terri and Maja Andjelkovic, (eds.), *A Developing Connection: Bridging the Policy Gap between the Information Society and Sustainable Development*, Winnipeg, IISD, 2005.

- *What has been the impact of the development of the Internet and other ICTs on the natural and human environments in developed and developing countries? In particular, to what extent have the Internet and other ICTs …*
  - developed in ways that reduce demand for energy and natural resources, and enable them to be used more efficiently in economic processes and social life? Had the opposite effect, by stimulating demand for energy and natural resources, with negative consequences for the natural and human environments?
  - supported conservation of the natural environment and maintenance of biodiversity? Had the opposite effect and contributed to the degradation of the natural and human environments, e.g., by generating e-waste and other forms of pollution?
  - contributed to sustainable economic development in developing countries and regions by improving the efficiency of markets, supporting innovation and enabling developing country enterprises to be included in trans-national value chains? Had the opposite effect, and contributed to the economic marginalization of developing countries by excluding them from global markets?
  - contributed to maintaining and promoting cultural diversity and traditional knowledge? Had the opposite effect, and contributed to cultural homogenization and loss of human diversity?
  - contributed to mitigating the negative effects of urbanization and helped maintain the viability of rural communities? Had the opposite effect, by helping to reinforce migration from rural to urban areas?
  - led to improvements in education, health care and other public services, and to the exercise of legal, economic, social, cultural and political rights? Had the opposite effect, by increasing inequality in access to essential public services and derogating from enjoyment of the fundamental human rights enumerated in the Universal Declaration?
  - increased public awareness of sustainability issues, knowledge of good practices, access to sustainability tools, and engagement in governance processes? Had the opposite effect?
- *What demands are the activities of the sustainable development community likely to place on the Internet in the medium to longer term? How will these demands influence the development of Internet technology, applications and content? How will they help shape Internet governance discussions and decision-making? In particular …*

  - How will the needs of the scientific community for networks capable of connecting researchers, databases, sensor networks and computational resources on a global scale impact the development and management of core Internet resources, including the TCP/IP protocol suite, and the current IP address and domain name systems?
  - How can the demand of developing countries and regions for affordable access to high-bandwidth networks and services—as well as to applications and content in local languages and relevant to local needs—be more effectively met?
  - How can Internet security and quality of service be improved, so that it meets the standards expected of an infrastructure that is critical to sustainable economic and social development, public security, disaster warning and emergency assistance?
  - How can the rights of consumers and citizens be better protected in the online environment, so that they can have confidence in the Internet as a medium for economic and social development, and trust in the different kinds of transactions that take place through the Internet?

- *What policies and practices are needed to ensure that the beneficial impacts of the Internet and other ICTs on the natural and human environments outweigh their harmful effects, and to ensure that any damages they cause are remedied as rapidly and effectively as possible? In particular …*
  - What role can top-down, framework-based, partnership approaches of the kind pioneered by the sustainable development community play in the development of these policies and practices?
  - What role can be played by bottom-up, "running code and rough consensus," multistakeholder approaches of the kind pioneered by the Internet governance community?
  - How can these different governance approaches most effectively complement each other?

The hypothesis the IISD IG and SD project aims to test is that global governance of the Internet and sustainable development can each be improved if steps are taken to bridge the gulf that currently exists between the two communities, so that the answers given to the kinds of questions listed above (which are derived from the sustainable development agenda established by the 1992 Rio Conference and the Internet governance agenda established by WSIS) are based on the evidence, experience and insights that members of each community are best positioned to contribute.

In considering this hypothesis, it is important to note that building bridges between the IG and SD communities is a two-way challenge.

Just as the IG community has a general awareness of the potential implications of the Internet and other ICTs for sustainable development, so the SD community has a general awareness of the role these technologies potentially can play in the achievement of sustainable development objectives.

However, just as the Internet governance community currently lacks significant, ongoing engagement with experts from the SD community, so the SD community currently lacks significant, ongoing engagement with members of the IG community who could bring technical, legal, regulatory and other forms of expertise to bear on questions of common concern—either through involvement in research on Internet and ICT technologies, applications, services, diffusion and use—or through political, administrative or business responsibilities in these areas—or by being engaged in Internet governance activities as members of civil society.

Research, discussion of findings, identification of policy options, debate and decision-making in relation to the questions listed above and others of their kind is likely to be more solidly grounded, better informed, more efficient and more productive if it is based on the direct engagement and interaction of expertise, experience and insight from the two communities.

The papers presented in this collection of essays give an initial indication of areas in which it may make sense for the Internet governance and sustainable development communities to begin to cooperate more closely.

On issues related to governance structures, capacity-building and indicators, it seems clear that the IG and SD communities have much to learn from each other's experience, as well as opportunities to work together on developing new models and common approaches.

On issues related to economic barriers and access to knowledge, it is clear that in many important policy areas decisions taken by one community directly affect the ability of the other to achieve its objectives, and that there are potential benefits to cooperative policy development in such cases.

The commentaries on each pair of papers in this collection suggest a number of specific questions that the IG and SD communities may wish to consider exploring together in relation to the five issues covered in this volume. Other issues and other questions will undoubtedly arise in the discussions and debates that hopefully will follow its publication.

As well as exploring specific questions related to the five issues addressed in this publication, and others that arise of common concern to the IG and SD communities, it may be worthwhile conducting a more general examination of the overall relationship between Internet governance and sustainable development.

This examination could begin by systematically mapping the different ways in which the Internet and other ICTs affect sustainable development—positively and negatively, actually and potentially—both overall and in relation to the economic, environmental and social pillars that jointly support sustainable development. A framework of this kind could be used to identify current and emerging governance issues that need to be resolved to enable the Internet to support sustainable development policies and practices as efficiently and effectively as possible.

There is some urgency in bridging the governance gap between the IG and SD communities—whether through a bottom-up approach focused on specific issues where there is a common interest in working together, a top-down approach to mapping and exploring a shared governance terrain, or a combination of both.

In the next five years, discussions and decisions in a number of Internet governance forums, including the Internet Governance Forum and the 2008 OECD Ministerial Conference on the future of the Internet economy, are likely to have an important influence on the evolution of the Internet and its capacity to contribute to the achievement of sustainable development objectives. During this same period of time, there will be equally important discussions and decisions related to climate change and other central issues of sustainable development.

The conjunction of these events gives members of the IG and SD communities the opportunity to develop and pursue a shared agenda on issues of common concern, to their mutual benefit. However, if the members of these two communities are right about what is at stake in their respective governance domains, closer cooperation is more than an opportunity for mutual support. It is a necessity for the common good.

# Appendix

## The Issues: Internet Governance and Sustainable Development

One of the pairs of papers featured on the attached CD—"Internet Governance" by Jovan Kurbalija and Don MacLean; and "Global Governance for Environment and Sustainable Development" by Arthur Hanson—examines the governance processes that have been emerging in these two areas. These communities have been evolving their governance processes over decades through precedent-setting global governance initiatives that have resulted in key globally-negotiated building blocks. Both papers include narratives of how these building blocks have contributed to the formation of the global governance systems that each community continues to evolve while navigating their governance challenges. These narratives are repeated here in this appendix so that the reader may easily refer to them for additional background information as they read this booklet.

## Excerpt from "Global Governance for Environment and Sustainable Development" (by Arthur Hanson)

### 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.

## 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 preemptive 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 U.S. 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.

## Excerpt from "Internet Governance" (by Jovan Kurbalija and Don MacLean)

### The World Summit on the Information Society: A Turning Point?

From the viewpoint of government policy-makers, researchers, civil society organizations, and businesses concerned with the relationship between information and communication technologies (ICTs) and the great issues of global development, WSIS was in some ways similar to the 1992 Rio de Janeiro Conference on Environment and Development.

Like the Earth Summit, WSIS elevated to the highest level of the international policy agenda a complex set of issues that had been discussed and debated in UN circles and other forums for the previous two decades. For the sustainable development community, the ground for Rio had been prepared by events such as the 1972 Stockholm Conference on Human Environment and the publication of *Our Common Future*, the 1987 report of the World Commission on Environment and Development (the Brundtland Report). In the case of WSIS, a similar role in preparing for the main event was played by the publication of *The Missing Link*, the 1984 report of the Independent Commission for World Wide Telecommunication Development (the Maitland Report) and a series of conferences that subsequently took place on the relationship between telecommunications, other ICTs, and development.

Like the Earth Summit, WSIS was a world gathering as well as an intergovernmental conference. Although there was some concern before the event that WSIS might be lightly attended—coming as it did in the wake of the dot-com crisis and a meltdown in the global telecommunications industry—175 governments and 12,000 delegates participated in the Geneva phase of the summit, while 174 governments and 19,000 delegates attended the Tunis phase. In spite of the downturn in the Internet and ICT industries, and the changes in the international environment that had occurred post 9/11, WSIS showed that a substantial global community remained interested in the issues on the conference agenda.

Like the Earth Summit, two of the main products of WSIS were a declaration and an agenda—the 2003 Geneva Declaration and the 2005 Tunis Agenda for the Information Society.[19] However, unlike the Earth Summit, which adopted the Convention on Biological Diversity and the Framework Convention on Climate Change as well as the Rio Declaration and Agenda 21, WSIS did not produce any documents that constituted binding international agreements—although they may come in time.[20]

From today's perspective, less than two years after the summit took place, it is too early to tell if over the next 10–20 years WSIS will have consequences similar to those engendered by the Earth Summit by reshaping the global policy agenda in the areas it addressed. However, while its overall long-term effect is not yet known, even this close to the event it is reasonable to view WSIS as a watershed in the evolution of Internet governance.

Although the original purpose of WSIS was to substantially advance the role played by ICTs in helping to achieve the Millennium Development Goals and other internationally agreed development objectives, for the most part the summit simply consolidated and confirmed actions that were already underway. Internet governance is arguably the only area in which the summit broke new ground and where a number of significant decisions were made.

## Enlarging the vision of Internet governance

Prior to WSIS, Internet governance was generally considered as principally concerned with two things; standardization and other technical matters related to the design and operation of the Internet primarily handled by the Internet

19 The WSIS output documents are available at http://www.itu.int/wsis. Although each phase of the summit produced two output documents, the 2003 Geneva Declaration was largely reprised in the 2005 Tunis Commitment, while the essence of the 2003 Geneva Plan of Action was incorporated in the 2005 Tunis Agenda for the Information Society.

20 The Internet Governance Project (IGP), a consortium of academic researchers, has proposed development of a framework convention on Internet governance similar in principle to the Framework Convention on Climate Change. See http://www.internetgovernance.org/pdf/igp-fc.pdf

Engineering Task Force (IETF); and the management of two sets of resources that are central to the functioning of the Internet in its current form:

- Internet domain names, including generic top-level domain names (gTLDs) such as ".com," country code top-level domain names (ccTLDs) such as ".uk," and their respective lower-level derivatives;
- the numerical IP addresses that are assigned to computers and other devices connected to the Internet.

The WSIS debate on Internet governance was triggered by dissatisfaction, particularly among developing countries and civil society, with some aspects of the arrangements for managing Internet names and numbers that had been put in place by the United States Department of Commerce in the 1990s.

These arrangements had been developed with the aim of facilitating the transition of the Internet from a U.S.-based academic and research network with a very limited number of users to a global communications medium, widely available to the general public, run mainly on a commercial basis that left it largely free from direct government control (with the potential exception of the United States government, which retained at least theoretical control over the management of key Internet resources through various contractual relationships).

The concerns of those who were either uneasy with aspects of these arrangements or outright opposed to them centred on the fact that responsibility for managing Internet names and numbers had been transferred in 1998 to a private, not-for-profit corporation—the Internet Corporation for Assigned Names and Numbers (ICANN). Previously these responsibilities had been carried out by members of the Internet community on a largely informal basis.

Although ICANN was set up to operate as a globally decentralized organization with bodies in all regions of the world, and even though its structure included a Government Advisory Committee and mechanisms for representing the interests of civil society, the governments of a number of major developing countries and some other WSIS stakeholders strongly felt—albeit for very different reasons—that ICANN was the wrong model for managing core Internet resources at a time when the Internet was becoming a critical infrastructure for economic and social development in all countries.

From the point of view of some developing countries, this responsibility should have been entrusted to an intergovernmental organization, such as the ITU. From the point of view of civil society, a less commercial approach that was more respectful of the needs and rights of individual users would have been preferable. ICANN's status apart, the fact that the U.S. government retained control over the operation of the root server system that enables the Internet to function by help-

ing to map Internet domain name system onto IP addresses only added to these concerns.[21]

Although much of the debate about Internet governance in the early stages of WSIS centred on concerns related to the management of core Internet resources, a much broader vision of the scope of Internet governance evolved during the course of summit process.

The development of this broader vision was assisted by the report of the Working Group on Internet Governance that was set up to explore a number of key questions related to Internet governance between the first and second phases of the summit.[22] Largely on the basis of this report, the sections of the Tunis Agenda for the Information Society dealing with Internet governance include not only issues related to the management of core Internet resources, but also issues that had emerged in various forums in the decade before the summit took place. These issues, and some of the main forums in which they had been discussed, included:

- the development of the telecommunications infrastructure that underlies the Internet, particularly with respect to new mobile and broadband technologies, as well as the longstanding question of how to achieve universal and affordable access to this infrastructure in developing countries—*ITU and WTO*

- the structure of the global Internet service provider industry, particularly with respect to the prices charged to Internet service providers in developing countries for interconnection with global Internet backbone networks and the lack of regional Internet traffic exchange points in some developing regions—*ITU, the Organization for Economic Cooperation and Development (OECD) and the Asia-Pacific Economic Cooperation (APEC) forum*

- the development of multilingual or internationalized domain names (IDNs), particularly in languages that use non-Roman scripts—*IETF, ICANN, ITU, UNESCO, and the Multilingual Internet Names Consortium (MINC)*

- abuses of the Internet including

  – annoyances such as viruses, spyware and spam—which has a particularly devastating impact on Internet users in developing countries who typically pay high prices for very limited Internet access—*OECD, European Union (EU), ITU and multistakeholder arrangements such as the London Action Plan*

21 See Mueller, Milton L., *Ruling the Root: Internet Governance and the Taming of Cyberspace*, Cambridge MA, MIT Press, 2002, and Paré, Daniel, *Internet Governance in Transition: Who Is the Master of This Domain?* Lanham MD, Rowman and Littlefield, 2003 for detailed analyses of issues surrounding the management of Internet names and addresses.

22 See http://www.wgig.org for the Final Report and Background Report of the Working Group on Internet Governance.

  - various forms of cybercrime such as phishing, other forms of online fraud—*OECD and ITU, as well as in the Council of Europe which developed a Convention on Cybercrime*
  - threats to the security of the Internet as critical infrastructure, including denial of service attacks—*IETF*

- the impact of the Internet on
  - human rights, particularly as embodied in the Universal Declaration of Human Rights and with respect to issues such as freedom of expression and protection of privacy—*UNESCO and the Council of Europe*
  - competition policy and consumer rights—*ITU, WTO and OECD*
  - international trade—*OECD, WTO, the United Nations Conference on Trade and Development (UNCTAD), and the United Nations Commission on Trade-Related Law (UNCITRAL)*
  - intellectual property rights—*WTO and the World Intellectual Property Organization (WIPO), which adopted a set of "Internet treaties" in 1996, as well as in ICANN (particularly the relationship between trademarks and domain names) and various standardization fora including the IETF and ITU*

In addition to these specific issues, there had been considerable discussion in the decade prior to WSIS of the general implications of the Internet for overall economic, social, and cultural development, particularly in developing countries, including issues related to

- the development of e-commerce, e-health, e-education and e-government;
- the preservation of traditional knowledge, the development of content in local languages; and
- the building of technical, financial and policy capacities in all these areas.

These more general developmental issues were extensively discussed in multilateral agencies such as the World Bank, the United Nations Development Program (UNDP), the ITU and UNESCO. In addition, they were the subject of multistakeholder initiatives by the Group of Eight (G8) countries and the UN ICT Task Force in the years immediately preceding the summit.

This "top-down" discussion of Internet-related issues in intergovernmental organizations was mirrored in a more bottom-up fashion by the Internet Society (ISOC), which was founded in 1992 to provide an international, non-governmental organizational structure in which members of the Internet community could discuss issues related to standards, public policy and capacity-building.

## Internet Governance and Sustainable Development

### Towards a Common Agenda

In 2003, the World Summit on the Information Society declared its challenge "to harness the potential of information and communication technology to promote the development goals of the Millennium Declaration" with a "commitment to the achievement of sustainable development." Governance of the Internet understandably emerged as a key issue from this process given its increasing importance to the global economy. Sustainable development efforts cannot be conceived without global communications and knowledge exchange. Therefore, the outcomes of the Internet governance debate will affect our ability to manage the social, environmental and economic aspects of sustainable development.

These two historically disparate policy communities will each gain if they can discover and leverage the overlap in their respective visions for the future. However, the pervasive, complex and intricate nature of the linkages between Internet governance and sustainable development makes this nexus difficult to define.

Can a dialogue between these two communities contribute to mitigating degradation of natural and human environments in developed and developing countries; help avoid the economic marginalization of developing countries facing digital exclusion from global markets; and help maintain and promote cultural diversity and traditional knowledge?

*Internet Governance and Sustainable Development* contemplates such questions, and stimulates further dialogue.

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