Bio-cultural diversity for endogenous development: Lessons from research, policy, and on-the-ground experiences

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Introduction

The concept of bio-cultural diversity has emerged during the last decade as a way of representing the interlinkages among, and interdependence of, all forms of the diversity of life: biological, cultural and linguistic. A new field of bio-cultural diversity research has developed that explores these connections at global, regional and local scales. This field also seeks to bring the bio-cultural approach to bear on education, policy and on-the-ground action relevant to conservation and sustainable development at multiple levels: from interventions by governments and international organizations to self-directed activities aiming at endogenous community development. This chapter reviews the main advances in the field and presents some of its practical applications, with reference to examples of relevant research initiatives, monitoring and assessment, policy development, and community-based projects. It provides recommendations for strengthening the relevance of the bio-cultural approach for endogenous development and for enhancing dialogue across knowledge systems and collaboration among different stakeholders.

Indigenous and local communities worldwide have commonly recognized (implicitly and often explicitly) the existence of an intimate link between cultural and linguistic identity, worldviews and knowledge systems, on the one hand, and on the other, the lands and territories they occupy and from which they derive material and non-material sustenance (Selin, 2003). Such a link has formed the backbone of community vitality, resilience and well-being and of community ability to freely pursue their endogenous path of development. Conversely, the undermining of this link by exogenous political, economic and social factors has wreaked havoc in the life of indigenous and local communities, and has been a major threat for the endogenous development – and even the sheer survival – of many of those communities. As several of the same factors also threaten the world's ecosystems – which in turn has heavy negative consequences for people living in close contact with and dependence on local environments – a complex process of negative feedbacks has been set in motion, placing the world's diversity in both nature and culture increasingly at risk. This means no less than placing at risk the very basis of life on earth as we know it: the natural life-supporting systems that have evolved on the planet, and their cultural counterparts that have dynamically coevolved with them since the appearance of *Homo sapiens* (Harmon, 2002; Maffi, 2001a; Rapport, in press).

Yet, in the contemporary 'Western' world (some would prefer to say 'the North' or 'the Euro-American world'), the realization of these links and of the implications of

their disruption has been slow in coming. Western thought has been pervaded by a view of nature as separate from humans, and of humans as dominant over nature, thanks to their perceived superior cognitive abilities and capacity for technological advance. This pervasive view has been reflected, among other things, in the prevailing philosophies of both human development and nature conservation interventions. These have often been seen as being in conflict with each other and each needing to occur at the expense of the other – while both have been occurring at the expense of cultural diversity. Traditionally, nature conservation has been thought to require 'taking people out of nature' and fencing nature off, thus severing long-standing coadaptive connections between people and the local environment. This has had socio-cultural consequences for local communities no less severe than the consequences of misconceived development projects. Such projects have generally assumed a unidirectional path to 'progress' for which any local cultural specificity and self-determination have been seen as a hindrance, while damage to the environment has been seen as an unavoidable (and discountable) 'collateral' on the way to that supposed progress. Under these circumstances, attempts at 'integrated conservation and development projects' have resulted in uneasy and largely unsuccessful alliances – and the state of the world's diversity in nature and culture has continued to degrade (Maffi, 2004; Redford and Brosius, 2006).

Likewise, in the western academic sphere, the study of nature and that of culture have traditionally been seen as separate realms. Institutionally, on the one hand there has been a rift between the natural and physical sciences (the 'hard' sciences), and on the other hand, the social sciences and humanities (the 'soft' sciences, if they have been seen as sciences at all): a rift between 'two cultures', as C. P. Snow described it in his famous 1959 essay (Snow, 1993). The institutional separation into knowledge 'silos' has been a serious obstacle to interdisciplinary, even more to transdisciplinary, efforts to bridge this gap – when such efforts have not been consciously resisted as unorthodox and even non-scientific (Somerville and Rapport, 2000). A similar prevailing view has also hindered western science's ability to see itself as one knowledge system among others – one with its own set of rules for knowledge building and validating that are not universally shared by other knowledge systems – and to recognize the validity of other knowledge systems, and of the total pool of human knowledges, even if they may not be based on the same assumptions. Attempts at 'bridging' epistemologies (or first of all, at recognizing and respecting epistemological differences), both in science and in on-the-ground conservation and development interventions, have been few and of limited success (Ericksen and Woodley, 2005).

The field of bio-cultural diversity

A change in this prevailing paradigm began to become apparent in the late 1980s, when the first statements about an 'inextricable link' between biological and cultural diversity were heard. Perhaps the earliest recorded such statement is found in the Declaration of Belem issued by the International Society of Ethnobiology (see http://ise.arts.ubc.ca/declareBelem.html) at its founding congress in 1988. This perspective also has some of its antecedents in the thinking that led to international

documents such as IUCN's *Caring for the Earth* (IUCN et al, 1991) and those ensuing from the 1992 Rio Summit (Rio Declaration, Agenda 21, Convention on Biological Diversity). Pioneers such as Barney Nietschmann (1992), Mac Chapin (1992), Victor Toledo (1994), Peter Mühlhäusler (1995), Jeff McNeely (1997), Gary Nabhan (1997), and Darrell Posey (1999), among others, championed this perspective and opened the way to an approach that sees the diversity of life as made up not only of biodiversity, but also of cultural and linguistic diversity (Maffi, 2001a; Harmon, 2002). This approach argues that the world's richness of cultures and languages should be understood as an intrinsic component of the global human-environment system. It also proposes that this richness arises as the product of millennia of symbiotic, coevolutionary relationships of human communities with their surrounds – humans depending on the environment for their survival while modifying it in the course of adaptation.

Over the past decade, a new field of inquiry has emerged within this framework, a field that has become known as 'bio-cultural diversity' (see Maffi, 2005a for a comprehensive review). From the start, this field has positioned itself as a quintessential transdisciplinary field, calling on the expertise of many disciplines and on the insights of different knowledge systems, and viewing science, ethics and action as intrinsic parts of a whole. (See the proceedings of the 1996 international conference 'Endangered Languages, Endangered Knowledge, Endangered Environments' in Maffi, 2001a. The conference was organized by Terralingua, an international NGO devoted since 1996 to the study and promotion of bio-cultural diversity.) Bio-cultural diversity research has first focused on the theoretical exploration of the links between biological, cultural and linguistic diversity globally, and between language, knowledge and the environment locally, as well as on the interrelated 'extinction crisis' that bio-cultural diversity is facing (Harmon, 1996; 2002; Hunn, 2001; Maffi, 1998; 2001b; Maffi et al, 1999; Skutnabb-Kangas et al, 2003; Smith, 2001).

A related research area has taken as its object of investigation the overlapping patterns in the geo-spatial distribution of biological and cultural diversity, both globally and regionally, and the factors accounting for this distribution and its changes over time and space (Collard and Foley, 2002; Harmon, 1996; Lizarralde, 2001; Mace and Pagel, 1995; Manne, 2003; Moore et al, 2002; Nabhan et al, 2002a; 2002b; Nettle, 1998; 1999; Stepp et al, 2004; 2005; Sutherland, 2003). The relevance of these studies has begun to become apparent in the biodiversity conservation and sustainable development arenas, and mappings of bio-cultural diversity have been published by international organizations concerned with those issues, such as the World Wide Fund for Nature (WWF) and UNESCO (Oviedo et al, 2000; Skutnabb-Kangas et al, 2003). Other international organizations such as IUCN (The World Conservation Union) and the United Nations Environment Programme (UNEP) have issued publications aimed at exploring the importance of culture for conservation, incorporating a bio-cultural approach (Borrini-Feyerabend et al, 2004; Maffi and Woodley, forthcoming).

Other studies have delved into the links between culture and biodiversity at the local level, and particularly the relationship between state of traditional environmental/ecological knowledge (TEK) and the conservation of bio-cultural diversity (Carlson and Maffi, 2004; Ross, 2002; Stepp et al, 2002; Zent, 1999; 2001; Zent and López-Zent, 2004). Some of the findings that support the interrelationships between cultures and biodiversity include (Zent and Zent, in press): first, the

anthropogenic creation and maintenance of biodiverse landscapes through traditional low-impact resource management practices, supported by local cultural knowledge and spiritual beliefs (Baleé, 1993; Denevan and Padoch, 1987; López-Zent, 1998; López-Zent and Zent, 2004; Posey, 1984; 1998); second, the large contribution of traditional farmers to the global stock of plant crop varieties and animal breeds (Boster, 1984; Brush, 1980; Oldfield and Alcorn, 1987; Thrupp, 1998); third, countless examples of customary beliefs and behaviors that contribute directly or indirectly to biodiversity conservation, such as sustainable resource extraction techniques, sacred groves, ritual regulation of resource harvests, and buffer zone maintenance (Moock and Rhoades, 1992; Posey, 1999); and fourth, the dependence of socio-cultural integrity and survival of local communities on access to and tenure of traditional territories, habitats and resources, which also importantly affect food security (Maffi, 2001a). Such examples abound from all continents and habitat types, and from a vast array of different forms of organization of human societies.

Considering the evidence on the links between biodiversity and cultures/cultural diversity, yet another significant area of research has been devoted to developing bio-cultural indicators, that is tools for the joint assessment and monitoring of the state of biodiversity and cultural diversity at global, regional and national scales. Indicators are widely recognized as a useful means for gathering rigorous yet accessible information that can and does serve as guidance for science, policy and on-the-ground action. Pioneering work carried out in the early 1990s (Harmon, 1992) has been followed by a long-term effort for the systematic elaboration of bio-cultural indices. This work has combined existing global indicators of the state of biodiversity with newly developed cultural indicators on the state of the world's languages, ethnicities and religions (Harmon and Loh, 2004; Loh and Harmon, 2005). Current efforts in this line of work – responding in part to the need of the Convention on Biological Diversity (CBD) for indicators of this nature in relation to its 2010 Target of significantly reducing the loss of biodiversity worldwide – include the development of time-series data on linguistic diversity and numbers of speakers of indigenous languages, as well as the creation of an index of vitality of TEK (Harmon and Loh, 2006; Zent, 2006). Other work on cultural indicators is being carried out in the context of the Food and Agriculture Organization's (FAO) Sustainable Agriculture and Rural Development initiative, focusing on indicators relevant to indigenous peoples' food and agro-ecological systems (Woodley, 2006).

Implications for policy and applied work

In part as a consequence of two decades of dissemination of bio-cultural ideas and research results, as well as through the intensive lobbying of many indigenous activists involved in international processes, there is a growing recognition internationally of the relevance of culture for conservation and sustainable development. The UNESCO World Commission on Culture and Development promoted a rethinking of development that places culture in center stage (WCCD, 1995). This recognition was made explicit during the UN World Summit on Sustainable Development (UNESCO and UNEP, 2003). One of the WSSD Outcomes affirms the importance of respecting cultural diversity as essential for achieving sustainable development. This approach is also reflected in guiding United Nations documents such as the Millennium Declaration (United Nations, 2000), which recognizes the importance of the diversity

of belief, culture and language and affirms that societal differences should be cherished as precious assets of humanity.

Along the same lines, UNESCO adopted the Universal Declaration on Cultural Diversity in 2001 and the Convention on the Protection and Promotion of the Diversity of Cultural Expressions in 2005. In 2006, the UN Human Rights Council adopted the United Nations Declaration on the Rights of Indigenous Peoples, which is now before the UN General Assembly for adoption. The declaration enshrines many of the principles and rights (from land and resource rights to intellectual property rights, rights to access and benefit sharing, cultural and linguistic rights) that would support the ability of indigenous peoples 'to maintain and strengthen their institutions, cultures and traditions, and to promote their development in accordance with their aspirations and needs' (from the preamble to the Declaration, Annex to Resolution 2006/2 of the UN Human Rights Council). The declaration also recognizes that 'respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment'. The cultural dimension of human life is also playing an increasing role in the definition of human development and human well-being (UNDP, 2004).

The policies and activities of UNEP, UNESCO, IUCN and the CBD now include a focus on the interrelationships between biodiversity and cultural diversity. UNEP complemented its Global Biodiversity Assessment (Heywood, 1995) with an extensive review of the cultural and spiritual values of biodiversity (Posey, 1999). UNESCO's Endangered Languages Programme focuses on safeguarding the world's linguistic heritage, while its LINKS (Local and Indigenous Knowledge Systems in a Global Society) programme focuses on the strengthening and revitalization of traditional knowledge. An initiative on science and traditional knowledge was carried out by ICSU-International Science Council (ICSU, 2002), following up on some of the outcomes of the UNESCO World Conference on Science (UNESCO, 2000). UNESCO also has a Main Line of Action on Biodiversity and Cultural Diversity, and its Programme on Man and the Biosphere (MAB) recognizes that traditional forms of land use often conserve ancient breeds of livestock and cropland races. IUCN has designated the Culture and Conservation Working Group (CCWG) within its Commission of Environmental, Economic and Social Policy (CEESP) to improve 'understanding of the linkages between biological and cultural diversity and ways to translate this knowledge into effective policies and practices for both conservation of biodiversity and support to cultural diversity' (CEESP/CCWG, 2005). Article 8j of the CBD and Focal Area 5 of the CBD's 2010 Target explicitly acknowledge the important contribution that traditional knowledge makes to the conservation and sustainable use of biological diversity.

National policies have also taken the initiative to strengthen the links between biodiversity and cultures in compliance with the CBD. For example, the Biological Diversity Act of India (2002) stipulates that the central government shall endeavour to respect and protect the knowledge of local people relating to biological diversity. In doing so, the act provides that forests protected as sacred groves in the context of local communities' belief systems may be recognized as heritage sites. Another example is the Republic of Panama, which has given legal recognition in the form of sovereignty to the seven diverse groups of indigenous peoples in that country. Panama was the first government in Latin America to recognize this class of rights for its

indigenous populations, and 22 per cent of the national territory is now designated as sovereign indigenous reserves.

In terms of on-the-ground implementation, one of the significant developments concerns the management of parks and protected areas. There is now a growing realization that what can be designated as protected areas has reached a maximum and that conservation in human-dominated ecosystems has to take into account existing land use. This underscores the importance of local participation and comanagement that integrate culturally-based knowledge, practices and worldviews of those whose land is to be conserved. Examples range from comanagement of protected areas to comanagement of forests, watersheds, wetlands, coastal areas, agricultural lands and rangelands, fisheries, migratory bird habitats and so forth (Borrini-Feyerabend et al, 2004). They include a variety of forms of partnerships between local communities and other entities, from governments to international or local organizations, to the private sector. Examples also abound of community projects worldwide (both endogenous and conducted in partnership with outsiders) that aim at the integrated conservation of biological and cultural diversity, and that in doing so draw importantly from local worldviews, traditional knowledge, use and management practices, and linguistic expression. A recent global survey (Maffi and Woodley, 2006) yielded a sample of over 40 such projects, ranging over a vast array of issues: from recording indigenous plant and animal names and place names for the purpose of both transmitting knowledge and identity and framing conservation and land use projects, to linking crop diversity with food traditions and food security, to focusing on traditional ecological knowledge of marine environments for both subsistence fishing and conservation of marine protected areas, to conservation and use of traditional medicinal plants, to ethnocartography and self-demarcation of indigenous territories, and much more.

These experiences show the power of local action for the maintenance of cultures and environments locally and of biological and cultural diversity globally. At the same time, this purpose will be well served by the further development of ways to incorporate the consideration of local and traditional knowledge in policy and on-the-ground action. The bio-cultural approach calls for the development of instruments to mainstream issues of biodiversity and culture into social and sectoral plans and policies, thus working to strengthen the science-policy interface (UNESCO, 2000). It also requires developing and strengthening institutions at all scales, so that local knowledge is transferred from the local level to landscape and national scales. In addition, it implies complementing the current focus on protection of culturally based knowledge with a focus on strengthening the retention of this knowledge through formal and informal education and supporting intergenerational transmission of this knowledge and of the languages through which knowledge is transmitted. Language and culture revitalization activities are already underway in indigenous and local communities worldwide, and these need to be supported. One emerging issue in this connection is the study of the societal implications and economic costs of loss of language and culture versus support for their maintenance (Grin, 2005). Economic theory is also beginning to address the significance of culture as the interface between humans and nature, and of 'cultural capital' as the interface between natural capital and human-made capital (Cochrane, 2006; also see Berkes and Folke, 1994).

Bio-cultural diversity and endogenous development

All these processes at international, national and local levels are leading to a call for recognition of culture as the 'fourth pillar' of sustainable development, along with society, economy and environment. And, of course, endogenous development – development that stems from indigenous and local communities' own worldviews, values, knowledge systems, forms of organization and practices – is a hallmark of sustainable development. Thus there is an evident and inescapable convergence between supporting bio-cultural diversity and supporting endogenous development, as the latter would not be possible without maintaining and strengthening the vitality and resilience of indigenous and local cultures and of the environments on which they depend. Strong cultures and healthy environments are the very basis for sustainable endogenous development, and at the same time freedom to pursue endogenous development can only foster bio-cultural diversity (Maffi, 2005b, in press; Rapport, in press). The current literature, as typified by Jenkins (2000) on endogenous development explicitly acknowledges that:

> A culturally homogenous world appears unattractive in sustainable development terms. Although the continuing existence of traditional cultures in rural areas guarantees neither sustainability nor economic vibrancy, such cultures have characteristics which improve the probability of sustainable ways of living and developing… Cultural diversity, therefore, offers humanity a variety of ways of developmental interaction and avoids the difficulties associated with any monoculture – namely, a loss of material for new paths of economic, social, and environmental evolution, and a danger that resistance to unforeseen problems is lowered… Cultural diversity increases the probability that human societies develop without undermining their economic, social, or environmental capital bases.

The COMPAS (Comparing and Supporting Endogenous Development) network has been a key proponent of the principles and practices of endogenous development, and early on it recognized the importance of bio-cultural diversity for endogenous development (COMPAS, 1999). At this point in the respective development of the fields of endogenous development and bio-cultural diversity, it is an auspicious time for an integration of these two realms of inquiry and action. A genuine alliance, built on the *full mutual recognition and appreciation* of the strengths and contributions of each field, and of the many intersections between them and ways in which they can support and complement each other, can only represent a positive and hopeful step toward achieving – before it is too late – a new vision of development that is culturally, socially, economically and environmentally sustainable for all.

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