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Publisher: Routledge

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Innovation: The European Journal of Social Science Research

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/ciej20>

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Version of record first published: 14 Oct 2011.

To cite this article: Anantha Kumar Duraiappah & Deborah Rogers (2011): The Intergovernmental Platform on Biodiversity and Ecosystem Services: opportunities for the social sciences, Innovation: The European Journal of Social Science Research, 24:3, 217-224

To link to this article: <http://dx.doi.org/10.1080/13511610.2011.592052>

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COMMENT

The Intergovernmental Platform on Biodiversity and Ecosystem Services: opportunities for the social sciences

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(Received 5 May 2011; final version received 31 May 2011)

A decision taken at the 65th United Nations General Assembly (UNGA) in 2010 gave the green light to the United Nations Environment Programme (UNEP) to convene a plenary meeting to establish an Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) in 2011. A plenary intergovernmental meeting will be held in 2011 to negotiate the modalities and program of work for the IPBES. This paper provides a brief overview of what the IPBES is and what it is expected to deliver drawing on from the earlier intergovernmental meetings. The main thrust of the paper is on making a case for the strong participation by the social sciences and humanities communities in IPBES from the very beginning. The paper provides some initial thinking of ways and means of framing strategic questions drawing from the social sciences and humanities that IPBES should address which reflect more closely the demands of society.

Keywords: IPBES; social sciences; assessments; capacity building; knowledge generation; scenarios

Introduction

We finally see the light at the end of the tunnel in the process to establish an Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). A decision taken at the 65th United Nations General Assembly (UNGA) in 2010 gave the green light to the United Nations Environment Programme (UNEP) to convene a plenary meeting to establish IPBES in 2011 (UNGA 2011). The Governing Council of UNEP further endorsed the UNGA decision and gave its approval to the executive director of UNEP to go ahead with the planning of the plenary in collaboration with other United Nations agencies and international scientific organizations (UNEP 2011).

Although there is still much work to be done, many of the details of the platform are laid out in the outcome document from the last intergovernmental meeting, held in Busan, Republic of South Korea, in June 2010. This document, called the Busan Outcome (UNEP 2010a), lays out in detail the modus operandi of an IPBES including a potential program of work. We shall not provide any details on the process that led to the UNGA decision in this paper, as this has been clearly documented already (Larigauderie and Mooney 2010). This paper is targeted towards the social sciences and humanities communities with the aim of bringing this community up to date on the IPBES process. Our paper also provides insights to

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policy-makers on why the social sciences and humanities should be involved in the framing of the questions and full participants in all aspects of the new platform.

Our paper begins by presenting a brief description of what the IPBES is, why there is a need for the platform, and what IPBES is expected to deliver. This is followed by an overview of the key elements of the Busan outcome, which are important for the scientific, and in particular the social sciences and humanities, communities. The next section focuses on strengthening the social sciences and humanities component in a trans-disciplinary framework. The paper ends with some remarks on the relationship between science, policy and funding agencies.

What is IPBES and why do we need it?

The core mandate of IPBES is to provide authoritative, independent, inclusive, peer-reviewed policy-relevant and science-based advice on changes in biodiversity and ecosystem services and their implications for human well-being at multiple scales. In doing so, the platform will harness networks of scientific experts as well as the policy communities. From regional to global, IPBES is envisioned to complement the scientific subsidiary bodies of the biodiversity-related conventions by providing the needed scientifically credible information on emerging issues in the science of biodiversity and ecosystem services change.

Is there a real need for IPBES? The current science–policy interface for biodiversity and ecosystem services comprises a number of national and international mechanisms and processes. It has been argued that the contribution of all these processes to policy-making at appropriate levels could be further strengthened if they were supported by an intergovernmental science–policy platform, which would ensure the credibility, legitimacy and saliency of emerging scientific findings and recommendations (Mace and Mooney 2009, Loreau *et al.* 2006). There is wide recognition within the scientific community (Larigauderie and Mooney 2010) of the fragmented nature of the biodiversity and ecosystem services assessment landscape, and the need for a common science–policy platform to address the needs of a range of policy-making organizations and institutions. The platform will provide the much needed common science platform for the various biodiversity and ecosystem services-related Multilateral Environmental Agreements (MEAs) and processes. However, it is also envisaged that IPBES will provide the necessary science for processes outside the biodiversity and ecosystem services environmental conventions, including the World Trade Organization (WTO), development-oriented organizations such as the multilateral and regional banks, and the development-driven process and organizations (Perrings *et al.* 2011).

What exactly will IPBES deliver? The science–policy platform is expected to generate a range of outcomes, including: (a) provision of authoritative, up-to-date and policy-relevant (but not policy prescriptive) analyses of the state of biodiversity and ecosystem services and their relationship with human well-being, to support decision-making requests from the subsidiary advisory bodies of MEAs, natural resource management and development-related international bodies, multilateral banks, regional biodiversity and ecosystem services programs, and national governments; (b) improved communication and knowledge brokering to catalyze funding for research on biodiversity and ecosystem services; and (c) improved capacity of scientists from developing countries to undertake trans-disciplinary scale-specific assessments as well as across-scale thematic and horizon scanning assessments.

The IPBES governance and program of work: the Busan outcome

It must be recognized that the Busan outcome contained a set of recommendations that countries participating at the Busan meeting agreed to and adopted. This does not imply, however, that these are legally binding decisions that will govern the IPBES. Those decisions will be made at the upcoming first session of the plenary meeting to be held in 2011. However, the Busan outcome does provide useful guidance on the way forward, and provides the pieces to begin putting together the key elements of the IPBES.

A key principle agreed by all governments was the need for an independent, autonomous body to ensure scientific credibility and to prevent the platform from being politicized. This means that the IPBES will not be linked with any particular biodiversity-related convention or environmental agency, but made available for all biodiversity- and ecosystem-related MEAs and other relevant stakeholders. This decision was taken to ensure the delivery of one single science platform for biodiversity and ecosystem services, just as there is the Intergovernmental Panel on Climate Change (IPCC) for climate change. It also prevents the politicizing of the platform and allows it to focus on bringing the best science to bear on the issues society faces. This is a critical principle crucial to maintain the scientific credibility and legitimacy of the platform. Ideally, three representatives from each government – a natural scientist, a social scientist and a negotiator – will form the plenary. Following the Inter Academy Council recommendations (Inter Academy Council 2010), it is suggested that the working groups, the executive body and the secretariat (whether a single or distributed secretariat structure), should ideally be staffed by scientists. Due attention should be paid to ensuring equal representation by disciplines, region and gender.

The Busan outcome identified four main areas of work for the IPBES. These include, as stated in the outcome document:

- (i) The new platform should identify and prioritize key scientific information needed for policymakers at appropriate scales and catalyse efforts to generate new knowledge by engaging in dialogue with key scientific organizations, policymakers and funding organizations, but should not directly undertake new research;
- (ii) The new platform should perform regular and timely assessments of knowledge on biodiversity and ecosystem services and their interlinkages, which should include comprehensive global, regional and, as necessary, subregional assessments and thematic issues at appropriate scales and new topics identified by science and as decided upon by the plenary. These assessments must be scientifically credible, independent and peer-reviewed, and must identify uncertainties. There should be a clear and transparent process for sharing and incorporating relevant data. The new platform should maintain a catalogue of relevant assessments, identify the need for regional and subregional assessments and help to catalyse support for subregional and national assessments, as appropriate;
- (iii) The new platform should support policy formulation and implementation by identifying policy-relevant tools and methodologies, such as those arising from assessments, to enable decision makers to gain access to those tools and methodologies, and, where necessary, to promote and catalyse their further development;
- (iv) The new platform should prioritize key capacity-building needs to improve the science–policy interface at appropriate levels and then provide and call for financial and other support for the highest-priority needs related directly to its activities, as decided by the plenary, and catalyse financing for such capacity-building activities by providing a forum with conventional and potential sources of funding.

This mandate for IPBES is no doubt a much larger charge than that of the IPCC. However, this is a necessary condition if the platform is to actually achieve its objectives. In fact, the recommendations put forward by a recent review of the IPCC

suggest similar components for the future work program for the IPCC (Inter Academy Council 2010).

One key component worth highlighting among the four areas of work is assessment. Unlike climate change, biodiversity loss and ecosystem services change are typically place-based and many of the effects are seen at sub-global scales. This was clearly acknowledged in the Busan meeting, and the focus on conducting assessments at different scales as well as across scales was welcomed by the delegates at the meeting. This is indeed a novel approach to assessments, initiated by the Millennium Ecosystem Assessment, albeit with limited success (Duraiappah and Naeem 2005). Therefore, rather than just focusing on periodic global assessments, like the IPCC does at the moment, the IPBES will place emphasis on regional and sub-regional assessments.

In addition to these scale-specific assessments, delegates in Busan responded to the plea by the scientific community for thematic and horizon scanning assessments that might alert policy-makers to potential problems in the future (Raffaelli *et al.* 2005). The thematic assessments will focus on specific issues that need a quick assessment, while the horizon scanning assessment will focus on issues that might present problems in the future. Together, these assessments will provide the building blocks for the global assessments, which might be done every 10 years. In this way, key findings from the global assessments will identify gaps that might inform the next round of regional and sub-regional assessments, as well as providing guidance for future research. This process will support and strengthen a two-way dialog and information flow between scientists and policy-makers.

Another novel feature of IPBES that differs from the IPCC is the demand for IPBES to look at scenarios that reflect more closely how future policies might affect biodiversity, ecosystem services and human well-being (Perrings *et al.* 2011). Therefore, instead of investigating what the implications are for a 10% loss in biodiversity or any specific ecosystem service, the focus will be on what impact a policy (for example, the green economy policy) will have on biodiversity, ecosystem services and human well-being. This approach to scenario analysis shifts the starting points for scenario formation to reflect more closely the realities of the world. Moreover, the shift to policy-driven scenarios allows a broader and more inclusive social sciences input to the assessment process. Unpacking the social sciences nexus is the thrust of the following section.

Assessments themselves do not generate new research but depend on the underlying scientific research. The quality of assessments depends in part on the quality and availability of scientific research. If there is little research in an area, then there will be very little knowledge to support the assessment. Realizing this important research-assessment link, IPBES has a component dedicated to identifying research gaps, and has a mandate to catalyze research to fill these gaps. The new program, People and Ecosystem Services, was a direct product of a similar activity undertaken after the completion of the Millennium Ecosystem Assessment (Carpenter *et al.* 2009). The platform will itself not undertake research, but will engage key research funding agencies to support research in these areas.

The last component of the work program is effective capacity building. There have been serious attempts in past assessments to include scientists from developing countries, with limited success. There are many reasons for the limited involvement of scientists from developing countries, with insufficient financial and human resources high on the list (UNEP 2010b). Having the “token” developing country scientist is no longer acceptable, and a strategic capacity building effort needs to be

designed for IPBES. We say “effective” to emphasize that the traditional rubric of capacity building is inadequate, and a “learning by doing” approach is necessary. In IPBES, the main challenge is to train young scientists in undertaking trans-disciplinary research cutting across traditional disciplinary borders, and in making sure that the assessment is policy-relevant but not policy-prescriptive. This is in fact much more for the social sciences, which as a community have been lagging behind their natural science colleagues (ICSU 2010, Reid *et al.* 2010). It must also be acknowledged that trans-disciplinary assessments using dynamic socio-ecological systems are still relatively new and are not the traditional arena where many scientists, especially those in developing countries, work. This is why capacity building must be an integral part of the assessment component of IPBES, and why the global change programs (DIVERSITAS, International Human Dimension Programme [IHDP], International Geosphere Biosphere Programme, World Climate Research Programme and START) are ideal scientific networks to support IPBES.

Strengthening the science

Understanding how biodiversity and ecosystem services link with human societies requires a socio-ecological coupled system approach (Liu *et al.* 2007, Turner *et al.* 2003). The natural and social dimensions of the coupled system are both equally complex. Scientists have a fairly good understanding of the mechanisms by which human activities generate loss of these natural systems processes, and how this might affect communities and economic values. However, it is equally important to understand the social system, including the indirect drivers of human behavior that lead to these problems, and how societies can change and adapt.

In this paper we shall not spend much time on the natural sciences as these have been covered extensively (Duraiappah and Naeem 2005, CBD 2010). In the past, much of the work has concentrated on understanding the causes of biodiversity loss and ecosystem services change, and the impacts these changes can have on human well-being. Many of the impact studies, including the *The Economics of Ecosystems and Biodiversity*, have focused on estimating the economic costs of these changes while ignoring the social costs as difficult to compute (Kumar 2010). The Millennium Ecosystem Assessment (Duraiappah and Naeem 2005) paid attention to the direct drivers of change, such as over-exploitation, carbon emissions, invasive species, land use change and pollution, but made no attempt to carry out an assessment of the underlying indirect drivers. The same can be said for the recently completed global biodiversity outlook (CBD 2010).

As a consequence, there is little understanding of how particular behaviors are generated. For example, are unsustainable approaches inherent in our modes of subsistence and in the technologies we use? Are these approaches generated by particular socio-economic institutions, by unregulated selfish behavior, or by “bad actors”? Or do our world views, beliefs and values lead us to make choices that result in unsustainable ways of life?

In order for IPBES to generate solid, science-based policy-relevant findings, it is essential to integrate social sciences approaches into the process from the very beginning, and not as an afterthought as in many assessments in the past. What would this mean? Figure 1 shows a schematic of the coupled social and natural system, with emphasis on the various components of the social system. We call this the “unpacking of the social sciences”. Some of the linkages (shown with solid arrows) are fairly well

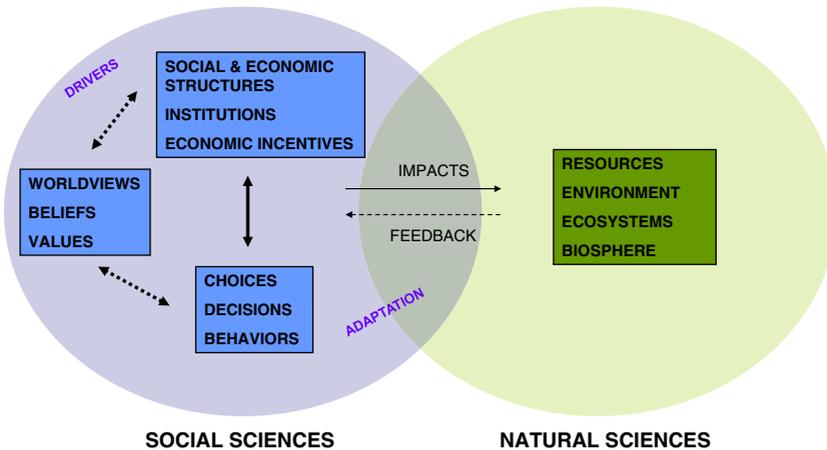


Figure 1. Coupled natural and social systems, with emphasis on social components.

understood, while others (shown with dotted arrows) have not been explored in as much detail. More importantly, there has been hardly any work within the context of biodiversity and ecosystems services changes on the inter-linkages among the three components and the impacts these might have on the natural systems. A better understanding of these relationships will provide insights into how feedback from changes in the natural system might cause changes in the social nexus.

The linkages between economic incentives and behaviors are perhaps the most well accepted part of the equation, and there are many proposals on the table on using economic incentives to change behaviors. There has also been considerable research on the ways in which various institutions may affect behaviors. However, there are many aspects of these linkages about which we are still not certain: for example, what incentives are inherent in various social, political and economic structures? How are these structures and incentives changing over time? How do these differ in various regions of the world? What alternatives exist? What are their implications for other critical considerations such as productivity and stability, human well-being, human rights, equity and justice?

When it comes to the relationships between worldview and beliefs and these other components, there are many more unanswered questions. Do world views, beliefs and values contribute to the current predicament of environmental degradation? Are our social–technological–economic systems a result of these beliefs, or do the material circumstances of our modes of subsistence and production generate these beliefs? Is it possible that our worldviews and values are changing in response to the environmental changes?

We understand even less about how to redirect societies onto more sustainable pathways. While substantial research has been conducted on the roles of institutions and technological systems in the transition toward sustainability (Berkhout *et al.* 2010), there is little research on the connections between altered beliefs and values, changing social and economic structures, knowledge and learning, and new behaviors. What are the mechanisms and leverage points that can bring about large-scale societal change? What are the enabling conditions, triggers and barriers to change? Is societal change prompted by changing physical and environmental circumstances, by altered economic structures and incentives, or by new beliefs and understandings? Is societal

change incremental or can it be a sudden response to the passing of some social tipping point? Is it possible to generate rapid but controlled social and economic change, in order to avert potentially catastrophic uncontrolled change?

Finally, there is no agreement on how to approach the normative questions about societal change. What should be the goal or intended outcome of any transition? Based on which values and priorities? To what extent should the objectives of any societal changes be a consideration of efficiency and stability, or of equity and justice? Who gets to decide? These questions openly acknowledge that most research on societal transitions toward sustainability is implicitly normative because it contains assumptions about intended directions and desired outcomes.

In order to fill these gaps in our understanding of the social drivers of environmental change, and the social dimensions of mechanisms for adaptation, we need to be sure that the questions and research agenda on the social system are framed from within the social sciences. It is not effective to ask scholars from the social sciences and humanities to work on questions defined by the natural sciences.

A natural sciences framing might ask, “How much displacement of species ranges might we expect from an average warming of two degrees centigrade?”, while a social sciences framing might ask, “What are the social, economic and political factors that block successful climate change treaty and biodiversity conservation negotiations?” Both types of questions are equally important.

We also need to assess, synthesize, and apply already-existing academic findings on these topics. There is no need to reinvent the wheel – we need to bring together all existing research on the social determinants of behavior and mechanisms for societal change and adaptation, and then see what they mean – and apply them in the context of environmental change. A recent global survey undertaken by the IHDP surveying social scientists across the globe on the most pressing human dimensions issues highlighted a strong endorsement of a social sciences assessment within the context of global environmental change (Rogers and Scherkenbach 2011).

Finally, we need to acknowledge that any discussion of societal change and transition toward sustainability is inherently normative, and requires a broad-based, wide-ranging discussion to identify the desired endpoints and pathways in a manner that is just and equitable.

Conclusions

There is no doubt that policy-makers today face a multitude of policy-relevant scientific studies addressing biodiversity loss and ecosystem services changes and their impacts on human well-being. There is a growing consensus that there is a real need for some degree of consolidation among the various bodies producing these studies to ensure scientific credibility of the highest standards, legitimacy and autonomy. IPBES can fill this need, but in order to change the present trends we witness for biodiversity and ecosystem services, it has to relate to the realities of the world by providing answers to hard questions policy-makers face. The assessments should be done at various scales and across scales so as to ensure the utility of the results to a range of policy-makers working at the various political levels.

In addition, it must be recognized that the quality of the assessments will depend on the underlying research. This therefore requires a dialog between IPBES and the scientific research funding agencies to ensure research gaps are addressed in a timely manner with sufficient human and financial resources. Moreover, the ownership of

IPBES by all countries can only be met if there are adequate resources available to allow full participation by scientists from developing countries, and in particular the next generation of scientific leaders. This should be achieved not through one-off workshops and lectures, but through full engagement by these scientists in all assessment activities and building capacity with a “learning by doing” approach.

Last but not least, a new approach to assessment should be taken whereby social scientists are involved from the very beginning in the framing of the problems. We need to bring together a broad spectrum of social scientists and humanities scholars in order to develop a fuller understanding of the indirect drivers that cause biodiversity and ecosystem services changes and their impacts on human well-being.

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