A New Mechanism for Science-Policy Transfer and Biodiversity Governance?

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COMMENT

A new mechanism for science-policy transfer and biodiversity governance?

We are concerned that new initiatives are being proposed to create knowledge-transfer mechanisms between biodiversity science and so-called 'decision makers' that are apparently ignoring some of the significant differences to which biodiversity governance is subject at different scales. Here we argue that shifting scales seriously change the rules of knowledge transfer, explore some implications of this, and propose that appropriate scope and focus are vital for such international initiatives.

It is well known that the different components, structures and processes that constitute biological diversity change and play different roles when the spatial-temporal scales (extent and resolution) of focus vary (Wiens 1989; Levin 1992; Storch *et al.* 2007). Less well appreciated is that different aspects of human interaction with biodiversity, including its governance, also vary with the spatial scale under consideration (Swanson 1997; Berkes 2004; Soberón 2004; Folke *et al.* 2005; Ludwig & Stafford Smith 2005; Cumming *et al.* 2006). In the international biodiversity fora especially, the global is often treated as if it were the only, or most important, scale. Although lip service is always paid to the need to include stakeholders at levels below the global (i.e. regional, national or local), the practical implications of doing so, for instance considering cultural and political differences among stakeholders, or the pervasive absence of high-quality information at national and sub-national scales, and the very significant costs of addressing these, are usually ignored. Almost every reference to biodiversity governance issues can, and should, be disaggregated to take into account the specificities of the different scales. After many years attending meetings of the Convention on Biological Diversity (CBD) and other international groups involved in biodiversity governance, we are convinced that such disaggregation is seldom attempted, thus creating 'scale mismatch' (Ludwig & Stafford Smith 2005; Cumming *et al.* 2006), because what appears relevant at the global level in biodiversity governance is, in practice, treated as if it were relevant to every other level. A global view is obviously indispensable in environmental governance. The problem we perceive occurs when, in any of the global-scale initiatives, scale-shifting is addressed without explicit mention of the many serious complications and hurdles that such shifts imply for governance closer to the local levels.

The issue deserves attention because new initiatives towards strengthening biodiversity knowledge-transfer are being proposed (Loreau *et al.* 2006), a Concept Note for an Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IpBes; see URL http://www.ipbes.net/en/index.aspx) having been discussed at meetings in Malaysia (November 2008) and Nairobi (October 2009). These meetings were followed by publication of the documents UNEP/GC/INF/30 and UNEP/IPBES/2/3 (see URL http://www.ipbes.net for more information). In our view, much of this process suffers from scale mismatch. For instance, the Report Document of the Nairobi meeting still considers [24(a)(i)] that a function for the IpBes platform would be: 'Identifying and prioritizing key scientific information needed for policymakers at various spatial scales', and 24(b) 'Coordinating and performing regular and timely assessments to generate and disseminate policy-relevant... information'. However, in biodiversity (in contrast with climate change), recommendations of an international panel of experts would seldom achieve the degree of detail required to become relevant at sub-national levels. For example, in Mexico, at national and subnational scales, policy-relevant cartography for mangrove management required resolutions of at least 1:50 000, unavailable in any of the many global institutions interested in mangroves (see URL http://www.conabio.gob.mx/conocimiento/manglares/doctos/manglares.html). Such information had to be produced afresh in Mexico. It is easy to provide many examples of how scientifically valid generalities lack the myriad of details that would make them truly relevant at scales towards the local. However, a new biodiversity science international platform that would provide advice to global-level actors, for global policies, could indeed become useful at that level. Explicitly concentrating its focus at the global level would be less likely to elicit false expectations or negative reactions, and overall, have higher probability of success.

Shifting stakeholders

The core of our argument is that shifting the scale almost always means changing the stakeholders. This should be 'the first law of biodiversity governance'. It is easy to identify extremes: one lies at the level of multilateral environmental agreements, the funding bodies including overseas aid agencies, multilateral development banks, the big non-governmental organizations, and so on. The other extreme is at the level and scale of local decision-makers, such as farmers, ranchers, forest dwellers, fishers, indigenous and peasant communities, mostly in the developing world, but also to a significant extent in the industrialized countries. There are many levels in between (for example see Schultz *et al.* 2007). These stakeholders differ at the very least in the sets of values (Gadgil 1995; Bawa & Gadgil 2003), in the languages and vocabularies (Maffi 2005; Walsh 2005), and knowledge systems (Agrawal 1995; Chambers & Gillespie

2000; Toledo 2001) that they use in order to represent, understand and predict features of the natural environment in which they live, and in the processes they use to build trust and reach agreements (Herlihy & Leake 1997; Becker & Ghimire 2003; Folke *et al.* 2005). Moreover, towards the local levels, ecological problems become dominated by the details of local context, making general recommendations less useful. Unless donors or governments are prepared to cover the huge costs of obtaining the non-existent data (Smith & Klopper 2002; Balmford *et al.* 2005), an international panel can only try to extrapolate from known studies, mostly in the industrialized world, and from theory. This would be hardly convincing for people taking decisions in developing countries.

In view of the above, 'international, peer-reviewed' scientific advice cannot be 'policy-relevant at all levels' as some documents claim (UNEP [United Nations Environment Programme] 2009). Moreover, when decision-making moves towards the local levels, knowledge is very often turned into choices and decisions, not by being 'translated', but by being developed in a participatory way by relevant stakeholders. Often, this participatory process is what gives legitimacy and saliency (Cash *et al.* 2003) to knowledge, and the everyday process of managing natural resources requires not a single event of translation of knowledge, but a complicated adaptive process that implies multiple actors playing different roles at different scales for long periods of time (Folke *et al.* 2005). Of course, the transaction cost of such participatory processes is high, but in the longer run it may be lower than the enormous costs of total failure owing to lack of saliency, legitimacy and acceptability.

For all the above reasons, to avoid the scaling mismatch, new initiatives need to adjust their focus. The natural audience for a new international panel would be decision makers at the global level. Global actors may be prepared to listen to technical and global political arguments without the need to enter into complicated and local processes to establish credibility and legitimacy. Moreover, some of the most powerful drivers of biodiversity loss are global in nature, even having already policy-making bodies (the boards of the major agro-industrial companies, the groups managing the major fishing fleets, the major development agencies and the council of the Global Environment Facility, perhaps via its own Scientific and Technical Advisory Panel). We propose that a new biodiversity science advisory body can be extremely relevant at this global scale, but its impact and the pertinence of its advice will weaken towards the local levels. Such a body may also highlight global research and information gaps.

At national levels, the only long-term solution is that national governments take their responsibilities seriously and countries build their own local capacity and expertise through institutions oriented to deal with the problems of biodiversity information gathering, its translation to the languages and terms of stakeholders, and its distribution across levels. The capacity to 'move between levels' is crucial, and although it may be played by key individuals, only institutions can perform this role over extended periods of time. These institutions are called 'border institutions' (Cash *et al.* 2003) or 'bridging organizations' (Folke *et al.* 2005) and examples in the developing world exist (CONABIO [the Mexican National Commission on Biodiversity], InBio [National Biodiversity Insitute of Costa Rica], SANBI [South African National Biodiversity Institute] and the von Humboldt Institute in Colombia, to mention some). We strongly believe that there is no substitute for the full development of such local capacities, and we have no doubt that the multinational lending agencies interested in the conservation of biodiversity, the achievement of the Millennium Development Goals, and others should support such national efforts and establish regional training facilities to help generate the human and basic institutional capacities needed.

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