

IHDP **UPDATE**

Connecting and Implementing - Policy Relevance and Capacity Building

Turning Up the Volume on the Science-Practice Interface in Global Change¹

BY GEOFFREY DABELKO

The lead piece in a recent issue of *International Environmental Agreements* asked “Is anyone listening?” Are any practitioners paying attention to the writings of environmental scientists?²

As an American based in Washington, it is perhaps a little ironic for me to make the case for scientists taking the science-practice³ interface more seriously: I work in the town where, when the administration did not like the scientific findings on climate change, it simply deleted that section from a U.S. Environmental Protection Agency assessment.⁴

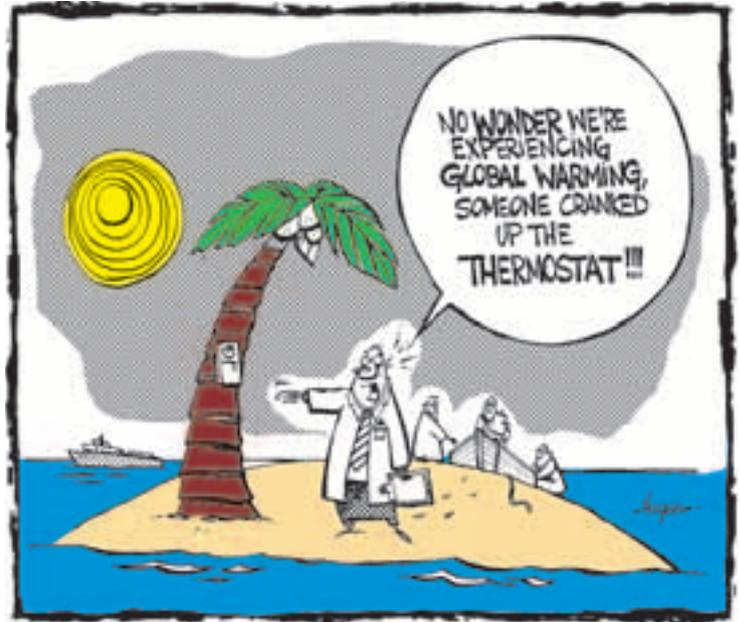
This example of politicization and the selective use of science reinforces my point. We have been operating for too long on the premise, “Build it, and they will come”: do good science, and through the weight of its authority, it will drive policy and practice. This view – if ever true – is certainly not true today.

So is anyone listening? We assume that science is speaking, and the practitioner community is not listening. But we must also ask, “Is anyone in the scientific community listening to the practitioner community?” This science-practice interface is, in fact, a two-way street, just like any good relationship. We need much more listening and much more responding in the same language. Doing so will both improve the quality of the science and increase the likelihood the scientific results will be heard.

At the Woodrow Wilson International Center for Scholars, a nonpartisan, non-advocacy institution, we try, in a very practical way, to bridge the worlds of scholarship and practice through meetings, publications, and research. The lessons I’ve learned from 16 years of hosting meetings and facilitating dialogue on global change and international environmental politics in Washington are just that—lessons for Washington. What works here may not work in the rest of the world. But I will propose some lessons I believe are common to most settings.

I see at least three related ways that scientists can improve the science-practice interface:

1. Scientists should communicate their research and its results to practitioners clearly and concisely, in a timely fashion, to make it easier for practitioners to understand it and thus use it when evaluating options and making policy.
2. Scientists should regularly consult with practitioners throughout the research process to improve the quality of their research, make learning a two-way street between these communities, and avoid missing key data or contextual points.



3. Scientists should better analyze and understand the dynamics of the science-practice processes as scientists, but also as communicators and participants in that process.

Speaking Their Language

Waves of written material are flooding everyone who can influence policy and practice. The competition for attention is stiffer than ever. And many academics who are reluctant to stray beyond the narrow bands of

Dear Readers of IHDP UPDATE,

The year 2006 is of particular relevance for the International Human Dimensions Programme as we complete our first decade. "IHDP has come of age," says our Chair, Professor Oran Young. Indeed, the first ten years have brought about excellent research find-



ings in the fields IHDP has been engaged with: land-use and -cover change, institutional dimensions, human security, land-ocean interactions, industrial transformation, and urbanization. Moreover, joint research initiatives with other global change programmes have been launched and carried out in the areas of carbon management, food systems, water, and – most recently – human health.

Completing the programme's first ten-year-cycle at this stage means that we are taking stock of what we have accomplished, and are moving ahead with a fresh, renewed focus. IHDP's Scientific Committee has decided to elaborate a new strategic plan, which will set the framework for Phase II, the second decade of IHDP. While this plan is in the making, its basic gist emerges as such: IHDP will continue to network towards state-of-the-art research taking a distinct social and economic science perspective on the paradigm of global environmental change.

Moreover, the forthcoming decade will also be known as the programme's implementation phase. We thus aim at greater dialogue between the science and the practice community, enhanced capacity development, and outreach to the global sustainability community. These new and renewed avenues are being paved by mutual interest: growing demand on the end-user side meets true engagement of scientists for applicability of their research results.

Consequently, this UPDATE focuses on two of the implementation aspects: the science-policy-interface, and IHDP's capacity development strategy. As we are a perpetual learning community, your feedback and suggestions, dear Readers, are always more than welcome...

Best wishes,

Dr. Andreas Rechkemmer
Executive Director

disciplinary journals take that competition as confirmation that we should let practitioners find us, not the other way around.

For many issues of the moment, however, such a "stand-back-and-wait" attitude is a critical mistake. Scholars must be ready when current events provide a window of opportunity to meet a time-sensitive practitioner need. For example, a crisis usually brings an environmental issue to the forefront; in this situation, scholars can help practitioners respond to the immediate problem while garnering attention for the long-term issues. Floods, droughts, hurricanes, and high temperatures have recently forced politicians of all stripes to look at the latest climate science. A rash of forest fires might lead to column inches on long-term forestry policy. And spiking energy prices could provide a platform for critiques of consumption and inefficiency.

This matchmaking requires having a well-prepared answer when a practitioner calls. More likely, scholars must take their ideas directly to the practitioner, via a newspaper op-ed, fact sheet, or policy briefing that offers suggestions at an opportune moment, in short, crisp language free of jargon. We cannot answer the question, "Is anyone listening?" until we make sure they can understand us in the first place.

Academics often view writing in short, and, by definition, superficial formats as impossible, or at least disingenuous, in their lack of nuance. I am not saying we should stop writing peer-reviewed articles and become newspaper columnists. Well-researched and analytically rigorous work – published in refereed journals and books – must stand behind these short-form products.

We should feel challenged, not insulted, when we are allotted only a short time at the microphone. I recently had a grand total of four minutes to brief a senior policymaker. But I found weighing every word a remarkably empowering and encouraging process – and I learned just how much I could actually say in four minutes.

Communicating directly with practitioners is not for all academics. It is genuinely exasperating to be misquoted or to read nuanced and well-sourced scholarship that has been oversimplified and abused. It is a time-consuming process for scientists with few – if any – disciplinary incentives for engagement. More likely, there are professional penalties ranging from the disdain of colleagues to the ire of the department chair.

But we must remember that practitioners shop in a marketplace of ideas. Many of these ideas are bad ones, backed by skewed evidence, or perhaps no evidence at all. We are not likely to supplant those bad ideas unless we bring our research to the same marketplace in a problem-solving, practice-friendly package. Otherwise, we cede ground to the cadre of so-called "experts," whether from industry, government, or advocacy, who spin opinions into slickly packaged "facts."

If we don't make our work more responsive, more widely available, and more clearly understood, we miss genuine opportunities to share our insights—and then we lose the ability to complain about practice decisions.

A Two-Way Street

Consulting with the potential research consumers early and often will improve the quality of scientific research by offering the opportunity to “ground-test” theories, revealing new data, and placing specific research questions in larger social contexts. Such consultations, partly by establishing relationships, will also increase the likelihood that it will be taken seriously by a wider set of end users.

Developed by Roger Kasperson, the Stockholm Environment Institute (SEI) model is a good example of scientists and practitioners working together in a close-knit relationship. Under Kasperson's leadership, SEI involved local researchers in designing and implementing research projects. In turn, these researchers closely consulted governments and a broader set of practitioners. Such consultation is a key part of SEI's work, some of it for government end-users like the Swedish International Development Agency (SIDA).

Just as these consultations can improve research, failure to consult can undercut it. We are in danger of missing critical variables in our research if we do not ask the practitioner community for their input. Coleen Vogel of the University of Witwatersand found that investigations of vulnerability in southern Africa, initiated outside the region, prematurely narrowed their focus to climate vulnerability, thus missing key considerations such as poverty, globalization, and AIDS.

Plugging In

To inform policy and practice, scientists must understand the priorities, processes, personalities, and interests of our target audiences. We must be students of these processes as well as students of our own global change topics. By participating in practice institutions, scientists can learn how they work from the inside. Unless we know how practice works, we can't be surprised when science is not integrated into decision-making.

It is critical to link scientific research to intergovernmental processes – such as the Millennium Development Goals, UN Environment Programme Governing Council meetings, the Commission on Sustainable Development, and the Intergovernmental Panel on Climate Change (IPCC) – if practice communities are to use the results.⁵ Scientists, including those affiliated with the International Human Dimensions Programme on Global Environmental Change (IHDP), need continually evolving strategies for linking their work to these processes. One can't link to them all, nor would one want to.

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To plug into these ongoing processes, scientists must talk to some new people. Think tanks – like the Wilson Center – and other knowledge brokers serve as bridges between science and practice. Meetings attended by a broad cross-section of bureaucrats, journalists, scholars, and NGO officials provide a perfect opportunity for academics to integrate the fruits of their research into practice discussions and to initiate relationships with practitioners. In this way, we bring the mountain to Mohammed.

Scientists commonly neglect the power of visiting practice-based centers, to present research findings and collaborate with local institutions. Others come, but do not bother to engage the practice community. When asked whether she was meeting with practitioners during her stay in D.C., one scholar visiting a colleague of mine replied condescendingly, “No, they wouldn’t understand my model anyway.”

Secondly, scientists must talk to a wider range of practitioners. In addition to the ministries of education, technology, science, or environment, we must also network with the ministries of finance, foreign affairs, and trade. In the United States, for example, it is not enough to talk with the Environmental Protection Agency or the National Science Foundation about global change. Only the Department of State has the authority to negotiate these issues with other countries. Even within the State Department, there are multiple audiences: the environmental, trade, economic, regional, and political offices coordinate far less than one would expect.

National governments or international organizations are not always the players on an issue. For example, scientists trying to engage the U.S. federal government on climate change find it a frustrating process. Yet there are at least three other critical audiences that may be more receptive to scientific research and effective engines for taking action based on those findings.

The first audience, not surprisingly, is the private sector. Dialogue and programs organized by CERES – the largest coalition of investors, corporations, environmen-

tal, and public interest organizations in North America – works to improve corporate, investor, and public policies on climate change, and has already led to significant commitments from some of the largest U.S. energy companies.⁶ The Business Environmental Leadership Council assembled by the Pew Center on Global Climate Change is showing signs of promise, as well.

The second audience includes lower levels of government; U.S. states like New York, Massachusetts, and California, have proposed or implemented innovative climate policies. Led by the mayor of Seattle, mayors across the country are agreeing to meet Kyoto Protocol obligations. Many U.S. environmental laws have started at the local or state levels, particularly in California, demonstrating that such actions don’t just stay at local levels.

Finally, religious leaders and faith-based communities comprise a new but powerful audience for climate science. A growing movement is taking the Bush administration to task for its current climate policy. Scientists can offer them the research to support the bumper sticker, “What Would Jesus Drive?”

Lowering the Transaction Costs

“Lowering the transaction costs” for scientists, according to IHDP Science Committee Chair Oran Young, is key to getting them to actively participate in the science-practice dialogue. I think IHDP can play a critical role in lowering those costs and building capacity among scientists.

We need to change the academy’s penalties – written and unwritten – for working with the practice community. We must stop penalizing colleagues by assigning demerits in tenure processes and disparaging their reputations for diversifying their portfolios.

We need to expand our funding sources for research on the human dimensions of global environmental change. It will be easier to expand the pool of funding sources, however, if we make research results accessible, tie them to current policy issues, and place them within larger social contexts. Fewer and fewer funding institu-

1 Portions of this article are drawn from the March 2005 speech “Is Anyone Listening: Advancing the Science-Policy Interface in Global Change,” delivered in Bonn, Germany to the annual Science Committee meeting of the International Human Dimensions Programme on Global Environmental Change and from Dabelko, Geoffrey. 2005. “Speaking Their Language: How to Communicate Better with Policymakers and Opinion Shapers—And Why Academics Should Bother in the First Place,” in *International Environmental Agreements: Politics, Law and Economics*. 5:4 (December): 381-386.

2 Steinberg, Paul. 2005. “Is Anyone Listening: The Impact of Research on Global Environmental Politics.” in *International Environmental Agreements: Politics, Law and Economics*. 5:4 (December): 377-379.

3 I intentionally use “practice” rather than “policy,” following the lead of Clark University’s Roger Kasperson and fellow deliberators at an ongoing Harvard effort on the science-practice interface. Practice community rather than policymaker, Kasperson argues, captures the broader range of private as well as public sector actors who are critical audiences for utilizing scientific insights. We unwisely narrow our audience to more formal government rule-makers when we limit the discussion to just the policy realm.

4 Revkin, Andrew C. and Katherine Q. Seelye. 2003. “Report by EPA Leaves out Data on Climate Change.” *The New York Times* (June 19).

5 The IPCC is a critical audience but not the only audience for IHDP scientists to target. IHDP affiliated researchers often serve as chapter authors for IPCC. Sharing scientific research with IPCC is therefore often sharing research with one’s immediate peers. We need to challenge ourselves to go beyond familiar international scientific circles such as IPCC to interact with practitioners on local or regional levels for example.

6 http://www.ceres.org/industryprograms/electric_power.php

tions, particularly within the social sciences, are willing to hand over money without requiring meaningful interactions with end-users.

Some governments recognize this: the sixth research framework program of the European Commission now recommends improving management capacities of scientific consortiums and networks of excellence. A project with a budget of 10 million euros, and dozens of teams of researchers, must have external managers and communication specialists, not just scientists doing double duty as managers, to manage and communicate the results, and make them relevant to current policy issues.

Conclusion

To answer the original question, “Is anyone listening?”: I think the answer is yes, but the signal is weak. We can

turn up the volume by speaking the same language and better understanding practice processes and practical programs.

In addition, we can improve our work by consulting practitioners early and often. Despite this, actively working in the science-practice interface is not for everyone. But just because communicating with practitioners isn’t for everyone, it doesn’t mean it shouldn’t be for anyone.

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Global Environmental Assessments Between North and South

BY FRANK BIERMANN

Global expert assessments of environmental problems are often described as the collective effort of a “global scientific community” of thousands of the world’s best scientists. To some extent, this is true. However, if one asks whose experts are included, one will find—in particular regarding older assessments—that the vast majority of the members of the world’s “invisible college” reside in just a few countries in the rich and highly industrialized Northern hemisphere.

This has led to friction between North and South in the past, and the history of global scientific assessments in the 1980s and 1990s has been a prolonged struggle by developing countries to gain influence and increase their participation. In the early climate assessments, for example, participation of experts from developing countries was low. The 1985 Villach conference, which became one of the most influential climate assessments of the 1980s, involved no scientist from the South. The 22 participants came from only seven industrialized countries, even though the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) had organized the meeting. In the succeeding Intergovernmental Panel on Climate Change (IPCC), set up in 1988 by UNEP and WMO, Southern governments sought to strengthen the participation of their experts, arguing that if developing countries have no access to IPCC, its very legitimacy would be jeopardized. Yet, participation of Southern experts remained low for a long time.

What are the consequences of this low participation of developing countries in global environmental assessments? How does it affect the influence of the information they produce on countries that are underrepresented? Do global assessments influence scientific research and policy-making in the South at all? In other words: do experts and decision-makers in developing countries use the conclusions of the assessments as a basis for decision-making? I will discuss these questions in the following, based on a larger study on the history of global environmental assessments on climate and biodiversity in the 1980s and 1990s from a North-South perspective.¹

An important finding of my research is, first, that the usefulness of the information offered by international assessments is often limited because it does not fully account for the particular situation and problems of developing countries and for their socioeconomic context. Such concerns of developing countries are, to name

¹ This article draws on F. Biermann, “Whose experts? The role of geographic representation in global environmental assessments”, in *Global Environmental Assessments. Information and Influence*, edited by Ronald B. Mitchell, William C. Clark, David W. Cash, and Nancy M. Dickson (Cambridge, Mass.: MIT Press, 2006), pp. 87-112; F. Biermann, “Institutions for scientific advice: Global environmental assessments and their influence in developing countries”, *Global Governance* 8: 2 (2002), pp. 195-219; and F. Biermann, “Big science, small impacts—in the South? The influence of global environmental assessments on expert communities in India,” *Global Environmental Change. Human and Policy Dimensions* 11: 4, 2001, pp. 297-309.

a few, the specific vulnerability of developing countries, the question of technology transfer, equity issues, or intellectual property rights.

A second observation is that strong Northern participation influences the assessments themselves, in particular the overall framing and understanding of problems. One example is the dichotomous framing of “anthropogenic” versus “natural” sources of greenhouse gas emissions in IPCC. At the core of this debate is the question of different responsibilities that nations bear for global environmental problems. From a Northern perspective, it is often suggested that the anthropogenic greenhouse effect is the result of normal human behavior involving uncountable, independent decisions in daily life by individuals, by industry, and by governments all over the globe. From a Southern perspective, however, this framing of the problem is problematic. First, Southern experts emphasize that Northern per capita emissions are much higher than in the South, and that the problem of global warming is caused not by emissions of greenhouse gases as such, but by excessive levels of per capita emissions of these gases in developed countries. Some Southern experts and politicians have therefore framed this dichotomy in terms of “basic,” “subsistence” or “survival” emissions—that is, normal and indispensable behavior—versus “excessive” or “luxury” emissions, that is, superfluous and “aberrant” behavior.

How did the IPCC react to this clash of perspectives? When the first assessment was conceptualized, the Northern perspective prevailed. All emissions related to human activities were placed into one category of “anthropogenic” emissions with no further differentiation as to distinct human uses and values. The IPCC perspective remained restricted to a Northern framing with a natural science and technical approach to social activities. Technically, IPCC could have easily differentiated further. Although computer models must include all gases to forecast climate change and to evaluate policy options, this could have been done by creating categories in addition to, or replacing, the simple dichotomy of “natural versus anthropogenic emissions.” It is not inevitable, for example, that emissions from rice plants or digestive systems of animals are defined as “anthropogenic” and that essential activities such as food production are placed on the same level as emissions from automobiles, airplanes or air-conditioners. If Southern views and interests had been given more consideration, IPCC could have chosen, for example, a threefold approach, defining (1) “natural emissions,” (2) “emissions accruing from food production (rice and livestock),” and (3) “other (luxury) anthropogenic emissions.”

Yet IPCC did not distinguish between different types of emissions and thus effectively ignored the discussion

of “luxury” versus “survival” emissions advanced by Southern actors, by commingling instead Southern rice farmers and Northern suburbanites into one category of “human-caused climate change.” The result is a more equal sharing of responsibility for global warming between North and South, between Northern high per capita levels of fossil fuel consumption and the Southern larger share of subsistence emissions from rice and animal husbandry.

The early IPCC's way of framing emissions eventually had political consequences, because its approach of including all “anthropogenic” greenhouse gases entered the climate regime as the basis for the Kyoto commitments of the North. The specific frame of IPCC might thus turn out to be its most crucial impact on the political process, at least with a view to North-South relations. In other words, the overwhelming participation of Northern experts in international networks has influenced the political bargaining outcome by framing the climate issue in a way that includes subsistence farming and animal husbandry in a legally binding regime set up to solve a problem that has not been caused, as Southern experts would argue, by the subsistence farmers themselves.

Other problems in assessments often arise from different perceptions of equity considerations, which most Southern actors see at the center of global environmental negotiations. Both the 1992 UN Framework Convention on Climate Change and the 1992 Convention on Biological Diversity mention the need for “equity,” as a “principle” of all climate policy or in the context of the “equitable sharing of benefits” of the utilization of genetic resources. Yet what equity means in practice is open to debate. In the beginning, IPCC had not considered notions of “equity” in global warming policy, such as the debate on “fair” entitlements to emissions. The second assessment report of 1995 includes some legal analysis of equity, yet there was not much of a link between this chapter and the overall assessment design, and equity was dealt with as a fringe issue. Southern experts and representatives of nongovernmental organizations have repeatedly complained about this treatment of equity in the assessment process, which was addressed only recently.

This does not imply that global environmental assessments had no relevance at all for environmental science and policy in developing countries. I have studied this in particular in India. The example of India is interesting since the country has considerable scientific capabilities and an active environmentalist community, which makes it the most likely case for scientific information to find fertile ground. Any differences in the influence of assessments in India as compared to industrialized countries can thus be expected a fortiori in other, less endowed developing countries.

To begin with, participation of Indian scientists in the global environmental assessments has led to some capacity-building, by increasing the information available to Indian scientists, by establishing contacts



Careful with assessments - methane emissions from Indian rice paddies are 10 times lower than had been assessed by the US Environmental Protection Agency!

between Northern and Indian researchers, and by providing financial and technological support to Indian scientists. For example, the IPCC Trust Fund supports participation of developing countries in IPCC meetings. At least one developing country participant for each IPCC writing team meeting is now usually supported financially. This capacity building is small but still makes a difference: without the international assessment, communication between Southern and Northern scientists would be less.

Global environmental assessments have also influenced research agendas in the South. This effect seems to be particularly strong in developing countries, where lack of resources places stricter constraints on researchers. Therefore, some scientists in India have focused their work on issues that they perceive as particularly relevant for the national interest but that are not sufficiently covered by global assessments. Likewise, some Indian scientists organized “counter assessments” to verify or refute data believed to have negative political consequences for their country. A widely known example is the Indian Methane Campaign. Developing countries account for a larger share of global emissions of methane - a potent greenhouse gas - compared to global carbon dioxide emissions, because a substantial amount of methane is emitted by agrarian activities, notably animal husbandry and rice farming. In 1990, the US Environmental Protection Agency published a study that suggested that India alone would account for more than one third of global methane emissions from rice paddies; a result that would, if not contested, certainly have influenced climate negotiations. On publication of this

Northern assessment, Indian national research institutions launched a focused global environmental assessment, the “Indian Methane Campaign.” More than fifty researchers from sixteen Indian institutions joined the “Campaign.” Its result indicated that Indian methane emissions from rice paddies were roughly ten times less than the US Environmental Protection Agency had suggested, and that global methane emissions were accordingly lower too. This reactive assessment process has broadened into assessing all greenhouse gases to provide the national communications required under the climate convention, and in a sense, the Northern debate has helped to increase communication and cooperation among Indian scientists on climate-related issues.

Finally, global environmental assessments were relevant in India inasmuch as Indian institutes are often partly funded by foreign foundations, foreign governments, and international organizations. International bodies such as the Global Environment Facility, the World Bank, UNDP or UNEP, or foreign foundations, are often closely linked with global environmental assessments. Insofar as domestic decisions are taken with a view to the availability of foreign funding, some impacts of global environmental assessments on shaping the domestic debate can thus be assumed.

Taken together, global environmental assessments had some relevance for India. Yet it has been limited. Eventually, this reduces the sense of ownership of assessments also among decision-makers, who often see assessments as being not fully reflective of the information needs, socioeconomic context, and political interests of developing countries. Global environmental assessments are often seen as something foreign advanced by the North.

It thus seems that assessments, in order to have more relevance for developing countries, need to be of a different kind. Global environmental assessments need to provide information that can compete with the pressing short-term concerns that dominate much of the policy agenda in the South to gain saliency among decision-makers and the public. They also need to meet special standards of trustworthiness to be perceived as legitimate and credible in the South, given a general context of fierce contestation between both hemispheres about political solutions to environmental problems.

One way to redress this situation would be to further increase the participation of Southern experts. This call for increased participation is not new. IPCC, for example, has taken a number of actions to remove obstacles that impair developing country participation, and over the years, the number of developing country participants has increased. For example, major documents are now translated into all six UN languages, and IPCC takes more account of geographical representation. Participation of developing country scientists in IPCC

today appears much more visible than in previous rounds. Most strikingly, India now provides, with Dr. Pachauri of The Energy and Resources Institute in Delhi, the chair of IPCC.

Nonetheless, financing remains a problem. Government-funded research institutes in developing countries normally lack funds to send their scientists to professional conferences abroad. This has been attenuated for direct participation in IPCC working groups. Still, general communication between Indian and foreign scientists is scarce compared to transatlantic or intra-European cooperation. Moreover, traveling and communicating alone is not sufficient to enable developing country experts to write or review chapters for international assessments, since working time is a scarce and costly resource. In particular, nongovernmental institutes are sometimes unable to permit staff to devote time to unpaid international assessments if this is not accompanied by project funds. The difficult financial situation thus privileges participation of researchers with sufficient financial support to widely communicate on a regular basis with Northern scientific communities.

Eventually, the need to increase participation of Southern experts will thus require enhancing the endogenous research capacity in the South. Two ways of doing this are conceivable. One would be increasing the funds of global environmental assessments to enable them not only to reimburse travel costs of developing country participants at IPCC, but to organize Southern

contributions as commissioned papers, that is, to pay for them. At least in the Indian context, this would help to achieve a more balanced participation of Indian scientists and would assist in building up more endogenous capacities within the Indian national research institutes. A second possibility would be to provide more research capacities directly, for example through the Global Environment Facility, with similar effects.

After all, merely increasing the participation of developing country experts in global environmental assessments might not suffice. Even a balanced geographic representation of views in the assessments does not help to overcome the geographic imbalance in the underlying scientific capacities between North and South. Since global environmental assessments are only meant to collect and evaluate existing knowledge, even assessments with equal representation cannot change the inequalities in the global research community. This, however, calls for more than adjusting the design of global environmental assessments: it calls for a fundamental reform of the way in which science in North and South is conducted.

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Politics, the Missing Link in the Science-Policy Interface

BY ROBERTO P. GUIMARAES

There are plenty and diversified ways to approach the perennial question on how to translate the wealth of knowledge produced by science into sound responses to the overwhelming demands for public action that decision-makers must confront in the policy arena. The recent meeting of the Scientific Committee of IHDP in Norwich, UK, addressed some of these and a Working Group has been formed to explore the matter further. I am certain that other contributions to this issue of UPDATE will address other approaches to the Science-Policy nexus more much adequately. Thus, the following comments will be limited to the view one can capture through the lenses of politics.

It seems appropriate to start by shedding light on the circular relationships between science and policy. Science does not come about in a policy vacuum, nor does policy operate in the void of knowledge. That is precisely why

politics is embedded in this interplay from the outset. This circularity can be expressed into three straightforward questions. First, we must inquire how a social concern is incorporated into the agenda of public decisions, particularly via knowledge generated by scientific research. Second, once this specific societal challenge is fully integrated into political discourse and public agenda, how are policies changed to effectively bring scientific knowledge to the fore of concrete actions. Third, one must pose the question of how the actual results of policies change the scientific agenda by identifying knowledge gaps which call for further research. Needless to say, the results produced by new science will keep this process indefinitely, shaping existing policies and forging new ones, which will in turn generate new research questions including areas that were not contemplated in the original agenda, neither of Policy nor of Science.



This general approach should now be put to the test of relevance for understanding the Science-Policy interplay pertaining to global change.

One frequent difficulty for those on the science side of the relationship is created by the belief that science speaks for itself. Assuming that science does respond to real challenges faced by society, oftentimes one mistakenly expects that every research result, by its intrinsic value “for the common good”, does not require more than the power and brilliance of breakthroughs to be translated into action. Nothing could be further from reality. As Francis M. Cornford, a Professor of Classics in Cambridge indicated in his razor-sharp and witty *Microscopographia Academica: Being a Guide for the Young Academic Politician* in 1908: “You think (do you not?) that you have only to state a reasonable case, and people must listen to reason and act upon at once. It is just this conviction that makes you so unpleasant. There is little hope of dissuading you; but has it occurred to you that nothing is ever done until every one is convinced that it ought to be done, and has been convinced for so long that it is now time to do something else?”

In effect, one must recognize that any issue can only be incorporated in the public debate insofar as its connection to the dominant political process can be firmly established, which can be represented by ongoing policies or longstanding demands of civil society. For instance, even though much research already existed in areas such as environmental change or racial and gender discrimination, the available information about glaring social and political discrimination against women and minorities, or the wealth of data about environmental decay and natural resource depletion came to the forefront of public policies thanks to its association with other demands in the areas of human rights, democratization and social equality. Thus, it was no historical “coincidence” that both the environment and gender policies gained respectability and strength in the late 1960s, part and parcel of - or at least, benefiting from - the anti-war, pro-freedom of expression and counter-culture bandwagon that crisscrossed most Western countries at that time.

Conversely, it should not surprise that, even after environmental issues attained legitimacy through two world Summits and more than 500 MEAs (Multilateral Environmental Agreements), sub-themes such as climate change have been the hardest to be translated into action. Why? Due to lack of scientific data? Of course not. As a matter of fact, climate change has been so far the only issue in the public agenda that has counted on an institutionalized channel for the world’s science community to “communicate” with policy (the Intergovernmental Panel on Climate Change, created in 1988 - thus, before the Rio Conference and the resulting Climate Change Convention). The answer to this paradox does not lie in a failure of science to convey the seriousness of the situation to policy. Rather, the answer can be found in the fact that the actions proposed by the scientific community ran against the dominant economic yardstick for public policy.

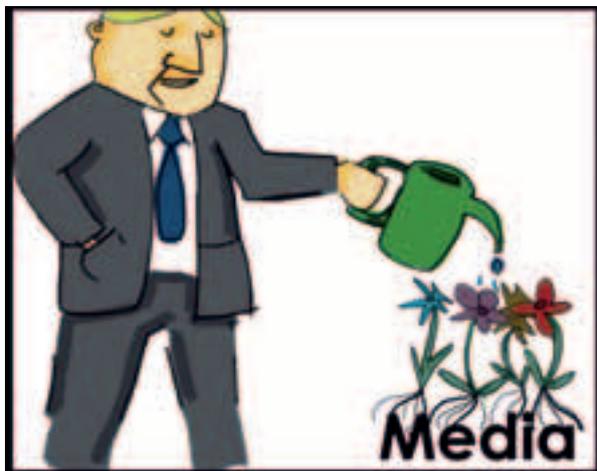
The more climate change became an established scientific fact, the more the Washington Consensus spread its wings throughout the world. From a politics perspective (much in the same vein as has been suggested above for the “peace-environment” link of the 1960s) this cannot be ascribed to pure “chance”. Barely one year after the IPCC came into being, two of the Ten Commandments of neo-liberal economics prescribed “privatization” and “de-regulation” as the cure-all recipe to the profound external debt crises of the 1980s. Thus, it was not a question of science failing, in Aaron Wildasky words, to *Speak Truth to Power* (1987). It was, and still remains a fact that power was simply not willing to listen to a policy challenge which required government intervention and more regulatory mechanisms to correct the failure of market addiction to fossil fuels. Not surprisingly, the world had to wait for the increased occurrence and increased severity of “natural” disasters, and the corresponding economic loss to entire countries, as well as for the awakening of insurance companies to take action. The actual increase of a couple of degrees in mean temperatures did more than all scientific evidence,



particularly now that the Washington Consensus is apparently receding at a faster pace than the glaciers themselves.

The above description may partially put the questions about the circularity of the Science-Policy nexus into motion in the real world of science AND policy politics, but one must go a step further and pose the question. Is the fact that an issue brought about by science has been effectively incorporated in the discourse of policy a guarantee for actual change? Sorry, but not really.

Any discussion of policies in response to global environmental change requires a political instead of a scientific or technical treatment. At stake is much more than the simple arrangement of public actions in one area. It



Cartoon by Andreas Schuster

is the concept of development itself that is being called into question. Indeed, an environmental policy that goes beyond pollution control and abatement, or beyond maintaining the biodiversity pool upon which societies fuel production and consumption patterns, will often imply redefining, or at least redirecting, the process of development, as the policy options in response to climate change clearly indicate. The acknowledgment of this facet of reality requires analysts to inquire: development of what, for whom, and at what cost?

The holistic and, at the same time, the specific nature of global change also underscores the political nature of choices in this policy territory. Because we cannot deal with all problems at once, we are forced to choose particular areas or problems for concentrated governmental efforts. However, by doing that, by singling out any given area, we are bound to provoke jurisdictional disputes within and between bureaucratic and societal institutions. This in addition, of course, to the problems derived from an application of what Nobel Laureate Herbert Simon called “bounded rationality” – the limited capacity of the human mind compared to the scope of the problems it needs to address (Models of Man, 1956). As a result, what are often considered “technical” and “scientific” criteria (standards, regulations, norms)

will have to be bargained for, that is, politically negotiated. Again, the Kyoto Protocol is just one perfect illustration of Simon’s findings.

Hence, as with any policy, some interests will be favored over others. However, whereas most policies allow for a somewhat clear identification of “winners” and “losers”, environmental policies are much more difficult to treat in this respect. To begin with, environmental policies are not open to direct measure or individualization. To a certain extent, one can measure the results of, say, agricultural or energy policies, and determine which groups benefit most from decisions in these areas. But which particular groups stand to gain from drinking water free of pollutants, or from preventing the depletion of the ozone layer or restoring climate stability? Finally, perhaps one of the most salient dimensions of policies in response to global change, the ultimate beneficiaries of these decisions do not participate in today’s struggle for survival. This means that we must also consider the needs and conceivable aspirations of generations to come, whereas we educate, shelter, do justice to, and tax a population who is already alive. And markets have never been, nor ever designed to be, good surrogates or proxy for inter-generational issues and needs.

The three notions, 1) that these so-called ecopolicies question development processes, 2) that they generate jurisdictional disputes, and 3) that they are hardly quantifiable and “individualizable”, all lead to one crucial feature of the context in which global change challenges emerge. Within the cultural framework of Western civilization, in which human beings are not part of, but rather set apart from nature, these policies are clearly unsympathetic, bothersome, even distasteful. Environmental policies stand out from other public policies by being “the spoiler.” Traditional policies such as those carried out in agriculture, in education, in public health, in industrial development or in social welfare, draw their legitimacy from “positive” objectives. They all “provide” something to society. Moreover, the implementation of these policies will, sooner or later, be transformed into tangible benefits to somewhat easily identifiable individuals or social groups and strata. Conversely, policies in response to global change more often than not address collective or public goods, and also the collectivity as a whole, including unborn “collectivities.”

Furthermore, these “ecopolicies” are characteristically “negative” in comparison with other policies, always calling attention to what should not be done, often emphasizing the negative side effects of the implementation of “positive” policies. On the other hand, some “negative” policies, such as fiscal and tributary policies, also “penalize” some groups while favoring others. But these policies claim their legitimacy from the coercive powers bestowed upon them by society. Nobody likes to

pay taxes, but everyone agrees that governments need revenues to carry out programs. All expect to benefit from these programs. Fiscal policies are also seen as powerful mechanisms to foster an egalitarian distribution of economic resources and wealth, so most people abide by them. With “global change” policies the opposite takes place. Even though the survival of the species could exert a strong coercive influence, the advocates of these policies shy away from intimidating the public to support urgent action to redress the deleterious effects of global change (otherwise, they run the risk of being dismissed as “doomsayers”). Their legitimacy is usually founded on the need to harmonize disparate wants with “the carrying capacity of life-support systems” (try to explain to a decision-maker what this means).

We thus arrive at the core of the dilemmas faced by policymakers formulating and struggling to implement actions in response to scientific research on global change. On the one side, their stand must be adversarial, almost by definition. On the other, decision makers are compelled to exercise persuasion and inducement in a continuous learning process. Not surprisingly, it requires much more political will to break the inertia of environmental policies than it does in other areas of public action. On the other hand, and for the same reasons, it takes much less political clout to reach a situation of virtual stalemate and to immobilize environmentally oriented programs and activities. At the height of the 1968 student revolt in Rio, a graffiti expressed with great clarity the burdens of overly political situations. It read: “Those who remain in the middle suffer the paralyzing action of the extremes.” This fits the situation of environmental policies in general, and particularly when one begs the politics of policy and pretends that science itself is enough to justify action.

The crucial question, then, turns out to be whether the policy “conflict” that has resulted from Science on global change is being well administered or not. First of all, the negotiation that allows any controversial policy to be addressed presupposes the existence of actors that share more or less equivalent control over political resources. Nothing could be further from this assumption than politics in the environmental arena. On one side there is a strong group of business people, developers, multinational corporations, all of whom benefit greatly from accelerated economic growth. On the other side is a loosely related group of conservationists, community-based organizations, scientific experts, and persons directly affected by global change. Somewhere in the middle, in some sense over both groups, stands the bureaucracy.

As Francis Rourke rightfully points out in a classic of the genre, bureaucrats are unable to rule alone, but their strategic role in policy-making means that “no one in modern politics can rule without them” either (Bureau-

cracy, Politics and Public Policy, 1984). The “actors” involved in global change politics have thus had unequal power, which renders the situation a “nonconflictive” one that, therefore, does not appear to demand great administrative resources. State agents set the stage for mediation, but they themselves unilaterally set the limits of such negotiation, as the economic stance to discard Kyoto stands witness to. The stage is one where environmental problems are tightly compartmentalized via bureaucratic expertise, and where citizens are unable to express a multitude of interests concerning it.

The limits for negotiating environmental conflicts that emerge as more scientific knowledge is available can be summarized as follows: National leaders do not acknowledge that the security of the nation depends upon an environmentally sound development strategy; instead, environmental criteria are subsumed either by national security interests or economic criteria. Furthermore, rapid economic growth has high priority over conservation. On top of that, the techno-bureaucracy and the corporate elite share an ideological orientation towards the private allocation of natural resources and of the “commons” in general. As can be readily inferred, this is a no-win type of controversy. The situation is not, of course, as bad as it looks. Actually, it is much worse! One may argue, not without reason, that most of the policy conflicts, as well as any possible negotiations, occur within the governing elite rather than through independent political actors. That is precisely the reason why the situation gets worse or, as indicated before, why the conflict is not administered at all. The sheer number of actors inside each segment of the governmental bureaucracy that would have to be involved in policies related to global change effectively precludes attempts at inter-organizational cooperation and coordination.

The foregoing remarks about the actors involved in policy-making, the context in which their “acting” takes place, and the laws governing their performance, allow us to introduce two additional components of bureaucratic politics that are of paramount importance to the Science-Policy interface on global change. Reference is made here to a classic in the policy studies literature, Miles’ Laws (named after Rufus Miles, who derived them out of his long tenure in the US Department of Health, Education and Welfare under the Presidents Eisenhower, Kennedy, and Johnson). Actually, the stance defended here – that politics is always the determining factor in the way science and policy communicate with each other – can also be explained through one of Miles’ Laws, i.e., that “How you Stand depends on Where you Sit”. In other words, the way a policy-maker “sees” the scientific research about global change is determined by his or her own bureaucratic “lenses”, be these the ones mostly used in the Treasury Department, in Congress, in the Pentagon, in Foreign Affairs, in the Chamber of

Commerce, in a Consumers' Advocate NGO, or in an Environmental Agency

One paramount and often forgotten implication of Miles' Law is that the more controversial a policy is, the more likely it is that it will never be fully formulated, and, if it is, it will never be implemented. If this were not self-explanatory, one would need only to examine the reasons that agrarian reforms are among the oldest policies pursued in developing countries. It also explains why sweeping agrarian reform is seldom fully implemented, no matter how much Social Science can demonstrate that land tenure is the most important factor behind social and economic inequalities. Likewise, decisions involving antagonistic interests that can be postponed will be postponed indefinitely. Unfortunately, environmental policies are by definition controversial, and involve disparate, often opposing social and economic interests. Policy-makers are well aware of this fact.

As a matter of fact, in light of this reality, a corollary to the two laws mentioned above could be added here: what can be labeled as the Principle of the Bottom Line. Because the interests involved in global change policies are often conflictive, and because these policies are controversial anyway, one should strive to compromise, to arrive at a "minimum common denominator." The problem is that "minimum" in this case often means "less powerful." Consequently, the bottom line of these policies has often been the familiar "development with low environmental cost," an euphemism created by the Brazilian military regime to mask the environmental mortgage of the "Brazilian Miracle" of the 1960s and 1970s – which actually concealed the true meaning of the developmentalist ideology, i. e., development at any cost, social or environmental – a slogan that has long been embraced by economic elites throughout the world, even by international organizations...

Economic elites in general, but particularly technocrats, have also learned the lessons of coping with innovations. The need to address global change problems constitute a fairly recent public issue and, thus, represent an innovation, almost a revolutionary innovation to the policy process as well as to strategic development decisions in general. Faced with this new challenge, the governmental bureaucracy has continually adopted what Donald Schon, in his brilliant 1973 *Beyond the Stable State*, calls "dynamic conservatism." First, one accepts a discourse that incorporates the new issue, something that has been successfully demonstrated from Stockholm-72 to Johannesburg-2002. Then follows the institutional stage of "containment and isolation," when one literally throws the discourse into a bureaucratic box in the governmental structure, or into an internationally adopted agreement. Care should be taken, of course, not to provide adequate resources to this new government agency or this new Secretariat of a

MEA. Just enough persons should be employed to give the impression that something major is being done -- and to serve as scapegoats when things do not (as one knows that they will not) get done. Just enough resources should be allocated for a couple of works to be built and, it should not be forgotten, for studies, dozens and dozens of scientific studies.

Containment and isolation also have another important, beneficial side effect for dynamic conservatism. These processes lead to compartmentalization. Now that adequate institutions are in place, busily tilting against the windmills of global change, there comes the phase of "selective inattention." In other words, MEAs



"Politicians say they want us to have clean air, but all they give us is hot air."

and agencies must be in a bus stop where the bus of power does not stop. Does the law require that government agencies participate in activities related to science and technology? Well, we may include a policy representative on an interagency committee, because, after all, we do not expect results to come out of committee work anyway. As former President Herbert Hoover candidly recognized in his 1952 memoirs, "There is no more dangerous citizen than a person with a gift of gab, a crusading complex and a determination 'to pass a law' as the antidote for all human ills. The most effective diversion of such an individual to constructive action and the greater silencer on earth for foolishness is to associate him on a research committee [emphasis added] with a few persons who have a passion for truth, especially if they pay their own expenses. I can now disclose the secret that I created a dozen committees for that precise purpose." Does the law require that large-scale infra-

structure projects should undertake a thorough evaluation of their impact on the availability of natural resources and on the integrity of environment in and beyond its area of influence? So we create an environmental unit as part of these projects and pretend not to perceive that we do not allow it to interfere with planning activities or with implementation of the projects. Finally, we may include a section on the environment or on global change in several sector policies, in energy, in industrial development, in agriculture and so forth, but we also forget to consider the targets and strategies outlined in this one section in the other, substantial parts of these policies.

In short, one should promote the minimum change possible so as to guarantee that nothing will actually change. This is dynamic conservatism. It is dynamic because it is not the result of a carefully conceived scheme of overt resistance. There is no conspiracy theory at work here. This brand of bureaucratic conservatism develops out of the synergistic effect of particularistic interests. The individual, group, or class is able to establish a connection between their special interests and the (inertial) interests of the social system as a whole (known not to be very fond of dramatic or profound changes). Because everyone is bound to be affected by the hard policy choices in response to global change, there is no need to connive in accord against taking them seriously. It is just a question of letting the bureaucratic process run its course.

We have seen this movie before, at different times, with different characters, and in different national settings. But there can be no doubt that the script is tailor-made for the way policies are formed nowadays. And the bureaucracy, both the scientific as well as the policy bureaucracy, has had plenty of candidates for the roles of starring actor, supporting actors and, as a matter of fact, for the entire cast. The only thing we will not find in this movie is the traditional disclaimer. If any character, event or situation resembles governmental bureaucracies and environmental policies in particular, it is not merely a coincidence.

In short, I am sure that many specific proposals can be put forward to address the current failings of science when it attempts to speak truth to policy. Among these, there is the much needed involvement, early on, of policy-makers in the endeavors of the scientific community; there is much also that can and should be done in dissemination of science and capacity building in policy on global change; there is also an urgent need to learn plain English and avoid scientific jargon (who can explain to a policy-maker the crucial importance of resilience in responding to global change, precisely in view of the fact that “it determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb change of state variables, driving variables, and parameters, and still persist”?).

Needless to say, if I had to derive just one single proposal out of these comments, I would simply suggest that those in the scientific community should perhaps take a hard look at our own eyes, before scrutinizing the straws in the policy's. Instead of hiding behind the science of our activities, it would not do harm if we attempted to translate our findings according to the political and bureaucratic logic of those whose attention we proclaim is needed. In other words, whatever comes out of our research projects will have to be expressed in entirely different terms if our audience is the UN or any other inter-governmental body, an industrialized country such as the US or Japan, a resource-rich and socio-economically unequal country such as Brazil or Mexico, a poverty-stricken country such as Haiti, a civil-war dominated territory such as Chechnya, a resource rich yet occupied and ethnically divided nation as Irak, a “post-material” one such as Norway, etc., etc.

In attempting to achieve a more balanced picture, in view of the fact that both science and policy can be “blamed” for this dialogue of the deafest, it may seem fit to close these remarks with a recent example of the dismal results for science when it is invaded by politics, as reported in a news item a couple of weeks before this piece was written (UPS Terra Viva UN Journal, 28 April 2006). “The unprecedented efforts of the Bush administration to gag and suppress research findings it doesn't like are putting science in the United States at risk, say experts. The case of James Hansen, the leading scientist on global warming at the National Aeronautics and Space Administration (NASA), who revealed in January that he had been censored by the government, is evidence of the White House's discomfort with scientists whose findings contradict the Bush administration's environmental policies. Already in 2004 a prominent group of scientists, including 20 Nobel laureates and 19 winners of the U.S. National Medal of Science, signed an open letter accusing the Bush administration of deliberately distorting scientific fact “for partisan political ends.”... “There is a systematic and obsessive attempt to control information, no matter what the science finds,” says Jeff Ruch, executive director of Public Employees for Environmental Responsibility, an alliance of government scientists and natural resources professionals...”

I am sure I stand to be accused of perhaps stretching the “politics” argument too far. Yet, after reading this news item, I feel tempted to close by simply saying, as many in Court: “I rest my case...”

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Making Global Change Research Relevant to Policy

The Experience from 10 Years of Research Networks in the Americas

BY HOLM TIESSEN

As science funding becomes part of the democratic process of means allocation, scientists are increasingly asked to account for the investment in their research and show “deliverables”. The role of science within societies continues to evolve towards greater demands for accountability and relevance to societal concerns. Global Environmental Change (GEC) science is at the forefront of this evolution because it is driven by society’s concerns for its own future, and is asked to deliver solutions to constraints on future human development. Within the last decade, a demand has developed for collaborations of scientists with public policy agencies, business, labour and NGOs to assure that such solutions find their way into practical applications and policy. Although the relevance of GEC science to decision-making, and its integration into the socio-economic context are evident, communication between natural and human sciences and with decision makers and stake holders has been largely ad hoc and is still a learning process. The Inter-American Institute for Global Change Research (IAI) and its network of scientists are part of this learning process.

When the IAI launched the call for its multinational Collaborative Research Networks (CRN) in 1998, demands for the development of policy relevance and communication strategies were not a priority. To date, the program has produced a large amount of excellent, peer-reviewed science commensurate with the total investment of nearly 25 million US \$. The results of the research networks are principally visible in traditional scientific products, but the societal relevance remained undocumented. At this point, the IAI, together with the Scientific Committee on Problems of the Environment (SCOPE), launched a retrospective analysis of the science-policy interface of this program.

The analysis has taken the form of a SCOPE rapid assessment process for which participants prepared background papers, and then came together at a workshop to develop cross-cutting issues and a synthesis. The workshop participants were investigators from the research projects, experts on science communication, governance and legal aspects, and representatives from government and industry.

When planning the workshop, its theme was thought to be “bridging the gap” between science and policy. Yet it became apparent very quickly that the “gap” was narrower than expected. Some of the Collaborative

Research Networks had significant extension and policy components because their themes explicitly address human dimensions such as risk management, land or other resource use. Others have synthesized scientific findings into high-level advocacy for instance within the millennium assessment. In addition to these “predictable” outcomes, a surprising result of the analysis was that all projects had engaged in significant outreach, communication and policy activities. In fact, the original NSF-IAI grant for the program (\$12 million) had been more than doubled with other funds, and this was largely possible because the projects had responded to demands for and opportunities from policy relevant global change science.

The urgency of educated and effective responses to Global Environmental Change challenges requires that the dialogue linking science to societal processes become firmly established and effective. Although none of the Collaborative Research Networks had a protocol or planning process for policy engagement, analysing the experiences of the networks resulted in important insights into the linkages between science, society and policy.

In addition to the experiences of policy links and stakeholder involvement of the Collaborative Research Networks projects, topics explored further in the SCOPE workshop included: delivering Global Environmental Change science to the policy process, communicating science in democratic media societies, steering research towards policy relevance, vulnerabilities of societies under Global Environmental Change institutions as initiators and users of science and also the interdisciplinary question of what social and natural sciences could learn from each other in the move towards policy relevance.

A range of key generic lessons have emerged from the analysis. In order to make science and research policy relevant and establish links to societal needs, science must:

establish and maintain credibility, achieve practicality, demonstrate utility, be accessible, and ensure acceptability. Key words in the discussions on credibility included concepts such as objectivity and accepted standards of peer review, but also the importance of “trust”, not commonly associated with research. Having established the practical utility of their work, scientists may face demands for continuing commitment based on the trust

developed. These demands may go beyond the original research objectives, and scientists need to be open to meet new needs as policy evolves. A difficult realization for many scientists is that “good science” is not enough to influence policy. Utility needs to be demonstrated and may not be immediately recognized. Scientists must realize the need to communicate with the user either directly or indirectly in understandable terms.

Developing a common language for communication between scientists and users is a learning process in which science organizations need to become involved.

The acceptability of research results and the willingness to act upon them depends on the users’ understanding of scientific uncertainty and natural variability. Understanding the role of uncertainties both in science and in policy is probably the most critical component of the science-policy dialogue.

The Collaborative Research Networks have achieved an unexpectedly high degree of policy relevance and integration with the decision making process. At the same time, this analysis has pointed to weaknesses in the science-policy linkages that will require careful thought and action if societies’ investment in science is to yield optimal returns, and if science is to influence policy in a

timely fashion to address global environmental challenges. Achieving these goals will not be a linear process. Funding organizations will need to develop mechanisms of science governance that facilitate the integration of natural and social sciences, assessments, support to decision making, policy and advocacy through entire project cycles from conception and planning to the implementation of results.

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Pulling the Strings for Policy

The Urban Bias and Environmental Challenges in Uganda

BY SHUAIB LWASA

1. Introduction

The urban environmental challenge in developing countries has continued to increase partly due to the persistent ‘urban bias’ in the context of policy interventions. The ‘urban bias’ in favor of rural environmental management has often led to environmental management interventions that are rural-based natural resource management, and on a focus on the ecological unit as portrayed in literature. But the world is irrevocably urbanizing and the acceleration of rural to urban migration in the developing countries is encumbering municipalities that are struggling to find efficient means of providing water, sanitation, transportation, housing and energy supplies to residents (Brockerhoff 2000; UN 2005). Only recently literature is starting to highlight critical issues of special policy relevance that deal with the urban environmental challenge (Brockerhoff 2000; Enyedi 2003; IHDP 2005; Sánchez-Rodríguez, Seto et al. 2005). Research into urban environmental issues now covers a broad range of issues and scales from small-sized towns to metropolitan areas. Research also indicates an urgent need to consider the cities we want to live in and the issues that affect them,

from air pollution, ecosystems disturbance, and lack of clean water, to adequate financing and effective civic engagement (Brockerhoff 2000; UN 2005). Recognizing the current urbanization trends, urban sustainability remains a challenge due to spontaneous developments, peri-urban developments, urban environmental change, land-use change and industrialization (Enyedi 2003). This is because environmental burdens intertwine with poverty in a concomitant and reinforcing manner (IDRC 2006). In Uganda, research into these challenges has intensified and scaled up to the national level (Lwasa 1999; NEMA 2000/01; UBOS 2002). Due to the increasing complexity and interactions at all scales of urban development the need for a connection of research and policy in this area has become more pronounced. Research which is policy-relevant is not only measured by recommendations in research reports but requires involvement of policymakers through action-research during policy review processes. This paper attests to recent experiences on urban environmental management issues and suggests the need to influence policymakers and capacity building required for urban sustainability.

2. The Urban Environmental Challenge in Uganda

Although the proportion of urban population in Uganda is only about 13%, urban environmental burdens have become pronounced at household, neighborhood and city-wide levels (NEMA 1996; UBOS 2002; Lwasa 2004). The magnitude and impact of environmental burdens at the various scales has posed challenges to the promotion of a livable city of Kampala. At the city-level, for example, an extensive flood will interfere with transportation, commerce, installed infrastructure and will possibly cut off dwellers from workplaces and homes. At the household level, strong flooding leads to property destruction, increased vulnerability to disease outbreaks of the poor, and hence productivity decline (see photo). This calls for policy interventions and capacity building, and for policymakers, the scientific community, municipal agents, the communities and the private sector to deal with these challenges. As a catalyst, the globally expressed 'priority' of MDG 7 which is being translated into national strategies is swinging the momentum in this direction. Three questions can then be raised: To what extent is the current policy relevant to the urban challenge? How is existing policy prepared to deal with the cumulative increase in environmental challenges at these various scales? And do policy makers, technocrats and communities have the capacity to effectively respond to these challenges?



Environmental burden of flooding in a poor settlement, Kampala

3. Capacity for Urban Environmental Management in Uganda

Municipalities in Uganda have had to deal with environmental challenges in an uncoordinated way with disregard to spatial interaction where urban areas tend to agglomerate. Municipal financial and technical capacity has also been widely accepted as inadequate (MoLG 2003). Different integrative models have been adopted by different municipalities from continental and global agencies to mainstream urban environmental interventions. These models which include the Urban Manage-

ment Programme (UMP), City Development Strategy (CDS), Sustainable Cities Program (SCP) and Urban Environmental Planning and Management, have addressed urban environmental issues. Technical, financial, institutional and human resource capacities exist but need to be scaled up to match the challenge. As for technical capacity, one of the urgent needs is the provision of timely, up-to-date information for decision support and problem-solving strategies for enhancing urban sustainability (UN-Habitat 2005). Likewise, knowledge management has been recognized as a key priority for urban management (UN-Habitat 2005). Geo-information and remote sensing tools provide the technical inputs with a capacity to integrate socio-economic and bio-physical data to improve urban environmental management. On the other hand, human resource capacity building has been undertaken by both local and international educational institutions. However, more inclusive collaborative arrangements are needed to ensure sustained utilization of such knowledge and skills. It has often occurred that activities of capacity building end with pilot projects and are not mainstreamed into routine organizational activities to ensure sustainability. Other areas for capacity building include financial management, organizational management and community mobilization, advocacy and participation. Besides building capacity for institutional coordination, the process should involve the policymakers. Such capacity is needed because among all stakeholders, decision makers (political leaders) often overturn strategies for urban environmental improvement. It's instrumental to include decision makers in the search for interventions.

4. Is there Need for Urban Environmental Policy?

Environmental management policy in Uganda has been prepared for national and regional scale environmental problems addressed by agencies and/or ministries. Although urban areas are extensive, the national environmental policy largely covers broad terrestrial and aquatic ecosystems, targeting industrial pollution, wetland management and air pollution. This creates a gap in urban focused policy to deal with urban environmental challenges (Bartone, Bernstein et al. 1994). The broad nature of environmental policy has tended to obscure the importance of focusing on urban environmental management which is a major driver of the environmental changes in the peri-urban and rural areas. Although policy recommendations are dotted in urban literature, these are sector specific and seldom consider the interactions of activity systems and functioning of urban systems. On this premise, it is argued that policies are not only a direct derivative from research recommendations but rather a more inclusive process of

action-research that engages policy makers. A recent example in Kampala is the revision of the city ordinances to legalize and control urban agriculture (KUF-SALCC, Harvest et al. 2005). This recent effort benefited from the willingness and support of the political leaders, academia, municipal staff and general public to formulate an urban agriculture policy for Kampala City. The process yielded policy statements and five sets of ordinances including; Fish Ordinance, Livestock and Companion Animal Ordinance, Meat Ordinance, Milk Ordinance, and the Urban Agriculture Ordinance. Two lessons are worth noting: First, the inclusion of policy makers in the process revealed that it matters who is targeted for communication of policy recommendations and how such communication is put across. This also entails early inclusion in the research process. Thus policy briefs, fact sheets, learning alliances and dialogues are some of the many ways through which science can win the will and support of policymakers. The second lesson is the realization that municipalities can dynamically review policies to consider urban activities such as livestock farming, crop husbandry, horticulture and permaculture which hitherto were illegal or simply ignored due to the 'urban bias'. This offers a reflection on the urgency of urban environmental policy and supporting ordinances. The greater benefit of urban agriculture ordinances revolves around the connections between food and income security on one hand and urban greening and environmental sustainability on the other. Thus urban policy is needed to address the intertwined challenges of poverty and the urban environment (Enyedi 2003; Lwasa 2004).

5. Urban Environmental Policy - Which Way?

The overarching policy challenge in Uganda is the existence and enforcement of conflicting policies. An example is the urban policy implemented by the Town and Country Planning Act 1964 which can permit development in wetlands, but the National Environmental Management Policy and Act of 1995 restricts such a development. The two are further contradicted by the land policy implemented through the Land Act (1998) which stresses ownership of land to individuals and institutions irrespective of whether such land is an ecologically sensitive area. These policies and laws need to be harmonized to ensure sustainable management of the urban environment. Associated to the need for harmonization is the requirement for urban greening policy and waste management policy. These policies need to address the sustainable utilization of land especially on hill tops while maintaining land cover that could mitigate flooding and air pollution in the city. The greater benefit of harmonization would be integration of environmental issues under an integrated urban environmental management strategy.

Recognizing the current discourses on sustainability in various literature (Enyedi 2003; UN 2005; UNDP 2005), it is important to note that sustainable urban development needs to be coupled with easing of urban poverty. It is therefore important to reflect on how the urban ecosystems have provided, regulated and supported societies sustainably (Walter V. Reid 2005). The policies needed are those that address social well-being while maintaining the basic services from the ecosystems. The growing social and environmental conflicts in urban systems call for sensible urban governance. Good urban governance could greatly benefit from "social capital" (Enyedi 2002) due to the existence of grass-root based organizations. On the other hand, urban planning as an intervening factor in addressing environmental problems needs to be redefined so that planning is done with 'nature' for sustainable urban environmental management. Such a redefinition would address the stinging burden of wastes, flooding, poor housing and guide industrialization for sustainable development.

6. Conclusion

In conclusion, the urban environmental challenge in Uganda has become unprecedented due to the growing social-environmental policy conflict. The desire for provisioning from natural resources within and without urban systems is undermining urban environmental sustainability. Yet urban sustainability can be achieved if policies that pursue urban natural environmental management are coupled with urban poverty reduction strategies. Some policy directions are already showing results of coupling urban poverty with environmental concerns; for example urban agriculture and urban greening initiatives which have the potential to enhance food and income security for the urban poor while playing environmental regulatory roles. In order to deal with this challenge, capacity is needed for diverse stakeholders including policy actors, researchers, municipal staff and communities on how to tackle poverty while sustainably utilizing the natural resources in urban areas. Policy review needs to be entwined with research and the entire process requires the full inclusion of policy makers.

References:

<http://www.ihdp.org/updatePRCB.references.htm>

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Building the Capacity for Assessment and Deliberation

BY LOUIS LABEL AND CHIN-WEI TANG

Capacity building in the world of big sciences, as in the pursuit of earth system understanding, has suffered from some of the same traps as other projects in international development. Borrowing techniques from social marketing and the experience of colonial powers the outcomes in real terms have often been disappointing for those who were supposed to benefit. In some cases it almost seems as if the recipients, or even worse, “the targets”, in developing countries have been trained on the equipment and methods entirely so that scientists from wealthy countries can carry out their studies more effectively and achieve their desires for “global coverage”.

The impact can be seen in agendas. Researchers in developing countries are encouraged to work on population growth and deforestation, only infrequently on building adaptive capacity or managing resilience, and almost never on studies of wasteful consumption or high emission lifestyles in the developed world. Local techniques and practice are rarely the starting point for investigations into adaptive capacities or risk management.

The impact can also be seen in relationships. Expertise-providing countries are presumed to come from the well-funded scientific communities in mature economies, and the students from the developing regions of the world. But is this really true for all issues related to global environmental change? Might there be some areas of knowledge where most of the capacity building needs to flow in the opposite direction?

The incentives for scientists from poorer countries to “participate” in capacity building activities can be strong. Promises about preferred access to datasets, use of the latest technology and the prestige of scientific “collaborations” abound. But whom do the agenda of capacity building activities really serve? How can research communities in developing countries turn them around to meet their own societies’ needs more fairly?

In this paper we reflect on the challenges of building capacity of scientific communities in developing regions of the world to assess multi-level environmental changes and inform public deliberation on possible actions. Our purpose is to stimulate discussion on how to improve the effectiveness of “capacity building” relationships, recognizing that, contrary to some of the bad examples we raise above, that many organizations and individuals are sincere, and that research communities in developing countries often do need help to address the new and challenging problems posed by global environmental change.

We ask a series of questions related to two sets of activities we have been involved. The first is related to the activities of START in the Southeast Asia region over the past decade. The second is a more action and policy oriented set of activities that started about two years ago on water governance which now forms the M-POWER network (Mekong Program on Water Environment and Resilience, www.mpowernet.org)

1. Whose Capacity?

Most capacity building activities in the global environmental change programmes have focussed on individual researchers as a way to build a “scientific community” capable of being trained and, eventually, becoming collaborators. Often the “recipients” are identified as those who, in the eyes of those with expertise, should be concerned with global environmental changes or have the potential to influence such program development.

One of the unfortunate consequences of the filtering done by those wanting to help is that those in most need may not even know about the opportunities. Nor are their real needs understood. Very often international networks have only a small number of ad hoc links to particular University or Government Departments and information through these channels may not go much further.

Many of these networks are male-biased. Other cultural factors that exclude certain groups can also be important and not readily apparent to outsiders wanting to help underlying the importance. A combination of links with state and non-state organizations is often critical as their roles in development are often different. Overall, capacity building activities need to provide more opportunities for women and invest time in understanding other constraints to participation in science.

In least developed countries the problems of “finding” your quota of participants and partners is often a major difficulty for international research and capacity building activities. In these locations another problem is that individual researchers, talented, but among the few with good connections, get swamped by “capacity building opportunities”, rendering them ineffective. If capacity building activities pull away the best permanently to well-funded institutions in wealthy countries is that really capacity building?¹

2. Which Capacities?

Many activities are not very specific about which “capacities” exactly are being strengthened. When made

explicit, the skills are often overly framed in the language and issues of priority concern to the expertise-providing research community. This may be in the form of how-to-use particular equipment or models that have to be imported and continually supported. But what is often most needed are organizational, analytical and deliberative skills rather than frameworks and pieces of narrow research puzzles². Skills if properly developed should be capable of mounting challenges to research agendas, re-defining goals and approaches, and making observations which might over-turn key assumptions in “global” models.

Capacity building should be about expanding not narrowing horizons of inquiry. Moreover it is not just basic scientific capacity which needs to be transferred from experts to recipients, but also skills in communication, issue identification and public engagement. Some of the skills for this can flow in surprising directions, from recipients in developing countries to the experts providing the “training”. Sometimes by more explicitly asking about which capacities we should be building will lead to a re-defining of whose capacities.

3. Why and How?

If the expertise-providers were to genuinely answer the why question, how often would it be “to assist capacities to adapt” or negotiate more stringent “mitigation measures” in the developed world, and how often would it really be “to expand the sphere of influence of our research program and its legitimacy so it can lever more funds”? At least starting with an honest declaration of motivations, could help both recipients and experts better design “capacity building” activities which meet reciprocal if not mutual needs.

There are many kinds of activities that have been tried in the global environmental change programmes to “build capacity”. Each has its own strengths and weaknesses. Short, but intense training workshops are often preferred because the activity can be got over with quickly. On the other hand, many of our colleagues suggest that it is the longer-term relationships between mentors and “students” that turn into more symmetrical “collaborations” which have the largest impact on global environmental change science. The START-IHDP Institutes on Urbanization, and Vulnerability funded by the Packard Foundation were an interesting, but relatively expensive, example of this kind of activity with focussed training being combined with a year long research grant and a concluding workshop. Masters, Ph. D and post-doctoral fellowship programs can help build more local capacity if they don’t lead to brain-drains. In 2006 the IHDP’s regular International Human Dimensions Workshop will be on Water, Trade and Environment (Box 1).

IHDP-APN 2006 International Human Dimensions Workshop on Institutional Dimensions of Global Environmental Change: Water, Trade and Environment

In the workshop participants will learn about the role of institutions in causing and mitigating global environmental problems. The substantive focus will be on water and trade. In the case of water, institutions mediate among users and determine access, availability, quantity, and quality. The commodification of water and water rights leads to the link with issues concerning the impact of trade and globalization on environments. Therefore, the workshop will treat these issues in an integrated way and will use them to derive lessons about the way in which institutional dynamics affect resources and communities dependent on these resources. We shall also investigate the role of institutions in determining the vulnerability, resilience, and adaptation of communities to global change, water allocation, trade, and globalization. Local and regional (Asia-Pacific Region) issues and problems will be discussed and there will be a weekend field trip to investigate one such issue. As the outcome of the workshop, participants will develop research proposals to be undertaken when they return to their organizations. The workshop will demonstrate, showcase, and disseminate the findings of the 8-year international project on the Institutional Dimensions of Global Environmental Change (IDGEC). It will also encourage the participants to investigate institutions and the issues emerging from this project: water, trade, and environment, which have been identified as potential future core research activities of possible second phase of IDGEC.

The 2006 workshop will be held on 13-26 October in Chiang Mai, Thailand (See: www.ihdp.uni-bonn.de) and being locally hosted by the Unit for Social and Environmental Research (www.sea-user.org).

4. An Evolving Relationship

The key to successful capacity building is to treat it as a relationship between parties which can and should evolve over time. Joint evaluation on realistic time frames for impact is an important part of learning how to do better and to match shifting needs. Unfortunately, evaluation of capacity building activities is underplayed.

The activities of the SARCS network in Southeast Asia over the last decade illustrate how relationships and organization of capacity building activities can evolve from training through to assessment and primary research activities (Box 2).

SARCS Networks and the Monsoon Asia Integrated Study

The Southeast Asian Regional Committee for START has explicitly a regional network focus to building scientific capacity in the Southeast Asia region to carry out studies of global environmental change³. Over more than decade various regional organizations throughout the region have hosted training workshops on a wide range of technical subjects related to measuring, analysing and assessing global environmental change⁴. As the networks have matured and become more active in setting research agendas and securing their own modest funding for research, the conventional capacity building activities have been complimented by fellowship and scientist programs to support exchanges of staff and increasingly more sophisticated multi-centre and multi-site and large-scale collaborative research. In the most recent incarnation many involved in the SARCS research network are contributing to initial synthesis and planning for an ambitious study of the resilience of the Asian Monsoon System (www.mairs-essp.org) which is seen as a coupled climate-atmosphere-land-human system. This will provide a new wave for capacity building through networks that link researchers in Southeast Asia with the large and highly skilled scientific communities in China and India.

Good relationships have reciprocity and some room to negotiate for both sides. Just because something is labelled as “capacity building” does not mean that the true real beneficiaries are those listed as “recipients” of training and other assistance. Many capacity building activities carried out as part of the global environmental change science programmes would benefit from more explicit consultation with the intended targets on their real needs and explicit recognition of what is “in it” for both parties.

5. Capacity Building Networks

The notion that capacity building is best built by expert institutions in several places at once in a kind of one-to-many relationship is being replaced by more negotiated, cooperative model of consortia and networks, which through the joint activities they plan and conduct build each others, and others, capacities.

For example, M-POWER is a distributed network of collaborating research, advocacy and administrative organizations working towards a common goal of improved livelihood security and health through democratizing water governance (Box 3). Maintaining and strengthening the capacity of partner organizations for action research is an ambitious goal and requires exchanges on a lot of different things than just research

methods and findings. Organizational, media and communication skills, for example, often have come to the fore. Without good skills in these areas contributions to public deliberation on water policy are likely to fail and the critical links with authorities and important non-state actors cannot be forged.

The way communication and information sharing takes place is particularly important to capacity-building in networks. List-serves, web communities, and e-newsletters are common tools used for scientific communities but their effectiveness is rarely gauged.

The language of communication is a hugely important factor in capacity building. The assumption that all activities need to be conducted in “English” immediately eliminates most of the people who would often benefit the most. Much more needs to be invested in multi-lingual capacity building activities. Pay for translators. Allow applications in multiple languages. Regionalize activities where this can help reduce costs.

M-POWER is a Mekong Region network which aims to improve water governance and support sustainable livelihoods through action research. M-POWER’s research program is carried out by multi-country research teams organised around a set of comparative and regional studies and governance themes.

Capacity building and sharing are one of the important goals of this network, and is further supported by a fellowship research program. The fellows have to conduct original research under the common framework and work collaboratively with other research fellows especially outside the country of origin. The monthly research update is an internal email posting serving as a forum for exchanging and updating research work and activities among members of M-POWER. Further sharing of information on references, datasets, maps, and images is accessible to the network only through a password-protected area on the M-POWER website. Latest events and related news would be constantly updated on the website, please visit www.mpowernet.org.

The M-POWER network is contributing trainers to the IHDP-APN Water, Trade and Environment Workshop and taking the lead in organizing the policy-science dialogue component (Box 1).

Not all research programs in big science need be about capacity building. Some are just about doing the best possible science and this is admirable. What is disappointing are deceptions, lip-service and half-hearted attempts that come from failing to treat capacity building activities as a two-way relationship.

We are grateful to the START International Secretariat, the Southeast Asian Regional Committee for START (SARCS) in Southeast Asia, and the Asia Pacific

Network for Global Environmental Change research for providing us many opportunities to learn about building capacity in the research communities of Southeast Asia. Some of the lessons learnt are reflected here.

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<http://www.ihdp.org/updatePRCB.references.htm>

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Act Local But Think Global

Capacity Building in Water and Coastal Management and Global Change: The LOICZ International Master Programme

BY ALICE NEWTON

Managers rather than scientists usually take the decisions about water resources and the coastal zone. Water and coastal managers come from a variety of different backgrounds including hydrology, agriculture, chemistry, geography, civil and environmental engineering, architecture, ecology and oceanography, to name just a few. The issues to resolve are often complex and involve natural processes, engineering, ecology, sociology as well as economics. The effective management of water resources and the coastal zone are a particularly important challenge within the context of Global Change. The challenge for universities was to come up with a programme that would build the Global capacity of water and coastal managers and provide them with the scientific background to implement the best decision in their particular case. The programme had to be multidisciplinary so as to provide managers with a range of topics and skills that would complement their basic training. The philosophy was simple, to train water and coastal managers to “Act local but think Global”.

The range of topics that were useful and relevant was vast; far beyond the scope of a single department, faculty or even University. An international, multidisciplinary programme was therefore developed under the auspices of the European University Association, by pooling the human resources of 12 European Universities. The programme was further endorsed by the LOICZ project and the UNESCO Wise Coastal Practices project and then received funding from the European Union under the Erasmus Mundus programme. The Erasmus Mundus studentships focus on human mobility so that non-European students may study in Europe and European students carry out research in non-European countries. Erasmus Mundus scholarships also enable the contribution of non-European academics to the programme and the network of non-European institutions. Far from being Eurocentric, Erasmus Mundus



Students of the International LOICZ Master Programme, Bergen University, Norway

allows the “Act Local but think Global” philosophy to become a reality.

The initial innovative programme was further developed so that presently 48 European and 11 non-European Universities contribute modules taught by international experts in the respective fields. The concept is simple: within the vast human resources of this international pool of academics and researchers, experts in the field offer modules based on their expertise. For example, medical doctors teach about water and health, agronomists teach about irrigation, archeologists teach about heritage sites in coastal zones and river basins, economists teach about valuation of natural resource and lawyers teach about conflict management. The programme does not pretend to form professionals who are experts in all these very different fields, however it does inform the students about the complex nature of issues and provides them with the capacity to dialogue with the different stakeholders and to comprehend the reports of experts in a particular field so as to make informed and well based decisions. Developing good communication skills are an

important part of the programme and students are trained to present information in a variety of ways ranging from scientific reports to public information leaflets, posters, press releases, newsletters and websites.

The taught programme is one academic year, students must complete 60 ECTS credits (ECTS=European Credit Transfer System), to complete the curricular part of the programme. The vast choice of modules is grouped into "Freshwater", "Coastal", and "General/Environmental" categories. Students are individually mentored to help them select the most appropriate modules. Nevertheless, a minimum number of credits must be acquired from each category to ensure that future water managers from landlocked countries, such as students from Ethiopia and Uzbekistan, understand that local decisions may impact coasts thousands of kilometers away.

Once the curricular part of the course is completed, students carry out research projects. A lot of attention is devoted to the topic of the research to make it useful and relevant to the students' professional development. The programme provides further opportunities for building Global capacity. Recently, a Kenyan student researched the potential of rainwater harvesting from roofs in coastal villages to alleviate the burden of water-carrying by women. A Brazilian student focused on the quality of sediment, environmental impact and management of dredged port muds and sands. An Indian student is using GIS (Geographical Information System) to enrich the information in the LOICZ typology database for the S.E. India coast. A Chinese student is working on LOICZ nutrient budgets in coastal lagoons, coastal systems that are particularly vulnerable to Global Change. A Portuguese student is working on sea-truthing and calibration of ENVISAT remote sensing images on the coast of Norway, Portugal and Brazil.

The multicultural and multinational aspects of the programme bring added value to both students and academics. A module on Eutrophication is a challenge when it is to be delivered to students of 30 nationalities and backgrounds. It is important to present issues and case histories that are relevant to all. A module on the Ecology of Lakes is challenging when students from Uzbekistan and Cameroon are listening to lectures on the Aral Sea and Lake Chad. Assessment is based on assignments individually designed to be relevant to the students' backgrounds. Examples may be on the Eutrophication of the Aral Sea or the Ecology of lake Chad. These also are of great interest to the academics delivering the modules as they often present the human dimension of the problem from the point of view of the local inhabitants. At a more advanced stage in the programme, students may also choose guided self-study modules such as Disaster Management and Dams. These focus on the relevant issues for the students' backgrounds. Examples may be disaster management for

Earthquakes in Turkey or disaster management for Tsunamis in Portugal or Sri Lanka. Students must take a retrospective view of the risk in their country and develop a plan for managing such an emergency in a chosen local area. Public information and engagement are important issues that must be addressed without causing panic. For the Dams module, students must stocktake the dams in their country and examine the issues that led to construction and subsequent impacts of the dam, both economic and environmental. With this foresight, they must prepare two Ministerial briefs, no more than a page long, the first proposing the construction of the dam and the second opposing its construction. A more detailed scientific, technical, ecological and economic report that would support one of these briefs must also be provided.

For further information about the Joint Master programme in Water and Coastal Management, see www.ualg.pt/eumscwcm

For further information about the Erasmus Mundus programme, see http://ec.europa.eu/education/programmes/mundus/index_en.html

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Amsterdam Conference on the Human Dimension of Global Environmental Change



24 - 26 May 2007

Earth System Governance:
Theories and Strategies for Sustainability
www.2007amsterdamconference.org

IDGEC Synthesis Conference

6-9 December 2006, Bali, Indonesia

<http://fiesta.bren.ucsb.edu/~idgrec/synthesis/registration.html>

We look forward to hearing from all interested GEC research community members and look forward to continuing the synthesis process with your input.



First IHDP Science-Policy Dialogue Symposium Berne, Switzerland, 21-22 September 2006

Background: IHDP's 'Coming of Age'

Over its first ten years, IHDP has consolidated important scientific findings in global change research in our main thematic areas, through various core research projects: human security, the role of institutions and policy-making processes, land cover changes, coastal zones, water management, urbanization and industrial transformation, to name a few prime examples. IHDP is now on the verge of consolidating this first phase and entering phase II of its work, where a concerted effort is being made to reach out to the needs of the policy arena on a national, regional and international level. Issues surrounding the human dimensions of global environmental change – vulnerability and adaptation, institutions and governance, thresholds and transitions, knowledge and social learning, etc. – coincide particularly well with current international agendas pertaining in particular to the Millennium Development Goals and the UN Decade for Education for Sustainable Development, among other examples. It is our goal to take advantage of the momentum from various recent meetings and international conferences, and continue these discussions in a concrete way at the regional level. Thus IHDP is deliberately focusing its attention on the nexus between science and policy/practice as one of its three major issues for the next decade as we enter the next phase of our work.

The Berne Symposium was the first meeting of its kind and as such was a great success. IHDP envisages holding a series of workshops in the upcoming years along similar lines, bringing together key representatives from the scientific and policy/practice communities. These forums aim at identifying gaps, increasing exchange and communication and showcasing IHDP's ability to address and answer questions of societal relevance. The Berne Symposium attracted an audience of 40 selected personalities, both from science and policy arenas. Concretely, representatives of 5 IHDP national committees or IHDP national focal points attended, as well as members from other research institutes and representatives of UN agencies and international NGO's not yet affiliated formally with IHDP, such as IUCN. The meeting was held at the premises of the Swiss National Science Foundation (SNF), which kindly sponsored and logistically supported this meeting.

The participants both listened to thought-provoking key note presentations on the science-policy interface, such as the opening by Oran R. Young (Chair of the IHDP Scientific Committee), and also became actively involved in three thematic working groups, representing IHDP's core research agendas: climate change and energy; adaptive water governance; and land use,

human settlements, and urban growth. While the first day elaborated more on general challenges to bridge the gap between the "two communities", the second day was devoted to identifying concrete processes, topics, pitfalls, and particularly IHDP's niche within this field of work. In the end, the "Berne Summary" – containing the major findings of the workshop – was presented and discussed in plenary. This summary addresses types of research products that could foster the exchange between science and policy, focuses on policy processes and urges to identify "impact pathways" for effective engagement. Furthermore it puts a lot of emphasis on "concrete mechanisms," such as strategic alliances of IHDP and other players in this field as well as ways to institutionalize this work within IHDP. Finally, it names very concrete follow up activities for successful work.

The two days of Berne took place in a very inspiring, hands-on atmosphere. The participants got involved in intense discussions, within the working sessions as well as during the social events of the meeting. Several new contacts were made leading to a definite broadening of IHDP's networks and an engagement with new partners. The feedback from the participants was very positive and contained very constructive suggestions for implementation and future improvements as well. In a word: IHDP will strive to maintain the momentum and spirit of Berne for an interesting series of effective workshops and dialogues!



Participants of the Berne Science-Policy Dialogue

German IHDP Roundtable and Open Lecture, Bonn, 19 September 2006

To strengthen ties between IHDP and the German GEC research community was the aim of a **German IHDP Roundtable** that took place in Bonn on 19th September 2006. About 20 renowned German GEC researchers with a social-science and/or interdisciplinary approach attended the meeting. Important themes discussed within this set-up were: coupled socio-ecological systems, the various approaches to modelling, and the need to encourage different research groups on linking up IHDP research issues with integrated or agent-based

modelling; the role of social science in this still predominantly natural science-oriented field, and the need to work together from scratch in mutual respect, leaving the 'power shuffle' aside.

Also discussed were the new position paper of the German National Committee on Global Change Research which stresses the importance of sustainable human-environment interaction, and major German-funded projects (i.e. the Megacities project) as well as other important new areas of research such as the transformation processes in Asia and their global impacts. The need to reach out and make IHDP science products known and applicable to policy was stressed, as now is the time to apply its findings and show the usefulness of its products! Especially during early stages of the policy process, such as the phase of framing issues and developing the discourse science can exert significant influence.

As may be the case in some other countries, the German research community on Global Environmental Change is fragmented, with four different groups that are partly linked, but all in all not very well connected: 1. Sectoral foci (i.e. migration); 2. National/Global Political Economy; 3. Global Governance; and 4. Global Change. While there is a lot of knowledge in each of these four communities, they have to be brought together in order to synergize their work and receive important ideas.

The German IHDP Roundtable was followed by an **Open Lecture** by **Oran Young**, IHDP's Scientific Chair, on '**Resilience, Vulnerability, and Change in Environmental Governance Systems**'. As of late, research focuses on the performance and effectiveness of environmental governance systems. Important factors in this context are cycles (the idea of institutional growth and decline), scales, individual resp. multiple stressors (internal versus external, gradual versus abrupt) and the role of thresholds when stress builds up. Stress management systems such as spontaneous adjustments, or monitoring and adaptive management, were explained. Recurrent patterns of change can be observed: 1. Steady Growth (i.e. institutional responses to protect the ozone layer); 2. Challenge and Response (Antarctic Treaty System); 3. Diversion (redirecting the regime for whales and whaling under ICRW, revising goals followed by stalemate); 4. Collapse (Conserving North Pacific Fur Seals); 5. Stasis (implementing the climate regime – coping with a decade of stalemate following the adoption of the Kyoto Protocol in 1997, due to US withdrawal, no obligations for major developing countries, and difficulties in meeting targets of the 1st commitment period).

When will constitutive changes occur in environmental governance systems? Do institutions follow an

You can listen to this Open Lecture on our homepage www.ihdp.org

adaptive cycle? We are at an early stage in thinking about the dynamics of environmental governance systems. Interesting research foci that could be addressed by PhD students contain sources of institutional stickiness, the mechanisms of tipping points, and the determinants of patterns/syndromes of change. Institutions could possibly improve their performance, and successful institutional regimes could be created by inviting institutional researchers for a diagnosis.

Carbon Management at Urban and Regional Levels – Conference in Mexico City, 4-8 September 2006

The first international conference on Carbon Management at Urban and Regional Levels: Connecting Development Decisions to Global Issues was held recently in Mexico City. The goal of the conference, organized by the Global Carbon Project (GCP) and hosted by Metropolitan Autonomous University (UAM), was to (a) develop a comprehensive analysis of, and novel approaches to city's/region's net emissions trajectories and their underlying drivers; (b) explore possible management strategies and best timing for implementation to foster the decarbonized pathways of regional/urban development; and (c) bring the Urban and Regional Carbon Management (URCM) activities to the attention of the carbon communities, and to attract participants in these communities to the URCM agenda.

International speakers included: Dr. Patricia Romero Lankao, USA; Dr. Jose Lema Labadie, Mexico; Dr. Adrian Fernandez, Mexico; Dr. Shobhakar Dhakal, Japan; Dr. Michael Raupach, Australia; Dr. Pep Canadell, Australia; Dr. David Schmidly, USA; Dr. Kevin Gurney, USA; Dr. Antonio Contreras, Philippines; Dr. Linda Mearns, USA; and Dr. Tae Yong Jung, USA. In addition participants from over 20 countries discussed more than 80 oral and poster presentations in four theme areas:

1. Measurement and Observations
2. Patterns, Variability and Modeling at Multiple Scales
3. Influence and Development Processes on Carbon Emissions
4. Mitigation Opportunities, Constraints and Challenges for Urban and Regional Carbon Management at Multiple Scales

The final session of the conference included a mandate for the GCP to further develop the URCM initiative. As urban related carbon issues gain momentum the GCP plans to contribute in a meaningful way to support carbon management at urban and regional levels, particularly at the interface of science and policy.

www.globalcarbonproject.org

In Brief

European Summer School on Earth System Governance

The upcoming 2007 Summer School on „Earth System Governance“ aims to help students to better understand the causes of global change in an integrated manner and at the same time to develop options for the governance of a transition to more sustainable development paths at the national and global levels. It brings together insights from the modelling, integrated assessment, and sustainability science communities and from the social science, governance-oriented research communities. The Summer School will be held back-to-back with the 2007 Amsterdam Conference on the Human Dimensions of Global Environmental Change (May 2007) at the Vrije Universiteit Amsterdam. This major international conference is endorsed by IHDP and will bring together a large number of international experts around the topic of Earth System Governance. Participants of the Summer School will have the chance to participate in the two-day Amsterdam Conference. The course is primarily meant for international PhD students with a social science background. For more information, please visit: <http://www.2007amsterdamconference.org/summerschool.htm>.

Master Study Programme on Global Change Management

A new international master study programme on Global Change Management has been launched this September at the FH Eberswalde, Germany.

The mission of Global Change Management (M.Sc.) is to educate specialists who are able to cope with challenges of natural resource management under Global Change. The emphasis is on both mitigation and adaptation the effects of current challenges such as climate change and loss of biodiversity. The website of the programme is

<http://www4.fh-eberswalde.de/de/Studieren/Studiengaenge/MAster/GlobalChangeManagementabWS2006/K381.htm>

New Faces

We would like to welcome **Hongxia Duan**, our new Senior Programme Manager, within the IHDP Secretariat. Hongxia is an environmental scientist and has a PhD in Natural Resources. She has an impressive track record in research, both in China



Hongxia Duan

and the US, and her focus is on environmental risk management and risk communication.

Michail Fragkias has been appointed Executive Officer for IHDP's new core project on Urbanization and Global Environmental Change (UGEC). Michail, an economist, has been a postdoctoral researcher at the Center for Environmental Science and Policy, Stanford University. He specializes in urban, geographical and environmental economics, and discrete choice modeling and behavioral economics. The newly established UGEC project office is based at Arizona State University.



Annette Reenberg

Annette Reenberg is the Chair of the Global Land Project, a new core research project of IHDP jointly sponsored with IGBP. She is a Professor of Landscape and Agricultural Geography at the University of Copenhagen, Denmark, and her interests are in the spatial aspects of land-use systems dynamics and adaptive capacity and hierarchical approaches to analysis of natural resource management. She coordinated a consortium of researchers from anthropology, sociology, biology, economy and geography in a research programme on „Sustainable agriculture in semi-arid tropics“ (SEREIN - www.geogr.ku.dk/research/serein/index.html). She is also active in research evaluation and policy, e.g. as a member of the Danish Council for Research for Developing Countries and the Board of Trustees for ICRAF (World Agroforestry Center) where she chaired the programme committee. She currently serves on Danish Research Council for Technology and Production. **Tobias Langanke** is the new Executive Officer for GLP. He is a Geographer, and his research interests include landscape character assessment, the interface of Remote Sensing, GIS and European Nature Conservation, Object-based Image Analysis, VHSR Remote Sensing Imagery as well as desertification monitoring in sub-Saharan Africa. The GLP International Project Office will also be based at the University of Copenhagen.

Ken Conca, Associate Professor of Government and Politics at University of Maryland is a new member of the GECHS Scientific Steering Committee, and focusing on water governance. He won awards for his book „Governing Water: Contentious Transnational Policies and Global Institution Building“ (please see Books section on page 27).

The Industrial Transformation core project has welcomed five new members to its Scientific Steering Committee: **Xuemei Bai** from IGES, Japan, is an environmental engineer and her research interests lie in urban environmental management, and in urban industrial ecology. **Patrick Criqui** from the University of Grenoble, France, is an economist and current Director of research at the French National Council for Scientific research (CBRS). **John Robinson** is a Professor of Geography at the University of British Columbia, Canada. He is active in a variety of research projects on sustainable development issues, and his main interests include interactive urban modelling and sustainable futures. **Fred Steward** is a Professor of Innovation and Entrepreneurship at Brunel University, London. His main interests include sustainable technologies, transformative innovation & sociotechnical transitions. **Weidong Liu** is a Professor of Geography and Deputy Head of the Department of Regional Studies at the Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences (CAS). His research interests are regional studies and regional sustainable development in China, and economic globalization and local development among others. The IT project office would also like to thank those researchers who have now rotated off the SSC for their support in developing and implementing the IT research agenda: **Marina Fischer-Kowalski**, **Leena Srivastava**, **Nina Poussenkova**, and **Christian Azar**.

Eric Craswell, Executive Officer of the ESSP joint project Global Water System Project (GWSP) will retire. **Lydia Gates** will take up the position of the GWSP Executive Officer as of December 2006. Dr. Gates is a recognized leader in international global change research (climate and water issues) with a global perspective on water resources. She is very familiar with the global change community, in Europe and North America, and has experience in administering global change programs of the WCRP (CLIVAR) and the US National Science Foundation. She has also been involved in GEWEX and other projects related to the GWSP. We believe that Dr. Gates' strong science and management background and interdisciplinary interests will be great assets to the GWSP.

Diana Liverman, Director of the Environmental

Change Institute at Oxford University, took over the chair of the GECAFS (Food Systems) joint project from **Peter Gregory** (Scottish Crop Research Institute). **Anne-Marie Izac**, Chief Alliance Officer with CGIAR took over the Vice-Chair from **Mike Brklacich** (Carleton University, Ottawa, Canada).

New Books/Journals



The Scientific Journal *Global Environmental Change* has published a special issue on **Resilience, Vulnerability, and Adaptation: A Cross-cutting Theme of the International Human Dimensions Programme on Global Environmental Change** (Volume 16, Number 3, August 2006; Guest Editors: Marco A. Janssen and Elinor Ostrom). This publication reflects the discussions and papers of a scientific workshop of international scholars, led by Sander van der Leeuw and Elinor Ostrom (The Arizona Workshop, Feb. 2005). A session was also held at the Bonn 5th Open Meeting of the Human Dimensions on GEC Research Community (Bonn, Germany, October 2005), with revised versions of the white papers that had been prepared for the Arizona Workshop (a summary thereof can be found in the UPDATE No. 1/2006, in the publications section of the IHDP website www.ihdp.org) The articles in the *Global Environmental Change* journal are part of the diverse and rich array of contributions from these scholars to the understanding of vulnerability, resilience, and adaptation as multidimensional concepts. <http://www.elsevier.com/locate/gloenvcha>

From LTER to LTSER: Conceptualizing the socio-economic dimension of long-term socio-ecological research. This IT/LUCC workshop took place last year in Klagenfurt, Austria. The scientific outcomes will be published with *Ecology and Society*, 11(2), (online), <http://www.ecologyandsociety.org/forthcoming>.

Resource Policies: Effectiveness, Efficiency, and Equity

**The 2006 Berlin Conference
on the Human Dimensions of
Global Environmental Change**

17-18 November 2006, Berlin, Germany

<http://web.fu-berlin.de/ffu/akumwelt/bc2006/>



Governing Water Contentious Transnational Politics and Global Institution Building

Ken Conca



Water is a key component of critical ecosystems, a marketable commodity, a foundation of local communities and cultures, and a powerful means of social control. It has become a source of contentious politics and social controversy on a global scale, and the management of water conflicts is one of the biggest

challenges in the effort to achieve effective global environmental governance.

In *Governing Water*, Ken Conca examines political struggles to create a global framework for the governance of water. Threats to the world's rivers, watersheds, and critical freshwater ecosystems have resisted the establishment of effective global agreements through intergovernmental bargaining because the conditions for successful interstate cooperation — effective state authority, stable knowledge frameworks, and a territorialized understanding of nature — cannot be imposed upon water controversies. But while interstate water diplomacy has faltered, less formalized institutions — socially and politically embedded rules, roles, and practices — have emerged to help shape water governance locally and globally.

Conca examines the politics of these institutions, presenting a framework for understanding global environmental governance based on key institutional presumptions about territoriality, authority, and knowledge. He maps four distinct processes of institution building: formal international regimes for shared rivers; international networking among water experts and professionals; social movements opposing the construction of large dams; and the struggle surrounding transnational water „marketization.“ These cases illustrate the potential for alternative institutional forms in situations where traditional interstate regimes are ineffective.

MIT Press, November 2005

456 pp. 10 illus., \$28.00/£18.95 (Paper)

ISBN-10: 0-262-53273-5;

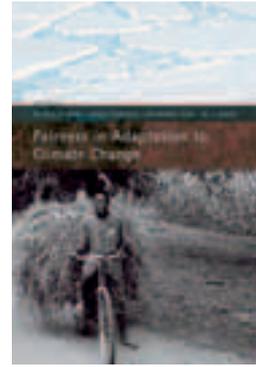
ISBN-13: 978-0-262-53273-0

Fairness in Adaptation to Climate Change

Edited by W. Neil Adger, Jouni Paavola,
Saleemul Huq and M. J. Mace

As a global society, we need to take action not only to prevent the potentially catastrophic effects of climate change but also to adapt to the unavoidable effects of

climate change already imposed on the world. *Fairness in Adaptation to Climate Change* looks at the challenges of ensuring that policy responses to climate change do not place undue and unfair burdens on already vulnerable populations. All countries will be endangered by climate change risks from



floods, drought, and other extreme weather events, but developing countries are more dependent on climate-sensitive livelihoods such as farming and fishing and hence are more vulnerable. Despite this, the concerns of developing countries are marginalized in climate policy decisions that exacerbate current vulnerabilities.

Fairness in Adaptation to Climate Change brings together scholars from political science, economics, law, human geography, and climate science to offer the first assessment of the social justice issues in adaptation to climate change. The book outlines the philosophical underpinnings of different types of justice in relation to climate change, present inequities, and future burdens, and it applies these to real-world examples of climate change adaptation in Bangladesh, Tanzania, Botswana, Namibia, and Hungary. It argues that the key to adapting to climate change lies in recognizing the equity and justice issues inherent in its causes and in human responses to it.

MIT Press, May 2006; 312 pp. 17 illus.,

\$25.00/£16.95 (Paper)

ISBN-10: 0-262-51193-2;

ISBN-13: 978-0-262-51193-3

Marine Eutrophication in Perspective

On the Relevance of Ecology for Environmental Policy

Folkert de Jong

Is ecological knowledge relevant for environmental policy and if so, to what extent and in what way? These are some of the basic questions addressed in this book.

Triggered by a series of oxygen depletion events in German, Danish and Swedish coastal waters at the beginning of the 1980s, international policies to reduce inputs of nitrogen and phosphorus to the North Sea were agreed upon by the North Sea states.

The book provides a critical analysis of the role, scientists and scientific information, as well as civil servants, have played in the formulation and implementation of these decisions.

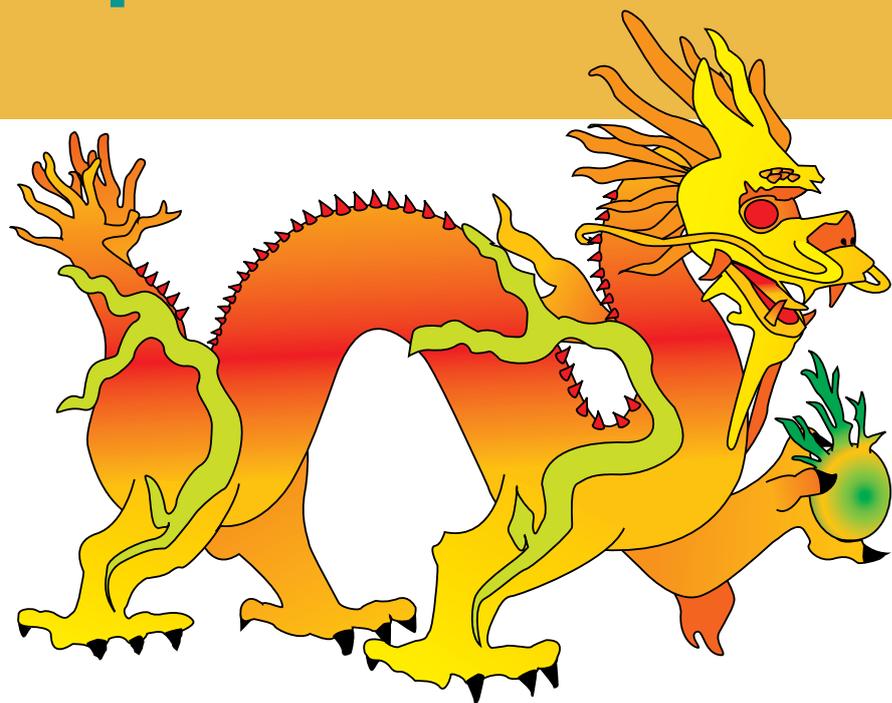
Springer, 2006, XII, 336 p., 20 illus.,

Hardcover; ISBN: 3-540-33647-8

Earth System Science Partnership Open Science Conference



Earth System
Science Partnership



Global Environmental Change: Regional Challenges

Beijing, China
9–12 November 2006

This conference will present advances in our understanding of the natural and socio-economic aspects of global environmental change since the Amsterdam Conference in 2001, and will highlight the ESSP approach to study of the Earth System.

We invite scientists, policy makers, practitioners, scholars, representatives from private enterprises and journalists to participate in this conference and to submit abstracts. Prior to the main conference, the 2nd International Young Scientists Global Change Conference (7–8 November 2006) will provide an opportunity for selected young scientists to present and discuss their work.

This four-day event will consist of four half day plenaries and 44 parallel sessions organised around oral and poster presentations

Parallel Session	Title	Convenor(s)
1	How Can the Amazon Continue as a Sustainable Hot Spot for the Earth System? Contributions of LBA Science	<i>L. A. Martinelli and F. Luizao</i>
2	Arctic Environmental Change: a Cross-disciplinary, Pan-Arctic Perspective in the Context of Earth System Studies	<i>P. Schlosser</i>
3	Biodiversity, Ecosystem Functioning and Carbon Sequestration	<i>A. Hector, M. Loreau, K. Ma</i>
4	Environmental Water Allocations: Conserving Ecological Goods and Services	<i>R. J. Naiman and S.E. Bunn</i>
5	From Climate Research to Risk Management	<i>P. Lemke</i>
6	Earth System Research in Monsoon Asia	<i>F. Penning de Vries</i>
7	Can Cross-border Adaptation to Environmental Change in Africa Offer Lessons to Disaster Management?	<i>B. Delali</i>
8	Interdisciplinary and Implementation-oriented Approaches in Research on Conservation and Use of Biodiversity: What are the Lessons (to be) Learned?	<i>M. Denich</i>
9	Climate Change and Rising CO ₂ : How Serious is the Future Threat to Biodiversity?	<i>P. Leadley</i>
10	Seasonal and Decadal Climate Prediction: From Basic Science to Societal Benefits	<i>J. Shukla</i>
11	How Do Cities Drive the Global Carbon Cycle?	<i>P. Romero Lankao</i>
12	Integrating Concepts and Indicators for the Analysis of Agro-Ecological, Social and Economic Resilience in Food Production	<i>R. Paulesich and A. Haslberger</i>
13	How Can Earth System and Socio-economic Information be Used to Better Understand and Manage the Local and Remote Effects Controls on Regional Water Resources?	<i>R. Lawford, L. Martz, J. Roads, C. Vörösmarty</i>

Parallel Session	Title	Convenor(s)
14	Environmental Change and Disease Emergence: Predictive Approaches to a Global Problem	<i>P. Daszak</i>
15	Urbanisation, Global Environmental Change, and Human Health: Challenges and Prospects for Sustainable Development	<i>T. Krafft, R. Sanchez-Rodriguez, K. Seto, W. Wang</i>
16	Comparative Governance of Carbon, Water and Food	<i>L. King and H. Schroeder</i>
17	Ocean and Terrestrial Carbon Cycle and their Management in Asia	<i>C-T Chen, M. Obersteiner, J. T. Wang, Y. Yamagata</i>
18	Institutions for Sustainable Resource Management and Livelihood Security in Asia	<i>B. Shabaz</i>
19	Global Environmental Change and Food Security in Africa	<i>P. Dube</i>
20	How Does Global Environmental Change Affect Health and How Can We Measure it?	<i>U. Confalonieri and T. McMichael</i>
21	What Do We Really Understand About Freshwater and Coastal Systems, and the Global Water System?	<i>F. Lansigan and J. Alcamo</i>
22	Towards A Better Understanding of Vulnerability Assessment Methodologies and Adaptive Capacity To Climate Risks	<i>A. Patwardhan</i>
23	Designing a Post-Kyoto Climate Change Regime	<i>L. King</i>
24	Integrating Past Records of Human-Environment-Climate Interactions for Future Sustainability	<i>J. Dearing</i>
25	Biodiversity, Land Management and Ecosystem Responses	<i>D. Ojima</i>
26	Global Environmental Change, Natural Disasters, and their Implications for Human Security in Coastal Urban Areas	<i>K. O'Brien, J. Pacyna, R. Sanchez-Rodriguez</i>
27	Are Extreme Climate Events Changing?	<i>M. Manton</i>
28	Towards a Global Observation System of Biodiversity and Land Cover Changes: Solutions for Sustainable Development	<i>N. Juergens</i>
29	Transitions to Sustainability in Asia: Analysing the Dynamics of Industrial Transformation	<i>K. Green, F. Berkhout, F. Steward, A. Wieczorek</i>
30	Improving the Interface between Biodiversity Science and Policy	<i>D. Raffaelli and A. Holt</i>
31	Building Bridges: Global Environmental Change and Development Aid	<i>T. Rosswall and M. Leinen</i>
32	Planning for Natural Disaster Mitigation – Issues On Ecological and Social Risk	<i>L. Chaudhari</i>
33	Integrated Coupled Human Environment Research Developments in Land Science: Analytical Frontiers of Land Use Change and Vulnerability of the Coupled System under Global Environmental Change	<i>B. Turner and D. Ojima</i>
34	Collaborative Regional GEC Networks in the Americas: Opportunities for Stakeholders and Governance	<i>M. Brklacich</i>
35	Are Changing Aerosol Levels Affecting Regional Temperature, Cloud and Precipitation Patterns?	<i>R. Lawford</i>
36	Modelling Coupled Dynamics and their Uncertainties in the Earth System	<i>K. Hibbard</i>
37	Sea-level Rise, Vulnerability and Impacts	<i>S. Wilson and N. Harvey</i>
38	Mining Museum Data to Address Global Environmental Change Issues	<i>J. Soberon</i>
39	Marine Ecosystems: Trends, Feedbacks and Predicting Future States	<i>C. Werner and M. Barange</i>
40	Chemistry and Climate in the Upper Troposphere/ Lower Stratosphere Region	<i>P. Rasch and A.R. Ravishankara</i>
41	Future Directions in Earth System Modelling	<i>G. Brasseur, G. Gallopin, B. Hoskins, P. Leadley, S. van der Leeuw</i>
42	How Are Satellites Changing Our View of the Earth?	<i>J. Kaye</i>
43	Mountains Under Change	<i>C. Koerner, G. Greenwood, E. Spehn</i>
44	Climate Mitigation and Sustainable Development – How can they be reconciled?	<i>G. Klepper</i>

Visit the Conference web site for more information about the event!

www.essp.org/ESSP2006/

Institutional Interaction in Global Environmental Governance

Synergy and Conflict among International and EU Policies

Edited by Sebastian Oberthür and Thomas Gehring

Foreword by Oran R. Young



This systematic investigation of the interaction among international and European institutions provides both a theoretical framework for analysis and the first broad overview of this largely uncharted field of research. By offering detailed case studies and a systematic analysis of results, the book examines

the effects of institutional interaction on environmental governance and explores the ways in which international and European Union policies can either reinforce or undercut one another.

After a conceptual overview in which Oberthür and Gehring identify three causal mechanisms by which institutional interaction can affect environmental governance, ten case studies apply this theoretical approach. Six cases use an international institution as their starting point and four begin with a European Union legal instrument. The international regimes examined include the widely known Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), the Convention on Biological Diversity (CBD), and the World Trade Organization and United Nations Framework Convention on Climate Change (UNFCCC). The EU instruments analyzed include lesser-known directives on the protection of habitats, the deliberate release of genetically modified organisms into the environment, and air quality. The studies show that although conflict and interference among different regimes and institutions do take place, synergistic interactions are common. The findings on the importance of, and mechanisms behind,

these outcomes offer valuable insights for both scholars and policymakers.

MIT Press, March 2006, 424 pp., 23 illus.;

\$28.00/£18.95 (Paper)

ISBN-10: 0-262-65110-6;

ISBN-13: 978-0-262-65110-3

Socio-Ecological Transitions and Global Change

Comparing Historical and Current Patterns of Social Metabolism and Land Use

Edited by Marina Fischer-Kowalski and Helmut Haberl

In presenting case studies of historical and current transitions from an agrarian to the industrial socio-ecological regime this book focuses on fundamental changes in society-nature interaction: use of materials, energy, and land. The focus on a biophysical explanation of changes during industrialization allows to explicitly link socio-economic development to changes in the natural environment.

The book presents historical studies on the United Kingdom (the forerunner of industrialization) and Austria (a straggler) as well as studies of current transition processes in developing countries. Transitions are analyzed across different levels of scale, from the local to the national level. The comparison of historical and current assessments contributes to the understanding of patterns in the transition from one socio-ecological regime to another. On this basis future trends and possible pathways towards, or further departures from, sustainability are discussed.

The book is empirical in its character and cautious concerning far reaching assumptions. It provides rich and in depth material for further studies in socio-ecological research for students and researchers.

To be published with Edward Elgar, 2007

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MEETING CALENDAR

➤➤➤ 16-17 October - Brussels, Belgium
2nd Annual European Energy Policy Conference

➤➤➤ 23-24 October - Chicago, USA
Sustainable Innovation '06 -
Global Challenges, Issues and Solutions
www.cfsd.org.uk/event/tspd11

➤➤➤ 24-27 October - Birmingham, U.K.
Rapid Climate Change -
International Science Conference
www.noc.soton.ac.uk/rapid//rapid2006/index.php

➤➤➤ 6-8 November - Kyoto, Japan
Research Institute for Humanity and Nature (RIHN):
First International Symposium
http://www.chikyu.ac.jp/rihn/sym/sym01_e.html

➤➤➤ 7-8 November - Beijing, China
2nd International Young Scientists'
Global Change Conference
www.start.org

➤➤➤ 9-12 November - Beijing, China
Global Environmental Change: Regional Challenges
Earth System Science Partnership (ESSP) Open Sci-
ence Conference
www.essp.org/ESSP2006

➤➤➤ 13-19 November - Valdivia, Chile
Ecosystem Services in the Neotropics: State of the
Art and Future Challenges
www.forecos.net/neotropics

➤➤➤ 17-18 November - Berlin, Germany
Resource Policies: Effectiveness, Efficiency, and Equity
The 2006 Berlin Conference of the Human Dimen-
sions of Global Environmental Change
<http://web.fu-berlin.de/ffu/akumwelt/bc2006/>

➤➤➤ 23-25 November - Wuppertal, Germany
Sustainable Consumption Research Exchanges:
Sustainable Consumption and Production (SCP):
Opportunities and Challenges
www.score-network.org/score/score_module/index.php

➤➤➤ 4-7 December - Dubai, UAE
NDRD/ GRC: International Symposium on Drylands
Ecology and Human Security: Regional Perspectives,
Policy Responses and Sustainable Development in the
Arab Region - Challenges and Opportunities
www.isdehs.com

➤➤➤ 6-7 December - Brussels, Belgium
Sustainable Growth in the European Union

➤➤➤ 6-9 December - Bali, Indonesia
IDGEC Synthesis Conference
www.ihdp.org

➤➤➤ 11-15 December - San Francisco, USA
AGU Fall Meeting
www.agu.org/meetings/fm06

➤➤➤ 11-13 December - The Hague, Netherlands
University for Peace: Global Challenge, Global
Climate Solidarity: Climate Change and V
ulnerability Conference
www.upeace.org/climate

➤➤➤ 15-18 December - New Delhi, India
Ecological Sustainability and Human Well-Being
9th Biennial Conference of the International Society
for Ecological Economists (ISEE)
www.isee2006.com/index.php

➤➤➤ 13-26 October - Chiang Mai, Thailand
5th International Human Dimensions Workshop -
Institutional Dimensions of Global Environmental
Change: Water, Trade and the Environment
www.ihdp.org

➤➤➤ 14-16 November - Bali, Indonesia
SPICE/LOICZ/SEACORM Southeast Asia
Coastal Governance and Management
Forum: Science Meets Policy for Coastal
Management and Capacity Building
www.zmt-bremen.de/SPICE/sls

➤➤➤ 14-25 November - Chung-Li & Kaohsiung, Taiwan
Advanced Training Workshop on Southeast Asia Regional Carbon and Water Issues
www.sarcs.org

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