Indigenous and Traditional Peoples of the World and Ecoregion Conservation

An Integrated Approach to Conserving the World's Biological and Cultural Diversity

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WWF International – Terralingua
Gland, Switzerland

"The power to act has moved away from governments, and... the real force for environmental improvement lies with people.... Individual and community action are crucial to effecting change."

Dr Claude Martin
Director General, WWF International
WWF Annual Report 1997

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WWF has devised a new approach to its conservation work: ecoregion conservation. In developing this approach, it has mapped out nearly 900 ecoregions of the world and has found 238 of them to be of the utmost importance for biological diversity. These are termed the 'Global 200 Ecoregions', in which WWF will focus the bulk of its conservation work.

The central feature of WWF's ecoregion conservation strategy is the selection of the ecoregion as the basic unit for conservation. WWF defines an ecoregion as 'a relatively large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions'. Ecoregion conservation aims to address the fundamental causes of biodiversity loss by looking across whole regions to identify the actions needed to secure long-term conservation and results that are ecologically, socially and economically sustainable.

Recognition of the relationship between biodiversity and cultural diversity – represented mostly by the world's indigenous, tribal and traditional peoples – and of the relevance of this relationship for conservation, prompted the People & Conservation Unit of WWF International, in collaboration with the international non-governmental organization Terralingua: Partnerships for Linguistic and Biological Diversity, and scientists of Connecticut College, USA, to undertake a project aimed at cross-mapping indigenous, tribal and traditional peoples onto the Global 200 map. The study showed a strong correlation between areas of high biodiversity and areas of high cultural diversity, making collaboration with indigenous peoples an important consideration for WWF in the planning and implementation of ecoregion conservation activities in the priority ecoregions.

As a conservation organization concerned about the loss of biodiversity and the degrading quality of the world's environments, WWF is also increasingly concerned about the loss of cultures and knowledge among indigenous and traditional peoples. Traditional peoples have accumulated vast amounts of ecological knowledge in their long history of managing the environment. Such knowledge is embodied in languages. However, as languages become extinct, so associated traditional ecological knowledge is lost. This happens because, in most traditional cultures, knowledge is not recorded but passed on orally to other groups or new generations. The loss of local languages means the loss of the main means of knowledge transmission.

WWF recognizes cultural traditions and knowledge and the right of indigenous and traditional peoples to self-development – i.e. to choose development options that are culturally determined and not imposed from outside. A crucial role exists here for WWF and other conservation organizations: to support indigenous and traditional peoples in finding ways to develop and strengthen their cultures and societies while sustainably managing their resources. This is a difficult and complex challenge in times of globalization and expanding economic and market forces; a task that requires cooperation and alliances, both locally and globally.

The concept underpinning WWF's approach to working with indigenous peoples is the need to establish lasting conservation partnerships with them, based on a solid understanding of the interlinkages between biological and cultural diversity, a genuine appreciation for indigenous peoples' contribution to biodiversity conservation, and the recognition of their legitimate rights and interests. WWF is aware of the wide diversity of situations – cultural, social, political, economic and geographic – in which indigenous peoples live, and thus acknowledges that the definition of strategies, methods, plans and actions requires a flexible, adaptive and sensitive approach.

In carrying out the cross-mapping of indigenous peoples onto the Global 200 map, the main operational criterion was reference to the concept of 'ethnolinguistic group'. This concept defines a human social unit that shares the same language and culture and uses the same criteria to differentiate itself from other social groups.

The main locations of ethnolinguistic groups worldwide were marked on the Global 200 ecoregions, as well as on areas outside these ecoregions, to highlight the extent of presence of ethnolinguistic groups in those areas of highest conservation priority – the Global 200.

In total, 4,635 ethnolinguistic groups in 225

ecoregions were found, representing 67 per cent of an approximate world total of 6,867 ethnolinguistic groups. Twenty-five per cent of the groups in the Global 200 are located in the Afrotropical realm, another 25 per cent in Australasia, 23 per cent in the Indo-Malayan realm, 10 per cent in the Palearctic, 9.5 per cent in the Neotropics, 2 per cent in the Nearctic, and 0.2 per cent in Oceania, amounting to over 95 per cent of the total ethnolinguistic groups found in the Global 200. Marine ecoregions (coastal regions and islands) overall include nearly 4.5 per cent of the Global 200 ecoregions, with a concentration in the Southern Pacific Ocean (almost 2.5%).

Tropical rainforests are known to be the areas of the world richest in biodiversity. Covering just 7 per cent of the planet's land surface, tropical moist forests are home to at least 50 per cent, and perhaps as many as 90 per cent, of the world's species. These ecosystems are also the most culturally diverse regions, harbouring at least 1,400 distinct indigenous and traditional peoples if areas under current forest cover are considered, and about 2,500 if the original extent of tropical moist forest ecoregions is included; this represents 54 per cent of the total number of ecoregions in the Global 200, and 36 per cent of the total number of the world's ethnolinguistic groups. The total figure for all tropical forest ecoregions, including mangroves, amounts to 2,880 ecoregions, which represents 62 per cent of all ecoregions in the Global 200, and 42 per cent of all ecoregions in the world.

Correlations between Global 200 ecoregions as reservoirs of high biodiversity and areas of concentration of human diversity are clearly very significant, and unequivocally stress the need to involve indigenous and traditional peoples in ecoregional conservation work. Furthermore there is evidence from many parts of the world that healthy, non-degraded ecosystems – such as dense, little disturbed tropical rainforests in places like the Amazon, Borneo or Papua New Guinea – are often inhabited only by indigenous and traditional peoples.

This Research Report presents the full results of the analysis undertaken, and contains a section on guidance for ecoregion conservation practitioners working with indigenous and traditional peoples at ecoregional level. The report focuses principally on nine areas: partnership building; protected areas; natural resource management outside protected areas; traditional ecological knowledge (TEK), prevention and control of environmental impacts; national laws, policies and institutions; capacity building; benefit sharing and incentives; and conflict management. Approaches, strategies, tools and activities are suggested for each of these areas, with background information, examples and resource data also provided.

The report includes the Map of Indigenous and Traditional Peoples in the Global 200 Ecoregions (reproduced in A3 format in Appendix 7).

Complementary products available from the People & Conservation Unit in WWF International are an Excel database with the distribution of ethnolinguistc groups per ecoregion, major habitat type, and realm; a poster-size map of indigenous and traditional peoples in the Global 200 ecoregions; and a report summarizing WWF projects with indigenous and traditional peoples worldwide, highlighting the different situations and approaches.

Foreword

This report contains the preliminary results of a project initiated by the People & Conservation Unit of the World Wide Fund For Nature (WWF) International, carried out in collaboration with the international non-governmental organization (NGO) Terralingua: Partnerships for Linguistic and Biological Diversity and researchers at Connecticut College, USA. Within the framework of its ecoregion conservation approach, WWF is seeking to better integrate the human dimensions of conservation in its activities (WWF 1998a). In this context, the People & Conservation Unit is developing an analysis of the presence of indigenous and traditional peoples in the world's ecoregions.[1]

As a starting point, research has focused on mapping indigenous peoples and traditional communities throughout the world's ecoregions and on identifying those living in the Global 200 Ecoregions, prioritized by WWF for its conservation efforts. The implication at this level is that if a significant overlap is found to exist between the Global 200 and the locations of indigenous peoples and traditional communities, then the presence of such groups in the Global 200 should become an important consideration for WWF in the planning and implementation of conservation activities in these ecoregions. The relevance of integrating these issues in conservation is not limited to the Global 200, but extends also to ecoregion conservation in general, both within and outside the Global 200, wherever indigenous peoples and traditional communities are found.

The report is divided into three parts. Part I presents the WWF approach to biodiversity conservation with indigenous and traditional peoples in ecoregions. It introduces first the emerging trend toward a biocultural approach to conserving the diversity of life (Section 1). This is followed by a general discussion of the relationships between cultural and linguistic diversity (mostly represented by indigenous and traditional peoples) on the one hand, and biodiversity on the other, as well as of the implications of these links for conservation (Section 2). The report then presents WWF's mission and guiding principles, along with the main features of its ecoregion conservation approach (Section 3), and its global conservation priorities as represented by the Global 200 ecoregions (Section 4). The report next describes and analyses an overlay of the locations of the world's indigenous peoples and traditional communities onto WWF's Global 200 map (Section 5), and WWF's policies vis-à-vis indigenous, tribal and traditional peoples (Section 6). Lastly, the report considers the implications of the findings in terms of general strategies and key areas for the implementation of WWF's conservation plans (Section 7).

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[1] The term 'indigenous', as used in this report, stands for 'indigenous and tribal', according to the definition in Article 1 of the International Labour Organisation's Convention 169 on Indigenous and Tribal Peoples in Independent Countries (ILO 169), which states that the Convention applies to:

(a) Tribal peoples in independent countries whose social, cultural and economic conditions distinguish them from other sections of the national community, and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations;

(b) Peoples in independent countries who are regarded as indigenous on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonization or the establishment of present State boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions.

Article 1 of ILO 169 also states: 'Self-identification as indigenous or tribal shall be regarded as a fundamental criterion for determining the groups to which the provisions of this Convention apply'. These criteria are followed in various other international instruments and by many indigenous and tribal peoples themselves. (See also Toledo [in press] for other useful criteria.) Official as well as self-appellation preferences for the use of 'indigenous' vs. 'tribal' (as well as others such as 'native', 'aboriginal', 'ethnic minority', etc.) vary from one region of the world to another. This issue is too complex to be dealt with in depth here. A highly simplified description is to say that there is a general tendency toward the use of 'indigenous' (or variants thereof) to refer in particular to the original inhabitants of the Americas, Australia and the Pacific, while the terms 'tribal' or 'ethnic minority' are more common in Africa and Asia. The expression 'traditional communities', also used in this report, refers to 'local communities embodying traditional lifestyles', as per Article 8j of the Convention on Biological Diversity. Occasionally, the expression 'indigenous and traditional peoples' is used here as a shorthand for 'indigenous and tribal peoples and traditional communities'.

Part II presents guidelines for implementing field conservation action in ecoregions inhabited by indigenous and traditional peoples. The guidelines have been conceived as a working tool for conservation practitioners and others directly involved in the ecoregion conservation process, which can be revised, expanded and adapted in light of experiences gained.

Part III contains general background information for the ecoregion conservation practitioner, with five sub-sections dealing in greater depth with some of the key issues addressed in Part II.

A set of appendices displays the data from the cross-mapping of indigenous peoples and ecoregions, and provides the sources consulted for the exercise.

Part I

Toward a Biocultural Approach to Conserving the Diversity of Life in the World's Ecoregions

1 *Introduction*

When the world's biodiversity crisis became an object of scientific and public attention in the 1980s (Wilson 1988), biologists by and large identified it as a human-made crisis, due to the negative impacts of *Homo sapiens* on the environment. Whilst that assessment was undoubtedly correct to a great extent, it overlooked the possibility that not *all* humans might have the *same* negative impacts on the environment. It also ignored the possibility that some human activities might not have a negative impact at all – in some instances even a *positive* impact – on biodiversity. Humans as a whole tended to be conceptualized as part of the problem – if not *the* problem – and there seemed to be little realization that humans might be part of the solution other than by simply 'taking their hands off the environment'.

At about the same time, a different perspective emphasizing the integration of human needs in conservation was becoming apparent in prominent conservation documents such as the proceedings of the 1982 World Parks Congress (McNeely and Miller 1984) and *Caring for the Earth* (IUCN/UNEP/WWF 1991). That perspective was then highlighted at the 1992 United Nations Conference on Environment and Development (UNCED) – the Earth Summit in Rio de Janeiro). It was reflected in the ensuing international action plans and instruments (Agenda 21; Rio Declaration; Convention on Biological Diversity [CBD], and subsequent others), as well as in major global biodiversity conservation plans and policies (WRI/IUCN/UNEP 1992; UNEP 1995; IUCN 1997; IUCN/WWF 1998; WWF 1998b). During the 1990s, it became increasingly apparent that human relationships with the environment are a highly complex and diverse phenomenon, and that the biodiversity crisis should be understood on the basis of a more nuanced evaluation of the interactions among a wide range of social, cultural, economic, political and ecological variables.

Research at the intersection of the biological and social sciences has in fact demonstrated considerable cross-cultural variation in the environmental consequences of human behaviour. It has analysed the circumstances, currently and historically, of both negative *and* positive impacts of human activities on biodiversity and ecosystem health, in small-scale societies as well as with the rise of complex civilizations. It is generally agreed that small-scale societies with a history of continued and unchallenged occupation of given territories will, over time, tend to develop and maintain detailed and accurate knowledge about their ecological niches, as well as about sustainable ways of extracting and managing natural resources. Historically, where the balance between humans and the environment has not been sustained, the tendency has been for complex civilizations to arise, living beyond the confines of local ecosystems. (Bulmer 1982; Williams and Hunn 1982; Hames and Vickers 1983; Diamond 1986, 1987, 1991; Harris and Hillman 1989; Johnson 1989; Posey and Balée 1989; Hames 1991; Ponting 1991; Redford 1991; Bahn and Flenley 1992; Denevan 1992; Blackburn and Anderson 1993; Williams and Baines 1993; Balée 1994; Ellen 1994; Norgaard 1994; Eldredge 1995; Flannery 1995; Alcorn 1996; Anderson 1996; Kirch and Hunt 1996; Atran and Medin 1997; Berkes 1999; Atran in press; Nations in press; Padoch and Pinedo-Vasquez in press; Smith in press.)

Ethnobiologists and other social scientists have extensively documented traditional ecological knowledge (TEK)[2] – indigenous and other local peoples' knowledge and beliefs about and use of the natural world, their ecological concepts, and their natural resource management institutions and practices. Such work has demonstrated the in-depth nature of TEK and its value for environmental sustainability. In many cases, TEK is found to be more complete and accurate than Western scien-

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[2] According to a recent definition (Berkes 1999: 8), TEK is: "a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationships of living beings (including humans) with one another and with their environment".

The term 'traditional', as used in this context, should not be taken to refer to something static and homogeneous. Rather, 'tradition' should be understood as 'a filter through which *innovation* occurs' (Posey in press), a 'tradition of invention and innovation' (Pereira and Gupta 1993). In a report to the CBD Secretariat, the Four Directions Council of Canada explains:

tific knowledge of local environments. It is also a fundamental component of cultural adaptations to natural conditions. Among other benefits, TEK can provide a long-term perspective on ecosystem dynamics, based on ancestral contact and interaction with habitats and species, and thus aid in the analysis and monitoring of long-term ecological changes. (Berlin, Breedlove and Raven 1974; Hunn 1977, 1990; Majnep and Bulmer 1977, 1990; Brokensha, Warren, and Werner 1980; Grenand 1980; Williams and Hunn 1982; Hames and Vickers 1983; Alcorn 1984; Nabhan 1989; Posey and Balée 1989; Taylor 1990; Atran 1990, 1993; Ostrom 1990; Berlin 1992; Blackburn and Anderson 1993; Williams and Baines 1993; Balée 1994; Warren, Slikkerveer, and Brokensha 1995; Anderson 1996; Berlin and Berlin 1996; Berkes 1999; Blount and Gragson 1999; Medin and Atran 1999; Warren in press.)

These developments have led to the rise, in both the environmental and the social sciences, of an integrated *biocultural* approach to the planet's environmental crisis, suggesting that the challenge is one of perpetuating the diversity of life on Earth in both nature and culture. In other words, that success in conserving biological diversity may well be interrelated to the maintenance of cultural diversity, and that, conversely, the loss of cultural diversity is part and parcel of the same socio-economic and political processes leading to biodiversity loss (Dasmann 1991; Gray 1991; Oldfield and Alcorn 1991; Shiva *et al.* 1991; Chapin 1992; Durning 1992; Nietschmann 1992; Castilleja *et al.* 1993; Colchester 1994; Toledo 1994; Wilcox and Duin 1995; Alcorn 1997; McNeely 1997; Stevens 1997a; Posey 1999a; Maffi in press a, b; Toledo in press b). Within this perspective, a new hypothesis is beginning to be explored: 'biocultural' systems – jointly shaped by biological and cultural dynamics – which have emerged from ecosystems that have experienced significant human presence and human resource use over time. And this not only in terms of humans causing environmental destruction and resource depletion (as many biologists have tended to conclude) but also in terms of humans contributing, directly or indirectly, to the maintenance and even creation of biodiversity. As

Steinmetz (1999: 2-3) puts it:

"...the field of conservation biology has come to accept that humans will always be part of ecological systems, both natural and altered (Meffe *et al.* 1997). Theoretically, then, we are closer to a point where outside scientists may become not only more accepting of human presence and the need to collaborate with local people, but also more aware of the positive aspects of local people's presence and their knowledge."

In other words, it is beginning to be increasingly accepted that humans are as much a part of the landscape as plant and animal species – 'landscape' in the specific ecological sense of 'a heterogeneous land area composed of an interacting mosaic of habitats, ecosystems, and land uses' (Steinmetz 1999: 3, citing Forman and Godron 1986). Plants, animals and humans in a landscape are all linked to one another in the same web of life by complex patterns of ecological relationships, making human presence and activities an intrinsic aspect of the development of any vision for biodiversity conservation. Furthermore, there is growing recognition of the anthropogenic (human-modified) nature of many 'wildernesses'. Many so-called 'pristine' landscapes are in fact *cultural* landscapes, either created by humans or modified by human activities such as natural forest management, cultivation, and the use of fire (Posey in press) – although the modifications may be subtle and thus easily confused with the natural evolution of the landscape (Four Directions Council 1996).

The fact that in many cases human activities have been heavily detrimental to the environment should not obscure the reality that in many other cases human impact on biodiversity has been (and may well continue to be) light, and often beneficial both in terms of conserving and fostering biodiversity. If one then realizes that, in numerous instances, the 'ecological footprint' of indigenous and traditional peoples on the environment in which they have lived for generations has not only been light, but may actually include their being the

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"What is 'traditional' about traditional knowledge is not its antiquity, but *the way it is acquired and used*. In other words, the social process of learning and sharing knowledge, which is unique to each indigenous culture, lies at the very heart of its 'traditionality'. Much of this knowledge is actually quite new, but it has a social meaning, and legal character, entirely unlike the knowledge indigenous people acquire from settlers and industrialized societies." (Four Directions Council 1996)

Traditional knowledge also varies according to age, gender, and a host of other variables. This is how the term 'traditional' is understood in the post-Rio documents, as well as in this report.

'authors' of some of the *in situ* biodiversity, it becomes apparent how supporting the persistence of traditional cultures may come to be seen as one and the same goal as conserving biodiversity.

This growing awareness of the potential value of TEK and of indigenous peoples' relationships with local environments for conservation efforts is clearly expressed in major environment-related international documents elaborated during the past decade. For example, *Caring for the Earth* (IUCN/UNEP/WWF 1991: 61, Box 11) states of indigenous peoples:

"Their cultures, economies, and identities are inextricably tied to their traditional lands and resources. Hunting, fishing, trapping, gathering or herding continue to be major sources of food, raw materials and income. Moreover, they provide native communities with a perception of themselves as distinct, confirming continuity with the past and unity with the natural world. Such activities reinforce spiritual values, an ethic of sharing, and a commitment to stewardship of the land, based on a perspective of many generations."

Article 8(j) of the CBD provides that each Contracting Party must:

"...subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices."

The Declaration of Belém, issued in 1988 by the International Society of Ethnobiology, and the Society's Code of Ethics of 1998 explicitly affirm the existence of an 'inextricable link' between cultural and biological diversity – a link residing in indigenous peoples' knowledge of, and stewardship over, a large part of the world's most diverse ecosystems.[3] (See also Posey in press.)

Also significant in these documents is the recognition that, in addressing environmental threats and the underlying causes of biodiversity loss, a coincidence of needs and interests may often arise between conservation organizations and indigenous and traditional peoples, increasing the potential for a joint commitment to and partnerships in conservation plans. This recognition is reflected in WWF's guiding principles and policies, as well as in its ecoregion conservation approach, as discussed in later sections of this report.

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[3] For the text of the Declaration of Belém and the International Society of Ethnobiology's Code of Ethics, see the Society's website at http://guallart.dac.uga.edu/ISE.

2 *Indigenous Peoples, Cultural Diversity and Conservation*

To better appreciate the significance of the diversity of indigenous cultures to the work of biodiversity conservation, let us now consider some figures. Following the definition of ILO Convention 169, it has been estimated that there are at least 300 million people worldwide who are indigenous (Gray 1999).[4] This constitutes only about 5 per cent of the world's total population, yet these peoples represent the largest portion of cultural diversity on Earth. Taking language distinctiveness as a measure of cultural diversity, according to Durning (1992) 4,000 to 5,000 of the over 6,000 languages in the world[5] are spoken by indigenous peoples (or 67% to 83% of the world's languages), which strongly implies that such peoples constitute most of the world's cultural diversity.

As recognized in WWF's *Statement of Principles on Indigenous Peoples and Conservation* (WWF 1996), many of the areas of highest biological diversity on the planet are inhabited by indigenous peoples. Tropical rainforests are known to be the areas of the world richest in biodiversity: "Covering just 7 per cent of the planet's land surface, tropical moist forests are home to at least 50 per cent, and perhaps as many as 90 per cent, of the world's species" (WWF 1999b:4). These ecosystems are perhaps also the most culturally diverse regions, harbouring at least 1,400 distinct indigenous and traditional peoples (Commission Européenne 1994), if areas under current forest cover are considered, and about 2,500 if the original extent of tropical and subtropical moist forest ecoregions (and associated freshwater ecoregions) is included. The total figure for all tropical forest ecoregions, including mangroves, amounts to nearly 2,900, or 42 per cent of the world's ethnolinguistic groups (see Appendix 1; a definition of 'ethnolinguistic group' is given in Section 5). No less significant, however, is the presence of indigenous peoples in a wide range of habitat types, from the Polar regions to the deserts, savannas as well as forests of the tropics, in areas of North and South America, Europe, Asia, Africa and Oceania (IUCN/UNEP/WWF 1991; see Appendixes 2 and 3). It has been estimated (Martin 1993) that indigenous peoples may occupy 20 per cent of the world's land surface (which, by comparison, corresponds to more than twice the total surface covered by protected areas). In this sense, the WWF Director General has pointed out that indigenous peoples can be considered as "the most important stewards of the Earth" (Martin 1993: xvi).

In order to further explore the links between biological and cultural (including linguistic) diversity, we first need to clarify the concepts of 'culture' and 'cultural diversity'. The concept of culture has been no less debated in anthropology than has the concept of species in biology. However, anthropologists interested in human evolution generally agree in defining culture as a socially transmitted system of information, where 'information' includes knowledge, beliefs and values, and which constitutes a blueprint for behaviour (Hunn in press, Smith in press). Under this definition, culture is manifested in language, customs, traditions, social structures and institutions, ways of life and modes of subsistence, technology, inventions, artistic expression, and other forms of human creativity and innovation.

Cultural diversity can then be understood as "the variety of human expression and organization, including that of interactions among cultural groups and between these groups and the environment" (Harmon 1998a: 353; see also IUCN 1994). Just as the vitality of biological systems is a direct consequence of the diversity they comprise (the more diverse the system, the greater its stability and resilience), so it is with cultural systems. As McNeely (1997: 192) puts it, it is the diversity of

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[4] See footnote 1 for a definition of the use of the term 'indigenous' in this report. Gray's figures do not include traditional communities. Posey (1999b) notes that there are no reliable figures on 'traditional' societies, but considers that they may represent up to 85 per cent of the world's non-urban population.

[5] The most comprehensive catalogue of the world's languages, *Ethnologue*, in its 13th edition (Grimes 1996a, b) reports 6,703 languages (including some sign languages and some recently extinct languages), of which 32 per cent are in Asia, 30 per cent in Africa, 19 per cent in the Pacific, 15 per cent in the Americas, and 3 per cent in Europe.

human life which provides 'the human intellectual 'gene pool', the basic raw material' for adapting to local environmental conditions and change. Each population has its own particular orientation or adaptation to the surrounding environment, institutionalized in its social organization, cultural knowledge, beliefs and values, technology, and language, and constantly evolving in response to the changing parameters of the environment. Such orientations or adaptations include established knowledge of local flora and fauna, as well as natural resource management practices.

An important distinction here is that drawn by geographer Richard Dasmann, in his classic definition, between cosmopolitan societies that as a whole are not rooted in, and do not draw direct sustenance from, local ecosystems, and those that do, whom he called 'ecosystem peoples' (Dasmann 1964). Such societies, living in close contact with the environment, normally consider themselves as part of nature, not separate from it. They rely directly on the local environment for food, medicine, construction materials and other products essential for their subsistence and for their physical and spiritual well-being. As indicated above, it has been frequently documented that these societies have elaborated complex classification systems for the natural world, reflecting a deep understanding of local flora, fauna, ecological relations and ecosystem dynamics, in many cases more sophisticated than that of Western science. Furthermore, through awareness of their being part of, and dependent on, local ecosystems, these peoples recognize the need to regulate resource use and maintain an ecological balance, and thus develop sustainable resource management and use strategies (which may even include acting as biodiversity-enhancing 'creative disturbance agents'; see López Zent and Zent 2000).

Respect for the environment arises from this direct dependence on, and active use of, natural resources. As McNeely notes, "these traditional symbolic values have helped enable societies to avoid overexploitation and to live within the limits imposed by the availability of resources and technology" (McNeely 1997: 174). What has been said of Australian Aboriginal tribes could be said in

hundreds of other cases of indigenous peoples around the world: "Coincidences of tribal boundaries to local ecology are not uncommon and imply that a given group of people may achieve stability by becoming the most efficient users of a given area and understanding its potentialities" (Tindale 1974: 133).

Nabhan (1997) prefers to refer to such societies as 'cultures of habitat', to highlight both an essential component of 'sense of place' and the process of intergenerational transmission that goes into creating and sustaining this link to the environment. Nabhan stresses that, where cultures of habitat are found, one is most likely to also find ways of living with and within nature that, while inevitably modifying the environment, do not deplete it – and that may actually contribute to fostering biodiversity through a variety of highly sophisticated traditional management practices.

The correlations between biological and cultural diversity observed locally are borne out on a global scale in studies comparing the geographical distribution of the world's species and languages (Harmon 1996, 1998b), where languages are taken to be the carriers of many cultural differences; indeed "the building blocks of cultural diversity, arguably the fundamental 'raw material' of human thought and creativity" (Harmon 1996: 95), and to "allow a comprehensible division of the world's peoples into constituent groups" (Harmon 1998b: 4). Taking species richness and language richness (numbers of species and languages) as convenient (and intuitively valid) approximations to the full gamut of variation implied in the concepts of biological and cultural diversity, a striking overlap can be observed between countries with high endemism for vertebrates, flowering plants and birds, and countries with high numbers of endemic languages (i.e. as with species, languages restricted in range to a single country).[6] The data are summarized in Table 1, which also shows that 10 of the 12 biological megadiversity countries figure among the top 25 countries for endemic languages as well.[7] (See Map 1 for a graphic representation of overlap of endemism in languages and vertebrates.)

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[6] Clay (1993) and Durning (1993) likewise use linguistic diversity as a proxy for cultural diversity. A proxy is, admittedly, an imperfect tool. Linguistic diversity as a proxy for cultural diversity works better at the global scale than it would in any specific local or regional instances. In many cases, distinctiveness of languages does not correspond to distinctiveness of cultures, or sameness of language to sameness of culture. What matters in this context, however, is the possibility of identifying general trends, rather than the ability to satisfactorily account for every single case. It is worth noting that similar considerations apply to the use of species richness as a proxy for biological diversity as a whole.

Map 1. Top countries in language and vertebrate endemism
(Maffi 1998)

On both language and vertebrate list

On vertebrate list only

On language list only
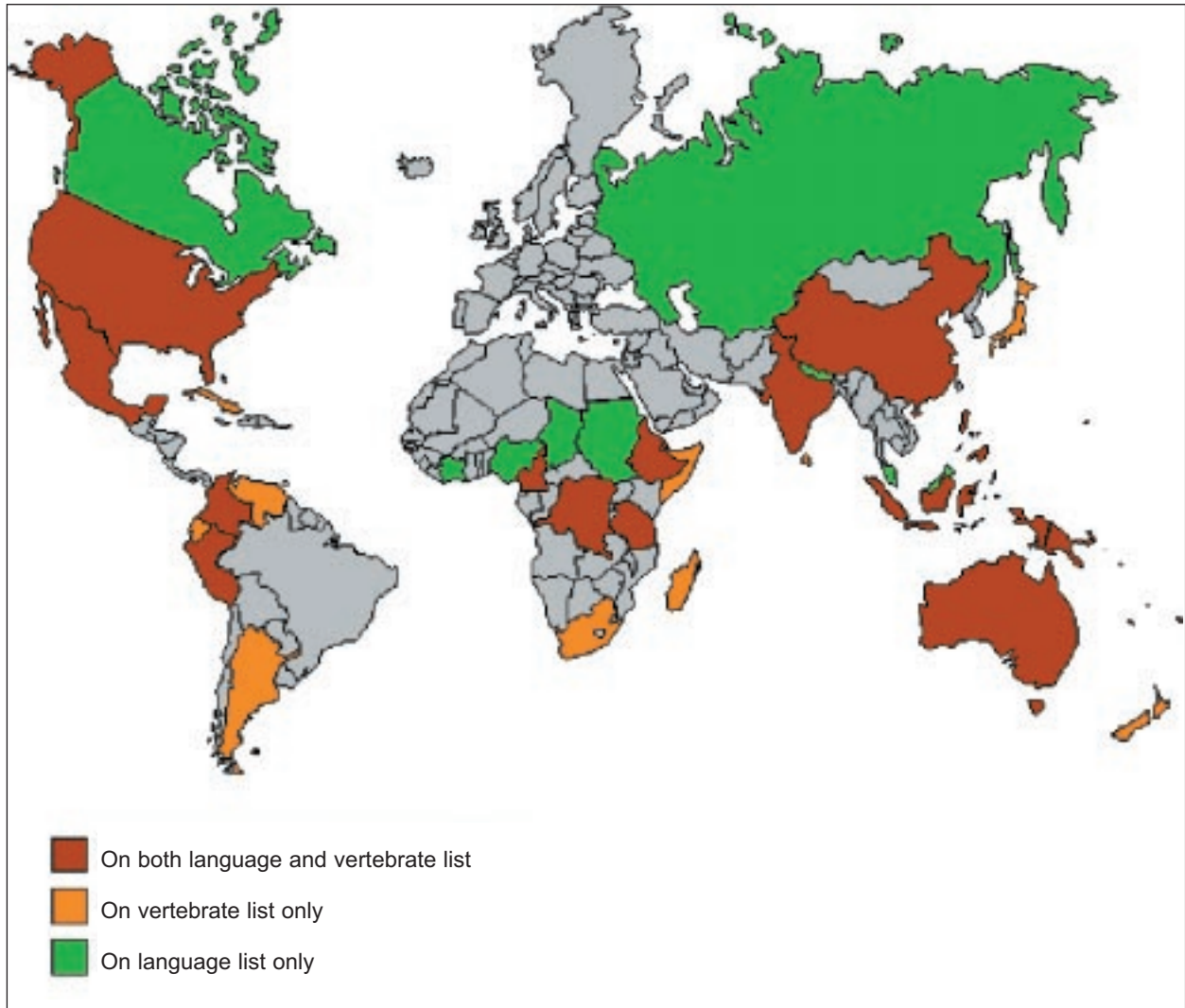
Harmon (1996) points to several geographical and environmental factors that may comparably affect both biological and linguistic diversity, and especially endemism, such as: extensive land masses with a variety of terrains, climates and ecosystems; island territories, especially with internal geophysical barriers; and tropical climates, fostering higher numbers and densities of species. As with biodiversity, these factors are thought to increase linguistic diversity by inducing mutual isolation between human populations and thus favouring linguistic diversification (although one also finds numerous cases of both sympatric speciation and what could be defined as 'sympatric language genesis' [Harmon 1996]: language diversification occurring among populations that live in close mutual contact).

In addition, an ecological phenomenon has been proposed as possibly accounting for biodiversity-linguistic diversity correlations: a historical process of *co-evolutio*n of small-scale human groups with their local ecosystems, as implied in the notions of 'ecosystem peoples' or 'cultures of habitat'. Over time, as human communities inter-

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[7] Since the publication of the data in Table 1 (Harmon 1998b), the list of megadiversity countries has been augmented to 17 (see Conservation International 2000, http://www.conservation.org/WEB/FIELDACT/MEGADIV/list.htm). As of 2000, 13 of the 17 megadiversity countries are also in the top 25 for endemic languages, with the addition of Papua New Guinea, the Philippines and the USA; the four megadiverse countries that do not figure among the top 25 for language endemism are South Africa, Venezuela, Ecuador and Madagascar (Harmon, pers. comm.).

Table 1. Endemism in language compared with rankings of biodiversity
(from Harmon 1998b)

Country	Rank, Total Number of...				On Mega-diversity list
	Endemic Languages	Endemic Vertebrates	Flowering Plants	Endemic Bird Areas	
Papua New Guinea	1st	13th	18th	6th	
Indonesia	2nd	4th	7th	1st	yes
Nigeria	3rd				
India	4th	7th	12th	11th	yes
Australia	5th	1st	11th	9th	yes
Mexico	6th	2nd	4th	2nd	yes
Cameroon	7th	23rd	24th		
Brazil	8th	3rd	1st	4th	yes
Dem. Rep of Congo	9th	18th	17th		yes
Philippines	10th	6th	25th	11th	
USA	11th	11th	9th	15th	
Vanuatu	12th				
Tanzania	13th	21st	19th	14th	
Sudan	14th				
Malaysia	15th		14th		yes
Ethiopia	16th	25th			
China	17th	12th	3rd	6th	yes
Peru	18th	8th	13th	3rd	yes
Chad	19th				
Russia	20th		6th		
Solomon Islands	21st	24th			
Nepal	22nd		22nd		
Colombia	23rd	9th	2nd	5th	yes
Côte d'Ivoire	24th				
Canada	25th				

Sources: Endemic languages: Harmon (1995: 22-28); Endemic vertebrates: Groombridge (1992: 139-141); Flowering plants: Groombridge (1992: 80-83); Endemic Bird Areas: Stattersfield *et al.* (1998); Megadiversity countries: McNeely *et al.* (1990: 88-90).

Notes: Figures for Ethiopia include Eritrea. Endemic vertebrate figures for China, Papua New Guinea and USA do not include reptiles because the number of endemic species is not reported in the source table. Flowering plant species include both endemics and non-endemics. 'Megadiversity countries' have been identified as those likely to contain a large percentage of global species richness. The 12 listed were identified on the basis of species lists for vertebrates, swallowtail butterflies and higher plants.

act closely with the local environment, modifying it as they adapt to life in specific ecological niches, they acquire intimate and specialized knowledge of the environment and how to use and manage it for individual and group survival. This knowledge becomes encoded and transmitted through the local languages (Harmon 1996, Maffi 1998). As Mühlhäusler (1995: 155) simply puts it: "Life in a particular human environment is dependent on people's ability to talk about it".

Mühlhäusler (1996) has elaborated the notion of 'linguistic ecologies' as networks of relationships encompassing not only the linguistic and social environment, but also the physical environment, within a worldview in which physical reality and the description of that reality are not seen as separate phenomena, but instead as interrelated parts of a whole. On a global scale, Krauss (1996) has even speculated about the existence of a 'logosphere', an ecosystem formed by the whole of humankind's linguistic diversity, an "intellectual web of life... on which the welfare of the human species as such depends, just as much as our physical survival depends on the biosphere" (Krauss 1996: 74).[8] In other words, it is possible to conceive of another 'web of life' on Earth: a web of human languages and knowledge, that for most of human history has co-evolved with the environment. In this sense, it has been suggested that one can also speak of 'linguistically anthropogenic' landscapes (Maffi 1998).

However, numerous studies have also drawn attention to the observation that a crisis, of a magnitude estimated to be far greater than the biodiversity crisis, is affecting the world's diverse cultures and languages (Burger 1987; Robins and Uhlenbeck 1991; Hale *et al.* 1992; Krauss 1992, 1996; Goehring 1993; Miller 1993; Harmon 1996, 1998b; Maffi 1998, in press a, b; Maffi, Skutnabb-Kangas and Andrianarivo 1999). Recent estimates put the rate of species extinction on Earth at 1,000-10,000 times normal background rates (UNEP 1995). As a concrete example, a middle-ground prediction for the extinction of seed plant species in the next 3,000 years is 50 per cent (Cox 1997). By contrast, estimates for the proportion of native languages (and thus, by and large, the cultures expressed by them) that will have gone extinct or face extinction in the next one hundred years are as high as 90 per cent of the 6,000+ currently spoken languages (Krauss 1992, 1996). These estimates for plants and languages are compared in Table 2.

It then becomes crucial to ask what the causes and consequences may be of this extinction crisis in both nature and culture, and of disruption of the complex web of ecological relations, both natural and cultural. As indicated earlier in this report, historical cases in which a balance between humans and the environment on which they depend has not been sustained tend to be linked to the rise of complex civilizations living beyond the confines of local ecosystems (see e.g. Eldredge 1995). Large-scale environmental degradation has commonly ensued (e.g. the salinization of irrigated fields in the Tigris/Euphrates watershed under the Mesopotamian Empire), often accompanied by the collapse of civilizations (such as was the case with the Anasazi in North America or the Classic Maya in Central America) (IUCN 1994). In modern times, as McNeely (1997: 173) observes, "the highly diverse and often localized adaptations to local environmental conditions have been profoundly disrupted in most places by a world culture increasingly characterized by a very high level of material consumption". Chapin (1994) stresses that while change has always been occurring in indigenous societies, these societies have been able to adapt to change as long as they could maintain their autonomy, and could thus retain control over the process of change itself. Acknowledging that indigenous peoples' control over land and resources is a key factor in the persistence of their traditional link to the environment and of sustainable management and use of natural resources, the late geographer Bernard Nietschmann proposed a 'Rule of Indigenous Environments': "Where there are indigenous peoples *with a homeland* there are still biologically rich environments" (Nietschmann 1992: 3; emphasis added). The emergence of a global economy has hampered in many ways the ability of indigenous peoples to adapt to the changing environment. In many cases this leads to the disappearance of cultural diversity, as societies are channelled into a global monoculture based on a cash economy driven and sus-

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8 Significantly, recent work in ecology has stressed that a fuller account of biodiversity should take into consideration 'interaction biodiversity' – the interactions among species (Thompson 1996). There is a parallel here with the claim that, in the case of linguistic diversity, attention should be given to the interactions among languages (part of what is involved in the notions of 'linguistic ecologies' and 'logosphere').

Table 2. Estimates of seed plant extinctions compared to estimates of language extinctions
(Modified from Cox 1997)

Plant 'Redbook' Data[a]	Numbers	%	Language 'Redbook' Data[b]	Numbers	%
Estimated seed plant species	250,000	100%	Estimated current spoken languages	6,000	100%
Plant species certified as extinct	747	3%	Estimated languages extinct over the past 100 years	600	10%
Plant species threatened	22,137	9%	Estimated languages threatened	2,400	40%
Total extinct or threatened	22,884	12%	Total extinct or threatened	3,000	50%
Predicted plant species going extinct in 3,000 years	125,000	50%	Predicted languages going extinct* in 100 years	5,400	90%

[a] Plant species data from Smith *et al.* (1993), Lawton and May (1995).
[b] Language data from Krauss (1992).
* i.e. being extinct or near extinction.

tained by the short-term overexploitation of natural resources.

Thus, the consequences of diversity loss at all levels are also interrelated, in terms of erosion of the social and cultural integrity of the indigenous and traditional communities that represent most of the world's cultural and linguistic diversity. Language shift and loss of TEK and of the ability to deal sustainably with the environment often follow. (See Bernard 1992; Harmon 1992, 1995, 1996, 1998b; Diamond 1993; Nabhan and St. Antoine 1993; Wilkins 1993; Woodbury 1993; Mühlhäusler 1995, 1996; Fishman 1996; Maffi 1998, in press a, b; Maffi, Skutnabb-Kangas and Andrianarivo 1999; Zent 1999, in press; Florey in press; Hill in press; Hunn in press; Lizarralde in press; Nabhan in press; Zent and López Zent 2000.)

Harmon (1992) identifies a number of indicators of the world's cultural diversity – from the use of local languages to ethnic affiliation, forms of social organization, subsistence practices, land management, diet, medicine, and aesthetic and religious manifestations. A preliminary assessment of the status of these indicators reveals a downward trend in all cases. Changes in habitat, restrictions on mobility, alteration of subsistence economies due to the loss of traditional land rights and the decline in biodiversity, breakdown of social structures, and acculturation are all side-effects of the market economy that are threatening the survival of many indigenous peoples and their cultures.[9] This is what McNeely (1997: 184) calls the "real tragedy of the commons: traditional systems that were effective for thousands of years become obsolete in a few decades, replaced by systems of overexploitation which bring short-term profits for a few, and long-term costs for many".

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9 It is of interest that many of the factors commonly mentioned as threats to biodiversity conservation (see e.g. WWF 1999a) present close parallels with several factors considered to be threatening to cultural and linguistic diversity. Some examples: 1. Island ecosystems are fragile due to the sensitivity and endemicity of island species, and the severe threats native island biotas face from introduced species and habitat loss; the highly endemic cultures and languages of islands are similarly fragile due to the influx of non-indigenous populations and loss of control over land by the local populations (Hawaii being a characteristic example); 2. Habitat fragmentation is considered a prime indicator of an extinction-prone environment, due to species' inability to move in response to climate change or other disturbances; the fragmentation of the social 'habitat' of human populations is correspondingly a significant factor of cultural and linguistic endangerment; 3. A region characterized by the presence of many species with highly restricted distributions is at high risk for biodiversity loss under adverse conditions; likewise, a large set of small culturally distinct human communities living in a given region may be less buffered from outside human interference than a single larger population.

Thus, as the impact of globalization on the world's cultures increases, the evidence is that both cultural and biological diversity are diminishing. McNeely (1997) and Posey (1996) argue that these processes affect both indigenous and industrial societies and that the two are in fact interdependent, so that what happens in one is reflected in the other. Hence the need to secure the rights of indigenous peoples to control their lands and resources – ensuring their "capacity to effectively monitor and control access to and transfer of genetic resources and traditional technologies while enhancing biological diversity" (Posey 1996: 5) – and at the same time re-examine the perceptions and values of people living in the industrialized world.

From this perspective, Maffi (in Maffi, Skutnabb-Kangas, and Andrianarivo 1999) points out that issues of cultural and linguistic diversity maintenance may be formulated in the same terms as issues of biodiversity conservation: as a matter of "keeping options alive" (Reid and Miller 1993) and of preventing "monocultures of the mind" (Shiva 1993). Mühlhäusler (1995: 160) argues that convergence toward majority cultural models increases the likelihood that more and more people will encounter the same 'cultural blind spots' – undetected instances in which the prevailing cultural model fails to provide adequate solutions to societal problems. Instead, he adds: "It is by pooling the resources of many understandings that more reliable knowledge can arise"; and "access to these perspectives is best gained through a diversity of languages" (ibid.). Or, simply stated: "Ecology shows that a variety of forms is a prerequisite for biological survival. Monocultures are vulnerable and easily destroyed. Plurality in human ecology functions in the same way" (Pattanayak 1988: 380). Maffi (2000) even suggests that the foreseeable wide-ranging negative impact of cultural and linguistic diversity loss may call for an extended application of the Precautionary Principle.[10]

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[10] This internationally recognized principle, developed to deal with potential environmental hazards, states that when there is reason to believe a given course of action may result in significant harm, measures should be taken to prevent such harm, even if cause-and-effect relationships between action and result have not been scientifically proven (see Bannister and Barrett 2000).

3

WWF's Mission, Guiding Principles and Ecoregion Conservation

WWF's mission is to achieve the conservation of nature and ecological processes by:

- preserving genetic, species, and ecosystem diversity;
- ensuring that the use of renewable natural resources is sustainable both now and in the longer term, for the benefit of all life on earth;
- promoting actions to reduce, to a minimum, pollution and the wasteful exploitation and consumption of resources and energy;

with the ultimate goal to stop, and eventually reverse, the accelerating degradation of our planet's natural environment, and to help build a future in which humans live in harmony with nature (WWF 1998b).

The urgency of this mission is stressed by the data gathered in WWF's Living Planet Report 2000 (Loh 2000), which show that since 1970 there has been a 33 per cent decline in the health of the world's natural ecosystems, as well as a 50 per cent increase in the ecological pressure of humanity on the Earth.

The basic principles guiding WWF's work toward fulfilment of its mission are to:

- be global, independent, multicultural, and politically unaffiliated;
- use the best available scientific information to address issues and critically evaluate all its endeavours;
- seek dialogue and avoid unnecessary confrontation;
- build concrete conservation solutions through a combination of field-based projects, policy initiatives, capacity building, and education work;
- involve local communities and indigenous peoples in the planning and execution of its field programmes, respecting their cultural as well as economic needs;
- strive to build partnerships with other organizations, governments, businesses and local communities to enhance WWF's effectiveness;
- run WWF's operations in a cost-effective manner and apply donors' funds according to the highest standards of accountability.

The central feature of WWF's ecoregion conservation strategy is the selection of the ecoregion as the basic unit for conservation. In WWF's definition, an ecoregion is 'a relatively large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions' (WWF 1999a). The ecoregional approach is meant to address the following goals of biodiversity conservation:

- Representation of all distinct natural communities within a network of protected areas and areas managed for biodiversity conservation;
- Maintenance of ecological and evolutionary processes that create and sustain biodiversity;
- Maintenance of viable populations of species;
- Conservation of blocks of natural habitat large enough to be resilient to large-scale periodic disturbances and long-term change.

This approach aims to preserve biodiversity in each ecoregion, by maintaining its current patterns and, wherever possible, restoring its earlier patterns. WWF's choice of ecoregions as the units for conservation also acknowledges the transnational nature of patterns of biodiversity and ecological processes. WWF's philosophy in this connection is that definition of an ecoregion in biological terms "makes sense because an ecoregion encompasses an entire community of species, habitats and ecological interactions. This enables action plans to be prepared that will both seek to conserve all the pieces for the long-term ecological health and biodiversity of a landscape, and integrate these with meeting the needs and aspirations of human societies" (WWF 1999a: 3). Therefore, ecoregion conservation "also makes sense in terms of human communities and how their social and economic circumstances interact with ecological factors. Whether the ecoregion is a large forest, a grassland ecosystem, a river system or a marine/coastal zone, the people who live in the ecoregion often share a common relationship with the land/water and its natural resources" (WWF 1999a: 4).

The strength of the ecoregional approach as a tool for biodiversity conservation, as identified by Olson and Dinerstein (1998), consists in its ability to:

■ provide more target-distinctive biogeographic units of biodiversity;

■ provide an approach for promoting ecosystem-level representation at global scales;

■ broaden the goals of conservation from a primary focus on species preservation to encompassing habitat diversity and evolutionary processes;

■ ensure that appropriate linkages are addressed and monitored at different geographic scales and provide appropriate benchmarks for monitoring;

■ offer opportunities to link terrestrial and freshwater priority sites and, where terrestrial ecoregions occur along coastlines, terrestrial, freshwater and marine sites;

■ tie fieldwork with regional, national and international policy;

■ offer a more solid forum of discussion for all stakeholders involved.

Ecoregion conservation thus represents a large-scale integrated approach to long-term biodiversity conservation based on action plans which incorporate ecological and socio-economic information, along with full stakeholder participation and broad-based partnerships (WWF 1999a). Ecoregion conservation aims to address the fundamental causes of biodiversity loss by looking across whole regions to identify the actions needed to ensure long-term conservation and results that are ecologically, socially and economically sustainable. To achieve these goals, ecoregion conservation relies on a set of principles that include:

■ conservation and, when necessary, restoration of the full range of the ecoregion's biodiversity;

■ reconciliation of human development needs with conservation actions;

■ a long-term commitment;

■ emphasis on developing partnerships, and on collaboration and cooperation;

■ adapting through learning: putting experience into practice.

The process for developing an ecoregion conservation programme involves six steps (WWF 1999a):

1. Reconnaissance or ground (land/sea) scoping;
2. Defining a long-term vision;
3. Socio-economic and political assessments and analyses;
4. Preparing an ecoregional conservation strategy;
5. Implementing ecoregional actions;
6. Tracking and feedback.

The reconnaissance phase is a multidisciplinary rapid assessment of the conservation landscape of an ecoregion. It determines whether WWF should initiate an ecoregional conservation programme, frames the development of an ecoregional strategy, and identifies key issues, stakeholders and institutions for conservation, and any critical needs calling for immediate action. The biodiversity assessment, grounded in established principles of conservation biology and landscape ecology, provides a description of the current status of biodiversity conservation in the ecoregion, and a first evaluation of the broad biodiversity objectives for the area. This assessment allows for the development of a long-term vision for the conservation of the ecoregion's biodiversity, through the establishment of priority sites or areas that are representative and contribute to the long-term persistence of biodiversity throughout the ecoregion. It also allows for the setting of broader priorities for conserving or restoring the integrity of ecosystems and populations and large-scale ecological phenomena (such as migrations).

In addition, the biodiversity assessment guides the socio-economic assessment, by focusing it "on a thorough understanding of the complex social, economic and political factors affecting natural resource use and policies" to set the foundations for a more holistic bio-social analysis on "opportunities, threats, trade-offs and incentives" that "allows key factors affecting biodiversity, and appropriate points of intervention, to be identified in a joint exercise with key stakeholders" (WWF, 1999a:16). Thus, the fate of the ecoregion's biodiversity is tightly bound to the complex social, economic and political characteristics and dynamics of the ecoregion as a whole. This requires conducting the socio-economic assessment of these factors and the ensuing situation analysis in close association with the biodiversity assessment. An in-depth understanding of the ultimate causes undermining or threatening the biological integrity of the ecoregion, as well as the historical trends that have led to its current human geography, is also needed to address questions of

central relevance for the biodiversity vision; such as how much human influence should be considered part of the 'natural' processes that shape biodiversity. The findings of the biodiversity assessment and socio-economic assessment are then integrated into a comprehensive ecoregional conservation plan, which in turn leads to the elaboration of a concrete action programme.

Ecoregion conservation programmes focus on six conservation methods (WWF 1998b):

1. Promoting the establishment and management of protected areas;
2. Conserving species of special concern;
3. Promoting environmental education and building local conservation capacity;
4. Promoting sustainable resource use;
5. Reducing consumption and pollution;
6. Lobbying and conducting advocacy on international treaties.

These methods are integrated into a portfolio of activities designed to meet the conservation challenges of the ecoregion and to address the policy reforms needed to tackle many of the large-scale root causes of biodiversity loss, both at the national and transnational level.

4   *WWF's Global 200 Ecoregions*

In establishing global priorities for the application of ecoregion conservation, WWF has adopted the representation approach developed in conservation biology. In the face of limited resources, this approach aims to ensure that all ecosystems and habitat types found at the geographical scale selected for a given conservation effort will be adequately represented. Applying this approach at the global level, WWF has focused primarily on three biomes: forests, freshwater ecosystems, and oceans and coasts (marine ecosystems).

Based on the principles of representation theory, WWF identified 238 ecoregions out of an estimated world total of 895 (Olson and Dinerstein 1998). These 238 ecoregions, known as the 'Global 200' (WWF 1999a), were chosen as highly representative of the Earth's 19 major terrestrial, freshwater and marine habitat types; all of them fall within the three priority biomes. The Global 200 were selected from all parts of the world on the basis of a set of criteria of 'biological distinctiveness', including species richness, species endemism, uniqueness of higher taxa, presence of unusual ecological or evolutionary phenomena, and global rarity of major habitat types.

Table 3 provides a synopsis of the Global 200 by biome, major habitat type, and realm. Of the 238 ecoregions, 142 (60%) are terrestrial, 53 (22%) freshwater, and 43 (18%) marine. All realms and all major habitat types are represented. While tropical ecoregions are prevalent (aggregating terrestrial and freshwater tropical ecoregions, 40 are found in the Afrotropical realm, 44 in the Neotropical realm, and 53 in the Indo-Malayan realm), temperate and arctic ecoregions are present in significant numbers (again aggregating terrestrial and freshwater ecoregions, 32 are Palearctic, and 23 Nearctic). The Pacific ecoregions are represented by 28 Australasian and 11 Oceanian terrestrial, freshwater and marine realms. In terms of habitat types, forests are represented most strongly across realms (85 terrestrial realms), but grasslands, savannas and shrublands (27), desert and xeric shrublands (11), mangroves (8), and tundra (5) are also evident.

Table 3. Global 200 Ecoregions by biome, major habitat type, and realm

Total Ecoregions = 238

Ecoregion	Terrestrial	Freshwater	Marine	Total	Percentage
Afrotropical	30	9	1	40	17
Neotropical	31	9	4	44	18
Indo-Malayan	26	10	17	53	22
Palearctic	18	10	4	32	13
Nearctic	14	7	2	23	10
Australasian	20	8	0	28	12
Oceanian	3	0	8	11	5
Others	-	-	7	7	3
Total	**142**	**53**	**43**	**238**	**100**
Percentage	**60%**	**22%**	**18%**	**100**	

Source: WWF-US, Conservation Science Program 2000

5 Mapping of Indigenous and Traditional Peoples onto the Global 200 Map

Recognition of the relationship between bio-diversity and cultural diversity (represented mostly by the world's indigenous, tribal and traditional peoples), and of the relevance of this relationship for conservation, prompted WWF International's People & Conservation Unit to undertake a project aimed at bringing these issues to bear on implementation of the ecoregion conservation approach. The project's goal was to cross-map the locations of indigenous peoples onto the world's ecoregions, under the assumption that this analysis was likely to show a strong correlation between areas of high biodiversity and areas of high cultural diversity. A special focus was on indigenous peoples living in the Global 200 ecoregions. The assumption in this case was, as previously indicated, that a significant presence of indigenous peoples in the Global 200 should make working in collaboration with indigenous peoples an important consideration for WWF in the planning and implementation of ecoregion conservation in these priority ecoregions. The general aim, however, was to stress the need to integrate indigenous peoples issues in conservation work per se.

An initial survey of indigenous peoples living in the Global 200 terrestrial ecoregions (carried out by WWF International in collaboration with the Centre for People Education and Promotion of Ecuador) suggested that the overlap was notable enough as to warrant more in-depth documentation. In consultation with Terralingua, it was decided to revise and expand the original WWF International database of indigenous peoples in Global 200 terrestrial ecoregions by adopting a combination of linguistic and ethnic criteria in the identification of indigenous peoples throughout the world. The approximate locations of the indigenous peoples so identified would then be marked with dots on the Global 200 map, thereby showing the overlap between the Global 200 ecoregions and the worldwide distribution of indigenous peoples.

The choice of representing the locations of indigenous peoples by means of dots (rather than by marking indigenous peoples' actual territories) was due to a variety of reasons. Among the main ones were: the difficulty of representing territories

on a map at the scale of the Global 200; doubts as to the current availability of reliable data (or often any data at all) on the territories of indigenous peoples for most parts of the world; and the unfeasibility of rapidly acquiring the missing data on indigenous peoples' territories and verifying the reliability of existing data. As WWF ecoregion conservation work proceeds in specific areas, the work of actually identifying indigenous peoples' territories in those areas will have to be undertaken, in close collaboration with all parties involved (indigenous peoples, governments, conservation bodies and others), in a case-by-case identification of the customary territories or titled lands of indigenous peoples. This work should be done on the basis of intimate knowledge of local situations, with attention to the sources of relevant data, and by carefully evaluating the social and political implications of such mapping.

In carrying out the cross-mapping of indigenous peoples' locations onto the Global 200 map, the main operational criterion was reference to the concept of 'ethnolinguistic group'. This concept has been used in the literature to define a social unit that shares the same language and culture and uses the same criteria to differentiate itself from other social groups (Lizarralde 1993: 11). While in reality one cannot expect to find human societies perfectly matching this theoretical construct (see caveats below), in many cases – especially in small-scale indigenous and tribal societies and other traditional local communities – actual social units do approximate the theoretical ethnolinguistic unit. Linguistic affiliation is commonly, if not invariably, one major and salient component of ethnic identification (including self-identification). Often, though by no means always, this coincidence of ethnicity and language is marked by a people calling themselves and their language by the same unique name.

Various caveats should be kept in mind where the use of this criterion is concerned. Firstly, while many social units do approximate the 'ethnolinguistic group' ideal, in numerous other cases distinctiveness of languages does not correspond to distinctiveness of cultures and/or ethnicity, or sameness of language to sameness of culture/ethnicity (see footnote 6). Such discrepancies

depend in the first place on the fundamentally permeable nature of both linguistic and cultural systems. This makes 'linguistic and cultural gene flow' (i.e. diffusion of linguistic and/or cultural traits across linguistic and/or cultural barriers) by far a more widespread phenomenon than gene flow proper is across biological species. Historical factors related to language and culture contact can thus affect, both from within and from without, the relationships between language, culture and ethnicity in each given social unit. Examples include: large populations of speakers of a 'world' language, which may comprise people from many different ethnic and cultural backgrounds; local groups who share the same language but distinguish themselves one from the other by the use of different ethnic names; speakers of the same language who have developed distinct cultural traditions through migration to different locations and adaptation to different environmental and social circumstances; and speakers of different languages who have converged culturally through mutual proximity. In addition, there are also cases of populations who no longer speak their ancestral language, or whose ancestral language is on the wane, but who have maintained ethnic distinctiveness and a land base.

Secondly, a further complication in identifying ethnolinguistic groups stems from the fact that the definition of a 'language', as distinct from a 'dialect' or a 'family of related languages', is far from universally agreed upon among linguists.[11] This may pose problems in some instances; for example, when there may be doubt as to whether a set of populations living in proximity to one another and showing considerable similarities in their speech should be considered members of the same ethnolinguistic group or as separate.

Thirdly, it should be noted that the concept of 'ethnolinguistic group' is broader than that of 'indigenous peoples' and 'traditional communities'. There are instances of ethnolinguistic groups that would not commonly be identified or identify themselves as indigenous or traditional peoples, but rather as linguistic and/or ethnic minorities. On the other hand, such classificatory distinctions are not always clear-cut and universally agreed upon.

In spite of these caveats, for the purposes of the present project it was considered that adhering to the concept of ethnolinguistic group (as done in previous studies mentioned above; see Clay 1993, Durning 1993, Harmon 1996) would provide a reasonable, if not infallible, means of identifying indigenous and tribal societies, as well as ethnolinguistically distinct traditional communities. At the same time, it is necessary to acknowledge the degree of indeterminacy implied in concepts of language and ethnicity for the reasons indicated above, and therefore that data elaborated on such bases should be taken as approximations. Given this choice, the *Ethnologue* catalogue of the world's languages (Grimes 1996a, b) was selected as the primary data source, to be complemented by other, more specialized sources of linguistic and ethnic data (see Appendix 4). *Ethnologue* provides what is commonly recognized as the most comprehensive available information on currently spoken or (recently) extinct languages. It also allows for the cross-checking of variant language/ethnic names, in that it provides an extensive listing of alternative names for each language. For many of the languages, this catalogue also contains maps showing the locations where the languages are spoken.[12]

Whenever possible, it was also decided to seek experts for each main region of the world who could carry out the cross-mapping based on an in-depth understanding of regional ethnolinguistic situations. An additional criterion to be applied by these experts was a group's possession of a distinct land base, as a key characteristic of indigenous peoples, and in some cases also of traditional communities (but excluding for present purposes members of indigenous communities living in urban settings). At the same time, so as to show the current, not the historical, locations of indigenous peoples, allowance was to be made for the consequences of historical processes of displacement of indigenous populations from their homelands and relocation to other rural areas, as well as processes of migration of indigenous populations from one rural area to another. In the October 2000 version of the map, the work of regional experts is confined to the Americas. These experts worked on continental-scale digital maps of North and South American ecoregions, and their data on ethnolinguistic groups of the Americas were then overlaid onto the Global 200 digital map. The data on the rest of the world are still subject to improvement, as experts are found for the other continents. The revised data for these

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[11] Analogous considerations, it is worth noting, apply in relation to the definition of the concept of species; see Harmon (1996).

[12] See Acknowledgements for a more detailed account of how the cross-mapping work was carried out.

continents will in turn be plotted onto the Global 200 map, to produce an updated global cross-mapping of indigenous and traditional peoples and the Global 200 ecoregions.

The following criteria were selected to mark the distribution of dots representing ethnolinguistic groups. If a given ethnolinguistic group was localized in one place, a dot was placed in what could be considered as the approximate centre of the area occupied by this group. If a group speaking the same language was distributed across wide geographic areas or multiple, geographically separate areas, displaying some degree of distinctiveness ethnically and ecologically, each sub-group was separately identified and marked on the map, again in the approximate centre of each locale. Each ethnolinguistic group was assigned a unique code, cross-referenced to the corresponding dot(s) on the map. Due to the scale of the global map, it was deemed impossible to actually place the codes on the map, since at that scale the crowding of groups in contiguous areas, which occurs in many cases around the world, would have made the codes illegible.

It should be noted that other caveats related to this cross-mapping project arise from cartographic issues. Some features of the Global 200 map (mainly very large scale and thus low degree of resolution and lack of definition in ecoregion boundaries) limit the precision with which the locations of ethnolinguistic groups can be marked. Therefore, it is often necessary to make subjective decisions as to whether the location of a given group does or does not fall within a given ecoregion. Furthermore, since the boundaries of ecoregions are still being finalized by the WWF-US Conservation Science laboratory, any changes at this level may reflect on the cross-mapping, again in terms of whether a given group is or is not included within a given ecoregion. Computations of the number of ethnolinguistic groups living within the limits of each ecoregion are thus subject to change as these cartographic issues are

addressed, although it is likely that the changes will be minor. Nevertheless, it should be kept in mind that the global map is mostly meant to demonstrate overall correlations between ecoregions and indigenous and traditional peoples, rather than as an actual tool for the implementation of conservation work. Continental-scale maps, or maps at even higher degrees of resolution, allowing for more detailed cross-mapping and data display, will be required for the latter purpose.

It should also be noted that, in its current version, the Global 200 map only shows the priority ecoregions, colour-coded according to major habitat type, while the remaining areas of each continent are not divided by ecoregions and are left blank (except for state boundaries and a few salient geographic features). In carrying out the cross-mapping, it was decided to mark the locations of ethnolinguistic groups worldwide, both in the Global 200 and elsewhere, in the expectation that a global map showing the full complement of world's ecoregions will soon become available from WWF. Cross-mapping ethnolinguistic groups on the full map of the world's ecoregions would allow for better gauging the global import of overlap between cultural and biological diversity. However, the current mapping serves its designed purpose of highlighting the extent of presence of (mostly indigenous and traditional) ethnolinguistic groups in the Global 200 – a presence that is found in 95 per cent of Global 200 ecoregions (see Appendix 3).

An interim analysis (July 2000) of the cross-mapping data quantified the presence of ethnolinguistic groups in the Global 200 ecoregions, yielding the results summarized in Table 4[13] and detailed in Appendixes 1-3.[14]

A total of 6,867 ethnolinguistic groups were identified by the research described above and plotted on the Global 200 map. Of these, 4, 635 (or over 67% of the world total) are located in the Global 200 ecoregions. As mentioned above, almost all Global 200 sites (or 95%) show pres-

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[13] This analysis was based on an earlier set of 233 global ecoregions identified by the WWF-US Conservation Science Laboratory (map version of February 1998 [WWF 1998c], which will be updated as the map reflecting the definitive set of 238 ecoregions is finalized). It should be noted that the total of 4,635 ethnolinguistic groups for all 233 ecoregions was derived by arbitrarily excluding any overlap between groups and ecoregions; in other words, if an ethnolinguistic group was present in more than one ecoregion, it was counted only once. A margin of error and subjectivity in this analysis should be attributed to this, as well as to the various caveats mentioned in the text, making the kind of computations carried out here always subject to revision. Therefore, the figures should be taken as indicative of trends, rather than absolute. The sources for ethnolinguistic groups are given in Appendix 4.

[14] The figures in these appendixes are again based on the earlier set of 233 global ecoregions and subject to revision.

Table 4. Ethnolinguistic Groups (EG) in Global 200 Ecoregions (ER)

Biogeographical realm	No. of ER in realm	No. of EG in realm's ER	% of EG in Global 200	% of world EG (N = 6,867)
Afrotropical	40	1,182	25.5	17.2
Neotropical	44	442	9.5	6.4
Nearctic	16	100	2.2	1.5
Indo-Malayan	36	1,075	23.2	15.7
Oceanian	3	9	0.2	0.1
Palearctic	30	465	10.03	6.8
Australasian	20	1,156	24.9	16.8
Subtotal Terrestrial and Freshwater	**189**	**4,429**	**95.5**	**64.5**
Northern Atlantic Ocean	3	1	0.02	0.01
Southern Atlantic Ocean	2	0	0	0
Eastern Atlantic Ocean	2	1	0.02	0.01
Western Atlantic Ocean	4	3	0.1	0.04
Western Pacific Ocean	8	61	1.3	0.9
Eastern Pacific Ocean	6	5	0.1	0.07
Southern Pacific Ocean	5	114	2.5	1.7
Western Indian Ocean	4	4	0.1	0.06
Eastern Indian Ocean	1	2	0.04	0.03
Northern Indian Ocean	3	13	0.3	0.19
Mediterranean Ocean	1	0	0	0
Antarctic Ocean	2	0	0	0
Arctic Ocean	3	2	0.04	0.03
Subtotal Marine	**44**	**206**	**4.5**	**3.0**
World	**233**	**4,635**	**100**	**67.5**

ence of ethnolinguistic groups. These figures per se are highly indicative of the importance of considering indigenous and traditional peoples as stakeholders and partners in conservation work.

The majority of ethnolinguistic groups in the Global 200 are found in tropical forest ecosystems. As previously indicated, these ecosystems harbour at least 1,400 distinct indigenous and traditional peoples (Commission Européenne 1994), if areas under current forest cover are considered, and about 2,500 if the original extent of tropical and subtropical moist forest ecoregions (and associated freshwater ecoregions) is included (see Appendix 1). This represents 54 per cent of the total number of ethnolinguistic groups in the Global 200, and 36 per cent of the world total. The total figure for all tropical forest ecoregions, including mangroves, amounts to nearly 2,900, which represents 62 per cent of all ethnolinguistic

groups in the Global 200, and 42 per cent of all ethnolinguistic groups in the world. As seen in Appendix 2, however, all major habitat types in the three biomes show presence of ethnolinguistic groups to a greater or lesser extent (see Appendix 1 for selected aggregates).

Lower numbers of ethnolinguistic groups in arctic and desert environments are explained by the extreme ecological, and therefore subsistence, conditions existing in these environments, preventing concentration of human populations and requiring mobility over vast expanses of land. Tropical environments favour localization and proliferation of small human communities. Therefore, one is also likely to find high 'densities' of distinct TEK systems in the tropics. This does not mean that human-environment interactions and TEK systems are any less significant in arctic or desert ecosystems; these interactions and TEK systems will reflect unique

adaptations and successful specialization in the use and management of large, harsh, fragile landscapes. Similar considerations apply also to notable exceptions to the biodiversity-linguistic diversity correlations, as for example in the case of Madagascar. Specific historical factors can explain this lack of correlation: early separation of the island from other landmasses, favouring floral and faunal endemism, and tropical location favouring biodiversity in general; and late human colonization, reducing the chances for linguistic diversification. Nevertheless, over time the inhabitants of Madagascar developed equally significant knowledge and use of and adaptation to the local environment. The general point, as emphasized earlier in this report, is that historically indigenous and traditional peoples worldwide have developed knowledge, uses and adaptations that are equally relevant to the conservation of biodiversity wherever they are found.

Examining the breakdown of the ethnolinguistic group/ecoregion data by biogeographic realms (Appendix 3 and Table 4) also yields relevant findings. If terrestrial and freshwater ecoregions are merged for analytical purposes, given the amount of overlap between the two kinds of biomes, we see that 25.5 per cent of the ethnolinguistic groups in Global 200 ecoregions are located in the Afrotropical realm, 25 per cent in Australasia, 23 per cent in the Indo-Malayan realm, 10 per cent in the Palearctic, 9.5 per cent in the Neotropics, 2 per cent in the Nearctic, and 0.2 per cent in Oceania, amounting to over 95 per cent of the total ethnolinguistic groups found in the Global 200. Marine ecoregions (coastal regions and islands) overall include nearly 4.5 per cent of the ethnolinguistic groups in the Global 200, with a concentration in the Southern Pacific Ocean (almost 2.5%).

Interestingly, these data correlate well (with one exception) with the proportion of the world's languages spoken on the various continents, as presented in *Ethnologue*, and taken as a proxy for cultural diversity in the same areas (see footnotes 5 and 6). Out of a reported total of 6,703 languages, according to *Ethnologue* 32 per cent are spoken in Asia, 30 per cent in Africa, 19 per cent in the Pacific, 15 per cent in the Americas, and 3 per cent in Europe. An approximate organization of the ethnolinguistic group/ecoregion data by continent rather than by biogeographic realm would give us the following proportions: about 31 per cent of ethnolinguistic group s in Asian ecoregions (= Indo-Malayan ecoregions plus most

Palearctic), 24 per cent in African ecoregions (= Afrotropical ecoregions), 13 per cent in ecoregions of the Americas (= Nearctic plus Neotropical ecoregions), and 2 per cent in Europe (=some Palearctic). In all these cases, the correspondence with the above proportions of languages spoken on these continents is high. The exception is the Pacific, but in fact it is an exception that confirms the rule; that is, it confirms the significance of the correlations between biological and cultural diversity and its implications for conservation. In Ethnologue, the Pacific is understood as including Australia, New Zealand, Papua New Guinea and the Pacific Islands. Aggregating the data for Australasian and Oceanian terrestrial/freshwater ecoregions with those for some Western and all Southern Pacific Ocean Marine ecoregions to approximate Ethnologue's Pacific, we obtain a proportion of more than 28 per cent of ethnolinguistic groups in ecoregions, significantly higher than Ethnologue's proportion of languages spoken in the Pacific. This skewing is explained by the fact that the Pacific (both continental mass and islands) is a region of high biodiversity, as well as high endemism and species uniqueness, leading to the near total inclusion of the Pacific in the Global 200 (unlike the rest of world's regions). At the same time, the Pacific is also an area of high density of linguistic diversity in relation to landmass, and particularly density of endemic languages (most notably in Papua New Guinea, but also in small islands such as Vanuatu). A database of ethnolinguistic groups in all Global 200 ecoregions has been established and is presented separately along with the 'Map of Indigenous and Traditional Peoples in the Global 200 Ecoregions'.

These figures and correlations are clearly very significant, and unequivocally emphasize the need for WWF to involve indigenous and traditional peoples in its ecoregion conservation work. Furthermore there is evidence from many parts of the world that healthy, non-degraded ecosystems are often inhabited only by indigenous peoples, such as dense, little disturbed tropical rainforests in places like the Amazon, Borneo or Papua New Guinea (see e.g, Durning 1992; Lizarralde in press).

As WWF develops its conservation activities in individual ecoregions and seeks to establish partnerships with indigenous peoples in those areas, it will also be crucial for its personnel to concretely consider the implications of these findings for conservation work, in terms of both strategies and programmatic areas. These issues are taken up in the next section.

6 *WWF and Indigenous and Traditional Peoples*

WWF's conservation philosophy recognizes the need to integrate conservation into broader social and economic policies and programmes. In particular, both WWF's guiding principles and the principles of ecoregion conservation stress the potential role and contribution of indigenous and tribal peoples and local communities in environmental conservation, and the need to include these peoples and communities, among other stakeholders, in the planning and implementation of conservation efforts.

In 1996, WWF issued a *Statement of Principles on Indigenous Peoples and Conservation*, intended to guide partnerships between WWF and indigenous peoples' organizations in conserving biodiversity within indigenous peoples' lands and territories, and in promoting sustainable use of natural resources (WWF 1996).[15] A workshop reviewing WWF project-level experiences with indigenous peoples was organized by WWF-US in 1998, which resulted in the publication of the book *Indigenous Peoples and Conservation Organizations: Experiences in Collaboration* (Weber, Butler and Larson 2000). The book discusses the issue of 'coverage' of WWF policies on indigenous peoples and offers guidance on how to build conservation partnerships with indigenous peoples. In 1996, IUCN's World Conservation Congress passed eight resolutions on indigenous peoples, on issues such as protected areas, traditional biodiversity knowledge, forests, marine and coastal areas, and mining (IUCN 1997). The fact that these two organizations, the largest of their kind in the world, have taken this step, shows the importance they now assign to working with indigenous peoples in their conservation activities.

WWF also developed a joint policy with IUCN/WCPA (World Commission on Protected Areas) on protected areas inhabited by indigenous and traditional peoples, a policy that was adopted by both organizations in 1999 (WWF-WCPA/IUCN 1999). In important international environmental policy-making processes, such as those related to the CBD, the UN Forest Forum, the Ramsar Convention, etc., WWF has significantly contributed to the development of framework policies and programmes for involving indigenous and traditional peoples and ensuring respect for their rights.

While recognizing the great diversity of cultural and social features characterizing the world's indigenous peoples (and thus that no 'blueprint' approach to working with them is possible), an examination of the existing definitions of indigenous peoples – mainly those of ILO Convention 169 (see footnote 1), the UN Working Group on Indigenous Populations, the World Bank and the European Union – allows the identification of the more relevant general characteristics of indigenous peoples in relation to natural resource management, as follows:

- Ancestral attachment to lands and resources (including coastal and marine areas where applicable);
- Low-impact systems, i.e. management of (relatively) large territories or areas in relation to population density and intensity of land use;
- Traditional ecological knowledge;[16]
- Traditional systems of control, use and management of lands and resources;
- Predominantly self-subsistence systems that are largely dependent on diversity of resources rather than on monocultures;
- Collective rights over resources;
- Traditional institutions and authorities for self-government of their areas;
- Traditional practices for decision-making on matters of their concern;
- Traditional systems for benefit sharing.

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[15] In this Statement of Principles, as well as in other institutional documents, WWF refers to indigenous and tribal peoples using the definition in Article 1 of ILO Convention 169 (see footnote 1). The statement specifies: "Unless explicitly said otherwise, the term 'indigenous peoples' [as used in the statement] includes both concepts, 'indigenous' and 'tribal'" (WWF 1996: 3, footnote 1). As previously indicated, the same use is followed in this report.

[16] See footnote 2 for a definition of 'traditional ecological knowledge' and of the use of the word 'traditional' in this context.

All these characteristics are important from the perspective of sustainable management of lands and resources. The question then arises as to whether such characteristics are present among peoples other than 'indigenous' as per international definitions. For example, are they present among rural peoples of Asia and Africa who would not usually be termed 'indigenous' (at least not in official policies and laws)? Are they also present, for instance, among Afro-Latin American rural peoples, such as the Maroons of Suriname, the black communities of the Chocó forests, and the Central American Garífuna? The answer is that generally speaking these characteristics do exist in these peoples, and in this report they are referred to as 'traditional communities', or 'local communities embodying traditional lifestyles', to use the language of the CBD.

What may differentiate these traditional communities from indigenous peoples is the latter's claimed right to political self-determination, based on their self-identification as culturally (including linguistically) distinct peoples. There are also cases in which a distinction is made between traditional communities and indigenous peoples on the grounds of the latter's aboriginality (in the sense of ILO 169; see footnote 1). However, cultural self-identification is also a feature of traditional communities, and claims to political self-determination are increasingly made by many ethnolinguistic groups worldwide – although differences may exist in the way political self-determination is understood when aboriginality is a factor.

For the purpose of building partnerships in conservation, WWF views the differences between indigenous peoples and traditional communities as far less relevant than the coincidences. Therefore, whenever WWF refers to indigenous peoples, the concept is applicable by extension to tribal peoples and to traditional communities or 'local communities embodying traditional lifestyles'. WWF policies on indigenous peoples are therefore generally applicable to traditional communities as well. Many other non-traditional local communities inhabit the world's ecoregions, and are potential stakeholders in ecoregion conservation plans. However, they present different characteristics from those described above. Consequently, WWF statements on indigenous peoples (in the above-mentioned extended sense of the concept) are not intended to apply to those other local communities.[17]

The concept underpinning WWF's approach to working with indigenous peoples is the need to establish lasting partnerships with them for the conservation of biodiversity and natural resources in their lands and territories, based on a solid understanding of the interlinkages between biological and cultural diversity, a genuine appreciation for indigenous peoples' contribution to biodiversity conservation, and recognition of their legitimate rights and interests. WWF also recognizes the wide diversity of situations – not only culturally, but also in social, political, economic and geographic terms – in which indigenous peoples live, and thus that the definition of strategies, methods, plans and actions requires a flexible, adaptive and sensitive approach. WWF's position is that partnerships with indigenous peoples should be sought whenever conservation of indigenous peoples' lands and resources coincides or overlaps with WWF's own conservation priorities and with its guiding philosophy that the Earth's natural systems, resources and life forms should be conserved for their intrinsic value and for the benefit of future generations. At the same time, WWF undertakes to seek partnerships with other groups that share WWF's commitment to conservation of biodiversity, sustainable use of resources and pollution prevention.

The recurrent claim of indigenous organizations that environment and development issues have to be approached from a human-rights perspective has been frequently debated. Conservation organizations have often responded with the statement that human rights are beyond their mandate and mission. At the moment, however, internationally the distinction between human rights and environmental concerns as two totally separate areas has become virtually indefensible, especially in relation to indigenous and marginalized peoples. In WWF's analysis, this is for at least three reasons:

First, the evolution of the international environmental doctrine in the last decade points clearly to the recognition that the foundations of environmental issues are environmental human rights, i.e. the rights of present and future generations to enjoy a healthy life in a healthy environment. From this perspective, human rights issues go to the very core of the preoccupations of the environmental movement – and will be increasingly relevant in this context.

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[17] Non-traditional local communities are also not included in the mapping project described in this report.

Secondly, WWF and other conservation organizations have recognized that, without livelihood security (i.e. security of tenure and access to lands and resources), no conservation commitment can be expected from indigenous, traditional and rural peoples – something that is indeed valid for people in general. This concept is connected to the right to a decent quality of life and to other related rights recognized in the UN International Covenant on Economic, Social and Cultural Rights. Further, under conditions of repression and political oppression and marginalization, as is frequently the case with indigenous peoples, participation in and support to nature conservation and the development and enforcement of environmental laws and policies are unfeasible. The more people live in security and have their rights respected, the more they will be willing to care for their lands and resources and engage in biodiversity conservation on the basis of a coincidence of needs and aspirations with conservation organizations.

A third dimension of human rights relevant to indigenous peoples in the context of biodiversity conservation is the right of self-determination; a right that the indigenous movement active in the international arena considers to be the most important of all. In relation to conservation and natural resource management, WWF understands the right of self-determination as consisting of a bundle of the following rights:

■ Ancestral land/territorial and resource rights;
■ Land and resources control and management rights;
■ Self-government by own institutions and authorities;
■ Self-development (own decision-making on development options);
■ Prior informed consent on conservation and development actions;
■ Benefit-sharing rights;
■ Traditional knowledge/intellectual property rights.

WWF considers that these rights apply to indigenous and tribal peoples according to the ILO 169 definition, and by extension also to traditional communities or 'local communities embodying traditional lifestyles'.

WWF's position on indigenous self-determination as it relates to conservation is threefold:

i) Understanding of the right of indigenous peoples to self-determination as comprised of the rights specified above, within existing nation-states;

ii) Recognition of, and support to, indigenous peoples' right of self-determination in all aspects in which such right is relevant for conservation;

iii) Respect for the way in which indigenous peoples negotiate their status with governments with regard to political self-determination in cases where they define themselves as distinct nations. (WWF does not consider this to be an issue on which it has to have a position, unless so decided by WWF National Organizations at the level of their respective countries.)

7 *Working with Indigenous Peoples in Conservation: Main Strategies and Key Programmatic Areas*

To begin with, it is necessary to refine the typology used in this report. So far, the analysis has made use of a typology that essentially equates indigenous and traditional peoples, and by default also distinguishes them from rural communities in general. In reality, these three types of human groups are often not so easily distinguishable from one another. Many of them are undergoing rapid change, and may tend to move from a traditional pattern to one of local, more 'modern' rural communities – with attendant loss of traditional knowledge, institutions and practices, and therefore with much reduced grounds and ability to claim the self-determination right. These types therefore can be seen also as part of a continuum of change, again pointing to the need to avoid a blueprint approach.

A more refined typology of groups belonging to or having originated in traditional societies (indigenous or non-indigenous) suggests somewhat differentiated strategies in conservation work, based on the application of the same principles. Four main types of groups can be identified, to which a corresponding set of main strategies can be applied, as shown in Table 5.

Indigenous peoples issues relevant to conservation and sustainable development are vast and of growing complexity. Globalization inevitably expands and increases environmental impacts of development on indigenous and traditional peoples, thus broadening the scope of issues that have to be considered to forge lasting partnerships in conservation. At the same time, it is necessary to focus on key programmatic areas, for the sake of efficacy, optimization of efforts and alignment with WWF's mission. To guide the application of the general strategies listed above, the following seven programmatic areas are proposed for WWF's conservation work with indigenous and traditional peoples in ecoregion conservation:

1. Protected areas overlapping with indigenous peoples' lands and territories;
2. Traditional natural resource management outside protected areas;
3. Traditional ecological knowledge (TEK);
4. Prevention and control of environmental impacts on traditional lands and resources;
5. Conservation capacity building for indigenous and traditional communities;
6. Benefit sharing and incentives for indigenous and traditional peoples;
7. Facilitation of and support to conflict management processes.

Each of these areas is examined below and an expanded set of guidelines for including indigenous and traditional peoples issues in ecoregion conservation is presented in Part II.

1. Protected areas overlapping with indigenous peoples' lands and territories

Protected areas are one of the most important tools for biodiversity conservation. As previously stated, indigenous peoples inhabit nearly 20 per cent of the world's surface, or more than twice the total surface covered by protected areas. Many protected areas overlap with indigenous lands and territories (including marine areas). As an example, in South America 86 per cent of national parks are inhabited by local populations, most of them indigenous or traditional peoples practising subsistence economies (Amend and Amend 1992). In Central America, the majority of protected areas are or have been inhabited by at least 29 different indigenous peoples (Godoy *et al.* 1997). In the Americas as a whole, "80 per cent of protected areas include indigenous peoples" (Alcorn 1997: 44).

The protected areas model that now dominates conservation strategies all over the world is commonly recognized as a legacy of the Yellowstone model, i.e. as a creation of Western modern societies. What is not generally recognized is that it was traditional peoples who first established 'protected areas' . Traditional societies have usually established sacred areas within their lands and water bodies, where human activities are strictly limited and regulated (Kothari, Singh, and Suri 1996; Stevens 1997a). This traditional concept of protected areas is still alive and functioning in many parts of the world – although mostly lacking recognition, support and respect from the dominant society, and being threatened by the erosion of traditional institutions such as common-proper-

Table 5. Typology of groups belonging to or having originated in traditional societies, and relevant conservation strategies

Types of Groups	Main Conservation Strategies
1a Groups with vital traditions and environments living in relative isolation ('uncontacted groups' or 'groups living in voluntary isolation')	Territorial consolidation (territory demarcation, securement of land and resource rights, boundary protection); avoidance of any unwanted external interference.
1b Groups with vital traditions and environments living in contact with non-traditional societies and the outside market	Territorial consolidation; capacity building to deal with market involvement and pressures; support for full participation in regional and national issues which concern them.
2. Groups simultaneously experiencing rapid cultural change and ecosystem degradation	Revitalization of cultural traditions; capacity building to deal with market involvement and pressures; creation of alternatives to traditional subsistence practices; support for full participation in regional and national issues which concern them.
3. Groups (rural or urban) having undergone radical cultural and ecological change, but wanting to recover aspects of their ancestral traditions and resource management and use	Advocacy on themes of common interest; facilitation of interaction with more traditional communities; support for cultural revitalization initiatives with conservation implications; conservation capacity building.

ty regimes. In many cases, indigenous communities have been expelled from their traditional lands to create protected areas according to the Western model. This has led to a great deal of suffering for those communities, and at the same time has turned protected areas into an odious and much despised imposition.

The aforementioned joint WWF and IUCN/WCPA framework policy on indigenous/traditional peoples and protected areas, adopted in 1999, aims to promote the concept of partnerships between indigenous peoples and protected area institutions, whenever indigenous peoples' lands and resources fall within protected areas; as well as to support indigenous peoples' own actions for the protection of their lands. On the ground, one can expect to see a growing number of cases in which co-management arrangements with indigenous peoples are established, and where indigenous protected areas are fully recognized and supported as part of protected area systems. Indigenous peoples living in or near protected areas are also, in principle, particularly well placed to carry out protective and monitoring activities, if there are sufficient incentives for them to fulfil those roles.

2. Traditional natural resource management outside protected areas

Traditional resource use and management practices, as traditional knowledge, have much to offer to biodiversity conservation. As previously mentioned, Article 10(c) of CBD requires Parties to "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements". Beyond the specific local value of these practices, this appears to be an acknowledgement that accommodating customary regulations relating to natural resource use and environmental management within national laws can enhance biodiversity conservation in a given country.

WWF's study of traditional wildlife use in indigenous communities of the Arctic (Freese, Ewins and Prokosch 1998) showed that traditional use was essentially compatible with conservation objectives, and that disruptions seen in modern times have been caused by external market forces. Based on this analysis, and working with local people, WWF developed guidelines for the sus-

tainable use of wildlife in the region. Many of the ideas in the guidelines are also applicable elsewhere. This is an example of a concrete action that WWF can take to help keep alive sustainable wildlife use by traditional peoples. In addition, under such circumstances, supporting traditional management practices can contribute to the decentralization of conservation work.

As another example, understanding traditional systems of zonation of use (such as traditional distinctions of areas for intensive use, areas for semi-intensive use, restricted-use areas, and sacred areas) can greatly help foster collaboration between indigenous peoples and conservationists in the establishment of protected areas.

3. Traditional ecological knowledge (TEK)

Traditional ecological knowledge has very important functions for and offers fundamental contributions to biodiversity conservation. As indicated above, in many cases it is found to be more complete and accurate than that of Western science. Traditional knowledge is also a fundamental component of cultural adaptations to natural conditions. Among other benefits, it can provide a long-term perspective on ecosystem dynamics, based on ancestral contact and interaction with habitats and species, and thus aid in the analysis and monitoring of long-term ecological changes.

It is increasingly accepted in international environmental law, through such agreements as the CBD, that the knowledge, innovations and practices of indigenous peoples and local communities embodying traditional lifestyles have a major role to play in biodiversity conservation. Consequently, the first and most important task in this connection is to counter the erosion of traditional knowledge by putting in place mechanisms and systems for the revitalization and protection of such knowledge. This must be done in collaboration with the communities concerned and fully respecting their intellectual property. Moreover, indigenous peoples should have the opportunity to benefit fairly from the use and application of their knowledge.

Another consideration is that the knowledge, innovations and practices of indigenous peoples and traditional communities are part and parcel of their cultures. Protecting a people's culture (including their language, cultural traditions, institutions, modes of subsistence, etc.) means maintaining those conditions that allow a culture to thrive and develop further, and thus also to continue to create and adapt traditional ecological knowledge. This is connected to what the United Nations study on the protection of the cultural and intellectual property of indigenous peoples refers to as 'heritage' (Daes 1997: iii):

> "Everything that belongs to the distinct identity of a people and which is theirs to share, if they wish, with other peoples. It includes all of those things which international law regards as the creative production of human thought and craftsmanship, such as songs, stories, scientific knowledge and artworks. It also includes inheritances from the past and from nature, such as human remains, the natural features of the landscape, and naturally occurring species of plants and animals with which a people has long been connected."

In its *Statement of Principles on Indigenous Peoples and Conservation*, WWF uses this concept of 'heritage', which helps understanding of the link between a people and 'the natural features of the landscape and naturally occurring species of plants and animals'.

4. Prevention and control of environmental impacts

As indicated earlier, the coincidence of threats that both indigenous peoples and biodiversity-rich areas are facing – from destructive activities such as logging, mining and oil exploitation to ill-conceived development plans – has led to many indigenous groups becoming actively militant in the defence of the integrity of their lands and ecosystems. This is a very important front on which coordinated and mutually supportive work between conservation organizations and indigenous peoples can produce important gains.

Article 7 of ILO Convention 169 requires governments to carry out environmental impact assessments (EIAs) on any activities taking place in indigenous peoples' lands and territories that could affect the quality of their environment and resources. In accordance, WWF has adopted in its policy a provision implying that, in cases in which external interventions take place on indigenous peoples' lands and territories where WWF develops its conservation work, the organization will pay particular attention to the way in which EIAs are developed, and will make sure that the poten-

tially affected communities have the rights and means to actively participate in them. WWF, working in cooperation with the relevant indigenous organizations, will also urge governments to put in place all the necessary measures to prevent, control and mitigate environmental impacts in those lands and territories, and will help local organizations strengthen their own capacity for prevention, control, monitoring and mitigation.

Prior informed consent (PIC) is a basic principle, currently recognized by the CBD, which is highly relevant in the context of conservation, and particularly for the avoidance of environmental and social impacts. PIC is consent given to any activity after receiving full disclosure regarding the reasons for the activity, the specific procedures the activity would entail, the potential risks involved, and the full implications that can realistically be foreseen. PIC implies the right to stop the activity from proceeding, in application of the Precautionary Principle, or halt it if it is already under way where there is no evidence of full compliance with environmental regulations. The following types of activity affecting indigenous lands, territories and resources should be subject to the PIC principle:

■ Extraction of renewable or non-renewable resources from indigenous territories;
■ Acquisition of knowledge from a person or people whether for commercial or non-commercial purposes;
■ Projects such as construction works or colonization schemes.

Requests for consent should be accompanied by full disclosure, in culturally appropriate ways, of information concerning, among others:

■ the purpose of the activity;
■ the identity of those carrying out the activity and, if different, its sponsors;
■ the benefits for the people or person whose consent is being requested, as well as the benefits for the sponsors;
■ the costs and disadvantages for the people whose consent is being requested;
■ possible alternative activities and procedures;
■ any risks entailed by the activity;
■ discoveries made in the course of the activity that might affect the willingness of the people to continue to cooperate;
■ the destination of knowledge, material or resources that are to be acquired, their owner-

ship status, and the rights of local people to them once they have left the community;
■ any commercial interest that the performers and sponsors have in the activity and in the knowledge, material or resources acquired; and
■ the legal options available to the community if it refuses to allow the activity.

Since legal frameworks and tools to exercise and protect the right of Prior Informed Consent are still in their infancy, WWF promotes the use of instruments at the local level whenever necessary – mainly community agreements that follow the said conditions and steps – without prejudice to advocating for the adoption of the required legal tools at national and other levels whenever necessary.

5. Conservation capacity building

WWF has defined conservation capacity building as a fundamental strategy for its work with local partners in general, and with indigenous and traditional peoples in particular. Capacity building (in terms of the Oxfam model of 'strengthening capacities of primary stakeholders', Eade 1997) needs to focus on a variety of issues, such as strengthening institutions, facilitating access to information, technical training, and support to networking. It has to take place in a context of respect for self-government institutions and customary law, and requires the promotion of a social environment which is conducive to real democracy, i.e. the recognition of the right of marginalized peoples to become equal players in all matters of their concern. It also requires promotion of decentralization of natural resource management, devolving rights and responsibilities to local people, and encouraging cooperation and mutual accountability. Capacity building should become a strategy that cross-cuts all the programmatic elements of working in partnership with indigenous peoples in conservation.

6. Incentives and benefit sharing

Long-term conservation of indigenous peoples' lands, territories and resources requires that they directly and equitably benefit from any activity taking place on them. In many instances, conservation implies trade-offs for local people and has direct or indirect impacts on local livelihoods. Engagement of indigenous and traditional peoples in conservation cannot be expected if their quality of life does not improve through appropriate benefit sharing and alternatives to potential losses and

opportunity costs. Similarly, incentive systems are required to stimulate the maintenance of resource management and use practices that are sustainable in the long term and to outweigh the continuous pressure of market forces toward overexploitation of resources for short-term gain.

Benefits and incentives may be conceived in monetary or non-monetary terms. First and foremost, they should be conceived in culturally appropriate ways (defined jointly with the people concerned), wherever possible avoiding further disruption of local cultural and social processes. In many cases, adopting conservation strategies that build on local traditional ecological knowledge and resource use and management practices may, per se, constitute a powerful incentive for local people to engage in partnerships for conservation.

7. Facilitation of and support to conflict management processes

Environmental problems affecting indigenous peoples' lands and resources very often are linked to conflicts of interest among a variety of stakeholders, including governments, businesses and other local groups. In such situations, indigenous peoples frequently suffer from power imbalances, unequal access to relevant information, lack of advocacy expertise under conditions that are alien to their cultures, and lack of resources that are required to successfully handle such situations.

WWF's role on this front is one of facilitating conflict management processes and providing support to indigenous peoples, with the purpose of helping redress the power and participation imbalances that affect them. In so doing, WWF partners with other organizations already dedicated to environmental brokerage, so as to ensure that the best possible expertise is brought to the task of finding fair solutions from both the environmental and social points of view.

The joint challenges of continued human development and biodiversity conservation are enormous. Realization of the magnitude of these challenges is in turn leading to a recognition of the need for new, more inclusive strategies and closer collaboration among all sectors of society. As the IUCN/WRI/WWF 1999 joint statement on 'Conservation in the 21st Century' puts it: "A lasting reconciliation between the needs of human development and the conservation of natural systems depends critically on the engagement and commitment of key stakeholders, from local people living off the land, to society at large, corporations, governments, and donor institutions". At the beginning of the 21st century, we are coming to realize that this reconciliation also critically depends on the meeting of modern science and traditional knowledge, which together show us that conservation can be built into the long-term goal of sustainable development.

Part II

Working with Indigenous Peoples in Ecoregion Conservation: The Approach and Key Benchmarks

Introduction

How does the concept of partnerships with indigenous peoples, as proposed in WWF's 'Statement of Principles', apply to ecoregion conservation?

Most ecoregions have areas inhabited by indigenous and traditional peoples, and the lands, waters and resources these areas contain very often coincide with areas and resources of interest from the conservation standpoint. Therefore, when carrying out conservation planning and implementation at the ecoregional level, WWF will frequently have to work within indigenous and traditional peoples' lands and territories in striving to conserve the resources being used. However, it is inconceivable for a conservation organization like WWF to make decisions, implement actions, and devise plans and proposals for lands, territories or resources without the prior informed agreement and involvement of the owners. WWF's policies clearly indicate that conservation actions within indigenous and traditional peoples' lands and territories require their prior informed consent and should be based on partnerships with them.[18]

More broadly, indigenous and traditional peoples can become very important partners at the wider ecoregional level, beyond the borders of their territories. This is particularly so in ecoregions where their presence is considerable in terms of population figures, ethnic diversity, area of land occupied, and stake in resource use. In some ecoregions, visible political presence of indigenous peoples' organizations, and their participation in political institutions and processes, may also be good reasons for them to play an important role at the broader ecoregional level. Here, together with other key stakeholders, they can be involved in various ways in planning and implementation.

In line with this reasoning, the actions suggested below address the issue of working with indigenous peoples for the conservation of the lands, territories and resources they own, possess, occupy or use within ecoregions. Further, they can be more widely applied, according to the circumstances, to actions focusing on the entire ecoregion, in a way that complements strategies to address the involvement of other ecoregional stakeholders.

Working with indigenous peoples and their organizations in the conservation of ecoregions benefits from having clear goals for each phase or element in the planning and implementation process. This can be achieved through a step-by-step approach, where WWF, together with relevant ecoregional partners, such as government agencies, progressively engages in different types of agreements for action with organizations representing indigenous peoples and communities. These benchmark agreements (see Table 6) provide a framework for choosing the right priority topics at the right moment, as well as formalizing the jointly identified solutions in documents all parties can refer to.

The existence and content of these benchmark agreements allow ecoregion conservation planners to consider whether there is sufficient information and on-the-ground cooperation to move on to the next step in the process. The types of agreements discussed here are not blueprints, but rather prototype agreements that can be applied and modified as appropriate. In some countries, such as Canada, elaborate consultation processes and models of written agreements are already in place for working with indigenous peoples on land and natural resource management issues. While official and legal documents are beneficial for both conservation and indigenous organizations, this should not inhibit conservation practitioners from getting started in producing working agreements. In some cases, where it may be premature or inappropriate, alternative types of collaboration can be sought, which may be later formalized; in tailoring a partnership strategy, people working directly in the field are the ones most capable of pinpointing the important issues, jointly with indigenous communities and their organizations. As agreements and documents are produced, it is crucial that all relevant documents and proposed agreements be made available to indigenous peoples in the appropriate languages. It can also be useful to support indigenous groups in organizing community fora where agreements can be discussed and signing ceremonies organized once formal, written agreements are reached. This would give strong social and cultural support to collaborative work.

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[18] The case of indigenous groups of the type 1a. in the typology in Table 5, Section 7 is an exception as far as partnerships are concerned, in the sense that they should be left uncontacted if they so wish. But their territorial rights, as well as the integrity of their territories, have to be respected and secured.

Table 6. Ecoregion conservation elements and benchmarks in working with indigenous peoples

Elements/ Phases	Reconnaissance	Ecoregional Biodiversity Vision	Socio-economic Assessment	Preparing Conservation Strategy	Implementing Ecoregional Action	Tracking & Feedback
	↓	↓	↓	↓	↓	↓
Benchmarks	Memorandum of Understanding (MoU) for collaboration	Agreed biodiversity vision for indigenous lands and resources	Joint situational analysis	Joint conservation strategy for indigenous lands and resources	Agreed action plan	Joint monitoring system

1. Reconnaissance Phase: Building trust

The reconnaissance phase provides an opportunity to get to know the indigenous peoples, their organizations and their traditional lands and waters falling within an ecoregion.[19] It is the appropriate moment to determine overlap between indigenous peoples' territories and the ecoregion, and to explore options for developing partnerships with the peoples and communities in whose lands or territories, or in relation to whose resources, WWF may want to undertake conservation actions. Key steps include:

1. Identify indigenous and traditional peoples, their communities, organizations and regional associations;

2. Establish credibility and transparency from the outset;

3. Preliminarily determine the overlap between the ecoregion and indigenous peoples' territories and resources;

4. Determine the different levels of stakes and rights of indigenous peoples in relation to other parties (as part of the preliminary stakeholder analysis);

5. Expand the biodiversity overview with important biocultural sites and landscapes;

6. Establish and support the working partnerships in the ecoregion conservation process;

7. Support the establishment of formalized agreements for collaborative action.

To make this effective, there is a need for clarity from each of the parties involved in terms of the direction they wish to take, how they intend to collaborate and with whom they will work. Whilst this normally happens in an ad hoc manner, there is benefit in clarifying and formalizing accords in the form of, for example, a Memorandum of Understanding (MoU).[20]

Reconnaissance Phase Guidelines

1. Identify indigenous and traditional peoples, their communities, organizations and regional associations

1.1 Prioritize indigenous peoples' own wording and descriptions. Be aware that when studying national directories, lists or census data of indigenous peoples, in many cases there will be discrepancies and contradictions concerning population figures and the ethnic names used. Official, academic and indigenous peoples' own categories and information may differ wildly.

1.2 In cases of doubt as to whether a group is considered indigenous or not, consult with the communities themselves. Remember that WWF considers self-identification as the

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[19] When identifying indigenous peoples' lands, territories, and resources, it should be borne in mind that WWF uses the criterion of traditional ownership, possession, occupation, or use, and not only that of existing legal titles.

[20] The MoU format is given as one example or option among many other possible instruments. Whatever the instruments used, it is crucial that real agreement is reached on the process, and that this agreement is expressed in something tangible that all parties can see and refer to.

main criterion and includes tribal groups and traditional peoples in its working principles.

1.3 Seek to identify those that are authorized by communities, as different competing or overlapping institutions may exist. In particular, identify indigenous peoples' leaders or representative institutions, such as councils.

1.4 Examine regional case-study presentations and analyses;

1.5 Identify regional or national indigenous peoples' associations and support organizations.

1.6 Identify, if possible, indigenous communities or institutions with a particular interest or stake in conservation.

2. Establish credibility and transparency from the outset

As the reconnaissance phase may well be the first contact between WWF and indigenous communities and organizations, establishing rapport and trust becomes a key issue. It is important to provide clear information about its purpose, the ensuing ecoregion conservation process, and how this relates to the community. Where the end result of the reconnaissance phase is a decision not to proceed, it will be equally as important to convey to local authorities and the indigenous communities the reasons for not going ahead.

2.1 Inform communities, indigenous leadership and organizations about the ecoregion conservation planning phase. This should involve formulating the process in accessible local language, illustrating important sites with maps, providing a time-frame and continuously providing updates. Use the opportunity to portray how WWF sees further involvement as the planning stage proceeds. The WWF 'Statement of Principles' (1996) offers guidance on a broad range of issues that concern most indigenous peoples, and can be used directly for this purpose. In some ecoregions it may be useful to adopt and expand these with specific legislation, ethnic categories and planning mechanisms in mind. Providing additional clarification on underlying concepts or core terminology, such as biodiversity, ecology, conservation and ecosystem, will help to ensure that the indigenous communities are fully aware of the possible implications.

2.2 Communicate working principles to all government partners, partner communities and programme staff, and ensure that specific provisions guaranteeing the participation of indigenous peoples exist in documents informing other stakeholders about the ecoregional process.

2.3 While producing material in local languages and distributing it for discussion may take some time, it has the clear advantage of providing the basic building blocks for meetings and discussions leading to agreements for collaboration.

3. Preliminarily determine overlap between ecoregion and indigenous peoples' territories and resources

A good understanding of overlaps between the ecoregion and the customary lands and waters of indigenous communities will help to initiate consultative processes on the right issues with the right people. It is fundamental to later determine who should be involved in, for example, management planning. In many cases, it will be difficult to gain recent data about these issues in the reconnaissance phase, prompting the need for participatory mapping exercises with the communities involved.

3.1 Whether consulting with government agencies, indigenous communities or researchers, emphasize that you are interested in the broader, current as well as historical, land use and presence of indigenous peoples, not only their current settlements and agricultural areas. Consider that many indigenous peoples use large areas and diverse habitats and cover large distances in their wide range of livelihood and cultural activities. While borders of ecoregions may be fairly precise, this is not necessarily the case for indigenous peoples' territories. Although precise demarcation is not an issue at this stage, it is important to ensure that that areas potentially used by remote communities or particular groups such as women or hunters are not left out.

3.2 Study existing databases linking biodiversity, land use, tenure, resource use, agricultural production, and culturally significant sites with demographic data in general and data on indigenous peoples in particular.

3.3 Study the various maps that exist (e.g. GIS database-linked maps, historical maps, aerial photos). Be cautious in the application of 'ethnic maps' claiming to link certain groups with certain territories. While they may be useful as a basis for further discussion, they often remain partial and may even misrepresent actual conditions. Seek preliminary verification from indigenous peoples and other institutions.

3.4 Although the current boundaries of indigenous communities may seem obvious, it is useful to seek out information about historical claims. Many indigenous peoples have seen parts of their lands expropriated or encroached upon, making their current exercise of customary rights only part of the picture. Involve indigenous organizations in drafting and verifying mapping results.

3.5 When identifying communal territory, pay particular attention and seek to map competing claims from different groups. Omitting some groups by mistake can be detrimental for later attempts to achieve consensus.

3.6 Use local names to improve local understanding of which areas are involved. Document sources of information in related databases.

3.7 Identify and demarcate overlap between indigenous peoples' territories and the ecoregion. Include all types of land use and tenure systems. Use data to draft sketch maps on topographical maps or use GIS to provide visual 'drafts' for further discussion, as boundaries will change throughout the process. If necessary, consider including different maps or depict different versions for further consideration as the process unfolds.

3.8 Inform all parties involved that the maps created at this stage are only working drafts to process information gathered; it is very likely that they will change along the way. Steps for improving these maps can be included in agreed action plans.

4. Determine the different levels of stakes and rights of indigenous peoples in relation to other parties (as part of the preliminary stakeholder analysis)

The reconnaissance phase offers the opportunity to integrate the issue of indigenous peoples in the data-gathering process when meeting with other stakeholders such as specialized government agencies, local authorities and neighbouring communities.

Indigenous peoples should be considered as stakeholders in ecoregion conservation at two levels (see Section 9): locally, as owners/possessors/occupiers/users of lands, territories and resources falling within ecoregions, and at the broader ecoregional level as social and political actors. The first level is the most important and applies to all indigenous groups. The second level applies only under certain conditions – such as when indigenous peoples are social and political actors in the wider context, when they are interested in playing a role beyond the boundaries of their lands, or when development policies and actions originating outside their lands have actual or potential impacts on them. In those cases where indigenous peoples prefer to remain uncontacted and in voluntary isolation, demarcation and protection to ensure territorial integrity is the only appropriate strategy.

Determining levels of stake implies recognizing these different situations and tailoring approaches to them. At the local level, working with indigenous peoples for conservation of their lands and resources (legally recognized or traditionally owned, possessed, occupied or used) requires their prior informed consent and partnerships with them. At the broader ecoregional level, the stakeholder involvement approach applies, as it does to every other stakeholder in the ecoregion. From this phase on, all activities and approaches suggested or explored should be tailored and adapted to these levels of stake, conditions, approaches, and potential roles.

5. Expand the biodiversity overview with important biocultural sites and landscapes

Locating important biodiversity sites and landscapes in a context of human presence and activities from the outset makes findings more relevant and applicable for further joint research on biodiversity.

5.1 Much information can be accessed through national or regional indigenous knowledge centres, ethnographic descriptions, and not least indigenous peoples' organizations and federations.

5.2 Emphasizing biocultural diversity is an excellent starting point for further research, and is useful later for finding common ground with indigenous peoples.

6. Establish and support the working partnerships in the ecoregion conservation process

Working with indigenous peoples is a learning process for all parties, and the earlier the engagement with them the better. Early partnerships create a mutual history and understanding which facilitate local ownership of the process and make problem solving easier. Keep in mind that investing time and energy in supporting the establishment of flexible partnerships helps with the ensuing research, prioritization and strategy building.

6.1 Assess the capacity, interest and resources available among government partners for involving indigenous peoples in the ecoregion conservation initiative. Consider the need to integrate issues such as sensitization, further documentation of the process, and high-level lobbying. If necessary, allow more time and resources and reduce the level of ambition and expectations.

6.2 Examine the capacity and representativeness of indigenous peoples' organizations and federations. Find out who are considered to be the traditional leaders of the indigenous communities, and whether there are different competing organizations.

6.3 Determine whether and how indigenous peoples are involved in big development schemes taking place on their territories (e.g. national infrastructure development or resource exploitation).

6.4 Identify and analyse key national policies and government commitments as to the degree to which the rights of indigenous peoples are recognized and/or their participation is promoted. Become familiar with the relevant key concepts involved (e.g. treaties, ancestral domains, nation-specific definitions of indigenous peoples) and discuss the potential of involving indigenous peoples with government partners. These points are crucial to avoiding conflict and finding appropriate ways of providing support to the pertinent organizations.

6.5 Obtain a firm understanding of former working relationships or controversies between indigenous peoples, conservation organizations and government departments in charge of natural resource management. In some areas, where relationships with local people have been constrained, it will be necessary to allow periods of healing, conflict resolution and extra assurance before new initiatives can be taken up. Determine how indigenous peoples are involved in government or NGO initiatives or other programmes. Identify other parties that can help in the process, such as NGOs with experience of working with indigenous peoples.

6.6 Once the above steps have been achieved, seek to agree with indigenous peoples on an appropriate consultative or participatory process. In most cases, agreeing on the steps necessary to identify appropriate institutions and mechanisms for participation is a realistic goal that can later be included in formal agreements.

6.7 Seek to catalyse rather than lead or own the partnership-building process by providing opportunities to meet and by engaging experienced neutral facilitators. Ideally, the consultation process should be chaired jointly by the government agencies and the indigenous communities involved.

6.8 Encourage programme staff and researchers to learn about and respect local social values and cultural practices.

7. Support the establishment of formalized agreements for collaborative action

7.1 Explain the purpose of drawing up a Memorandum of Understanding (MoU – see Box 1) as a means to ensuring commitment from all parties to start a transparent partnership-building process. Concretize and seek agreement on the MoU issues listed above. Keep the MoU dynamic but consistent. Build the partnership around simple and common goals, and let it grow to take on bigger goals later on.

7.2 Consider that a collaborative framework describing the purpose, joint decision-making, financial relationship and long-term goals can keep such a partnership transparent, credible and sustainable. Including clear benchmarks and milestones will help to concretize the partnership.

7.3 Add information gathered, minutes, maps produced and the WWF 'Statement of Principles' as annexes.

7.4 Spell out communications and information-sharing processes (what, who, when, etc.)

7.5 Include information on committed financial as well as non-financial resources.

7.6 Ensure that drafts are circulated and commented upon by community-based institutions and government agencies before formalizing an agreement.

2. Biodiversity Assessment and Vision: The fundamental shared values

The ecoregional biodiversity vision is the fundamental building block in guiding the ecoregion conservation initiative. There is much benefit in complementing or expanding it through the involvement of indigenous peoples. The goal of this step in the process is to formally recognize and incorporate indigenous views, values and interests in environmental, biodiversity and natural resource issues, particularly in relation to their lands, territories and resources.

   Some indigenous peoples, particularly well-organized ones in developed countries, have developed elaborate environmental agendas and perspectives concerning biodiversity. Others, although equally dependent on and connected to their environments, may be unacquainted with con servation

terminology or lack the capacity to develop a biodiversity vision without recourse to professional assistance. In each case, different approaches should be taken to encourage joint fact-finding and constructive – rather than simply informative – discussions between conservation biologists and indigenous communities. In either case the essence can be summarized in three activities:

1. Engage indigenous peoples and their organizations in the biodiversity assessment and develop further understanding of the role played by local communities in sustaining ecological processes and sites of importance to biodiversity;

2. Jointly create a biodiversity vision for the indigenous territory, integrating scientific priorities, local values and conservation agendas, and traditional ecological knowledge;

3. Address major threats to traditional ecological knowledge, and where necessary assist communities in developing local capacity to sustain and protect their knowledge, and inform decision-making processes.

Biodiversity Assessment Guidelines

In landscapes of connected protected areas, corridors of diverse agricultural systems and traditionally managed lands and marine systems, ecosystem resilience involves people as an intrinsically related component, rather than simply as an external factor or threat. Particular advantages of

Benchmark 1: A Memorandum of Understanding (MoU) for Collaboration

A MoU or similar agreement for collaboration could include:

■ A brief historical summary of previous collaboration;
■ A description of the communities and areas concerned;
■ Issues of mutual concern to be explored; highlight the benefits of a partnership;
■ Provisions on sound research practice concerning indigenous peoples or their territory;
■ A statement of intent to collaborate; outline the next steps in building the partnership;
■ An outline of the ecoregion conservation planning schedule with a list of benchmarks; this will indicate to the communities and organizations involved the stage reached in the process, and the collaborative actions required.

WWF's *Statement of Principles on Indigenous Peoples and Conservation* covers many of the core issues of concern, and could be translated into the local language and used as a reference in the MoU. In practice, conclusions can be taken from the minutes of meetings with indigenous organizations and circulated as draft documents for discussion before a more official version is produced. They can later be formalized.

involving indigenous peoples include:

■ Integrating landscapes, habitats and species considered important by the communities into the vision;

■ Making traditional ecological knowledge of important habitat-species-ecoregion connections part of the assessment, resulting in:
  ❑ historical ecological understanding of the dynamics and relations between wildlife, vegetation, different habitats and landscape (Steinmetz 1999);
  ❑ greater focus on the biodiversity dynamics between wild and domesticated species, which helps to determine agro-forestry practices;

■ Rendering the process participatory and credible and the results more understandable and relevant for the indigenous communities from the outset;

■ Providing the opportunity for a participatory identification of threats to local biodiversity. Without being extensive, results from such a process can be fed into the definition of priority areas for the following socio-economic analysis.

1. Engage indigenous peoples and their organizations in the biodiversity assessment and develop further understanding of the role played by local communities in sustaining ecological processes and sites of importance to biodiversity

Realization at an early stage that a high-priority habitat is also a key area for the collection of important medicinal species, or is dependent on the occasional grazing or burning activities of the pastoral communities, will serve to avoid confrontation and include traditional knowledge and management practices as part of the biodiversity vision. Where indigenous peoples are familiar with and already address biodiversity issues, the task is mainly one of ensuring collaboration. Other cases will require awareness raising on biodiversity concepts and assistance with documentation.

1.1 Promote close cooperation between conservation biologists and traditional ecological knowledge specialists. All too often studies of traditional ecological knowledge and scientif-

ic assessments remain separate, where joint data gathering, mapping and analysis would be beneficial. Training local scientific research teams in rapid appraisal techniques on TEK, resource use, and land use history may prove useful (see Box 1).

1.2 Ensure appropriate forms of collaboration between scientists and indigenous peoples and the use of traditional ecological knowledge through the establishment and use of codes of conduct.

1.3 Encourage scientists to include local names for species, habitat and landscape types in inventories. This may not only uncover important relationships, but also facilitate the joint understanding necessary for reaching agreement on a biodiversity vision.

1.4 Foster local people's involvement in choosing appropriate field sites, sample plots and survey lines, as well as participation in the actual fieldwork. This will serve to validate results and raise people's capacity in dealing with biodiversity issues.

1.5 Where the reconnaissance phase identifies important biocultural sites, shift the emphasis in the biological assessment more toward identifying the role played by communities in maintaining certain habitats and landscapes, and regulating or otherwise impacting on specific species.

1.6 Expand descriptions of important species, habitats and landscapes with links to traditional ecological knowledge, use and tenure systems. Include the human dimension of biodiversity as an integral part by incorporating issues such as agro-forestry, traditional forest management, local seed experimentation, the ecological importance of clearing forest patches, grazing, low-intensity hunting of particular species, sacred groves and sites.

1.7 Create maps and/or GIS layers with areas of high biocultural diversity.

2. Jointly create a biodiversity vision for the indigenous territory, integrating scientific priorities, local values and conservation agendas, and traditional ecological knowledge

Indigenous peoples have their own biodiversity visions and conservation agendas. Many indigenous

Box 1

Traditional Ecological Knowledge (TEK)

Scientists encountering or even depending on local people in biological surveys or rapid appraisal teams are often surprised by the degree of knowledge of the local landscape and species that they possess. Many experts use this knowledge to find good observation sites for certain species, set up photo-traps, camp-sites or simply to get around in a new environment. Others have followed up on a more systematic basis, recognizing that the traditional ecological knowledge (TEK) of indigenous and traditional peoples covers unique local knowledge developed around specific conditions of women and men indigenous to a particular geographic area. The development of these knowledge systems, covering all aspects of life including management of the natural environment, has invariably been a matter of survival. Such knowledge systems are cumulative, representing generations of experiences, careful observations and trial-and-error experiments (Grenier 1998).

Participation, understanding, cultural sensitivity, respect, sustainability, practical problem-solving, reduced dependency on outside expertise and costs in general are all benefits and advantages that accrue with the use of traditional knowledge. Steinmetz (1999) noted that TEK provides a historical ecological dimension to which conventional conservation biology does not have access. Examples include knowledge contributions on primate ecology and use of habitats, and habitat history. Such knowledge is crucial to understanding the ecological processes that sustain local biodiversity. While there is an important overlap, TEK does not correspond with, nor can it replace, scientific knowledge. The latter offers a complementary set of tools and fields of knowledge from both biological and social sciences, which have proven fundamental to complementing and substantiating TEK. Most co-man-agement practices with indigenous peoples thus rely on integrating these forms of knowledge in developing effective solutions.

Dealing with TEK may seem a straightforward issue of gaining a better understanding of local eco-logical processes. Ultimately however it involves cooperation with and recognition of the rights of indigenous peoples. Transparency, credibility and a relationship of mutual trust are also key ingredi-ents when dealing with TEK systems. An important step is to recognize indigenous peoples as the rightful custodians of this knowledge. This involves a two-step process of establishing proper working relations through agreements and following up with supportive action. It must also be recognized that many indigenous peoples are struggling to sustain their knowledge bases.

For instance, despite several years of documentation and sensitization in the WWF project with the Karen, communities in Thailand, the Karen's traditional knowledge has yet to be recognized as valid for informing management decision-making. The Karen still face possible eviction from the areas in which they have lived for over 200 years. Their knowledge systems and practices are eroding due to outside pressures and lack of political influence. It is clear that, for the Karen, being omitted from the decision-making process where resource management is concerned is a serious threat to the very development of traditional ecological knowledge. It has not been uncommon for indigenous peoples to gradually leave their low-impact technologies behind, as they have experienced heavy exploitation of and encroachment upon their territories. The strategy chosen by the communities and WWF has been to continue documenting and transmitting the elders' ecological knowledge to succeeding generations.

In practice, it is not sufficient to integrate elders' statements on, for example, population size of par-ticular mammals as raw data. Indigenous peoples should be constantly involved in deciding what to do with this information. The existence of TEK does not depend on traditional ecological knowledge centres, databases or research publications, but on the possibility to use and develop this knowledge through traditional livelihood practices and traditional management systems.

Documentation of traditional ecological knowledge does not by itself lead to better conditions for local communities. It may even be used against indigenous peoples. For example, studies relating to the role and knowledge of traditional livelihood practices have been used by top-down planners to impose 'scientifically valid' alternatives. In other cases, 'innocent' documentation of traditional ecological knowledge concerning medicinal plants has been used for bio-prospecting without properly address-ing the rights of the indigenous knowledge holders.

peoples are struggling to preserve their territories from encroachment, land conversion or expropriation, and some are even meeting extreme difficulties in continuing their traditional livelihood strategies.

2.1 Support indigenous communities and organizations in formulating their own environmental agendas; this can involve a variety of different activities depending on the local circumstances.

2.2 Ensure that traditional ecological knowledge is reviewed alongside biological assessments in setting the biodiversity vision.

2.3 Encourage a transparent process where differences and similarities between scientifically identified visions and local agendas are discussed openly and preserved in the final vision.

2.4 Consider a consultative process where suggested biodiversity priorities are disseminated to indigenous communities and their organizations for discussion and further input.

2.5 Acknowledge that indigenous peoples' priorities may differ, for example on the use of certain resources, and be ready to compromise and make trade-offs. Make sure that major conflicts over perceptions are resolved and, before moving on, that the local vision developed is consistent with the view for the broader ecoregion. This can be a time-consuming activity, but is beneficial in preventing conflicts and avoiding the need later on to spend time re-negotiating unresolved issues.

2.6 Ensure that the final biodiversity vision for a particular landscape contains clear conservation objectives, not general or vague statements that may be confusing for local communities.

3. **Address major threats to traditional ecological knowledge, and where necessary assist communities in developing local capacity to sustain and protect their knowledge, and inform decision-making processes**

3.1 Consult with Traditional Ecological Knowledge centres and academic institutions on locally appropriate research practices, existing partnerships and available TEK documentation.

3.2 Support the development of locally specific protection mechanisms and raise the capacity of indigenous peoples in the ecoregions to protect and control their knowledge systems.

3.3 Inform indigenous peoples in the ecoregions about international developments on intellectual property right systems through region-specific material and meetings.

Benchmark 2: Agreed Biodiversity Vision for Indigenous Lands and Resources

It is advantageous to address explicitly the need for a joint agreement on a biodiversity vision for indigenous lands, territories and resources. Based on the joint findings of conservation biologists and indigenous communities, such a document should become an integral part of the broader ecoregional vision. It might include:

■ indigenous peoples' environmental concerns and biodiversity priorities;

■ a description of the present role and future vision of local ecological knowledge systems and practices in maintaining landscape, habitat and species compositions, as well as the threats to this knowledge;

■ a description (illustrated with maps) of the overlap between otherwise identified priority areas of biodiversity and areas considered significant by the communities;

■ threats to biodiversity as identified by the indigenous communities themselves;

■ a common biodiversity agenda for the area, integrating indigenous peoples' environmental concerns and biodiversity priorities.

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3. Socio-economic Assessment

Despite the huge amount of research that has been conducted by government institutions, NGOs and academic researchers on indigenous peoples, many socio-economic reports have ended up gathering dust rather than informing planning processes and activities. In other cases, 'expert' conclusions – often based on limited information – concerning traditional use and tenure practices and threats to them have led to detrimental solutions. To avoid these scenarios, there is a need to be focused and inclusive when performing socio-economic assessments for ecoregion conservation.

1. Conduct a participatory situational analysis and needs assessment with indigenous peoples;

2. Establish baseline data formats on the information needed to direct, categorize and enable follow-up and monitoring of socio-economic research;

3. Identify key indigenous community concerns regarding their relationship to their traditional territories, tenure rights and security;

4. Support government partners in gaining an understanding of how indigenous peoples' resource use and cultural practices are relevant to the development and sound management of their territories;

5. Explore links between resource use and economic, health, social and political factors;

6. Identify and develop an understanding of traditional natural resource management institutions and ways in which to support them, in conjunction with government partners;

7. Include discussion and documentation of resource use and tenure relationships, conflicts, and collaboration between neighbouring communities and other stakeholders;

8. Determine current participation of indigenous communities in existing government institutions and mechanisms, as well as related conflicts, barriers, benefits and costs;

9. Produce maps of indigenous peoples' settlements, resource use and customary tenure systems.

Socio-economic Assessment Guidelines

1. Conduct a participatory situational analysis and needs assessment with indigenous peoples

An early discussion with indigenous peoples on how to apply results can be helpful in choosing what data are needed, who should be gathering it, and how it is best stored and used to inform decision-making. The goal is to assist indigenous communities and organizations in highlighting socio-economic issues that are a part of further discussions with government partners. Key issues involve establishing linkages between biodiversity threats and the socio-economic situation of indigenous peoples. Participatory mechanisms with a clearly stated purpose of data gathering have proven to be effective in obtaining the right information.

2. Establish baseline data formats on the information needed to direct, categorize and enable follow-up and monitoring of socio-economic research

2.1 As a rule, consider only strictly necessary information and avoid superfluous details.

2.2 Discuss baseline formats with indigenous peoples and government partners as a way to obtain accurate estimates of what information can realistically be collected, applied and monitored.

2.3 Involve indigenous peoples in both designing and conducting the research.

3. Identify key indigenous community concerns regarding their relationship to their traditional territories, tenure rights and security

In the case outlined in Box 2, maintenance of traditional tenure and use ensured the continued existence of a key wildlife corridor. It exemplifies the need to support customary rights and secure the tenure of indigenous peoples if stable, long-term planning and commitment to ecoregional conservation objectives are to be assured. It involves identifying community concerns and giving credence to the wide variety of tenure systems that indigenous communities may apply to different types of land. Subsequent research should address the various types of threats to indigenous communities' territorial integrity and customary tenure practices, as well as ways of identifying potential strategies.

Box 2

The importance of traditional relationships: A Maasai example

Mount Kilimanjaro National Park and Forest Reserve in Tanzania is surrounded by cultivation except for an 8-km strip of land on the north-west side of the mountain. This remaining corridor, sustaining the movement of species between the mountain and surrounding habitat, is far from 'natural'. Traditional pastoral activities of the Maasai have prevented it from being converted into agricultural lands. The Maasai have secured long-term access to the area under local district by-laws and protected area status, which permit grazing activities and collection of firewood, but prohibit cultivation (Bennet 1999).

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4. Support government partners in gaining an understanding of how indigenous peoples' resource use and cultural practices are relevant to the development and sound management of their territories

Resource use and dependence patterns may reveal land and resource use practices (such as low-intensity grazing, harvesting techniques, fallow systems, etc.) that are crucial for conservation of the landscape, as well as those that are degrading the natural environment or more specifically threatening particular species or altering crucial habitat features.

Understanding local practices such as the harvesting of natural resources and determining their actual impact on wildlife or habitat makes it easier to facilitate conservation dialogue and jointly develop appropriate solutions. However, ensure than prior informed consent is given before carrying out research in sensitive or confidential areas, whether geographical or intellectual. Many indigenous communities will be hesitant to discuss traditional use practices, as access to such knowledge by outsiders may be unwelcome or prohibited. This not only highlights the need for a code of conduct and research agreements, but also shows the importance of ensuring official participation in the design, implementation and application of the results. Issues of overexploitation and unsustainable use should be raised in an open-minded manner, with joint commitments with indigenous communities to develop alternative solutions (Freese 1996).

5. Explore links between resource use and economic, health, social and political factors

Ensure that communities are fully engaged in the situational analysis. This provides the opportunity for communities to put forward their point of view as a complement to what is seen as important from a stricter natural resource management angle. Such discussions will typically uncover root causes to more apparent biodiversity threats.

6. Identify and develop an understanding of traditional natural resource management institutions and ways in which to support them, in conjunction with government partners

Experience of community-based conservation initiatives shows that supporting existing institutions and mechanisms is more cost-effective and culturally appropriate than developing new types of management boards or consultative mechanisms. This requires an understanding of how resource management works among the indigenous communities concerned. Fieldwork, informal village meetings and broader discussions are crucial to supplement official descriptions (whether from government or indigenous representatives). This process requires jointly identifying the specific actors and mechanisms involved, and the strengths

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Box 3

Understanding and sensitization – rapid appraisals in Vietnam

In connection with provincial plans to expand Phong Nha Nature Reserve in Central Vietnam, WWF trained and supported joint teams of forest guards, local bodies and commune representatives in conducting rapid appraisals in selected, mainly ethnic minority villages. Although it only partially fed into a hoped-for participatory planning process, this activity considerably raised the interest and on-the-ground knowledge of some of the local counterparts in dealing with local use and tenure practices. The results were applied in a strategy planning workshop in which WWF personnel returned to support collaborative management in the form of a pilot project. These notions had originally been rejected by the local communities, but gained more relevance and support through the joint learning process.

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and weaknesses of the indigenous communities. Clear statements on how information will be used will facilitate an open discussion of management gaps and local capacity needs.

Securing the commitment of government partners can be very difficult at this stage because of the frequent gap between policy and practice, or for reasons of distrust. Sensitizing local-level resource managers to the management interests and capacity needs of indigenous communities may be useful first steps. For indigenous communities, wherever traditional management institutions are absent or have disintegrated, particular attention should be given to identifying local incentives for reviving or establishing strong management. Giving these institutions a central role in the socio-economic analysis can raise the sense of ownership of the process by local people.

7. Include discussion and documentation of resource use and tenure relationships, conflicts, and collaboration between neighbouring communities and other stakeholders

Stereotypical images of indigenous communities easily leave out the complex reality of pluralistic societies, long-term migrant settlers, internal conflicts or long-term relationships with neighbouring communities in sharing and managing resources. This not only oversimplifies the socio-economic picture, but may also trigger ethnic conflicts that could otherwise be avoided. Providing support to government agencies, indigenous organizations and other stakeholders in developing strong solutions also means fostering solutions among these parties. For many indigenous peoples, the problems and solutions lie not within the community, but externally, in their relationships with others. Such patterns also reveal how the communities at a broader level are concerned with resources, management and conservation issues. In cases with high levels of mistrust, understanding of the specific resource uses and cultural practices can help ease indigenous concerns about ecological integrity and long-term sustainable use.

Strategies supporting indigenous peoples will necessarily involve other stakeholders. Addressing relationships with neighbouring communities, government agencies and private companies before decisions are taken is highly beneficial for both indigenous communities and conservation practitioners to secure realistic conservation approaches.

Box 4
Complex tenure practices – the example of the Pygmies

The conventional image of Pygmies as isolated hunter-gatherers deriving their sole subsistence from the depths of the forest is a good example of cross-cultural misconception. In reality, pygmies engage in age-old relationships with their Bantu- and Sudanic-speaking farming neighbours. Pygmy clans have relationships with groups of farmers on trade, forest tenure and political representation that are passed on from one generation to the next. A neighbouring farmer clan may thus have rights to land, which in practice it shares exclusively with the Pygmies (Dembner 1996). Neglecting these complex exchange and tenure relationships could easily replace ties with tensions.

Box 5
Community or participatory resource use mapping and indigenous peoples

By presenting key features of indigenous peoples' relationships to a territory and its resources, community resource use mapping is proving to be an extremely useful tool for establishing meaningful processes of consultation, participation, collaboration and conflict management with indigenous peoples. Once agreement has been reached with indigenous peoples on purpose, process and use of the maps, such maps can:

■ clearly depict indigenous systems of land-use classification, customary tenure systems, and culturally important areas, facilitating: a) identification of biodiversity hotspots within the ecoregion; b) avoidance of classic conservation failure, where traditional use has been prohibited and indigenous peoples denied access to their lands;

■ organize data, e.g. by documenting traditional ecological knowledge in appropriate languages, and facilitating discussions or negotiations between indigenous peoples, neighbouring communities, and responsible government agencies;

■ provide, in conjunction with a set of recommendations, a good opportunity to integrate customary use and tenure rights of indigenous peoples in regional land-use planning;

■ solve resource use conflicts between neighbouring communities; and

■ facilitate the participation of indigenous peoples in monitoring and evaluation activities.

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8. Determine current participation of indigenous communities in existing government institutions and mechanisms, as well as related conflicts, barriers, benefits and costs

The gap between indigenous peoples and government agencies in their perceptions of natural resource management is often far more difficult to close than the gap between local communities and conservation

agencies. Seek to understand the arguments behind the opinions expressed by these stakeholders; this will help in subsequent mediation efforts.

Assess the actual situation in comparison to the rights of indigenous people supported by WWF. Consider whether the indigenous communities are able to practice their right to directly exercise the management of their lands, waters and resources. Assess and identify the opportunities for indigenous communities and organizations to obtain these rights. Find out how these opportunities are perceived by government agencies.

9. Produce maps of indigenous peoples' settlements, resource use and customary tenure systems

Much of the above research into resource use, tenure, conflicts and opportunities can be facilitated, documented and made accessible for strategy planning and later monitoring activities through mapping. Providing indigenous peoples with resources and expertise to conduct their own research or mapping exercises will strengthen their involvement and sense of ownership. Showing the overlap between areas of indigenous concern and biodiversity hotspots or key habitats for priority species can facilitate later discussions on how conservation strategies can be made compatible with customary practices, and vice versa.

**Benchmark 3:
Joint Situational Analysis**

Framing a joint situational analysis as the benchmark, following the biodiversity vision, has the twofold advantage of formalizing joint thinking in the ecoregion conservation process and involving indigenous peoples in addressing the socio-economic processes and the threats identified. In practice, this could involve a process of joint data gathering followed by further in-depth research and discussion. The final product (including maps, priority issues and jointly identified opportunities) should be in an appropriate form and language to feed into the overall planning process.

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4. Developing a Conservation Strategy

A joint biodiversity vision and situational analysis paves the way for a conservation strategy for the indigenous communities and their territories. Key activities could be:

1. Find common ground with indigenous partners;
2. 'Activate' marginal participants and collate knowledge, including the biodiversity vision, maps of customary use and tenure, and any problems or conflicts identified in the socio-economic assessment;
3. Jointly identify opportunities and options for the conservation strategy with indigenous peoples;
4. Ensure the joint strategy harmonizes with other ecoregional activities;
5. Develop locally appropriate strategic partnerships;
6. Ensure broad commitment to the strategy.

Conservation Strategy Guidelines

Do not expect miracles and be prepared for any number of different scenarios. For example, endangered predators or herbivores may be threatening the lives, crops or animal husbandry of indigenous communities; indigenous communities may claim the right to consume an endangered species or exploit a resource to unsustainable limits; or traditional land-use practices may be destroying a key habitat for an endangered species. In such cases, should WWF still support customary user rights? Often there are no easy solutions and conservationists and indigenous peoples have at times ended up with conflicting opinions. Whilst these may be dealt with to some extent in agreeing a common biodiversity vision, they will be carried forward into the strategic planning stage. There may be disagreement about which management strategies to adopt, how to integrate customary use and tenure, or whether current policies are appropriate. Experience shows that solving such conflicts requires time, mutual understanding and constructive dialogue. Throughout, it is important to keep the process transparent and find creative solutions and compromises with indigenous peoples, rather than imposing rules and regulations.

Box 6

Conflict management

Many conservation practitioners will at some point find themselves involved directly or indirectly in conflicts. Conservation initiatives commonly run into problems with indigenous peoples over their access to resources, traditional use, agricultural and management practices. At the same time, indigenous peoples may be struggling to resolve conflicts with mining operations, road builders and other encroachments onto their land. Although conflicts serve to raise unresolved issues, many find it hard to overcome the often resulting distrust, defensive positions and counter-productivity. Nevertheless, solving natural resource-related conflicts is a necessary and important part of ecoregion conservation. These guidelines offer a series of conflict-preventive measures.

A first step is to take a closer look at the problem with the different parties involved. If deemed appropriate, a signed agreement or MoU which mutually addresses the underlying issues can be a useful instrument to keep parties on track. A joint assessment will often reveal the root causes of the problems being encountered, such as power disparities, different concepts of conservation, poverty, or lack of a conducive policy. In such cases, conflict resolution is typically a lengthy process involving, for example, policy reform and lobbying, engaging regional economic programmes and raising public awareness. Solutions cannot be expected right away – an issue that has generated much frustration, particularly within the limited scope of a single project, may be more fruitfully addressed within the long-term framework of ecoregion conservation. Most conflicts will require action at different levels and with different time-frames.

Local-level conflicts like those between indigenous communities and migrants, authorities, development schemes, or within communities, can often be resolved through traditional dispute resolution mechanisms. Although the creation of committees, hearings or round table discussions has proven to be successful elsewhere and may be tempting to introduce, these activities do not necessarily fit with local ways of doing things. In many countries, customary law involves not only local institutions or mechanisms for solving conflicts concerning resource use and access, but also mechanisms for dealing with social conflicts. Where conservation practitioners may feel more comfortable with legal experts and planners from government agencies, indigenous communities may be more used to, and trusting of, village councils, religious leaders, village elders or local NGOs as mediators. In many cases, these are the people that handle local disputes. Although not necessarily well versed in national language, legislation or issues, they are nonetheless in a strong position to re-establish dialogue.

Remember that avoiding the issue will most likely aggravate the situation. Conflict management is about addressing the issues in a constructive process. Flexibility and trying out alternative dispute-resolution methods are demanding and time-consuming tasks, in which the conservation practitioner may have to take on different roles (e.g. as broker, advocate, stakeholder or scientist). Asking for professional advice or hiring external facilitators or mediators in consultation with the communities can provide a means to reassess the situation together.

1. Find common ground with indigenous partners

Helping government agencies and indigenous peoples to find common ground enables the conservation strategy to 'take off'. This entails securing commitment from indigenous peoples and government officials at the national and regional levels to go through with the process and provide the necessary resources. However, it is unlikely that the common ground achieved will include all priority issues of both conservationists and indigenous peoples. For example, there may be biodiversity-related work relevant to indigenous peoples' territories that is only considered important by the conservationists. In such cases, obtaining prior informed consent (PIC) is the right way to ensure that planning is socially and culturally appropriate. Remember that most 'win-win' solutions are found along the way – on the ground – rather than through prolonged discussions in meeting rooms.

Be sure to continuously involve indigenous peoples in negotiations or meetings on ecoregional issues. Indigenous peoples are best consulted on core concepts and directions if they have been involved in, or at least informed about, previous discussions.

2. 'Activate' marginal participants and collate knowledge, including the biodiversity vision, maps of customary use and tenure, and any problems or conflicts identified in the socio-economic assessment

Discussions on strategy can be dominated by technocrats or politicians familiar with the language and the process, silencing indigenous participants who may be less eloquent or less accepted.

2.1 Ensure that indigenous representatives get equal opportunities to speak and influence decision-making through strong facilitation and time management or by alternative means such as visual presentations and oral testimonies.

2.2 Replace long and complex reports with locally understandable précis of information. Make sure that indigenous peoples' issues are considered at the same level as other issues.

3. Jointly identify opportunities and options for the conservation strategy with indigenous peoples

Many indigenous peoples and their livelihood strategies are labelled as threats to biodiversity, and for this reason are often kept out of 'official' conservation action. WWF can work towards ensuring that indigenous peoples issues are addressed in the ecoregion strategy, not least by supporting participatory mechanisms, where indigenous peoples sit together with government partners to identify opportunities.

3.1 Stakeholders should expand the biodiversity vision with a broader vision of the environmental resources that indigenous peoples consider important – i.e. their ecological and conservation values. These may involve natural resources or landscapes crucial for indigenous peoples' livelihood systems, traditional medicine and cultural practices; restoring ecological stability by revitalizing traditional diverse agro-forestry practices, increasing mammal populations crucial for traditional hunting and trapping, or reversing the trend toward converting traditional hunting and gathering territories into agricultural land. The resulting broader vision will acknowledge and incorporate the ecological priorities of the indigenous communities, facilitating their approval and commit-

ment to the broader biodiversity vision.

3.2 Indigenous peoples and government partners should identify shared interests in addressing certain threats or constraints. This is a good time to detect and discuss any overlap between threats to biodiversity and problems facing the indigenous communities.

3.3 Discuss and prioritize the opportunities and options for a joint conservation strategy. It is fundamental to determine which management levels the partnership should focus on (e.g. national policy, community institutions, inter-village conflict resolution, cooperation with regional agencies, etc.). Securing commitment to collaborate, pooling resources and engaging in partnerships with indigenous peoples are key issues at this stage. It may also be useful to develop joint strategies for unresolved issues that can be taken up along the way. A jointly identified set of goals is essential in developing a partnership, where indigenous peoples actually commit their time and resources. If facilitated well, such structured events can lead to useful solutions. However, there is a general need for caution where models envisioning the future or timing the strategy are concerned, since local communities may not operate with the same notions of time, or they may be unacquainted with the implications of such meetings. Taking time to integrate indigenous peoples in the broader initiative, and trying out alternative approaches to reaching a common strategy will improve the long-term chances of success of the conservation strategy.

4. Ensure the joint strategy harmonizes with other ecoregional activities

All too often, community-oriented conservation initiatives remain compartmentalized as typically small projects and programmes. A good conservation strategy involves raising the importance of indigenous peoples' issues in the wider ecoregional framework.

4.1 Encourage existing projects to re-assess their relationships with indigenous communities. This implies investing time and resources in solving old conflicts or rethinking programmes and projects that have been taking place on indigenous peoples' territories.

4.2 Ensure that specific provisions are made for indigenous peoples in the general strategy framework for the ecoregion. In practice, in many places this will involve supporting the integration of indigenous peoples' issues at the national level.

5. Develop locally appropriate strategic partnerships

While it in some cases it may be impossible to support collaborative management solutions owing to distrust or a restrictive policy environment, this should not alter the long-term strategy. It may not even be possible to develop partnerships directly with the indigenous peoples. In 'problem areas' or countries with greater restrictions, there is a need to find alternative support solutions, promote policy reform and focus on demonstrative action to raise awareness and ensure stakeholder buy-in. Exploring potential links to national policies, particularly through different models of decentralized management, is a useful step.

5.1 Where direct partnership development is possible with communities or organizations, make efforts to institutionalize collaboration and 'make it official'.

5.2 Jointly set concrete objectives that correspond to the vision and goals.

5.3 Help indigenous communities to organize themselves – this will strengthen the credibility of the vision and clarify the organizational side of the partnership.

5.4 In long-term partnerships, provide sustained capacity support and funding allocations for programmes, projects or activities to be implemented by indigenous peoples themselves.

6. Ensure broad commitment to the strategy

6.1 Seek to involve a broad range of partners. A partnership between indigenous communities and, for example, a local government agency in charge of forestry may be disrupted by other government agencies or industries.

6.2 Ensure authentication and commitment from the highest possible levels.

Benchmark 4: Joint Conservation Strategy for Indigenous Lands and Resources

In the conservation strategy, conservation practitioners, government agencies and indigenous communities should, on the basis of information gathered, agree upon the areas of strategic importance concerning natural resource management and biodiversity within indigenous territories, as well as the principles involved in dealing with these areas. Reaching agreement on these issues may in some cases be a lengthy and obstacle-strewn process, but once achieved will have great impact in securing ownership by local people for the strategy and its conservation goals.

Clear goals and principles, a time-frame and a specific assignment of responsibilities should be identified for each strategic area, and should be integrated in the broader ecoregion conservation plan. Interim strategies may be useful, particularly if policy reform risks taking time or immediate threats require quick intervention. The joint strategy is also the document in which parties agree on the institutional arrangements for further planning and implementation, as well as committing the necessary resources. This may require the establishment of a board or advisory committee with the mandate to oversee and review implementation of the strategy.

5. Ecoregional Action Planning

Action planning at the ecoregional level may include a wide variety of activities and ways of implementing them. Again, there is no blueprint for this. A list of potential issues is presented below as an example of an action plan outline.

1. Encourage government partners to co-design conservation action plans with indigenous peoples. Operationalize strategic partnerships through concrete agreements and action plans describing committed resources, responsibilities, process, ownership and leadership structures.

2. Be ready to support the establishment of new concepts and models.

Action Planning Guidelines

1. Encourage government partners to co-design conservation action plans with indigenous peoples. Operationalize strategic partnerships through concrete agreements and action plans describing committed resources, responsibilities, process, ownership and leadership structures

1.1 Make sure that partnership objectives are communicated clearly to indigenous communities, and that disagreements or issues of distrust are solved as early as possible.

1.2 Involve indigenous peoples' communities and organizations in developing objectives and concrete activities. Use partnership frameworks to develop creative solutions and spell out actual responsibilities; this will serve as a good indicator as to whether the vision is in fact representative, and may thus lead to revisions if necessary.

1.3 Be specific and realistic in jointly determining who is going to do what, where and when. Aim at small, achievable successes for commonly identified problems. Many partnerships, not least with indigenous peoples, need to be demonstrably established for the long-term process to take off. Be aware that many local communities will not have the capacity to absorb the influx of large amounts of resources.

1.4 Allow a flexible time-frame for the partnership. WWF project experiences (Weber, Butler, and Larson 2000) have shown that success in reaching common goals was highly dependent on the time available within projects. Ecoregional action planning, although broader in scope, will nevertheless involve sub-activities funded by donor agencies.

1.5 Invest in the capacities of indigenous communities, giving activities and efforts initiated and managed by them preference over similar, if more professional, externally implemented activities.

1.6 Identify and provide information on coordinators and additional focal points for indigenous peoples issues within WWF ecoregional staff.

1.7 Support follow-up on agreements reached, for example legal sanctions and integration in national programmes.

2. Be ready to support the establishment of new concepts and models

For many government agencies and indigenous peoples, notions of collaborative management and other concepts are new. As a consequence, strategic decisions to embark on collaborative management may be made without the necessary funds, technical expertise or commitment by field level officials. To develop appropriate model agreements and management planning mechanisms, local level government officials and indigenous community representatives and organizations will need financial and policy commitments from higher level agencies and conservation organizations.

Benchmark 5: Agreed Action Plan

The agreed action plan spells out the concrete steps that follow on from the strategic goals. It is important to initiate its development as early as possible after completion of the strategy. The momentum gained through a joint strategy may easily be lost due to political or administrative changes, not least because indigenous peoples often belong to the most disadvantaged groups and thus have a natural distrust of external agencies. Key elements in action planning include: measurable goals, delineating responsibilities for particular actions, a time-frame for short term activities, and a clear picture of what resources are available.

Involving indigenous communities in the formulation of objectives and activities is highly beneficial, as strategic commitments

**Table 7. Some key areas in planning with indigenous peoples:
A basket of likely options for action**

Areas	Objective	Examples of action
1. Partnership building	To support customary rights and engage indigenous peoples in ecoregion conservation planning and imple-mentation	■ Outline or revise national and/or ecoregional framework agreements ■ Create written research agreements with indigenous communities and organizations whenever necessary ■ Involve indigenous partner organizations in the continuing ecoregional process ■ Support cooperative agreements between governments and indigenous peoples based on common goals ■ Support indigenous organizations to strengthen their capacity ■ Establish regular information-sharing mechanisms with relevant organizations and communities.
2. Protected areas	To support collaborative management strategies	■ Encourage the reform of protected area policies and laws to enable the participation of indigenous peoples in management processes, support tenure security, and ensure representation in existing management decision-making processes and institutions ■ Facilitate the establishment of protected area planning processes with the participation of indigenous peoples. Ensure that customary settlement, tenure and use rights are fully respected when supporting the establishment of new protected areas ■ Support protected areas inhabited by indigenous peoples with technical and financial resources to apply consultative methodologies such as customary resource use and participatory mapping, in order to integrate and formalize customary user rights, settlements and tenure practices in co-management plans and agreements ■ Support the recognition of indigenous protected areas in national biodiversity policies and plans ■ Assist governments to develop financial, legal and technical programmes enabling indigenous communities to strengthen existing or new collaborative management systems.
3. Natural resource management outside protected areas	To support customary resource management through tenure and livelihood security	■ Support demarcation and issuance of legal titles to traditional territories and customary use areas and resources ■ Where legal support is absent, assist in finding alternative means of securing indigenous peoples' long- term access, use and tenure rights ■ Support mechanisms to hinder encroachment, expropriation and free-riding in indigenous territories and resources ■ Support conflict resolution between indigenous and neighbouring communities, the government and others ■ Support indigenous peoples to develop conservation agendas and action plans for their traditional territories (including issues such as multiple land use and schemes for wildlife habitat enhancement) ■ Assist indigenous peoples in developing management plans for natural resource use, including particular area-based and species management plans ■ Provide indigenous peoples with research and knowledge support to manage and monitor biodiversity and ecosystem integrity ■ Support market-oriented activities such as certification, fair trade and green marketing ■ Support sustainable, natural resource-based economic activities, such as sustainable farming, agro-forestry, and ecotourism ■ Support community-based environmental education ■ Support ecosystem rehabilitation activities by indigenous communities.

Table 7 continued...

Areas	Objective	Examples of action
4. Traditiional ecological knowledge (TEK)	To support indigenous communities in maintaining their traditional knowledge, systems and practices	■ Raise public awareness about the value and significance of TEK ■ Support the integration of TEK in decision-making mechanisms ■ Encourage the exchange and integration of scientific knowledge and TEK ■ Support the transmission of TEK to younger generations through informal on-site training and the integration of TEK in formal curriculum development ■ Enable communities to secure a critical mass of TEK to sustain traditional management and livelihood systems ■ Support community-driven and controlled documentation, registers and alternative protection mechanisms for TEK.
5. Prevention and control of environmental impacts	To cooperate with indigenous organizations and communities in preventing, controlling and mitigating environmental impacts	■ Promote application of the Precautionary Principle to development and other projects affecting indigenous lands and resources ■ Support participation of indigenous peoples in environmental and social impact assessments ■ Support governments in streamlining practices on seeking prior informed consent on development projects, resource exploitation, land-use planning and other initiatives involving indigenous peoples' territories ■ Support planning and implementation of mitigation and restoration measures by/with indigenous communities whenever impacts have occurred ■ Support compensation, financial and otherwise, for the loss of lands, resources or environmental quality due to environmental and social impacts.
6. National laws, policies and institutions	To secure an appropriate legal, policy and institutional environment for the participation of indigenous peoples in biodiversity conservation and natural resource management	■ Support the initiation of formal processes giving legal recognition to indigenous peoples' land and resource use rights in relation to areas of conservation importance ■ Support the legal and political recognition of indigenous peoples' organizations and institutions relevant to natural resource management ■ Support policy analysis and reform enabling indigenous communities to achieve land tenure security ■ Encourage governments to involve indigenous peoples in policy development ■ Support the involvement of indigenous peoples in existing initiatives and decision-making processes concerning biodiversity conservation, land-use planning and natural resource management. This may involve supporting the participation of relevant indigenous organizations at ecoregional, national and local levels ■ Support the streamlining of government practices in consulting with indigenous peoples ■ Support reform of marketing and trade policies concerning natural resources, especially where they have direct impact on indigenous peoples' livelihoods ■ Feed field level conservation experiences with indigenous peoples into policy development processes; disseminate lessons learned and best practice guidelines.
7. Conservation capacity building	To strengthen the capacity of indigenous peoples and government agencies to jointly pursue sustainable use and conservation strategies	■ Build the capacity of indigenous organizations and support NGOs to engage with government institutions through e.g. participatory and community-based mapping ■ Raise the capacity of government agencies at national, regional and local levels in dealing with community resource management issues through sensitization and training on appropriate tools ■ Identify and build the capacity of traditional resource management institutions to e.g. establish agreements, monitor harvest quotas, and plan and run project activities.

Table 7 continued...

Areas	Objective	Examples of action
8. Benefit sharing and incentives	To ensure that indigenous peoples receive appropriate long-term benefits and incentives for participating in conservation	- Assist governments in providing benefits such as: - Effective defence of territories against external threats, - Support and legal protection of territories; - Consolidation of territories, including their demarcation; - Technical, financial and political support for indigenous and other traditional peoples' own management activities; - Sustained capacity building actions and processes for indigenous and local communities, in order to help them to manage their areas and resources effectively; - Identify and support the development of locally appropriate incentive programmes for conservation and sustainable use - Ensure participation of indigenous peoples in defining revenue-sharing mechanisms from e.g. ecotourism, game hunting, bio-prospecting or other forms of commercial research - Support the development of economic incentive programmes involving sustainable use, alternative income generation and enhanced employment possibilities in government agencies and ecoregion project activities - Promote the reinvestment of benefits from resource use and extraction in local communities and ecosystems.
9. Conflict management	To create favourable conditions for sustainable use and conservation planning through conflict resolution and management	- Facilitate dialogue between indigenous peoples and other stakeholders through advocacy support, collaborative research, mediation and awareness raising - Support broader reconciliatory processes between indigenous peoples and governments - Collaborate with expert conflict resolution facilitators - Address processes of marginalization and stigmatization of indigenous peoples through actively seeking to work directly with indigenous communities and their organizations - Support on-site dialogue, study trips and joint activities.

6. Tracking and Feedback

1. Monitor benchmark documents and agreements and their actual implementation.

2. Monitor, jointly with indigenous peoples, programme activities, the level of participation and conservation effectiveness.

3. Learn and be ready to change.

Tracking and Feedback Guidelines

1. Monitor benchmark documents and agreements and their actual implementation

The benchmarks presented offer one way of monitoring participation throughout the key elements of ecoregion conservation planning and implementation. The presence and content of the different agreements are revealing of the extent to which collaboration takes places. Still, agreements do not necessarily represent the reality. Although the increasing number of guidelines, agendas and principles on appropriate action are integrated in programme descriptions and adopted as common vocabulary, it is altogether a different task to make them work in practice. It is therefore useful to jointly monitor whether and how agreements are followed.

2. Monitor, jointly with indigenous peoples, programme activities, the level of participation and conservation effectiveness

2.1 Build the capacity of indigenous communities to design and conduct monitoring activities.

2.2 Use socio-economic baseline data and develop key indicators to monitor: (a) resource use and tenure practices; (b) the degree of participation in management and implementation of agreed plans; and (c) improvement of indigenous peoples' customary rights and livelihood systems.

2.3 Extract lessons learned and best practices from the monitoring of activities.

2.4 Establish proper mechanisms to receive and act on feedback from indigenous communities, both on the functioning of the partnership and on ecoregional activities.

2.5 Keep the monitoring process transparent and accessible in local languages.

3. Learn and be ready to change

It is common for cooperative programmes or partnerships with indigenous peoples not to succeed or function optimally straight away (e.g. the problems and failures of many government programmes targeting indigenous or traditional peo-

ples). This is not surprising as it involves creating a synergy of different ways of perceiving and prioritizing natural resource management issues.

3.1 The survival of a partnership depends on an open dialogue addressing mistakes, latent conflicts and problems of cooperation.

3.2 Assuming an adaptive or flexible approach from the beginning, not making plans too rigid and allowing new discussions after an initial test period will make later changes easier. Action plans and new indicators are easier to develop than strong partnerships. Learning by doing and trial-and-error should be key mottos of the partnership.

Benchmark 6: Joint Monitoring System

Indigenous peoples and conservation practitioners share an interest in making partnership agreements and conservation plans work in practice, for the benefit of biodiversity conservation and sustainable use in indigenous territories and resources. Rather than depending on costly, external consultants, an agreement should be sought on the institutional arrangements and mechanisms for indigenous peoples and conservation practitioners to jointly monitor:

- participation through benchmarks and their implementation

- programme activities

- conservation impacts.

In practice, this involves spelling out the monitoring strategy, with clear indicators, methods, well-defined roles of the individuals and institutions involved, and a time-frame. It is useful at the outset to agree on how the results should be disseminated, and how they can inform or lead to changes in the action plan. The joint monitoring system may also specify concrete steps for involving indigenous peoples in evaluations, further appraisals or project development, including, when appropriate, in areas outside indigenous peoples' lands, territories and resources.

Part III

Working with Indigenous and Traditional Peoples in Ecoregion Conservation: Further Information

This section contains comprehensive background information and practical advice on five topics that are crucial to successful ecoregion conservation:

■ Getting the process right

■ Indigenous peoples, conservation and capacity building

■ Traditional resource use and management

■ Benefit sharing, compensation, incentives and indigenous peoples

■ Supporting collaborative management.

1. Getting the Process Right

Working with indigenous peoples: designing an appropriate participatory process

Ideally, conservation practitioners, governments and indigenous peoples create joint strategies and action plans through a series of dialogues and agreements. In practice, the process is often a long one before parties can actually 'talk business'. Some countries have already developed consultation steps that can be applied to or inform the ecoregion conservation process. Others may have policy guidelines that need fine-tuning or implementation support to be put into practice. In both cases, it is important to assess whether standard practices of 'participation' can be considered relevant by ecoregion conservation planners and indigenous peoples.

Schwartz and Deruyttere (1996) wrote: "Under the Mayarema Project, there are a number of NGOs working with the Guatemalan National Park Service to conserve the tropical forests of Petén, Guatemala. The NGOs, funded in part by international donor agencies, have made commitments to the consultative process, although in some instances conceptions of consultation are limited or distorted. Although some NGOs have a genuine commitment to local-level consultation, they also strive to demonstrate to their respective private and public donors that they are consulting with appropriate groups in Petén and, in fact, doing a better job than other NGOs. Rather than inter-NGO coordination there tends to be competition for pride of place. Energy and resources tend to be diverted away from the on-the-ground process of consultation to political in-fighting, shows of consultation and artfully constructed

paper trails. Some of the local elite, townsfolk and peasants know a show when they see one, and others do not. For the latter, pseudo-consultation has raised expectations that are almost surely going to be frustrated."

Such externally driven 'pseudo-consultation' stands in stark contrast to what is actually needed. Rather than demonstrating consultation to other NGOs or donors, there is a need to explore relevant consultation options together with indigenous peoples themselves.

Some basics for working with indigenous peoples

Unfortunately, adopting a patronizing approach is common when it comes to working with indigenous peoples. Many decisions are made elsewhere, which for some indigenous communities leads to passivity, disinterest or lack of respect for the intentions and resources involved. Well-meaning initiatives for indigenous peoples have a tendency to be founded upon external values or approaches claiming to know what is best for the communities. Working with indigenous peoples in a given country will often be quite different from working with officials from forestry departments or ministries in the same country. Many institutions and individuals have found it difficult to work out these differences. The following ground rules provide just a few of the 'behavioural' basics.

Get to know the people

You need to be 'on the ground' and get to know the stakeholders before being able to begin to assess the situation. Work on raising your own awareness. Get to know the people and the communities as soon as possible. Let them take you around and show their concerns. Avoid at all costs establishing ivory tower models of participation that do not fit reality.

Respect and develop understanding of local cultural values, cultural practices and social organization

Show real interest in and concern for traditional values and cultural practices, which affect all levels of planning and actual programme activities, and are often acknowledged in evaluations (e.g. Graham 2000). More often than not, their impact is unexpected. During consultation processes,

attendance at and observer participation in community meetings or government agency/community encounters can provide essential data.

Taking into account social organizational forms such as clans, lineages and other community divisions, ask yourself the following questions:

■ Is the participation of all segments or groups (including specific groups such as the poor, women or youth) culturally accepted in community decision-making? Is it, for example, socially and culturally acceptable for everyone to speak up in public meetings? Are all segments and groups aware of decisions made with or communicated to government agencies and other stakeholders?

■ Are there issues, pieces of knowledge or information on certain resources, sites or customary practices that are considered secret, taboo or otherwise inappropriate to discuss in public?

■ Is wildlife or land attributed religious or spiritual significance or values?

Such circumstances should be respected and even highlighted in the Memorandum of Understanding.

Learn to accept that:

■ working with indigenous peoples as equals means acknowledging differences of opinion, conflict and constant negotiations about values, cultural practices and social organization.

■ religious conservation ethics or spiritual connections with, and responsibilities to, traditional lands may be threatened by internal disputes or broader cultural changes.

■ current social organization or leadership structures may be contested and traditional sharing practices may be undermined by power disparities.

A clear understanding of these issues will help to guide the work with indigenous communities and the conservation strategies that emerge.

Stress mutual learning as a key concept in working with indigenous peoples

■ Encourage staff and government partners to learn about customary institutions, values, history and the local languages of the indigenous communities which will be engaged in the ecoregion conservation process.

■ Nurture continuous dialogue to overcome mistakes, problems and difficulties in working together.

■ Accept that the agendas and expectations of indigenous peoples may differ from yours, and that joint agendas will probably change along the way.

■ Accept that a common language may take time to develop, and that initial communication is most likely to be based on different understandings of the situation.

Promote gender mainstreaming

The important role of women as knowledge holders, resource users, household managers and food security providers in indigenous communities has been well documented. Nevertheless, conservationists often find themselves working mainly with men, largely owing to, among other things, their bilingual skills and traditional role in taking care of public issues. To avoid the risk of omitting important knowledge, resource use and community problems that should be addressed, promote gender mainstreaming through hiring project staff who can voice women's issues explicitly in community meetings or through separate consultations, and by further engaging women in programme activities.

Be flexible in ways of working

Do not expect indigenous communities to work in ways similar to local authorities. Be flexible when it comes to when and how to organize initial meetings. Consult with local experts or 'cultural brokers' to avoid time-wasting and inappropriate behaviour.

■ Encourage field staff to accept from the outset different ways of working and communicating.

■ Seek to work in the local language wherever possible, and make sure that key material is written up in local languages.

■ Ask beforehand about appropriate ways of respecting indigenous rituals and ways of organizing meetings. Remember that for many rural indigenous peoples, time is a precious resource. Also pay due respect to the seasonal or daily work loads.

■ Do not fix deadlines that are too tight or try to push decisions through, but pay attention to and acknowledge traditional ways of making decisions within the communities.

■ Build such flexibility into broader planning processes and workplans.

Meeting complexity

The reality facing conservation practitioners wishing to involve indigenous communities can be confusing. In some countries, there may be an indigenous people's organization or indigenous umbrella organization with mandates on a broad range of issues, which include natural resources. It is also possible to find several organizations each claiming to represent the indigenous peoples. Other communities will not have their own organizations at all. It may be difficult to identify traditional institutions or to recognize opportunistic non-representative 'indigenous' organizations[22] or support groups. Several groups or representatives linked to a variety of issues, such as indigenous women's groups, indigenous handicraft producers or pastoral cooperatives, may also form part of the diverse local reality. Neighbouring non-indigenous communities may also wish to be involved. Rather than choosing who to work with, the question is more how to work with, and involve, everyone at the different levels. Ideally, initiatives should involve local leaders and traditional authorities, but also official authorities and neighbouring communities.

The overriding goal here is to ensure, from the outset, a sustainable working process. Keep initial contacts as public and inclusive as possible as this will help to ensure that no-one is left out of the process.

Identifying indigenous peoples and their communities

An initial identification and analysis of the indigenous communities and their organizations is useful for:

■ identifying the relevant and appropriate social actors;

■ providing the necessary understanding to determine the type and level of cooperation;

■ clarifying the stakes of indigenous communities and the potential socio-cultural and economic impacts on conservation initiatives.

The value of a good stakeholder analysis becomes increasingly apparent as decision-making stages in relationships are reached. If done consistently, the analysis will make it easier to answer questions (such as those raised by Fingleton as shown in box 7). Still, getting the process right is more than establishing good working relationships with the right people; it is about ensuring legitimacy and accountability. While the fieldworker may be acquainted with specific participatory tools, key questions may remain on how to organize the whole process. Quite a few projects go through more or less lengthy participatory exercises that remain separate from or never really influence actual planning. A process will not have been participatory simply because village needs have been identified through focus group discussions, household interviews, or documentation of the local history or traditional myths. Such tools are only a means of getting to the context-specific goals of participation.

Defining these goals or the specific purposes of a consultative process rely firstly on identifying the needs and the interest of the indigenous communities in participating in the first place, and secondly on determining a realistic process. While frequent public meetings or informal individual contacts might work well as effective strategies for indigenous peoples in North America, different strategies will be needed for dispersed forest-dwelling communities in the remote highlands of Southeast Asia. In some cases, it may be necessary to undertake direct consultation in all the villages affected. This may be because of the magnitude of the initiative, the lack of proper representative institutions, or general ignorance or lack of capacity in the communities to participate properly through other means. Deciding on the who, how, when and what is best done together with indigenous peoples on the basis of jointly gathered information. The following sections serve to elaborate on aspects of the questions taken up in the reconnaissance phase.

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[22] There is today an increasing number of indigenous organizations and individuals representing or claiming to represent communities at local, national and international levels. While most are generally committed to the cause of indigenous peoples, some have a doubtful mandate or only minimally consult with and inform the communities they represent (Braem 1999).

> **Box 7**
>
> ### Examples of stakeholder questions
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> "There are a lot of people here. They come from every region through which the pipeline will pass. They belong to lots of different Aboriginal organizations, from Land Councils to Steering Committees to language groups to traditional owners. They've had a hard job. It's one thing to represent your own mob, it's another to try and work out what will be good for everybody along 2,000 kilometres of pipeline. It's one thing to represent your own interests, it's another matter to represent the interests of future generations. It's one thing to be here, it's another to make sure you're not squeezing any-body out. Here again is the familiar challenge to indigenous people – a development is proposed for their land and they have to organize a response. Who can speak for the traditional landowners? Can a 'steering committee' or a 'land council' speak for them? Do 'representatives' work just for their own people or do they have responsibilities to the other indigenous people affected by the project? And do representatives who sign an agreement have the authority to bind members of their group to the agreement?" (Fingleton 1998).

Identifying key actors and decision-making mechanisms of communities

The heterogeneity of indigenous communities

It is sometimes assumed that indigenous peoples, as one big community, are naturally of one opinion. For the practitioner, such stereotypes quickly fall apart on encountering indigenous communities divided by different clans, levels of prosperity, access to resources, literacy, religion, dialects or political parties.

Moreover, increasing pressure on indigenous territories is in many places leading to further dis-integration of community-organized use and sharing practices. This in turn leads to further conflicts over land, resources, water, and hunting and trapping areas. Conflicts have been known to erupt due to the sudden presence of outside interests or support. It is critical not to depend on one single voice, but to seek to establish consultative processes that involve different parties. At an ecoregional level, such differences may be even greater, as they may involve communities separated by national or regional boundaries.

Assume the presence of heterogeneity from the beginning, document it and make sure that it is taken into consideration when designing the participatory process. Choosing, for example, to consult with a leader who is not considered a legitimate representative by half of the residents of the territory in question will most likely make the whole process invalid.

Traditional decision-making mechanisms

It is easy to forget traditional decision-making structures and establish mainstream institutional bodies, such as associations, councils or advisory boards, that may not correspond to the functions of traditional bodies or may impose requirements concerning institutional arrangements that are for-eign to the indigenous communities. For example, requiring indigenous peoples with a tradition of decision-making through communal discussion to send a representative to decide on behalf of the community may lead to detrimental results. Basing a consultation on traditional decision-making mechanisms is, in general, more effective and cheaper than introduced forms of consultation or discussion that ignore local circumstances and specific issues.

> *In work undertaken with the Xavante in Brazil, a WWF project invested considerably in training and working the husband-and-wife team of a community leader on project planning and management. A political crisis in the community resulted in lowered support for the leader and disrupted project work. Not only was the need for broader capacity raising recognized, but project staff were also affected by factional conflicts (Graham 2000).*

Identifying specific institutions or mechanisms concerning, for example, natural resource use management is useful for targeting the right people and avoiding placing a burden on other members of the community. Traditional leaders, indigenous specialists or specific user groups such as hunters are obviously key sources of informa-

tion. At the same time, it may be the case that traditional mechanisms are controlled by an elite that neglects certain segments of the community. Decisions made only by men have, for example, been found to exclude women from access to traditionally used resources. In such cases, it will be appropriate to explore ways of integrating the views of those not represented. The key is to recognize and support traditional mechanisms, rather than design new ones.

Traditional mechanisms differ in the way they are integrated with national legal or administrative structures. Working through traditional decision-making mechanisms may not be supported by government partners who are used to working through officially recognized institutions. On the other hand, indigenous peoples might not feel that local-level government institutions properly reflect their interests. It is important to seek compromise or further develop consultative mechanisms that are broadly respected not just by indigenous peoples and government representatives, but also by neighbouring communities.

Indigenous peoples' organizations

Many indigenous peoples have their own organizations that have a broad variety of functions and purposes. Some focus on internal issues, while others are involved in both national and international lobbying. Ensuring appropriate engagement with such organizations means, among other things, understanding their specific roles and functions, who they represent and their capacities.

While some organizations have a history of negotiating, for example, land claims with local and national governments, others are not recognized by government. Knowing whether and how an organization actually represents the indigenous communities it claims to represent is necessary if later products are to be considered valid and credible.

■ Support indigenous communities and organizations in deciding upon and clearly writing up the mandates, titles and responsibilities of institutions or individuals representing them in the ecoregion conservation process.

■ Be sensitive to the experience and capacity present in the indigenous organization. It may

lack legal or technical expertise. Representatives may be young and inexperienced, particularly in national planning and policy matters, biodiversity policies or natural resource management issues.

- Ensure that indigenous leaders or representatives have transparent ways of communicating decisions and issues back to their communities.

Government partners

Building upon existing official practices in collaborating with indigenous peoples improves the chances of getting government partners to buy in to the results of the consultative processes. While existing collaboration may be fraught with problems, it provides a natural starting point for government officials and indigenous peoples alike to seek new common ground and validate a revised consultative process. The ecoregional initiative can be promoted as a forum for the exchange of opinions on how to improve existing decision-making structures, within, for example, agencies specialized in natural resource management.

Strengthening indigenous peoples' resource management practices can easily become a political issue with the potential of contesting official or accepted ways of dealing with resources. While some governments provide a favourable policy environment, others may not recognize customary rights or systematically question the capability of indigenous peoples to manage resources properly. In such cases it is necessary to have a clear strategy on how to continue the participatory process: for example, long-term pilot or experimental status for activities which recognize indigenous concerns, or the forging of new alliances at national level (see also Table 8).

Institutionalizing participation

While it may be relatively easy to ensure indigenous peoples' participation in WWF activities, it can be quite another task to obtain the same level of participation in regional and national institutions. This is, however, important for the consultation process. Where necessary, community capacity should be strengthened to increase the potential for constructive dialogues in all fora engaged in the ecoregion conservation process.

Addressing community concerns

Participatory experience

Most communities will have been involved in making decisions with other stakeholders and will

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Table 8. Issues and approaches on government partners

1. Is the policy environment conducive to indigenous peoples' claims and participation?
2. Are customary rights integrated in national policies?
3. Are decisions concerning indigenous peoples made by specialized government agencies?

Yes	No
Are government officials at national and regional levels supportive of implementing policies?	What other means are provided for securing the rights of indigenous peoples?
Consider how to raise awareness, ensure further support and promote appropriate strategies for participation.	*Alternative solutions are sought together with the indigenous communities. Specific policies on e.g. natural resource management may provide tenure security to indigenous communities. Initiatives supporting the development of national legislation on indigenous peoples' rights may be supported.*
Are there sufficient guarantees that results will be integrated in further planning?	
If sufficient guarantees cannot be obtained, this should be openly discussed with the indigenous communities. The objectives for the initiative should be more modest.	What types of participatory approaches are generally accepted?
	In a non-supportive environment there may still be participatory mechanisms that are accepted and can be strengthened.

have learnt many lessons along the way. It can be useful to consider these lessons early on in the ecoregion conservation process, along with those of local agencies and cross-institutional or external programmes. Much can be learned from the various experiences. For example, do the indigenous communities have good experiences in working with government? Do they trust agreements made with outsiders? What types of dialogue are valued by the communities? Are there any external institutions, individuals or support organizations that can be involved to give the discussions greater credibility and validity? Do the communities have a history of working together, as well as being able to agree together? What capacity has been generated by other initiatives? Remember that many indigenous communities will have had bad experiences with earlier 'participatory' exercises, so there may be a need to regenerate trust.

Awareness and understanding

Choosing a participatory strategy partly depends on the awareness and understanding of the issues at stake in the indigenous communities. For example, organizing village meetings and discussions on complicated matters should be avoided until the communities and their organizations have had sufficient time and information to thoroughly assess the situation. Clarifying objectives beforehand and keeping to them afterwards are fundamental to avoiding confusion. Written background materials in local languages are essential for properly informed decisions. In areas with high illiteracy, other means should be sought to ensure raised awareness. In some cases, this may involve clarifying government policies regarding indigenous

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In 1997, the Itelmen people of Kovran village in Kamtchatka were made aware of the WWF principles on indigenous peoples and conservation. Following a series of discussions, the Itelmen applied to the local administration of Koryak Autonomous Region and WWF to create a natural area reserved for traditional resource use. Negotiations resulted in the governor of the region establishing such a territory as a 'Gift to the Earth' in 1998. Co-managed with the Council for Revival of Kamchatka Itelmen, indigenous communities now have fishing, hunting and reindeer breeding rights within the reserve.

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peoples, land tenure and rights to social benefits.

Awareness raising is a continuous process that does stop once decisions have been made. Sharing experiences generated elsewhere in solving similar problems will foster confidence in trying out alternative solutions. This can be further developed through making scientific knowledge, conservation tool kits and guidelines available to stakeholders, in particular government officers and local indigenous communities.

When information is provided to indigenous communities, sufficient time for it to be considered should be built into the process, as well as assistance given where needed to help formulate any responses.

Transparency is another key issue. Are indigenous peoples being kept informed about the scope of and changes in the ecoregion conservation process? Has due consideration been given to the channels through which information is provided? Is information freely available? Can indigenous communities access further information in their own language?

Relevance

Do the indigenous communities consider participation in the initiative relevant and worth their time? To get a proper answer to this question, it is crucial that there is broad awareness and understanding of the potential results, consequences and impacts of the initiative. While concerned with environmental issues, indigenous peoples may often have different priorities from those of conservation organizations.

Try to get a feel for the affinity people have with the resources that the conservation initiative is aiming to protect. Some people may be very involved, for example in forest products, while others may make limited use of the natural resource base. Nevertheless both extremes are important in terms of livelihoods and traditional socio-cultural practices. Basic notions of the different relationships will help to convey the kind of participatory focus that is most relevant.

At times, a realistic assessment (made with representatives from the groups) of the importance of the conservation initiative to indigenous peoples may be needed. Some may find their participation irrelevant. This can have several reasons, such as:

■ The resources and territory involved are not considered important by the communities;

■ Negative experiences from earlier planning or conservation initiatives;

■ Poor understanding of the potential impact of the initiative;

■ Inability to afford participation in the initiative;

■ Other activities which have higher priority.

In such circumstances it is important to reassess whether communities have sufficient understanding and awareness of the initiative. Since ecoregion conservation involves a wide range of activities, tailoring a community's participation accordingly and feeding it back sensitively may encourage renewed interest in participating, whether from simple information sharing to full consultation.

Time and timing

Time and timing are of key importance in designing a consultative process. This applies both to the period of time allowed during each stage for stakeholders to consider and respond to ongoing discussions, and to the specific dates set for the next round of discussions or the new stage in the planning process. The yearly cycles of subsistence practices, seasonal changes and important events such as harvesting or religious festivals will have a huge impact on the time available for communities to participate in other events. Poverty levels, too, should be taken into account; indigenous leaders and communities will find it extremely difficult to abandon livelihood activities in order to participate in meetings and discussions. Integrate such considerations when scheduling and consider appropriate forms of compensation. Also ensure that consultations or discussions take place after sufficient information has been made available, and before crucial details are decided upon.

> *"The worst thing to happen is when the researchers start trying to make their work look like it is relevant to us Inuit. That's why we are now getting invited to all these conferences. They want us to participate, but really we have nothing to say because we have nothing to do with this type of thing in the first place. I can't tell you how boring it is to sit all day when you are supposed to listen to what other people think your culture is all about. It's mistake after mistake, but we really don't say much. Probably that's because none of us are really bothering to listen … These conferences are completely self-centred and they really have nothing to do with us in terms of the things we want to discuss and work on."*
>
> An Inupiaq from Alaska (quoted in Brooke 1993).

Table 9. What resources are available for the participatory process?

Time
While the ecoregion conservation process is long term, most conservation initiatives have a rather limited time-frame. Ideally, there should be enough time for:
■ building rapport and good working relationships;
■ developing and implementing an appropriate process of local participation;
■ preparing, translating and distributing background documents to achieve informed decisions;
■ follow-up activities such as writing up results and integrating them in further planning.

Human
Do team members have sufficient knowledge and experience in working with indigenous communities? Are the social and language skills present enough to ensure a reasonable dialogue with the indigenous communities?

Financial
Are there financial resources available to cover the costs of the participatory process, including preparation, capacity building and follow-up activities? Indigenous peoples cannot be expected to cover the costs of abandoning their livelihood practices to participate in meetings and related activities.

2. Indigenous peoples, conservation and capacity building

Capacity building

The term 'capacity raising' frequently appears in project documents, but what exactly does it mean?

Whereas the traditional approach has been to strengthen the capacity of protected area staff or government officials, the new conservation practice of engaging in partnerships with indigenous peoples poses a double challenge:

- Raising the capacity of indigenous communities and their organizations to deal with natural resource management issues and government agencies in a formal setting; and

- Raising the capacity of government agencies (policy-makers and on-the-ground officials) and conservation agencies to work effectively with indigenous communities.

As partnerships are established and conservation agendas agreed, indigenous peoples may find their rights to involvement and management strengthened, but at the same time they face the challenge of taking up new responsibilities. Policy changes devolving management rights and responsibilities to indigenous peoples may also create a need for capacity building at the grass roots level. In both cases, support from conservation organizations is fundamental to concretizing the partnerships.

Identifying the capacities needed is a natural follow-up once agreement has been reached with indigenous partners on the content and direction of a conservation partnership. Key points to bear in mind are:

- Make sure that capacity building is seen as relevant by the indigenous organizations involved.

- Strengthen indigenous institutions and organizations rather than concentrating on individuals.

- Encourage and support indigenous organizations and communities to practice newly acquired skills by, for example, obtaining policy support, institutionalizing capacity build-

ing exercises, and negotiating government assistance.

- Be ready to support further capacity building as new needs arise.

Raising the capacity of indigenous communities and their organizations

While it may be tempting to focus on conservation-related skills and knowledge building, indigenous communities may also require other skills in order to participate effectively in ecoregion conservation activities. Depending on the communities involved, this may call for training programmes on literacy,[23] numeracy and basic management skills. Increased rights and responsibilities of a community in terms of natural resource management can profoundly change the way decision-making mechanisms within or between communities work. Literacy can, for example, ensure broader awareness of and access to decisions made by indigenous organizations.

Long-term consultation processes required in ecoregion conservation partnerships are contingent upon not only an appropriate legal framework, but also the capacity of indigenous people to engage in and actively shape the outcome. Such capacity should be firmly established within the indigenous organizations. Capacity building activities can begin as soon as agreement has been reached to work together, enabling key representatives to join training sessions and information seminars.

Ecoregional planning involves such a broad range of issues that it is important for indigenous communities and organizations to be able to participate in consultations in a full and proper manner. Key questions here are:

- Is there capacity within the communities and their organizations to involve different segments of the communities, such as youth, women, different lineages and clans, in the consultative and decision-making process?

- Is there adequate capacity to participate in regional and national discussions and hearings on the ecoregion conservation initiative?

Organizational capacity has consequences

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[23] Literacy is an unquestionable asset in engaging with government agencies. As Townsend (2000: 82) notes, based on work with the Sirionó in Bolivia, it is also fundamental for community participation in scientific wildlife monitoring.

beyond the initial planning process, as it involves ensuring that indigenous peoples' own institutions are strong and representative enough to take on conservation management. This requires a realistic assessment of the experience with and potential for dealing with new conservation-oriented activities within the indigenous organization.

It is also clear that although decentralization and devolution of rights and responsibilities may strengthen local communities' interest and role in managing resources on their territories, there are also limits to what local communities can do. For example, a local community may acquire tenure rights within a protected area without necessarily being willing or able to take over the responsibilities of the government department formerly in charge. Or an indigenous organization with experience in political mobilization may lack the expertise to organize communities around natural resource management issues or make deals with government agencies. In such cases indigenous communities require support to organize themselves.

> *Through support from the Inuit Circumpolar Conference to the Inuit in the Russian North, Canadian Inuit provided help to Russia's northern indigenous peoples in decision-making processes, training and internships. Support was also given to regional indigenous peoples' offices, as well as the Russian Association of Indigenous Peoples of the North (RAIPON), in promoting improved understanding of indigenous peoples issues among Russian government officials. A similar, indigenous-to-indigenous example is that of the Runa people in Ecuador: they visited another indigenous community, the Awá, who were involved in natural resource management and conservation, and received training from Kuna specialists from Panama and Yanesha trainers from Peru (Irvine 1999).*

Increasingly sophisticated legislation also requires legal and technical capacity among indigenous peoples' organizations. While some indigenous associations and representatives are strongly involved in both national and international fora, the vast majority of indigenous communities lack knowledge and experience when it comes to making agreements and filing claims, not to mention seeking provisions in support of custom-

ary law in national legislation. While in a majority of cases legal assistance will be the most appropriate solution in the short term, capacity to manage their basic rights and policies concerning natural resource management can be highly beneficial in establishing real dialogue between indigenous communities and government agencies. Furthermore, capacity to deal with intellectual property rights is becoming more and more necessary, as is raising awareness about bioprospecting, legal requirements governing research practice, benefit-sharing mechanisms, and *sui generis* management and protection regimes. The issue is under extensive discussion, not least in connection with the Convention on Biological Diversity. Several publications raise the issue and provide more detailed guidance (Posey and Dutfield 1996; Simpson 1997).

A related capacity is *negotiation*. The majority of indigenous leaders engaging in the ecoregion conservation process will in most cases be relatively unacquainted with negotiating decisions on behalf of their communities. Whether dealing with economic development, settlements or agreements, there is a need for the representatives to clearly understand the implications of the decisions, with whom they should talk, and how best to represent the communities' interests. This provides a better guarantee for solutions reached with the government parties involved (see Barsh and Bastien 1997 for a more detailed discussion).

Building conservation capacity

Building on existing traditional resource management institutions or mechanisms has a number of advantages over creating new structures. Interesting work in this field has been taking place, not least in the Pacific region where WWF supports communities in taking up conservation activities. In Australia, a consultation with indigenous peoples expressing their views on a process to establish indigenous protected areas highlighted that 'capacity building... to acquire skills to enhance... management of land' combined with financial resources and influence on the process were among the key issues. This may involve, for example, supporting local institutions in establishing community management plans, introducing sustainable harvesting methods, and planning and running project activities. While the different capacities needed are highly context-specific, some common capacities are increasingly being used in conservation work.

■ Community-based or participatory resource mapping has been taken up as a way of raising the capacity of indigenous peoples and organizations in the important initial steps of negotiating and designing conservation plans. This model has been successfully applied in Latin America and parts of Africa and Asia. Mapping material and guidance is available on a range of websites such as the Aboriginal Mapping Network http://www.nativemaps.org/index.html, but also through documents that specifically link mapping to conservation action (Momberg, Atok and Sirait 1996; Poole 1995).

■ Manuals for local people are increasingly being developed. In the CAMPFIRE[24] experience in Zimbabwe, for example, WWF has produced a series of guide booklets on wildlife management for rural communities, covering topics such as managing safari hunting, setting quotas, marketing wildlife leases and 'problem animal reporting'. A range of other manuals, typically within projects, is being developed on non-timber forest products, management planning and sustainable use (e.g. Freese *et al.* 1998).

■ Also being developed are environmental awareness and education programmes for indigenous peoples, some of which aim to support indigenous communities in elaborating their conservation ethic.

■ Capacity building of indigenous communities to strengthen, apply and protect their indigenous knowledge systems and practices is being taken up by the World Bank (e.g. World Bank 1998), UN agencies such as the ILO, bilateral agencies and various NGOs, as well as by international documentation initiatives such as the 'Indigenous Knowledge Pages' (see the website at http://www.nuffic.nl/ik-pages/). While these initiatives are important global indicators of changing attitudes, the actual outreach to indigenous communities is still very limited. Supporting capacity building for indigenous peoples to manage and control research regarding their territories and indigenous knowledge systems and practices is of fundamental importance. Several declarations and guidelines for sound research practice and concrete steps to take are available (Posey and Dutfield 1996; Laird 1999a).

■ There is also a widespread practice of directly training indigenous communities in methods applied in conventional protected area and natural resource management. Such methods include forest inventorying, biological assessments, sustainable harvest techniques, management planning, day-to-day management, and monitoring and evaluation. WWF in the South Pacific, for example, has developed a tool kit for local knowledge, plant conservation and ecology

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The WWF Indochina Programme, working in the Phong Nha Ke Bang area of Vietnam, tested participatory resource use mapping as a means of engaging ethnic minority communities and district-level land-use planning and forestry officials in developing protected area zoning and collaborative management solutions. Village members from several communities and local officials were jointly trained and later worked together in three villages to map traditional resource use areas. An additional goal was to test the mapping methodology and continue mapping activities in other communities. While in many ways successful in fostering collaboration and generating knowledge about locally relevant methodologies and results, important lessons learned included:

■ *Lowering ambitions: the objective to train local officials and community representatives together, generate knowledge on mapping methods and produce good maps within a short time-frame proved difficult to achieve;*

■ *Recognizing and addressing the gaps in capacity, knowledge and experience between indigenous representatives and local officials;*

■ *The need for sufficient guarantees that results will be integrated in the planning process;*

■ *Keeping technological input to a minimum.*

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[24] CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) was established in 1989 and works with community-based wildlife management schemes.

(Tabunakawai and Goodwillie 1999). Work by a local NGO among the Sirionó of Bolivia involved a community survey, woodland inventories, and developing schemes for firewood cutting and honey production as part of an integrated forest management plan (Townsend 2000). There are also attempts to link these efforts with traditional management practices such as those carried out in village commons.

■ Whether within the framework of integrated conservation and development or that of community forestry or other forms of income generation, capacity building for small-scale enterprises or cooperative development, marketing of local products, micro-credit management, or business planning linked to sustainable harvest planning is increasingly common. Economic impoverishment remains one of the main problems for most indigenous peoples. Raising capacity on these issues is considered by many a necessity before conservation issues can be addressed.

Channelling capacity building

Deciding who to involve in capacity building activities is often more difficult than identifying needs. It is often tempting to work with the most literate, outspoken or bilingual community members. This may be effective for short-term activities such as appraisals or initial dialogues, but can pose problems in the long term. Developing locally relevant and representative selection criteria is important to avoid being affected by internal conflicts, or risking only minimal involvement of important user groups such as poor households and women. Furthermore, capacity raising may create or fuel ongoing power struggles within communities. A number of other issues should also be taken into consideration:

■ Are communities or organizations prepared to take on new capacities? They may need to sort out new representative structures, delegate new responsibilities or solve internal disputes beforehand.

■ Clarify with indigenous communities and organizations the socio-cultural implications of capacity building. Are the selected community members, for example, considered appropriate and representative in taking on new capacities and roles?

■ Have relations between and within communities been taken into account in choosing who to involve in capacity raising? And how?

■ Have capacity building needs been identified by communities or organizations themselves or only by the partnering conservation body and government agencies?

■ Are there financial resources available within the community or from government agencies to put new capacity into practice?

■ Is the policy environment conducive to new practices and methodologies? Is there support from government agencies to take up new skills, or is there a risk of raising false expectations?

■ Start small, be adaptive and sustain capacity support. Unlike forest guards and government extension workers, who have been trained and generally have clear-cut roles, indigenous participants will, in most cases, be taking up new roles and responsibilities, resulting in unexpected changes and new needs.

■ Choose locally appropriate training techniques, language and literature. 'Learning by doing' or visually oriented methodology will for many be more appropriate and familiar than conventional teaching.

Raising the capacity of government agencies and conservation practitioners

Local government officials and conservation practitioners require a wide range of skills to work with indigenous peoples. These include communications, the ability to cooperate and, depending on the specific context, ethnobiology, participatory planning, language training, conflict resolution, and indigenous knowledge. Experiences from project work with indigenous communities also point to the need for good interpersonal skills, ethnographic knowledge and gender sensitivity. A whole range of documents and manuals dealing with capacity building in this context are now available.

■ WWF's *Integrated Conservation and Development: A Trainer's Manual* (Worah, Svendsen, and Ongleo 1999) includes key tools on participatory planning, conflict management and partnership building. (See also Borrini-Feyerabend 1997; Barton *et al.* 1997; Jackson and Ingles 1998).

- Issues of co-management are increasingly explicitly addressed in capacity building and training exercises with conservation partners (see Borrini-Feyerabend *et al.* 2000).

- Documentation and manuals, as well as lessons learned, in ethnobotany have resulted from the joint WWF/UNESCO/Kew Gardens' People and Plants Initiative (see website at http://www.rbgkew.org.uk/peopleplants). Key publications include manuals on ethnobotany (Martin 1995) and plants and protected areas (Tuxill and Nabhan 1998).

- There is increasing focus on indigenous knowledge systems and practices. Guidelines have been developed and tested by ILO and CIDA on environmental assessments, traditional knowledge and ways of integrating traditional knowledge in the development process (Emery 2000) (see also http://www.kivu.com/cidacontents.html). Other manuals available on the Internet include Grenier (1998): http://www.idrc.ca/books/847/index.html and http://www.panasia.org.sg/iirr/ikmanual. The publication Learning for a Sustainable Environment provides online access to teaching materials on indigenous knowledge and environmental education, as well as a set of useful transparencies based on actual experiences from the Asia-Pacific region (Fien, Heck and Ferreira 1999). The World Bank database on indigenous knowledge and practices, mainly from Sub-Saharan Africa, (http://www.worldbank.org/afr/ik/datab.htm) and the UNESCO site on 'Best Practices on Indigenous Knowledge' (http://www.unesco.org/most/bpindi.htm) provide good case studies.

- The Biodiversity Support Program offers a wide range of downloads, particularly related to people and conservation issues (http://www.bsponline.org). The Peoples, Forests and Reefs Program has generated a range of country-specific projects and lessons learned in strengthening the capacities and rights of marginalized groups to manage and benefit from biodiversity. The Program has been particularly active in community-based resource use mapping.

- Other types of documents include training manuals on working with villagers or indigenous and tribal peoples. Some of these can also be found in local languages, developed by agricultural extension, development-oriented pro-

grammes such as the ILO-INDISCO programme, which has elaborated guidelines for extension workers on participatory extension and training methods, natural resource management, and microcredit, among others.

The need for follow-up

Much of the above-mentioned material is directly field-oriented, providing methods and approaches for interacting with indigenous peoples in a field setting. Although such capacity raising may provide people with needed tools, institutionalizing new practices is altogether another issue. For example, it has proven difficult for conservation practitioners and government officials to move away from their former working methods and adopt new participatory approaches. Making such changes requires sufficient resources, an active interest in working with social scientists and a preparedness to make mistakes along the way. Building new cooperative and culturally sensitive mechanisms and capacity takes time and financial resource, as well as commitment to work directly with people. Although there is an increasing number of participatory tools, the challenge lies in making the right ones work in the local context. Workshops or training courses on participatory planning techniques are the first step; knowing when and how to apply the skills learnt is a second step requiring much care and attention. Such skills are best developed by working directly with indigenous peoples on specific activities.

Working successfully with indigenous peoples demands a continuous process of two-way feedback. The long-term time-frame and nature of ecoregion conservation provides the ideal opportunity to achieve this.

3. Traditional resource use and management

Introducing traditional management

Many indigenous communities live in areas of high biodiversity and have developed particular and ecologically adapted livelihood and management practices.

Many traditional resource use management systems have become neglected in the wake of national management regimes which regard the traditional areas of indigenous peoples as untenured, wasteland or wilderness. In this context it has not been uncommon for indigenous peoples

to find themselves classified as squatters, poachers or 'encroachers'. With the increased interest in, and documentation of, community-based management systems, national policy frameworks that recognize indigenous peoples' user rights and tenure systems, and support collaborative management and participatory planning, are on the increase. While traditional knowledge and management practices offer relevant techniques and insights for foresters and others (see e.g. Laird 1999b), much still remains to be worked out in practice (Pimbert and Pretty 1999).

Like the Iwingi, most indigenous communities care much about their surrounding environments and employ a variety of systems and practices to deal with land resources, wildlife, plants and water. Based on extensive traditional ecological knowledge, these systems differ from mainstream management systems in the way in which they define tenure, regulate resource use and prevent resource depletion. Tenure systems can vary between the extremely complex – with varying responsibilities and rights affecting, for example, grazing and arable lands and hunting areas – and the relatively simple, in which ways of working together are based on informal agreements.

"When I discuss biodiversity with my people, they want to know what it is. When I start explaining the concept in terms of plant and animal species, the whole existence, they start to realize what I am describing. It's part of their land, of their very existence as Iwingi people in this entire area. Not only is it the land and soil that forms our connections with the earth but also our entire life-cycle touches much of our surroundings. The fact that our people hunt and gather these particular species on the land means that emphasis is placed on maintaining their presence in the future. At the same time, we want to maintain our practices of eating some of the flora and fauna. What is sometimes called wildlife in Australia isn't wild, rather it's something that we have always maintained and will continue gathering." (Fourmile 1999)

Most commonly, wild species are managed alongside crops, livestock and human settlements. The management of 'wild' species, habitats and landscapes for specific subsistence or livelihood purposes has been extensively documented. Communities may have rules on respecting certain boundaries, seasons and harvesting techniques when gathering certain plants. Hunting areas may be assigned, quotas fixed and game shared. Traditional management of fisheries, with strict restrictions on types of fishing gear, quantities and types of fish species taken according to season, is also widespread (Chambers 1999).

Communities have found 'collective institutions' most appropriate as a means of regulating control and access to resources, for example

forests, assigning exclusive rights to a particular group of users. Indeed, much tenure is group-based, with individuals – or rather members – holding particular rights and responsibilities. However, many of these mechanisms to regulate use and access have suffered from not being recognized in official legislation. Communal property arrangements illustrate this by often being disregarded by states and reclassified as public property, as well as being threatened by market mechanisms and socio-cultural changes.

Rules governing resource access or land inheritance may be more or less explicit among indigenous communities. Such systems or practices are not static and are constantly revived, improved, changed or even abolished.

In short, traditional management systems have both strengths and weaknesses, both in terms of efficiency and organization. While many communities have certainly developed effective activities and mechanisms, others will have lost formerly good working practices. The tendency to propose broad solutions such as 'empowerment' or 'increased control' without taking into account the specificity of local problems runs the risk of making little impact or failing, for example in initiatives where 'blueprint' social forestry models have been applied to highly diverse situations (Arnold 1998).

Supporting appropriate policies

Although in many cases they are *de facto* managers of collective areas such as forests, indigenous communities may have difficulties in obtaining corresponding tenure security and rights to resources, owing to private property regimes and restrictive protected area policies.

The importance of a conducive policy environment is fundamental to any support given to traditional use and management institutions. Indigenous peoples repeatedly state that recognition of their role and rights is necessary if they are

Useful concepts on traditional resource use

■ Common or communal property resources: in contrast to private and public property, access to common property resources is restricted to a limited group of individuals or communities.

■ Devolution: transfer of authority and responsibility to recognize and empower local-level institutions.

■ Free-riding: the act of benefiting from the exploitation of a resource without contributing to the costs of maintaining or renewing it.

■ Open access: free from regulation or management of resources; access is free and unlimited.

■ Public property: in contrast to common property resources which are owned by a group, public property is owned by 'everyone' – generally meaning the state.

■ Tenure: the rights and responsibilities of an individual or institution over access to a resource.

■ Traditional or indigenous resource management systems: a general term to describe often highly localized practices, institutions, rules and regulations related to natural resource management, typically differing from, or existing prior to, management as defined by the state.

to effectively focus their efforts to promote sustainable use and conservation of biodiversity. Legal systems and policies regarding indigenous peoples' role in land and natural resource management vary widely. In the Pacific region, for example, customary law and tenure form part of many independence constitutions and other laws. Specialist bodies are in place to maintain customary authority and control over land (Fingleton 1998).

In other regions, not least in Africa and Asia, the role of traditional institutions, management practices and use when addressing land and natural resource issues at the policy level is often downplayed or absent. Indigenous communities may be recognized as the *de facto* users, but to a much lesser extent are they recognized as the *de jure* users. However, an increasing number of countries are changing policies and granting more rights to indigenous peoples. In Asia, the 1997 Philippines Indigenous Peoples Rights Act provides indigenous communities with considerable influence in natural resource management issues. Despite the diversity of policies and specific circumstances, the most common policy problems encountered by indigenous peoples regarding their traditional natural resource use and management are effectively summarized in Table 10.

Many countries are exploring new models of community forestry, collaborative protected area management strategies and community land-use planning. Such transitions are not without problems for previously centralized government agencies and disempowered communities. Many countries have serious implementation needs. In such cases, supporting policy reform can be a significant action at the ecoregional level, bearing in mind that the level and kind of support will vary considerably across ecoregions. As protected areas remain a component of the ecoregion conservation approach, supporting policy-makers in developing suitable collaborative management policies will be a cornerstone strategy.

Other models of *in situ* conservation will need further exploration, in particular those where conservation practitioners work directly with indigenous communities and organizations. Policies concerning tenure security, government fund-

In Bolivia, the Forests, Trees and Peoples Programme under the Food and Agriculture Organisation (FAO) developed a partnership with the forest-dwelling Yuracaré communities, supporting management planning and implementation involving both communities and the state forestry service. Forest management plans, based on user-group-oriented methodology, took into account traditional indigenous institutions and user rights to the surrounding forest areas. While establishing effective solutions at the grass roots level, lack of legal approval of the management plan, granting the Yuracaré communities exclusive user rights and formal management responsibilities, impeded long-term sustainability (Andersson and Ortiz-Chour 1996).

Table 10. Common policy problems and potential action

Sample of common policy problems	Potential action
■ Non-recognition of traditional commons tenure arrangements (e.g. emphasis on private property or state (public) control	■ Support the recognition of common property tenure by indigenous peoples whether as transfer of ownership, management responsibilities or issuance of usufruct rights.
■ No legal recognition of traditional institutions	■ Support recognition of indigenous institutions
■ Direct prohibition of traditional natural resource use or livelihood practices	■ Traditional resource use and livelihood practices acknowledged and legalized
■ No legal recognition of traditional tenure and use within protected area policies	■ Protected area policies expanded with clear provisions for indigenous peoples' tenure arrangements
■ Lack of benefits and management roles in natural resource management	■ Support increased involvement in natural resource management institutions and benefit-sharing mechanisms
■ Land-use plans/policies opening up indigenous peoples' territories for commercial timber extraction or heavy in-migration	■ Support land-use planning/policies that recognize indigenous territory and requires Prior Informed Consent
■ Prohibition of commercial extraction by indigenous communities	■ Support user rights and sustainable marketing policies for indigenous communities
■ General lack of recognition of customary law practices.	■ Be open to and seek to integrate traditional tenure and land entitlement practices that may differ from those that are officially recognized.

ing schemes, agriculture, forestry and administrative power will have enormous influence on such partnerships. A two-pronged strategy targeting both policy work and field-level activities will be the most fruitful avenue for action.

Field and policy links

Supporting policy work through field-level activities will in many cases correspond to the needs of both governments and indigenous communities grappling with complex policy environments. This may involve:

■ Engaging in direct implementation of conducive policies by supporting field-level activities recognizing traditional management institutions and use. Examples include mapping, demarcation, institution building and the direct provision of legal and financial support. WWF is building strong partnerships in this regard, for example in the Arctic, where indigenous peoples are increasingly managing their own territories.

■ Supporting pilot projects to develop field-level knowledge and experiences which can inform policy-making on, for example, customary tenure rights and management practices. In countries where legal and political support to traditional resource use and management is insufficient, WWF can provide the technical and financial assistance to develop on-the-ground experiences and locally appropriate models for supporting the use and tenure security of indigenous peoples. Many government agencies lack confidence in traditional institutions, but are willing to engage in testing exercises in order to find viable solutions. Pilot projects have in fact become a standard way of addressing policy-field linkages. More often than not, however, these are implemented by external institutions which create mechanisms with high dependence on limited, external funding, instead of support to more sustainable government programmes. In addition, follow-up activities and broader implementation often lag behind.

In the Philippines, the Tagbanuas have used and protected the waters around Coron Island, considered as sacred, for generations. Recent settlements of migrant fishermen, who use dynamite among their fishing methods, have put increasing pressure on marine resources. Through PAFID, a local NGO, WWF has supported the mapping and documentation of the Tagbanuas' ancestral waters, which has led to discussions at the policy level confirming the coverage of ancestral waters under the Ancestral Domain Act.

In East Kalimantan, WWF supported the Bentian Dayak through an Indonesian NGO (PLASMA) to map their forests and document traditional resource management practices. This led to a policy change excluding Bentian forests and rattan gardens from timber conversion, leaving 100,000 hectares of intact forest under indigenous stewardship.

When developing policies:

■ Identify in which ways the broader policy environment affects specific legislation and policies; seek to establish linkages to broader processes;

■ Be gradual and adaptive; acknowledge that 'participation in management' and the 'devolution of responsibilities' are considered by some countries a threat to centralized political regimes;

■ Seek to make policy suggestions compatible with existing political structures and practices;

■ Take the advice of both indigenous organizations and specialized government agencies when designing national level interventions;

■ Be concrete and realistic in recommendations. Many reports make very broad policy statements about 'increasing participation' or 'changing the system completely' rather than formulating concrete recommendations.

Strengthening the capacity for sustainable resource use

A number of different processes are leading conservation practitioners to work directly with traditional management institutions and mechanisms. First, customary tenure is increasingly being recognized in national policies on natural resource management and land use. Secondly, the new conservation and development paradigms recognize the central role of indigenous institutions in sustaining biodiversity. And thirdly, traditional management institutions are encountering new internal as well as external challenges, highlighting the need for adaptive strategies. Conservation practitioners, however, are hesitant to support indigenous management systems, based on the argument that these institutions and mechanisms are outdated, insufficient or inept. The approach suggested here is to acknowledge both the strengths and weaknesses of traditional institutions and to provide support accordingly.

Rather than starting from scratch, acknowledging the existence of traditional management practices not only provides access to accumulated experiences, but leads to identifying the priority resource and management concerns of the communities. These are often poorly understood and not taken into account when dealing with indigenous peoples.

Much research has documented the different internal and external pressures affecting traditional management practices. The range of factors leading to crumbling institutions is considerable and includes the heavy influx of outsiders, sociocultural changes, land limitations, resource scarcity, policy contradictions and market pressures. However, much less research has been devoted to translating this knowledge into action-oriented solutions. Researching and documenting traditional resource use and management practices jointly with the indigenous communities and their organizations will be a necessary starting point. Although resource depletion may be observed and

"Given all the management responsibility for resources like wildlife, [the Bowankez in Botswana] knew they could go out and hunt any time. They had their own regional conservation systems that allowed them to know that certain animals should not be killed during specific periods of the year. Even if they were on a hunting mission and tracking animals, they could detect whether a particular animal was male or female and, on this basis, know very well which animal to kill. They are now given a hunting permit, which stipulates what they can take. With the permit system, the people wouldn't really take on the conservation aspect as their responsibility. They are just now out to kill' (Mulazana 1999).

discussed early in the data-collecting phase, further documentation and collective discussions may be needed before community institutions as a whole take on the lessons learned in management practices and mechanisms.

Indigenous management cannot be isolated from its broader context. The danger of partial or historical descriptions of 'traditional management' is ever present. The point is to identify from an action perspective how mechanisms under stress can best be supported to take up current challenges. This requires looking at traditional management from different angles. Some features of traditional management systems are given in Table 11.

In seeking to strengthen traditional management institutions:

■ Ensure that institutional arrangements and support are in place. Are both government agencies and indigenous organizations receptive to new ideas and ready to cooperate? Are financial and technical resources and appropriate policies in place for the long term?

■ Beware of stereotypes: support site-specific analysis rather than standard approaches;

■ Support adaptive capacities rather than introducing models that may have worked elsewhere;

■ Seek to identify and apply existing management practices; find out how they correspond to indigenous habitat and landscape categories;

■ Look at interconnected habitats and landscapes; remember that indigenous peoples often use and manage a multitude of different areas in different ways and at different times;

■ From an institutional perspective, bring linkages at village, regional and national levels into the support programme. Traditional management systems and practices are generally tied up with those of surrounding communities and broader government structures. Developing 'closed' indigenous models might increase conflict or disrupt pre-existing modes of collaboration, shared use and management structures.

Addressing traditional use

Use of a particular resource is far from always being a problem for conservation. Some argue it is a prerequisite for long-term conservation, while others argue that traditional use forms are crucial for shaping habitat and landscape types and thus increase biodiversity. Conservation by indigenous peoples is generally linked to continued use involving, for example, restrictions on where forest land may be cleared for agriculture, where grazing may take place or where fuel wood may be collected. Restricted access to such sites is applied to sustain resources that serve to fulfil daily needs. Most indigenous communities are constantly adapting according to their subsistence needs, as well as to new opportunities presented by the market economy. Nevertheless, the traditional conservation approach has been to limit or hinder traditional use, particularly within protected areas, by imposing scientifically defined regulations, permit systems and suchlike.

Indigenous communities are often reliant on a whole range of species depending on the season, harvest yields and household composition. Such broad-ranging livelihood strategies enable community members to adapt to changing circumstances, while also giving them a stake in environmental issues such as ecoregion conservation.

Traditional use by indigenous peoples has been and continues to be a source of conflict. Whether hunting of marine mammals in the Arctic, collection of non-timber forest products, or hunting or shifting cultivation practices in the tropics, the conservation practitioner enters a field loaded with sensitivities and politics. This makes it

Despite problems in securing good baseline data, research and training on wildlife surveying carried out in the WWF project with the Xavante in Brazil eventually led to the formulation of wildlife management proposals and recommendations. The project encountered numerous problems, not least factionalism among and within the communities and lack of socio-cultural knowledge on the part of WWF. While agreement was eventually reached among the four Xavante communities, based on their own interpretation of WWF's recommendations, inter-village rivalries resurfaced before formal ratification was reached and raised the broader context of Xavante factionalism. Graham (2000) argues that this factionalism is part of Xavante culture and as such represents a socio-cultural issue that could have been addressed earlier.

Table 11. Some features of traditional management systems

Membership
Research themes: Are membership criteria for people directly involved in or under the management system clear? Is this group confined to a specific number of people? What is the impact and what are the benefits/opportunities of different group sizes/local units and changing member composition (homogeneity/heterogeneity)? What ability does the group have to exclude outsiders/free-riders?
 Action support to: Formalizing membership criteria and statutes; clarifying members' rights and responsibilities; collaborating with government agencies in addressing encroachment problems.

Organization
Research themes: To what extent and in what form is management organized? To what extent is traditional management recognized by local authorities and policy provisions?
 Action support to: Applying and instrumentalizing rights; organization building (leadership training, financial management training, etc.); legal recognition of traditional institutions and mechanisms.

Definable boundaries
Research themes: Assessment of boundaries; indigenous forms of demarcation; boundary knowledge and use; outside attitudes; effectiveness of boundary maintenance.
 Action support to: Mapping; documentation; demarcation; conflict resolution; formalization and legalization of traditional use areas and land categories.

Strong internal institutions
Research themes: Identification of local institutions/bodies; identification of incentives/disincentives for individuals; comparison of benefits for collaboration over individualistic action; identification of collective mechanisms for decision-making; effectiveness of community-level monitoring.
 Action support to: Raising capacity of local institutions; addressing disincentives; strengthening monitoring practices.

Management rules and regulations
Research themes: Do rules guide behaviour? Who makes the rules? Are traditional management rules and regulations effective? Do they affect all members equally? Are rules defined and compatible with national legislation and local conditions? How are the rules enforced? Are sanctions adapted to local circumstances?
 Action support to: Strengthening and institutionalizing rules; securing policy recognition.

Conflict resolution mechanisms
Research themes: Assess the level of internal and external conflicts involving the indigenous communities. Assess different existing conflict resolution mechanisms. To what extent are they successful in solving conflicts?
 Action support to: Addressing unresolved conflicts; revitalizing or strengthening local conflict resolution mechanisms; conflict prevention.

Resource characteristics
Research themes: Size and boundaries of resource/population; mobility; regeneration characteristics; sustainability levels/yields of resources/use; the extent to which the resource can it be used by several users; dependence on resources (i.e. do resources meet the needs?); biodiversity impact.
 Action support to: Joint biological/use assessments; monitoring; analysis and recommendations.

Market
Research themes: Assessing market/demand impacts; marketing potential of local products.
 Action support to: Cooperative/enterprise institution building; exploring and promoting certification opportunities.

Source: Inspired by Arnold 1998

all the more important that the issue be addressed in a systematic manner, jointly with the indigenous communities. While there is an emerging consensus among conservation practitioners that sustainable use by indigenous communities should be supported, there are differing notions of what this implies and how it should be approached. In several regions, WWF has actively addressed the issue of sustainable or wise consumptive resource use by indigenous groups.

Within protected areas, the issue of natural resource use by indigenous communities is being

The importance of traditional use for the maintenance of landscape or habitat is illustrated in two National Parks in Nepal, where annual grass cutting was first permitted in Royal Chitwan National Park and later in Royal Bardia National Park. Cutting and burning of tall grasses in riverine grasslands had long been a part of ecosystem management in these areas, creating grasslands and maintaining them against forest encroachment to provide material for local wattle and thatching. The habitat also support important species such as rhinoceros. Although grass cutting and burning in Royal Chitwan was initially banned, along with other local natural resource uses, protests by local people and the realization by park officials of the importance of these practices for maintaining vital rhinoceros habitat led to a change in thinking. The park is now open for a limited period each year and villagers pay a nominal fee for access and are allowed to harvest as much as they can cut and carry out. In 1993, 60,000 people harvested more than USD 0.5 million worth of products (Stevens 1997b).

developed under various types of collaborative management arrangements. In practice this requires guidance to support indigenous communities in determining what can be used and to what extent. Different types of mapping, zoning and regulatory arrangements are evolving to reflect these changes. Considerable efforts are being put into identifying sustainable levels of resource extraction and putting mechanisms in place to enforce them within protected areas. However, there remain many challenges in terms of:

■ Obtaining representative baseline data;

■ Reaching appropriate zoning and harvesting agreement with indigenous communities;

■ Identifying sustainability levels in complex and 'unpredictable' ecosystems;

■ Addressing root causes behind unsustainable exploitation;

■ Developing locally appropriate solutions;

■ Engaging traditional ecological knowledge in practical ways;

■ Establishing low-cost monitoring of resource use; and

■ Ensuring sustainable practices.

The most productive efforts being undertaken are joint activities that realistically involve action-oriented research into ecology, use profiles and markets. Some research projects conduct extensive documentation on all three aspects, while others are rapid assessments with local communities. Initiatives that lead to community-based resource use monitoring activities are increasingly being taken up. One such is the partnership between WWF and the Foi in Papua New Guinea, under which WWF has produced a set of specific recommendations followed up by community meetings, awareness-raising activities and assistance to the communities in implementing the recommendations adopted.

In Bwindi National Park in Uganda, lessons learned from sustainable use programmes included:

■ predictive ecological, anthropological and economic tools should be used to avoid cases where good intentions catalyse resource depletion;

■ predicting the sustainability of harvesting requires an assessment of the biological factors influencing the growth of the species concerned, as well as the socio-economic factors that drive demand;

■ the complexities of implementation increase exponentially with increasing numbers of species and higher numbers of resource users;

■ monitoring the success of multiple-use programmes is essential – monitoring procedures must be robust, pragmatic and cheap;

■ ecological impacts must be considered beyond the individual plant level, hence monitoring should be at the plant population and forest dynamics level (Cunningham 2000).

Traditional use characteristics

■ *High diversity of species and multiple uses of each species;*

■ *Low-intensity use;*

■ *Quick feedback mechanisms (in cases of changes in resource base);*

■ *Manipulation or simulation of ecological processes to produce certain characteristics (for e.g. hunting, agro-forestry, grazing, trapping purposes);*

■ *Traditional ecological knowledge of species, habitat and landscape inter-linkages.*

While similar initiatives will be relevant outside protected areas, it is also clear that the broader focus of ecoregion conservation will require a variety of different strategies in addressing sustainable use. An interesting case is the WWF work on consumptive use of species in the Arctic. Based on earlier guidelines on commercial, consumptive use of wild species on a global scale, studies were undertaken in three indigenous communities to look at their appropriateness. This resulted in:

■ Identifying places where guidelines could be amended to make them more appropriate to the socio-economic and ecological conditions of the Arctic, as represented in the study communities;

■ Providing a preliminary assessment of how well wild species use and management in the study communities conform to the current guidelines' criteria for sustainability (Freese, Ewins and Prokosch 1998).

Important conclusions include the role played by co-management systems and policy frameworks in assigning priority to traditional harvesting rights, as well as to biodiversity conservation. However, such arrangements cannot be expected to be in place in all ecoregions. Traditional resource use by indigenous peoples is under stress due to ever-growing market demands putting increased internal pressures on the communities, as well as leading to higher external pressures on limited resources. To reverse these trends within an ecoregion conservation framework, the threats to traditional use will need to be addressed with the indigenous communities involved. For sustainable use to make sense to indigenous communities, they need assurances of long-term tenure security and maintenance of exclusive user rights. Indigenous communities are generally well informed on problems of resource limits and access and will in broad terms be able to identify overexploitation. This puts them in a favourable position when it comes to addressing causes leading to unsustainable use and designing joint action with conservation practitioners.

Promoting alternatives to traditional presence and use – addressing the implications of development

While conservation practitioners are increasingly exploring ways of enabling indigenous peoples to remain in their traditional settlements and continue their livelihood strategies, many conservation projects directly or indirectly encourage indigenous peoples to move out of protected areas or change their livelihood strategies. Such 'encouragements' may take the guise of resettlement programmes, legally prohibiting traditional use, promoting alternative income generation, or integrated conservation and development projects under which people become less dependent on the resources traditionally used within the designed protected area.

A frequently overlooked argument when alternative income generation is proposed to indigenous communities is the broader importance of traditional practices. A common approach is still to consider traditional practices as something that is non-viable and that should be abandoned, to be replaced by other livelihood strategies, particularly in places where traditional practices are considered destructive. In practice, development choices include promotion of new crops, small-scale industry or other new income- or employment-generating activities linked to the general notion that most land-use forms are a major cause of biodiversity erosion. While this holds good for major land conversion/mono-cropping schemes, the situation is different when it comes to traditional practices, and there may be several unexpected disadvantages of pursuing such 'socio-economic engineering' activities, for example:[25]

■ Changes in key habitats and landscapes, where traditional practices serve to retain landscape, habitat and species diversity;

■ Loss of interest in traditional forest and marine areas, and an increase in unsustainable activities and encroachment;

■ Destabilization of food security mechanisms, often putting extra pressure on habitats and threatened species.

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[25] The danger of undermining traditional practices is also frequently present in other well-intentioned activities. Health-support activities may undermine traditional health practices, tourism activities risk destabilizing religious sites and practices, and formal education can threaten language and traditional knowledge.

Is resettlement a conservation solution?

There is a general tendency to confuse the presence of people with their impact. This not only neglects the potential positive impact of local presence in the area, but also omits the multitude of alternative means of reducing pressure. Moreover it is often assumed that erasing a human settlement within a protected area has the effect of removing all presences from the area. People's mobility and willingness to travel over long distances in search of resources and land for agriculture, combined with the frequent inefficacy of efforts to keep people out, proves the opposite. Involuntary resettlement typically does not serve conservation to any great extent, but it does have tremendous negative impacts on local communities: landlessness, marginalization, increased mortality, food insecurity, social disintegration and increased dependence on scarce resources in new environments are just a few examples. Resettlement may also provoke settler-host conflicts, as more people compete over the same resources, leading to heightened pressures on the natural resource base (Cernea 1997). While this may not necessarily impact the core zone of a protected area, ecoregional impact is considerable.

In response to the mounting criticism of the use of resettlement programmes, resettlement plans are increasingly required to undergo impact assessments, consultation and participatory planning processes, and adequate compensation provisions, as well as obtaining prior informed consent from the communities involved. In the World Bank-funded Rajiv Gandhi National Park project in India, indigenous communities were offered the choice between staying in their existing settlements or resettling in communities outside the park. In reality, all benefits and development efforts provided by the local forest department were concentrated in the resettlement areas, making the choice considerably less voluntary (Samithi 2000). Despite refined policies on resettlement, putting them into practice remains a problem. More importantly, financing resettlement programmes reduces the funds available for activities that foster innovative conservation approaches to support continuous traditional presence, use and management.

Supporting indigenous natural-resource-based economic activities and biocultural diversity

In West Java, forestry officials have started working with the Kasepuhan people on repairing degraded forests by using a local practice called 'tumpangsari' or 'inter-cropping', based on the continuous use of swidden agriculture (Adimihardja 1999). Indigenous knowledge is important not just in terms of the description, proper management and harvesting of a product, but also in terms of the maintenance of the ecological processes and biodiversity linked to traditional economic activities, such as cultivation or animal husbandry. Although such diversity in terms of landscape, habitats and species is being documented and acknowledged, it is increasingly under threat from agricultural policies, the promotion of mono-cropping, the introduction of high-yield crop varieties, lack of tenure security, use of pesticides and a range of other factors. The ecoregion conservation approach offers an opportunity to address these jointly issues with indigenous peoples, through:

■ addressing the threats which lead to the breakdown of traditional practices, such as tenure and property problems;

■ promoting the sustainability and continuous use of these practices through agro-forestry, indigenous seed experimentation and the development of market opportunities;

■ promoting incentive mechanisms for traditional agricultural practices;

The Indian 'Honey Bee' network and magazine (published in seven languages), founded by Anil Gupta, works against the erosion of ecological and technological knowledge and promotes the sharing of traditional techniques and innovations between farmers. It has two basic values:

> *"To collect knowledge from people so that they do not complain, just as flowers do not complain when the honey bee collects their pollen;*
>
> *To connect farmer to farmer in local languages; just as the honey bee connects flower to flower through pollination."*

Other activities include biodiversity contests among schoolchildren, database documentation of farmer's innovations and supporting innovators as researchers (Gupta 1999).

■ promoting policy reform to eliminate subsidies and credit policies for high-yield varieties, fertilizers and pesticides. (Thrupp 1999)

4. Benefit sharing, compensation, incentives and indigenous peoples

For ecoregion conservation to work in practice, there is a need to strengthen alternatives to centralized protection approaches. While co-management of protected areas presents one solution, other approaches such as benefit sharing, compensation and incentives are needed for areas that fall outside this category. Addressing local needs and securing local benefits has become part of standard conservation language. However, what this implies in practice varies tremendously.

Benefit-sharing and incentive systems rest on the foundation that if stakeholders – in this case indigenous communities – have neither benefits nor incentives, then a conservation initiative will have difficulties in getting off the ground. This is not to argue that benefits and incentives automatically lead to better conservation. The difficulty has often been finding benefit systems that satisfy *everyone*, and to a sufficient degree. Part of the problem has been the predominance of externally devised benefit mechanisms that restrict potential benefits and are of limited relevance to indigenous communities.

The obligation of conservationists to support indigenous peoples in receiving benefits is paralleled by a need to ensure proper cost-sharing mechanisms among the parties involved. A company or government agency may be profiting from tourism or research without contributing to the conservation of the resources that typically are in the hands of already impoverished communities or underpaid forest protection staff. Conservation practitioners can push for more equitable sharing mechanisms, and support the participation of indigenous communities in devising benefit-sharing agreements. Not all problems however are participation-related: benefit-sharing mechanisms at the community level need to take into account a range of internal issues and problems.

Imposing benefits – the legacy of development

Where the stakes and needs of local communities are at issue, community development schemes such as alternative income generation, the building of schools, health, and tree plantations often arise. In some cases, big schemes such as road building,

dam construction or plantations are also put forward. Such large-scale initiatives have been widely criticized for their top-down approach and inefficiency in reaching the poorest, and are rarely proposed or supported by conservation projects. In many cases, even small-scale community development schemes may not cover the needs of indigenous peoples or secure the benefits in which they are interested. This would typically include better social justice, continuous and secure access to traditionally used resources, the enduring right to their settlements and support in preventing encroachment on their territories. Beyond the particular collective benefits for indigenous peoples, this may also involve access to basic services provided by the state, such as citizenship, formal education, health, and agricultural extension services.

Global notions of benefits, whether in terms of money, development or influence need to be replaced by or embrace local ideas of relevant benefits. Ignoring them will most likely make conservation work difficult, and in any case would stand in contradiction to indigenous peoples' right to determine their own development choices.

In an analysis of eco-development in two Indian protected areas, one author concluded that: "The Department seems quite ill-equipped to handle development work in a socially and ecologically sensitive way.... there is not much involvement of the villagers in planning out the eco-development activities... the eco-development process does not seem to be integrated with the management plans for the sanctuaries themselves... benefits are more in terms of charity than as rights... if these shortcoming can be addressed, eco-development would be an important form of benefit-sharing" (Kothari 1997). The lessons are clear:

■ *Indigenous community benefits should not be treated in isolation from broader management issues;*

■ *Indigenous communities should be involved in designing appropriate benefits recognizing their particular rights;*

■ *Benefit sharing requires a specific set of skills whether in terms of rural development, revenue sharing, co-management arrangements or compensation schemes.*

Compensation schemes and indigenous peoples

Compensating local communities for lost access, tenure, user rights, development opportunities, crop damage and use of knowledge is a tricky but unavoidable issue. This is particularly so – and has implications for conservation work – when it comes to commercial agreements concerning indigenous peoples' knowledge of biogenetic resources (Posey and Dutfield 1996). Compensation through buying or leasing land from traditional owners is common practice among some government agencies and NGOs. Typically, landowners are compensated financially when they agree cessation of cultivation or use restrictions on their lands. However, many indigenous peoples cannot benefit from such schemes as their rights to land are often not recognized or are overruled by national interests in preserving wilderness. Others who do benefit face the challenge of finding appropriate compensation schemes which reflect, for example, common property systems, non-monetary economies or overlapping claims.

Of key importance is whether compensation schemes have been imposed or voluntarily established through prior informed consent. Whilst the latter is essential, it presents a number of problems. As incentives and compensation schemes are often formulated or provided by outsiders, external monitoring is necessary, expensive and often only possible in retrospect.

> *In Alaska, native communities were compensated with funds from the Exxon-Valdez oil spill for giving up development rights and transferring land to a wildlife refuge (Spergel 1997).*

Monetary compensation may also result in particular problems for indigenous communities. Corruption and unreliable governance structures pose a serious problem in many countries, frequently affecting indigenous communities. In some cases, indigenous communities do not receive the promised share, while in others complicated bureaucratic practices, remoteness or lack of papers may make it difficult for indigenous communities to access benefits.

Many indigenous communities have only limited experience of monetary economies. The sudden influx of money has, in some cases, led to increased rates of alcoholism, gambling, depend-

ency on welfare and external funds, rather than leading to new subsistence or income-generating activities. As the safety net of traditional food security has been removed, the result can be deteriorating health conditions, under-nourishment and lack of self-reliance. In such cases, seeking agreement on non-cash compensation forms is highly advisable.

> *In Amboseli National Park, Kenya, indigenous Maasai were to receive up to 25 per cent of park entrance fees, as well as fees from hunting concessions. Government later banned hunting and failed to compensate the Maasai accordingly (Spergel 1997).*

Agreeing on the institutional framework for channelling compensation, monetary or otherwise, back to communities requires considerable attention. Community development funds or activities such as the building of schools are often pursued to avoid some community members being left out. Such schemes may, however, suffer from inadequacy in properly addressing internal differences within the community. Some groups of users, typically the poorest, will suffer more from restricted rights and may not be compensated accordingly. Further, the provision of compensation to representative organizations runs the risk that users' interests are not sufficiently represented in the management of funds. Such criticism has been levelled against the panchayat institutions in India and Nepal and the CAMPFIRE programme in Zimbabwe (Arnold 1998:45).

Certification and the potential of market incentives

Certification provides market-based incentives for improving management, conservation and the protection of indigenous peoples' rights. Much work is being done in the area of aquatic, marine, agricultural, and forest products. The principles of the Forest Stewardship Council (FSC), for example, provide clear guidance on both conservation and indigenous peoples issues.

The guidelines developed by the Center for International Forestry Research (CIFOR) on Sustainable Forest Management include useful indicators, tools and methods for assessing human well-being. Based on field testing of criteria and indicators, practical ways of, for example, conducting

a stakeholder analysis are suggested. It is noteworthy that indigenous peoples in general will get high scores when ranked according to the eight dimensions identified – proximity, pre-existing rights, dependency, poverty, local knowledge, culture/forest link, power deficit, and mean (Colfer *et al.* 1999). In other words, there is usually no problem in identifying their stakes; difficulties may arise in trying to agree appropriate management solutions leading to certification.

It was originally assumed that certification would significantly benefit community forestry operations. However, most certified operations are industrial and focus on timber production for international markets. The limited number of certified community forestry operations are typically dependent on external support, for example to pay for the certification process. As Irvine (1999:9) concludes: "No blueprint model has been developed that works for the large majority of communities who manage their forest lands for agricultural and agro-forestry production as well as subsistence and market production of forest products, especially NTFPs". The challenge of developing socially and economically appropriate models and practices remains and could play a central role in supporting indigenous peoples within the ecoregion conservation framework.

The following three actions are recommended:

1. **Avoid imposing preconceived types of benefits; conduct an assessment of, or consultation on, existing benefits and incentives, as well as evaluating the potential for loss of such benefits and the related costs.**

Forest Stewardship Council Principle 3 on indigenous peoples' rights states: "The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected."

3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

3.3 Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.

3.4 Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

Source: FSC 1999.

This may involve:

- customary management of areas and resources that may be threatened by new management regimes;

- resource, land or water access that may be affected by a conservation initiative;

- traditional livelihood opportunities that are directly affected or may be indirectly affected in the long run.

Existing benefits may subsist under a conservation initiative or may be altered significantly if, for example, the establishment of a protected area rules out or seriously restricts traditional use. Indeed, government regulations on conservation may severely limit indigenous communities' rights to cultivation, use and trade of resources and other development activities. Consultative analysis of the actual impact of these activities should be undertaken. Since many conservation initiatives rely on relatively simplistic assumptions that human presence or resource use are negative as such, initial research should therefore identify the shared benefits of the conservation initiative (e.g. improved tenure security and protection against encroachment).

2. **Analyse the information collected together with the indigenous partners to identify the potential benefits and compensation forms they are interested in. WWF has recognized the rights of indigenous peoples to a number of benefits (WWF 1996). Include these in jointly determining not just existing benefits, but future potential benefits as well.**

This may involve supporting indigenous commu-

nities in obtaining legal titles to their lands and resources, and/or supporting them in prioritizing development and conservation activities on their traditional territories. It may also involve assisting indigenous communities in benefiting from resource exploitation, tourism activities and the conservation initiative as such (see Table 12).

- Review potential compensation schemes and identify solutions suitable to the local socio-economic context;

- Aim at compensation forms that support communities as a whole, but nevertheless specifically address the different user groups or segments within the communities to ensure that they receive compensation proportionate to their previous benefits. Base initiatives on existing benefit-sharing mechanisms within the community;

- Ensure prior informed consent on compensation and incentive schemes.

Be ready to make trade-offs to reach long-term solutions supported by indigenous communities. Effective – and realistic – solutions are highly dependent on rich baseline data and a clear set of biodiversity and ecological priorities leading to optimal choices of particular inter-linked habitats, landscapes and species compositions. Maintain compensation schemes on a trial basis, with in-built monitoring and evaluation. Supporting indigenous communities' right to future potential benefits is crucial, and will be relevant, for example, in cases

of changing policy environments or new income opportunities through ecotourism, bio-prospecting or use of resources on their traditional territories.

3. **Formalize benefit-sharing and compensation mechanisms in an agreement clarifying rights to benefits, cost sharing and conservation responsibilities for both indigenous communities and government agencies.**

The agreement could include a clear description of the area concerned, agreed-upon benefits and limitations on, for example, use, development activities, penalty systems and monitoring mechanisms (including baseline data on both ecological and socio-economic issues). Benefit-sharing arrangements should be linked explicitly to indigenous community-based conservation strategies. In some cases, while indigenous communities may receive a certain number of benefits, conservation is still considered the task of outside management agencies.

It is important to agree on benefits that can be provided on a long-term basis. The temptation to secure, for example, a considerable influx of development funds through an internationally funded integrated conservation and development project might be high, but it comes with the risk of raised expectations and lack of ability on the part of under-funded government agencies to respond to such expectations in the long run. In such cases, there is a need to ensure a strong commitment to long-term funding (and cost sharing) of conservation; most protected areas, for example, hardly earn enough to pay their staff's salaries.

Table 12. Common issues to consider		
Subsistence	**Economic / Livelihood**	**Social / Cultural / Political**
▪ Fuel ▪ Fodder ▪ Non-timber forest products ▪ Timber and aquatic resources.	▪ Forest / aquatic / grassland resources ▪ Value enhancement of traditional products ▪ Employment ▪ Returns from commercial use of knowledge of local resources ▪ Tourism revenue ▪ Compensation for wildlife damage/ opportunities lost ▪ Development inputs.	▪ Protection of cultural values ▪ Social recognition ▪ Traditional health care (plant-based medicinal systems) ▪ Empowerment / control ▪ Education ▪ Capacity raising.

Source: Adapted from Kothari 1997.

In cases in which indigenous communities are given or are expected to undertake certain conservation tasks in high biodiversity areas, attention should be paid to sharing costs. Where indigenous peoples, for example, have been granted tenure security, it cannot be expected that they will take on the cost of monitoring use. Specific budgets or percentages of protected area entrance fees can be devoted to such initiatives.

The presence and size of protected areas have long

5. Supporting collaborative management

been the standard indicators for the biodiversity consciousness of governments. Unfortunately, insensitive planning and policy-making have in many places led to cultures of distrust, protest and resistance among indigenous peoples, making it especially difficult to reach constructive dialogues on shared advantages. Recent policy development and guidance, particularly in the international conservation arena, promote more collaborative arrangements. Many conservation practitioners are recognizing a number of advantages to involving indigenous peoples in protected area management:

■ Use by indigenous communities serves as a conservation incentive to generate a local conservation ethic and ensure local commitment to resist outside exploitation and encroachment;

■ Similarly, it is being recognized that customary use and tenure of resources, in comparison to overall no-use regulations, maintains the presence and responsible interest of indigenous communities in preserving their environments. For some indigenous peoples, protected areas can serve as a viable strategy to secure customary use and tenure rights, avoid further encroachment and increase their actual control over development activities on their territories;

■ There is an added value to integrating indigenous knowledge systems and practices in understanding ecological processes and designing appropriate conservation strategies;

■ Community institutions and traditional conservation mechanisms are a strong – and low-cost

– solution to sustainable use practices and protecting watersheds and sacred sites;

■ Indigenous peoples have a long-term interest in maintaining healthy ecosystems.

Identifying specific joint advantages early on in the process further facilitates real commitment from both indigenous peoples and conservation agencies. This in turn leads to the important process of identifying the different levels in the conservation strategy. In a politicized context, the objective of promoting collaborative management with indigenous peoples should be based on broad principles at the outset, later contextualizing them within specific socio-political and ecological frameworks.

Reforming protected area policies

Protected area policies and categories are highly diverse for the approximately 10,000 protected areas that exist worldwide. The majority have been established within the last three decades. However, despite increasing international support for indigenous peoples in biodiversity conservation, many government policies are far from conducive when it comes to involving indigenous peoples in conservation activities. Even where appropriate policies are present, many field-level conservationists or government agencies find it difficult to put the ideals into practice; such policies may therefore need further elaboration or amendment to clearly reflect the concrete steps needed to secure co-management and participatory solutions. Securing conducive policies and categories is fundamental for the long-term sustainability of efforts linking indigenous peoples and protected areas. While interim or practical solutions may be found on the ground between communities and guards, local authorities and others, they stand little chance of surviving unless supportive policies and legislation are in place.

At the international level, IUCN-The World Conservation Union and the World Commission on Protected Areas (WCPA) play an important role. Among the international IUCN/WCPA Protected Area Management Categories, categories 5 and 6 provide clear opportunities for indigenous peoples' involvement (Table 13).

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[27] Although low-cost in the long run, the actual consultation process, particularly in countries that are in the transition stage of taking up collaborative management, may initially require higher levels of funding.

Table 13. IUCN Protected Areas Management Categories 5 and 6		
	Category 5 **Protected Landscape / Seascape**	**Category 6** **Managed Resource Protected Area**
Objectives	■ To bring benefits to the local community through the provision of natural products and services ■ To maintain the harmonious interaction of nature and culture and the continuation of traditional use ■ To support lifestyles and economic activities that are in harmony with nature and the preservation of the social and cultural fabric of the communities concerned.	■ To provide a sustainable flow of natural products and services to meet community needs, without resulting in the decline of the area's biological diversity.
Management	By a public authority or a mosaic of private and public ownership operating a variety of management regimes.	Ownership may be by government, community, private individuals or a combination of these: management may be provided through local custom, supported and advised by governments and NGOs.

Even where countries have based their protected area system on the IUCN categories, indigenous peoples may encounter difficulties in securing participatory rights. Such problems have long been recognized and recent action in terms of policies and guidance testifies to the current international commitment to guide country-level work in a more constructive direction. The 1996 IUCN World Conservation Congress decision to promote "clear policy in relation to protected areas established in indigenous lands and territories", and the joint guidelines from IUCN/WCPA and WWF on indigenous and traditional peoples and protected areas (IUCN/WCPA and WWF 1999; Beltran 2000) are a clear indication of this intent. In the latter, five principles are identified, accompanied by specific guidelines:

Principle 1
Indigenous and other traditional peoples have long associations with nature and a deep understanding of it. Often they have made significant contributions to the maintenance of many of the Earth's most fragile ecosystems, through their traditional sustainable resource use practices and culture-based respect for nature. Therefore, there should be no inherent conflict between the objectives of protected areas and the existence, within and around their borders, of indigenous and other traditional peoples. Moreover, they should be recognized as rightful, equal partners in the development and implementation of conservation strategies that affect their lands, territories, waters, coastal seas, and other resources, and in particular in the establishment and management of protected areas.

Principle 2
Agreements drawn up between conservation institutions, including protected area management agencies, and indigenous and other traditional peoples for the establishment and management of protected areas affecting their lands, territories, waters, coastal seas and other resources should be based on full respect for the rights of indigenous and other tra-

Encourage the reform of protected area policies and categories to enable the participation of indigenous peoples in redesigning zones; establish user rules and regulations; and ensure tenure security and representation in existing management decision-making processes.

Facilitate the establishment of protected area planning processes requiring indigenous peoples' participation or prior informed consent on issues affecting their lands, resource management strategies and knowledge. Ensure that customary settlement, tenure and use rights are fully respected when supporting the establishment of a new protected

ditional peoples to traditional, sustainable use of their lands, territories, waters, coastal seas and other resources. At the same time, such agreements should be based on the recognition by indigenous and other traditional peoples of their responsibility to conserve biodiversity, ecological integrity and natural resources harboured in those protected areas.

Principle 3

The principles of decentralization, participation, transparency and accountability should be taken into account in all matters pertaining to the mutual interests of protected areas and indigenous and other traditional peoples.

Principle 4

Indigenous and other traditional peoples should be able to share fully and equitably in the benefits associated with protected areas, with due recognition to the rights of other legitimate stakeholders.

Principle 5

The rights of indigenous and other traditional peoples in connection with protected areas are often an international responsibility, since many of the lands, territories, waters, coastal seas and other resources that they own or otherwise occupy or use cross national boundaries, as indeed do many of the ecosystems in need of protection.

These principles and their accompanying guidelines provide useful steps and components as well as the broader conceptual framework for the development of appropriate policies and management strategies. The WWF statement of principles provides similar input (WWF 1996). Again, the

actual work requires translating these principles into country-specific solutions. Beyond translating key documents into local languages, this involves promoting collaborative management policies that are suitable and relevant to local circumstances. This will require proving the validity of one's arguments to both governments and indigenous peoples. Engage policy-makers in a process of:

- Examining existing institutional arrangements, categories, and levels of participation;

- Identifying opportunities for gradually improving such practices through the establishment of new categories;

- Trying out new solutions through pilot projects;

- Looking at institutional arrangements such as the agencies in charge;

- Streamlining policies and administrative arrangements such as those influencing rural areas in the buffer zones of protected areas, based on the understanding that protected areas are not isolated systems, whether in terms of ecology, economy or social linkages.

In Australia, discussions surrounding the process of establishing a comprehensive protected area system led to the exploration of collaboration possibilities with indigenous communities. Through dialogues between indigenous groups and government bodies the concept of 'Indigenous Protected Areas' was developed. The concept was broadly reviewed and consultations were undertaken by federal government authorities. Several operational issues concerning planning processes, trade-offs, financial support, expertise management and linkages between land rights and national reserve status were raised. An Indigenous Task Force comprised of indigenous representatives from each of the six states was established and put in charge of overseeing 12 federal government-funded pilot projects to test the concept. Six provisional principles were established to guide the pilot process on various issues, including voluntary establishment, cultural heritage and the decision-making process. Although running into some jurisdictional problems, the experience has generally been positive (WWF International 1997).

Demystifying collaborative and participatory management

The main concerns of indigenous peoples centre around recognition of their rights to customary presence, tenure and resource use practices. Such issues are best addressed through an appropriate planning process aiming at collaborative management. A basic definition of collaborative or participatory management is: 'a situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources' (Borrini-Feyerabend *et al.* 2000:1).

This may imply indigenous communities establishing their own management of territories or protected areas in agreement with national government, or agreements made under conventional protected area models with government agencies such as forestry departments. Such agreements are the end-products of long processes of negotiation, discussion and policy development. While some parties may be eager to start developing management agreements right away, there is a need to ground the concept and determine its feasibility in relation to existing policies, biodiversity protection strategies and funding mechanisms.

Besides the paperwork and juridical aspects of collaborative action, much will depend on people's confidence in or resistance to collaborative approaches. In many cases it is quite likely that long dialogue, facilitation and conflict resolution will have to take place before co-management will be considered by the parties involved. It is not uncommon to find government agencies resisting the idea of sharing responsibilities with local communities, and likewise many local communities may not trust or be willing to work with government agencies. The initial phases of data gathering should place activities in an appropriate context and seek to inform key assumptions in a long-term perspective. For example, in countries lacking conducive policies, activities to strengthen indigenous management practices and biodiversity conservation may not work in a framework based on protected areas. In such cases, rephrasing project objectives in terms of strengthening indigenous management practices rather than supporting protected area establishment could be advantageous.

Some co-management initiatives with indigenous communities are highly dependent on external advice and funding, and disappear once the supporting project comes to an end. It should also be remembered that developing new approaches requires extra time and funding in terms of finding new approaches and solutions to inherently difficult problems.

Boundary demarcation, site selection, appropriate management systems, formulating regulations, zoning, ecotourism, budget prioritization, hiring policies, benefit-sharing mechanisms, research plans, survey work, monitoring mechanisms, patrolling structures, appropriate fining systems, resettlement, compensation mechanisms, and the role of external support are just some of the issues related to protected area policies and strategies where indigenous peoples are concerned. For the conservation practitioner or government agent confronting such needs for the first time, the following recommendations are offered:

■ Avoid imposing your own agenda when designing a support programme, but promote dialogue between indigenous peoples and government agencies on protected area management issues and problems;

■ Use the available guidelines and principles as a reminder of the key issues and find country-specific ways of integrating them;

■ Do not commit financial or moral support before government agencies have themselves given such commitments. Be as concrete as possible in wording objectives and activities in order to avoid misinterpretations;

■ Involve indigenous peoples in writing management plans either directly or through a process of consultation whereby communities give comments on and endorse scientific reports, or draft reports or recommendations with specific attention to use issues, zoning, boundary demarcation, compensation agreements and influence on decision-making structures;

■ Seek to formalize the inputs of indigenous peoples in planning, implementation and evaluation phases;

■ Provide technical and financial support to protected areas inhabited by indigenous peoples for application of consultative methodologies such as customary resource use and tenure mapping in order to integrate and formalize customary user rights, settlements and tenure practices in co-management plans and agreements. Stevens

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Table 14. Inhabited Protected Areas: Land Use and Management

Settlement and subsistence rights
1. Fully respected throughout the protected area.
2. Limited to particular zones (as biosphere reserves).
3. Limited to particular practices (traditional use only; specified subsistence or commercial use only; sustainable use only).

Natural resource management
1. Management by local residents through traditional institutions.
2. Management by local residents through modified local or national institutions.
3. Co-management by local residents (e.g. via representatives on protected area forest or wildlife management committees).
4. Local enforcement of protected area regulations, with or without policy-making involvement.
5. Local participation in policy-making and monitoring.

Protected area administration
1. Local management.
2. Co-management power-sharing arrangements.
3. Lease of land for use as protected areas with specified conditions.
4. Ratification of protected area status and management plans.
5. Participation in devising protected area boundaries, goals and management plans.
6. Consultation (informal) only.

(1999b:269) identifies a number of points where protected areas inhabited by indigenous peoples differ in terms of acknowledgement of community rights, management strategies and administration (Table 14).

- When supporting change of practices in protected areas inhabited by indigenous peoples, keep in mind that collaborative management is an open-ended process. As recent literature concludes, concepts of participation, involvement and consultation can mean anything from informal meetings with villagers to active representation and involvement in decision-making;

- Do not expect to introduce effective participation overnight. Developing working relationships between policy-makers or practitioners schooled in 'no-use' conservation and local communities takes long efforts of sensitization, dialogue and experimentation;

- Support protected area agencies and indigenous peoples in finding flexible solutions. Start out with small issues; suggesting, for example, land rights and collaborative management boards at the outset may lead to abandonment of the co-management idea altogether;

- Avoid preconceived co-management solutions, but build on existing practices. Many general support programmes for protected areas offer opportunities and provisions for indigenous peoples' involvement, for example through research or ecotourism activities;

- Assist in the formulation of protected area research agreements and regulations concerning indigenous peoples' knowledge and their interests;

- Seek policy support. While in some countries it may be beneficial to develop and demonstrate effective solutions with indigenous peoples before reaching the policy level, in most countries securing policy commitment will probably be necessary to persuade local agencies to consider indigenous peoples as partners;

- Sensitize and seek to understand the protected area administrative body; it may not be interested in sharing its institutional power;

- Involve indigenous peoples in rewriting management plans. Encourage participatory reform of user regulations and zoning to recognize indigenous peoples' rights to sustainable use rather than statically defined traditional use (Stevens 1997a);

- Encourage reform of management institutions to progressively involve and have indigenous peoples represented in advisory and management councils;

■ Aim at securing the basic building blocks of collaborative management (such as developing trust between the parties; sensitizing government agencies to the importance of local use and tenure, as well as raising natural resource management issues with indigenous peoples; obtaining commitment from both sides to a participatory planning process and its results; and ensuring that sufficient knowledge is available);

■ Although co-management is best addressed and is usually achieved more rapidly in countries that recognize the rights of indigenous communities, the conservation practitioner can build this goal into both planning and implementation phases.

Acknowledgements

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Appendices

Ethnolinguistic Groups in the Global 200 Ecoregions: Selected Aggregates per Biome, Major Habitat Type, and Realm

Biomes / Major Habitat Type / Realms	Number of EG	% of EG in Global 200	% of world EG
Tropical and Subtropical Forests	2683	57.89	39.07
Temperate Forests	395	8.5	5.75
Boreal Forests	35	0.75	0.51
Total Forests	**3113**	**67.16**	**45.33**
Total Tropical and Subtropical Forests, associated Freshwater and Mangroves	**2882**	**62.17**	**41.97**
Tropical, Subtropical, Montane, Flooded Grasslands, Savannas and Shrublands	775	16.72	11.29
Temperate Grasslands, Savannas and Shrublands	111	2.39	1.62
Total Grasslands and Savannas	**886**	**19.12**	**12.90**
Nearctic Rivers, Streams, Lakes and Closed Basins	31	0.67	0.45
Tropical Rivers, Streams, Lakes and Closed Basins	200	4.31	2.91
Palearctic Rivers, Streams, Lakes and Closed Basins	8	0.17	0.12
Australasia Rivers, Streams, Lakes and Closed Basins	94	2.03	1.37
Total Freshwater Ecoregions	**333**	**7.18**	**4.85**
Nearctic Large Deltas, Mangroves and Estuaries	1	0.02	0.01
Tropical Large Deltas, Mangroves and Estuaries	68	1.47	0.99
Palearctic Large Deltas, Mangroves and Estuaries	6	0.13	0.09
Australasia Large Deltas, Mangroves and Estuaries	22	0.47	0.32
Coral Reef and Associated Marine Ecosystems	194	4.16	2.83
Coastal Marine Ecosystems	10	0.22	0.15
Polar and Subpolar Marine Ecosystems	2	0.04	0.03
Total Marine Ecosystems	**303**	**6.54**	**4.41**
Total World Global 233 (Overlap between biomes and ecoregions not excluded)	**7445**	**160.63**	**108.42**
Total World Global 233 (Overlap between biomes excluded)	**4635**	**100**	**67.50**

Ethnolinguistic Groups in the Global 200 Ecoregions: Total Groups per Biome, Major Habitat Type, and Realm

Major Habitat Types	Realm	Groups per realm	Groups per major habitat type	Total
ALL ECOREGIONS				**4635**
TERRESTRIAL ECOREGIONS				**3999**
Tropical and Subtropical Moist Broadleaf Forests			2489	
	Neotropical	247		
	Afrotropical	619		
	Indo-Malayan	790		
	Australasia	824		
	Oceania	9		
Tropical and Subtropical Dry and Monsson Broadleaf Forests			187	
	Neotropical	39		
	Afrotropical	6		
	Indo-Malayan	137		
	Australasia	5		
	Oceania	0		
Tropical and Subtropical Conifer Forests			7	
	Neotropical	7		
Temperate Conifer and Broadleaf Forests			395	
	Neotropical	3		
	Nearctic	42		
	Palearctic	330		
	Australasia	20		
Boreal Forests and Taiga			28	
	Nearctic	13		
	Palearctic	15		
Arctic Tundra			7	
	Nearctic	1		
	Paleartic	6		
Temperate Grasslands, Savannas and Shrublands			31	
	Neotropical	1		
	Nearctic	12		
	Palearctic	18		
Tropical and Subtropical Grasslands, Savannas and Shrublands			597	
	Neotropical	51		
	Afrotropical	359		
	Indo-Malayan	23		
	Palearctic	15		
	Australasia	149		
Flooded Grasslands and Savannas			40	
	Neotropical	7		
	Afrotropical	33		

Major Habitat Types	Realm	Groups per realm	Groups per major habitat type	Total
Tropical Montane Grasslands and Savannas			64	
	Neotropical	2		
	Afrotropical	57		
	Indo-Malayan	0		
	Australasia	5		
Deserts and Xeric Shrublands			74	
	Neotropical	28		
	Afrotropical	8		
	Palearctic	3		
	Australasia	35		
Mediterranean Shrublands and Woodlands			80	
	Neotropical	13		
	Afrotropical	1		
	Palearctic	64		
	Australasia	2		
FRESHWATER ECOREGIONS				**333**
Small Rivers and Streams			217	
	Nearctic	20		
	Neotropical	5		
	Afrotropical	23		
	Indo-Malayan	72		
	Palearctic	5		
	Australasia	92		
Large Rivers			61	
	Nearctic	7		
	Neotropical	18		
	Afrotropical	6		
	Indo-Malayan	30		
Lake and Closed Basin Freshwater Ecosystems			55	
	Nearctic	4		
	Neotropical	13		
	Afrotropical	28		
	Palearctic	3		
	Indo-Malayan	5		
	Australasia	2		
MARINE ECOSYSTEMS				**303**
Large Deltas, Mangroves and Estuaries			97	
	Nearctic	1		
	Neotropical	8		
	Afrotropical	42		
	Palearctic	6		
	Indo-Malayan	18		
	Australasia	22		
Coral Reef and Associated Marine Ecosystems			194	
	Western Atlantic	2		
	Western Indian Ocean	4		
	Northern Indian Ocean	13		

Ethnolinguistic Groups in the Global 200 Ecoregions: Distribution per Realm

	Ecoregions	Ecoregions with IP/EG	Ecoregions with IP/EG %	IP/EG in Ecoregions
1. World Ecoregions (Totals)	**233**	**221**	**95**	**4635**
2. Afrotropical Ecoregions	40	40	100	1182
3. Neotropical Ecoregions	44	44	100	442
4. Nearctic Ecoregions	16	16	100	100
5. Indo-Malayan Ecoregions	36	36	100	1075
6. Oceania Ecoregions	3	3	100	9
7. Palearctic Ecoregions	30	30	100	465
8. Australasia Ecoregions	20	20	100	1156
9. Western Atlantic Ocean Ecoregions	4	4	100	3
10. Eastern Atlantic Ocean Ecoregions	2	2	100	1
11. Northern Atlantic Ocean Ecoregions	3	1	33	1
12. Southern Atlantic Ocean Ecoregions	2	0	0	0
13. Western Pacific Ocean Ecoregions	8	8	100	61
14. Eastern Pacific Ocean Ecoregions	6	3	50	5
15. Southern Pacific Ocean Ecoregions	5	4	80	114
16. Western Indian Ocean Ecoregions	4	4	100	4
17. Eastern Indian Ocean Ecoregions	1	1	100	2
18. Northern Indian Ocean Ecoregions	3	3	100	13
19. Mediterranean Sea Ecoregions	1	0	0	0
20. Antarctic Seas Ecoregions	2	0	0	0
21. Arctic Ocean and Seas Ecoregions	3	2	67	2

IP = Indigenous Peoples
EG = Ethnolinguistic Groups

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WWF has produced many publications and resources focusing on conservation with indigenous and traditional peoples. Some of these resources are general; some are topical and/or come from field projects or regional activities; some of them are broader in scope but include sections or chapters on experiences with, or applications to, issues related to indigenous and traditional peoples. Below is a non-exhaustive list of the WWF resources that have been collected by the People & Conservation Unit of WWF International. Many more exist in regional and project offices (especially project documents), but those resources listed here are recommended as a good starting point.

I. General Policies on Indigenous Peoples and Conservation

1. Indigenous Peoples and Conservation: WWF Statement of Principles published in 1996 by WWF International. Available on the web at http://panda.org/resources/publications/sustainability/indigenous/download.html
   This WWF Position Paper is the main reference for developing plans and strategies for working with indigenous and traditional peoples at the ecoregional level. Available in English, French, Spanish, and Russian.

2. Indigenous Peoples and Conservation Organisations: Experiences in Collaboration by Ron Weber, John Butler and Patty Larson (eds.), published in 2000 by WWF-US, The Ford Foundation and BSP.
   Contains a useful explanation of WWF's policies on indigenous peoples (Chapter 2), five case studies, and a summary of conclusions and recommendations from a review workshop. Its conclusions and recommendations are relevant for anyone working with indigenous and traditional peoples in ecoregion conservation.

3. "WWF's perspective on conservation with indigenous peoples" by Gonzalo Oviedo, in *Report of the People and Conservation Workshop* published in 1999 by WWF International.
   Workshop report containing a useful paper and recommendations on indigenous peoples issues.

II. Indigenous Peoples and ecoregion conservation

4. This Research Report is complemented by:
   - A poster-size map of the distribution of ethnolin-
   guistic groups in the Global 238 ecoregions
   - An Excel database of ethnolinguistic groups in the Global 238 ecoregions, plus various statistical tables
   - A report summarizing WWF projects with indigenous and traditional peoples worldwide.

5. "Indigenous and Tribal Peoples, Biocultural Diversity, and WWF's Ecoregion conservation" by Luisa Maffi and Gonzalo Oviedo, in *Report of the People and Conservation Workshop* published in 1999 by WWF International.
   A summary, preliminary version of the present report.

6. "Indigenous and traditional peoples in the world's ecoregions: WWF's views on conservation of biodiversity with indigenous and traditional peoples" by Luisa Maffi and Gonzalo Oviedo, published in 2000 by WWF International.
   A shorter version of the same report, prepared for the Congress on Cultures and Biodiversity in Kunming, China. Useful as a brief for external audiences.

III. Indigenous Peoples and Protected Areas

7. Principles and Guidelines on Indigenous and Traditional Peoples and Protected Areas published in 1999 by WCPA/IUCN and WWF.
   The official IUCN/WCPA-WWF policy on protected areas inhabited by indigenous and traditional peoples. A useful resource for promoting co-management approaches. Available in English, French and Spanish, and on the web at http://panda.org/resources/publications/sustainability/indigenous2/download.html

8. Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines, and Case Studies. Best Practice Protected Area Guidelines Series, No. 4, published in 2000 by WCPA/IUCN and WWF. Edited and coordinated by Javier Beltrán, Series edited by Adrian Phillips. IUCN-WWF-Cardiff University. Cambridge, UK.
   Contains the policy document above, a number of short descriptions of co-management cases around the world, and lessons learned. A key document for protected area practitioners involved in collaborative work with indigenous and traditional communities in protected areas.

9. *The Law Of The Mother: Protecting Indigenous*

Peoples In Protected Areas by Elizabeth Kemf, published in 1993 by Sierra Club Books.

A product of the IVth World Congress on National Parks and Protected Areas (Caracas 1992) where WWF played a leading role in discussions on people and protected areas. Provides a useful overview of the issues at stake, good examples, and valuable policy guidance. Available also in German.

10. "Notes For A Proposal On Indigenous Peoples And Protected Areas" by Gonzalo Oviedo, pages 19-22 in Indigenous Affairs, IWGIA Quarterly Magazine No.1 Jan-Mar 1997 (Copenhagen).

Provides the background to the development of the Principles and Guidelines, and contains guidance on steps that can be taken at the national level. Available in English and Spanish.

11. "Building Alliances with Indigenous Peoples to Establish and Manage Protected Areas" by Gonzalo Oviedo and Jessica Brown, in *Partnerships For Protection: New Strategies for Planning and Management for Protected Areas*, published in 1999 by WWF-IUCN-Earthscan Publications, London. Sue Stolton and Nigel Dudley (eds).

Similar to the previous document, but explores more broadly the potential of IUCN categories to help solve conflicts with indigenous and traditional peoples. Also provides some rationale on the need and directions for policy changes on protected areas.

12. "Políticas y Acciones del WWF sobre Áreas Protegidas y Pueblos Indígenas. Presentación en el Taller sobre Experiencias Prácticas en Gestión de Áreas Protegidas por los Pueblos Indígenas en Iberoamérica" by Gonzalo Oviedo, published in 1999. Cartagena, Colombia.

Spanish (only) summary of WWF's policies on protected areas and indigenous peoples, plus a short description of a selection of projects around the world in which WWF is promoting closer involvement of indigenous and traditional communities.

13. "The ecological science of the Karen in Thung Yai Naresuan Wildlife Sanctuary, Western Thailand" by R. Steinmetz, pages 84-107 in *Indigenous Peoples and Protected Areas in South and Southeast Asia*, published in 1998 by IWGIA, Copenhagen. Marcus Colchester and Christian Erni (eds.).

WWF has been working with the Karen people for nearly a decade, focusing on the applications and values of traditional ecological knowledge (TEK) to protected area management. Describes the project's findings and highlights the importance of TEK for ensuring proper management of the area.

14. "Considerations of the Rights, Interests and Knowledge of Indigenous Peoples in the Development of Kayan Mentarang National Park, East Kalimantan, Indonesia" by Dale Whitington and Lewie Paru, pages 220-237 in *Indigenous Peoples and Protected Areas in South and Southeast Asia*, published in 1998 by IWGIA, Copenhagen. Marcus Colchester and Christian Erni (eds.).

Describes WWF's work in a protected area in Indonesia to help indigenous communities keep their traditional use rights in the face of hostile protected area policies. Interesting technical approaches are explored, such as traditional use applications to zonation.

IV.   Project Level and Regional Experiences

15. *Conservation with People*, published in 1993 by WWF International.

Describes projects involving indigenous and traditional peoples. Contains good examples of WWF's fieldwork with local people. Available in English, French and Spanish.

16. *Spotlight on Solutions: A People's Agenda.* A Handbook of Case Studies on Local Implementation of Agenda 21 by Sue Stolton and Nigel Dudley, published in 1997 by WWF International.

Contains cases illustrating local implementation of Agenda 21, highlighting experiences with indigenous and traditional peoples.

17. *Lessons from a Different Europe: CADISPA* edited by Sally Zalewski, published in 1999 by the WWF Mediterranean Progtramme Office, Rome.

Covers aspects of the history of the CADISPA project which worked in sparsely populated areas of Europe inhabited by indigenous and traditional peoples. Strong focus on capacity building.

18. "Arctic People and Conservation", Quarterly Bulletin No. 3 published in 1996 by the WWF Arctic Programme, Oslo.

The WWF Arctic Programme has long been involved in working with indigenous peoples of the Arctic, from protected areas to wildlife management and tourism. Offers much in terms of lessons and experience, and explores aspects of working with Arctic peoples.

V.   Traditional Knowledge and Intellectual Property Rights issues

19. *Fair Play, Fair Pay: Laws to Preserve Traditional Knowledge and Biological Resources* by D. Shelton, published in 1995 by WWF International.

Addresses the topics of compensation, benefit sharing, and intellectual property rights (IPR) related to the commercial use of traditional knowledge.

20. *The Biodiversity Convention and Intellectual Property Rights* by Farhana Yamin, publsihed in 1995 by WWF International.

    An exploration of intellectual property rights issues in the Convention on Biological Diversity (CBD) from a legal and policy perspective, with reference also to traditional knowledge.

21. *Fair Deals in the Search for New Natural Products* by Sarah Laird, published in 1995 by WWF International.

    Describes how WWF can help promote fair agreements and regulations at project, national and international levels to make sure that bioprospecting for commercial purposes respects the rights and interests of providers of materials and knowledge, including traditional communities.

22. *Equitable Biodiversity Research Relationships in Practice: Written Agreements Between Communities and Researchers* by Sarah Laird, published in 1999 by WWF International.

    Explores experiences in para-legal mechanisms by which traditional communities exercise their right to provide consent for research under agreed-upon, transparent conditions, and provides useful guidance on developing agreements for biodiversity research at community level. Available in English and Spanish.

23. *Ethics, Biodiversity and New Natural Products Development* by A.B. Cunningham, published in 1993 (reprinted in 1996) by WWF International.

    A pioneer document in WWF in dealing with IPR issues in connection with commercial use of biodiversity. A good analysis of the subject and, although somewhat outdated, still worthwhile and useful.

24. "Report of an Informal Workshop on Intellectual Property Rights and Indigenous Peoples" published in 1994 by International Academy of the Environment, IUCN, WWF and the UN Centre for Human Rights, Geneva, Switzerland.

    Of historical value since it reports on the first discussion held by WWF (and others) with indigenous peoples' organizations on IPR.

25. *Beyond Intellectual Property: Toward Traditional Resource Rights for Indigenous Peoples and Local Communities* by Darrell Posey and Graham Dutfield, published in 1996 by IDRC and WWF, Ottawa, Canada.

    Outcome of the four-year, WWF International

supported project of the Working Group on Traditional Resource Rights to explore IPR and TEK problems. A key tool internationally in furthering the cause of TEK protection and the need for appropriate IPR systems. Available in English, French, Spanish, and Chinese (in preparation).*

26. *The Life Industry. Biodiversity, People and Profits* published in 1996 by Swissaid and WWF, Intermediate Technology Publications, London.

    Contains a compilation of papers, presentations and discussion notes arising from a workshop in Switzerland to discuss IPR and TEK issues. Of interest for those exploring legal perspectives on this front.

27. *Biodiversity and Intellectual Property Rights in the South Pacific* published in 1999 by the WWF South Pacific Programme Office, Fiji.

    Concise, up-to-date and illustrative regional overview, backed by a case study on the use of the Kava plant. Shows how the subject is being tackled in regions where such issues are important, but where nations lack the necessary legal and policy tools.

VI. Indigenous Peoples and Species (Plants and Wildlife)

28. *The commercial, consumptive use of wild species: managing it for the benefit of biodiversity* by Curtis Freese, published in 1996 by WWF-US and WWF International.

    Provides guidelines on the commercial, consumptive use of wildlife, addressed from a sustainable use perspective. Extremely useful for the development of area-based or species-based management plans.

29. "Guidelines for the consumptive use of wild species in the Arctic: Synthesis of the Clyde River and Inuvik Paulatuk Case Studies" by Curtis Freese, Peter J. Ewins and Peter Prokosch, published in 1998 by WWF Arctic Programme, Oslo.

    Provides a good model and example of combining traditional knowledge and management practices with positive, science-based sustainability criteria.

30. "Sustainable Use of Marine Species by the Inuit and Inuvialuit in the Canadian Arctic" pages 21-24 in *Case Studies on the Role of Major Groups in Sustainable Oceans and Seas*, published in 1999 by WWF International and UNDSD, UN Department of Economic and Social Affairs, New York.

    Prepared for the Commission on Sustainable Development (CSD).

31. *People and Plants Handbook*, an output of WWF's

People and Plants Programme, published in 1996 by WWF, UNESCO and Kew Botanical Gardens.

Focuses on plant conservation with traditional communities. Accessible on the web at http://www.rbgkew.org.uk/peopleplants/

32. *Wildlife Management at the Rio das Mortes Xavante Reserve, MT, Brazil.* Coordinated by Rosa Lemos de Sá, published in 2000 by WWF-Brazil.

Contains the result of an innovative exercise with the Xavante indigenous people to support sustainable hunting.

VII. Information and Communications Resources

33. *WWF News*, Special Focus: Indigenous Peoples, pages 10-18, published in 1993 by WWF International.

Provides, in short texts and pictures, a useful tool to brief friends, partners and especially potential donors.

34. "Dossier peuples indigènes. PANDA Nouvelles" – juillet-août-septembre 1996, organe officiel du WWF-Suisse, pages 2-6, published in 1996 by WWF-Switzerland.

Similar to the above, a useful publication for French-speakers.

35. http://panda.org/resources/publications/sustainability/indig_gateway/

This is the gateway to indigenous peoples issues on the WWF website. Started in August 1999 with a short introduction, three key documents (Statement of Principles, Protected Areas Guidelines, Law of the Mother) and a photo gallery, it contains an increasing number of documents and links.

36. Videos: *Many have been produced at the project level (e.g. with the Miskito people in Nicaragua, the wetlands project in Northern Australia-Indonesia-PNG, the Keoladeo National Park in India), some dealing with participatory rural appraisal issues with traditional communities. Contact the People & Conservation Unit in WWF International.*

37. Photographs: T*he WWF-Canon Photolibrary holds a good collection of images showing activities involving indigenous and traditional communities, which can be requested in slide form or in digitized format on a CDRom. Contact the People & Conservation Unit in WWF International.*

VIII. Bibliographies

38. "Issues and Approaches to Integrating Conserva-

tion and Development: An Annotated Bibliography" published in 1998 by the DGIS-WWF Tropical Forest Portfolio, WWF International.

Although not specific to indigenous and traditional peoples, this ICDP bibliography contains many useful references.

39. "Bibliographic Database on Issues Related to Indigenous Peoples and Biodiversity Conservation" compiled in 1998 by Graham Dutfield, WWF International, Gland, Switzerland. Available only in electronic form, a large bibliography specifically focusing on indigenous peoples and conservation.

IX. Other useful documents

40. *Many documents exist in WWF with relevance to working with indigenous and traditional peoples; for example, those related to ICDPs, population, gender issues, socio-economic analysis, social implications of trade, macroeconomics, access to genetic resources, and conservation incentives. For guidance, contact the People & Conservation programmes at WWF International, WWF-US, WWF-UK, South Asia (India) and South Pacific (Fiji); the Macroeconomics Programme Office based in WWF-US; the Trade & Investment Unit at WWF International; and the Conservation Policy Department at WWF International.*

41. WWF Integrated Conservation and Development Projects: Ten Lessons from the Field 1985-1996 by Patty Larson, Marx Freudenberger and B. Wyckoff-Baird, published in 1998 by WWF-US.

Produced from a review that included various WWF projects with indigenous and traditional peoples in various parts of the world. The lessons offered are all of considerable importance when planning and implementing work with indigenous and traditional communities. Available in English and Spanish.

42. *Stakeholder Collaboration: Building Bridges For Conservation* published in 2000 by WWF-US.

A guide to involving stakeholders in ecoregion conservation.

43. *A Guide to Socio-Economic Assessments for Ecoregion Conservation* published in 2000 by the WWF-US Ecoregion Conservation Strategies Unit.

A summary, framework guide to understanding the socio-economic dimension of ecoregion conservation.

TERRESTRIAL ECOREGIONS

Tropical and Subtropical Moist Broadleaf Forests

Afrotropical

1   Guinean Moist Forests – Benin, Côte d'Ivoire, Ghana, Guinea, Liberia, Sierra Leone, Togo
2   Congolian Coastal Forests – Angola, Cameroon, Democratic Republic of Congo, Equatorial Guinea, Gabon, Nigeria, Republic of Congo, São Tomé and Príncipe
3   Cameroon Highlands Forests – Cameroon, Equatorial Guinea, Nigeria
4   Northeastern Congo Basin Moist Forests – Central African Republic, Democratic Republic of Congo
5   Central Congo Basin Moist Forests – Democratic Republic of Congo
6   Western Congo Basin Moist Forests – Cameroon, Central African Republic, Democratic Republic of Congo, Gabon, Republic of Congo
7   Albertine Rift Montane Forests – Burundi, Democratic Republic of Congo, Rwanda, Tanzania, Uganda
8   East African Coastal Forests – Kenya, Mozambique, Somalia, Tanzania
9   Eastern Arc Montane Forests – Kenya, Tanzania
10 Madagascar Forests and Shrublands – Madagascar
11 Seychelles and Mascarenes Moist Forests – Seychelles

Australasia

12 Sulawesi Moist Forests – Indonesia
13 Moluccas Moist Forests – Indonesia
14 Southern New Guinea Lowland Forests – Indonesia, Papua New Guinea
15 New Guinea Montane Forests – Indonesia, Papua New Guinea
16 Solomons-Vanuatu-Bismarck Moist Forests – Papua New Guinea, Solomon Islands, Vanuatu
17 Queensland Tropical Forests – Australia
18 New Caledonia Moist Forests – New Caledonia (Provence Sur (France); Provence Nord)
19 Lord Howe-Norfolk Islands Forests – Australia

Indo-Malayan

20 Southwestern Ghats Moist Forests – India
21 Sri Lankan Moist Forests – Sri Lanka
22 Northern Indochina Subtropical Moist Forests – China, Laos, Myanmar, Thailand, Vietnam
23 Southeast China-Hainan Moist Forests – China, Vietnam
24 Taiwan Montane Forests – China
25 Annamite Range Moist Forests – Cambodia, Laos, Vietnam
26 Sumatran Islands Lowland and Montane Forests – Indonesia
27 Philippines Moist Forests – Philippines
28 Palawan Moist Forests – Philippines
29 Kayah-Karen/Tenasserim Moist Forests – Malaysia, Myanmar, Thailand
30 Peninsular Malaysian Lowland and Montane Forests – Indonesia, Malaysia, Singapore, Thailand
31 Borneo Lowland and Montane Forests – Brunei, Indonesia, Malaysia
32 Nansei Shoto Archipelago Forests – Japan
33 Eastern Deccan Plateau Moist Forests – India
34 Naga-Manupuri-Chin Hills Moist Forests – Bangladesh, India, Myanmar
35 Cardamom Mountains Moist Forests – Cambodia, Thailand
36 Western Java Montane Forests – Indonesia

Neotropical

37 Greater Antillean Moist Forests – Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico (United States)
38 Talamancan-Isthmian Pacific Forests – Costa Rica, Panama
39 Chocó-Darién Moist Forests – Colombia, Ecuador, Panama
40 Northern Andean Montane Forests – Colombia, Ecuador, Peru, Venezuela
41 Coastal Venezuela Montane Forests – Venezuela
42 Guianan Moist Forests – Brazil, French Guiana (France), Guyana, Suriname, Venezuela
43 Napo Moist Forests – Colombia, Ecuador, Peru
44 Rio Negro-Juruá Moist Forests – Brazil, Colombia, Peru, Venezuela
45 Guayanan Highlands Moist Forests – Brazil, Colombia, Guyana, Suriname, Venezuela
46 Central Andean Yungas – Argentina, Bolivia, Peru
47 Southwestern Amazonian Moist Forests – Bolivia, Brazil, Peru
48 Atlantic Forests – Argentina, Brazil, Paraguay

Oceania

49 South Pacific Islands Forests – American Samoa (United States), Cook Islands (New Zealand), Fiji, French Polynesia (France), Niue (New Zealand), Samoa, Tonga, Wallis and Futuna Islands (France)
50 Hawai'i Moist Forests – Hawai'i (United States)

Tropical and Subtropical Dry Broadleaf Forests

Afrotropical

51 Madagascar Dry Forests – Madagascar

Australasia

52 Nusa Tenggara Dry Forests – Indonesia
53 New Caledonia Dry Forests – New Caledonia (Provence Sur (France); Provence Nord)

Indo-Malayan

54 Indochina Dry Forests – Cambodia, Laos, Thailand, Vietnam
55 Chhota-Nagpur Dry Forests – India

Neotropical

56 Southern Mexican Dry Forests – Guatemala, Mexico
57 Tumbesian-Andean Valleys Dry Forests – Colombia, Ecuador, Peru
58 Chiquitano Dry Forests – Bolivia, Brazil
59 Atlantic Dry Forests – Brazil

Oceania

60 Hawai'i Dry Forests – Hawai'i (United States)

Tropical and Subtropical Coniferous Forests

Nearctic

61 Sierra Madre Oriental and Occidental Pine-Oak Forests – Mexico, United States

Neotropical

62 Greater Antillean Pine Forests – Cuba, Dominican Republic, Haiti
63 Mesoamerican Pine-Oak Forests – El Salvador, Guatemala, Honduras, Mexico, Nicaragua

Temperate Broadleaf and Mixed Forests

Australasia

64 Eastern Australia Temperate Forests – Australia
65 Tasmanian Temperate Rainforests – Australia
66 New Zealand Temperate Forests – New Zealand

Indo-Malayan

67 Eastern Himalayan Broadleaf and Conifer Forests – Bhutan, China, India, Myanmar, Nepal
68 Western Himalayan Temperate Forests – India, Nepal, Pakistan

Nearctic

69 Appalachian and Mixed Mesophytic Forests – United States

Palearctic

70 Southwest China Temperate Forests – China
71 Russian Far East Broadleaf and Mixed Forests – Russia

Temperate Coniferous Forests

Nearctic

72 Pacific Temperate Rainforests – Canada, United States

73 Klamath-Siskiyou Coniferous Forests – United States
74 Sierra Nevada Coniferous Forests – United States
75 Southeastern Coniferous and Broadleaf Forests – United States

Neotropical
76 Valdivian Temperate Rainforests / Juan Fernández Islands – Argentina, Chile

Palearctic
77 European-Mediterranean Montane Mixed Forests – Albania, Algeria, Andorra, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Italy, Liechtenstein, Macedonia, Morocco, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Switzerland, Tunisia, Ukraine, Yugoslavia
78 Caucasus-Hyrcanian Temperate Forests – Armenia, Azerbaijan, Bulgaria, Georgia, Iran, Russia, Turkey, Ukraine
79 Altai-Sayan Montane Forests – China, Kazakhstan, Mongolia, Russia
80 Hengduan Shan Coniferous Forests – China

Boreal Forests/Taiga
Nearctic
81 Muskwa/Slave Lake Boreal Forests – Canada
82 Canadian Boreal Taiga – Canada
Palearctic
83 Ural Mountains Taiga – Russia
84 Eastern Siberian Taiga – China, Russia
85 Kamchatka Boreal Taiga and Grasslands – Russia

Tropical and Subtropical Grasslands, Savannas, and Shrublands
Afrotropical
86 Horn of Africa Acacia Savannas – Eritrea, Ethiopia, Kenya, Somalia, Sudan
87 East African Acacia Savannas – Ethiopia, Kenya, Sudan, Tanzania, Uganda
88 Central and Eastern Mopane and Miombo Woodlands – Angola, Botswana, Burundi, Democratic Republic of Congo, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe
89 Sudanian Savannas – Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Nigeria, Sudan, Uganda
Australasia
90 Northern Australia and Trans-Fly Savannas – Australia, Indonesia, Papua New Guinea
Indo-Malayan
91 Terai-Duar Savannas and Grasslands – Bangladesh, Bhutan, India, Nepal
Neotropical
92 Llanos Savannas – Colombia, Venezuela
93 Cerrado Woodlands and Savannas – Bolivia, Brazil, Paraguay

Temperate Grasslands, Savannas, and Shrublands
Nearctic
94 Northern Prairie – Canada, United States
Neotropical
95 Patagonian Steppe – Argentina, Chile
Palearctic
96 Daurian Steppe – China, Mongolia, Russia

Flooded Grasslands and Savannas
Afrotropical
97 Sudd-Sahelian Flooded Grasslands and Savannas – Cameroon, Chad, Ethiopia, Mali, Niger, Nigeria, Sudan, Uganda
98 Zambezian Flooded Savannas – Angola, Botswana, Democratic Republic of Congo, Malawi, Mozambique, Namibia, Tanzania, Zambia
Indo-Malayan
99 Rann of Kutch Flooded Grasslands – India, Pakistan
Neotropical
100 Everglades Flooded Grasslands – United States
101 Pantanal Flooded Savannas – Bolivia, Brazil, Paraguay

Montane Grasslands and Shrublands
Afrotropical
102 Ethiopian Highlands – Eritrea, Ethiopia, Sudan
103 Southern Rift Montane Woodlands – Malawi, Mozambique, Tanzania, Zambia
104 East African Moorlands – Democratic Republic of Congo, Kenya, Rwanda, Tanzania, Uganda
105 Drakensberg Montane Shrublands and Woodlands – Lesotho, South Africa, Swaziland
Australasia
106 Central Range Subalpine Grasslands – Indonesia, Papua New Guinea
Indo-Malayan
107 Kinabalu Montane Shrublands – Malaysia
Neotropical
108 Northern Andean Paramo – Colombia, Ecuador, Peru, Venezuela
109 Central Andean Dry Puna – Argentina, Bolivia, Chile, Peru
Paleartic
110 Tibetan Plateau Steppe – Afghanistan, China, India, Pakistan, Tajikistan
111 Middle Asian Montane Steppe – Afghanistan, China, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
112 Eastern Himalayan Alpine Meadows – Bhutan, China, India, Myanmar, Nepal

Tundra
Nearctic
113 Alaskan North Slope Coastal Tundra – Canada, United States
114 Canadian Low Arctic Tundra – Canada
Palearctic
115 Fennoscandia Alpine Tundra and Taiga – Finland, Norway, Russia, Sweden
116 Taymyr and Russian Coastal Tundra – Russia
117 Chukotsky Coastal Tundra – Russia

Mediterranean Forests, Woodlands, and Scrub
Afrotropical
118 Fynbos – South Africa
Australasia
119 Southwestern Australia Forests and Scrub – Australia
120 Southern Australia Mallee and Woodlands – Australia
Nearctic
121 California Chaparral and Woodlands – Mexico, United States
Neotropical
122 Chilean Matorral – Chile
Palearctic
123 Mediterranean Forests, Woodlands, and Scrub – Albania, Algeria, Bosnia and Herzegovina, Bulgaria, Canary Islands (Spain), Croatia, Cyprus, Egypt, France, Gibraltar (United Kingdom), Greece, Iraq, Israel, Italy, Jordan, Lebanon, Libya, Macedonia, Madeira Islands (Portugal), Malta, Monaco, Morocco, Portugal, San Marino, Slovenia, Spain, Syria, Tunisia, Turkey, Western Sahara (Morocco), Yugoslavia

Deserts and Xeric Shrublands
Afrotropical
124 Namib-Karoo-Kaokoveld Deserts – Angola, Namibia, South Africa
125 Madagascar Spiny Thicket – Madagascar
126 Socotra Island Desert – Yemen
127 Arabian Highland Woodlands and Shrublands – Oman, Saudi Arabia, United Arab Emirates, Yemen
Australasia
128 Carnavon Xeric Scrub – Australia
129 Great Sandy-Tanami Deserts – Australia
Nearctic
130 Sonoran-Baja Deserts – Mexico, United States
131 Chihuahuan-Tehuacán Deserts – Mexico, United States
Neotropical
132 Galápagos Islands Scrub – Ecuador
133 Atacama-Sechura Deserts – Chile, Peru

Palearctic
134   Central Asian Deserts – Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan

Mangroves
Afrotropical Atlantic
135   Gulf of Guinea Mangroves – Angola, Cameroon, Democratic Republic of Congo, Equatorial Guinea, Gabon, Ghana, Nigeria
Afrotropical Indian
136   East African Mangroves – Kenya, Mozambique, Somalia, Tanzania
137   Madagascar Mangroves – Madagascar
Australasia
138   New Guinea Mangroves – Indonesia, Papua New Guinea
Indo-Malayan Indo-Pacific
139   Sundarbans Mangroves – Bangladesh, India
140   Greater Sundas Mangroves – Brunei, Indonesia, Malaysia
Neotropical Atlantic
141   Guianan-Amazon Mangroves – Brazil, French Guiana (France), Guyana, Suriname, Trinidad and Tobago, Venezuela
Neotropical Pacific
142   Panama Bight Mangroves – Colombia, Ecuador, Panama, Peru

FRESHWATER ECOREGIONS
Large Rivers
Afrotropical
143   Congo River and Flooded Forests – Angola, Democratic Republic of Congo, Republic of Congo
Indo-Malayan
144   Mekong River – Cambodia, China, Laos, Myanmar, Thailand, Vietnam
Nearctic
145   Colorado River – Mexico, United States
146   Lower Mississippi River – United States
Neotropical
147   Amazon River and Flooded Forests – Brazil, Colombia, Peru
148   Orinoco River and Flooded Forests – Brazil, Colombia, Venezuela
Palearctic
149   Yangtze River and Lakes – China

Large River Headwaters
Afrotropical
150   Congo Basin Piedmont Rivers and Streams – Angola, Cameroon, Central African Republic, Democratic Republic of Congo, Gabon, Republic of Congo, Sudan
Nearctic
151   Mississippi Piedmont Rivers and Streams – United States
Neotropical
152   Upper Amazon Rivers and Streams – Bolivia, Brazil, Colombia, Ecuador, French Guiana (France), Guyana, Peru, Suriname, Venezuela
153   Upper Paraná Rivers and Streams – Argentina, Brazil, Paraguay
154   Brazilian Shield Amazonian Rivers and Streams – Bolivia, Brazil, Paraguay

Large River Deltas
Afrotropical
155   Niger River Delta – Nigeria
Indo-Malayan
156   Indus River Delta – Pakistan
Palearctic
157   Volga River Delta – Kazakhstan, Russia
158   Mesopotamian Delta and Marshes – Iran, Iraq, Kuwait
159   Danube River Delta – Bulgaria, Moldova, Romania, Ukraine, Yugoslavia
160   Lena River Delta – Russia

Small Rivers
Afrotropical
161   Upper Guinea Rivers and Streams – Côte d'Ivoire, Guinea, Liberia, Sierra Leone

162   Madagascar Freshwater – Madagascar
163   Gulf of Guinea Rivers and Streams – Angola, Cameroon, Democratic Republic of Congo, Equatorial Guinea, Gabon, Nigeria, Republic of Congo
164   Cape Rivers and Streams – South Africa
Australasia
165   New Guinea Rivers and Streams – Indonesia, Papua New Guinea
166   New Caledonia Rivers and Streams – New Caledonia (Provence Sur (France); Provence Nord)
167   Kimberley Rivers and Streams – Australia
168   Southwest Australia Rivers and Streams – Australia
169   Eastern Australia Rivers and Streams – Australia
Indo-Malayan
170   Xi Jiang Rivers and Streams – China, Vietnam
171   Western Ghats Rivers and Streams – India
172   Southwestern Sri Lanka Rivers and Streams – Sri Lanka
173   Salween River – China, Myanmar, Thailand
174   Sundaland Rivers and Swamps – Brunei, Indonesia, Malaysia, Singapore
Nearctic
175   Southeastern Rivers and Streams – United States
176   Pacific Northwest Coastal Rivers and Streams – United States
177   Gulf of Alaska Coastal Rivers and Streams – Canada, United States
Neotropical
178   Guianan Freshwater – Brazil, French Guiana (France), Guyana, Suriname, Venezuela
179   Greater Antillean Freshwater – Cuba, Dominican Republic, Haiti, Puerto Rico (United States)
Palearctic
180   Balkan Rivers and Streams – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Italy, Macedonia, Slovenia, Turkey, Yugoslavia
181   Russian Far East Rivers and Wetlands – China, Mongolia, Russia

Large Lakes
Afrotropical
182   Rift Valley Lakes – Burundi, Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia
Neotropical
183   High Andean Lakes – Argentina, Bolivia, Chile, Peru
Palearctic
184   Lake Baikal – Russia
185   Lake Biwa – Japan

Small Lakes
Afrotropical
186   Cameroonian Crater Lakes – Cameroon
Australasia
187   Lakes Kutubu and Sentani – Indonesia, Papua New Guinea
188   Central Sulawesi Lakes – Indonesia
Indo-Malayan
189   Philippines Freshwater – Philippines
190   Lake Inle – Myanmar
191   Yunnan Lakes and Streams – China
Neotropical
192   Mexican Highland Lakes – Mexico

Xeric Basins
Australasia
193   Central Australian Freshwater – Australia
Nearctic
194   Chihuahuan Freshwater – Mexico, United States
Palearctic
195   Anatolian Freshwater – Syria, Turkey

MARINE ECOREGIONS
Polar
Antarctic
196   Antarctic Peninsula and Weddell Sea
Arctic
197   Bering-Beaufort-Chukchi Seas – Canada, Russia, United States

198   Barents-Kara Seas – Norway, Russia

Temperate Shelf and Seas
Mediterranean
199   Mediterranean Sea – Albania, Algeria, Bosnia and Herze-
      govina, Croatia, Cyprus, Egypt, France, Gibraltar (United
      Kingdom), Greece, Israel, Italy, Lebanon, Libya, Malta,
      Monaco, Morocco, Spain, Syria, Tunisia, Turkey,
      Yugoslavia
North Temperate Atlantic
200   Northeast Atlantic Shelf Marine – Belgium, Denmark,
      Estonia, Finland, France, Germany, Ireland, Latvia,
      Lithuania, Netherlands, Norway, Poland, Russia, Swe-
      den, United Kingdom
201   Grand Banks – Canada, St. Pierre and Miquelon
      (France), United States
202   Chesapeake Bay – United States
North Temperate Pacific
203   Yellow Sea – China, North Korea, South Korea
204   Okhotsk Sea – Japan, Russia
Southern Ocean
205   Patagonian Southwest Atlantic – Argentina, Brazil, Chile,
      Uruguay
206   Southern Australian Marine – Australia
207   New Zealand Marine – New Zealand

Temperate Upwelling
North Temperate
208   California Current – Canada, Mexico, United States
South Temperate
209   Humboldt Current – Chile, Ecuador, Peru
210   Benguela Current – Namibia, South Africa
211   Agulhas Current – Mozambique, South Africa

Tropical Upwelling
Central Indo-Pacific
212   Western Australia Marine – Australia
Eastern Indo-Pacific
213   Panama Bight – Colombia, Ecuador, Panama
214   Gulf of California – Mexico
215   Galápagos Marine – Ecuador
Eastern Tropical Atlantic
216   Canary Current – Canary Islands (Spain), Gambia,
      Guinea-Bissau, Mauritania, Madeira Islands (Portugal),

Morocco, Senegal, Western Sahara (Morocco)

Tropical Coral
Central Indo-Pacific
217   Nansei Shoto – Japan
218   Sulu-Sulawesi Seas – Indonesia, Malaysia, Philippines
219   Bismarck-Solomon Seas – Indonesia, Papua New
      Guinea, Solomon Islands
220   Banda-Flores Sea – Indonesia
221   New Caledonia Barrier Reef – New Caledonia (Provence
      Sur (France); Provence Nord)
222   Great Barrier Reef – Australia
223   Lord Howe-Norfolk Islands Marine – Australia
224   Palau Marine – Palau
225   Andaman Sea – Andaman and Nicobar Islands (India),
      Indonesia, Malaysia, Myanmar, Thailand
Eastern Indo-Pacific
226   Tahitian Marine – Cook Islands (New Zealand), French
      Polynesia (France)
227   Hawaiian Marine – United States
228   Rapa Nui – Chile
229   Fiji Barrier Reef – Fiji
Western Indo-Pacific
230   Maldives, Chagos, Lakshadweep Atolls – Chagos Archi-
      pelago (United Kingdom), India, Maldives, Sri Lanka
231   Red Sea – Djibouti, Egypt, Eritrea, Israel, Jordan, Saudi
      Arabia, Sudan, Yemen
232   Arabian Sea – Djibouti, Iran, Oman, Pakistan, Qatar,
      Saudi Arabia, Somalia, United Arab Emirates, Yemen
233   East African Marine – Kenya, Mozambique, Somalia,
      Tanzania
234   West Madagascar Marine – Comoros, Madagascar, May-
      otte and Iles Glorieuses (France), Seychelles

Western Tropical Atlantic
235   Mesoamerican Reef – Belize, Guatemala, Honduras,
      Mexico
236   Greater Antillean Marine – Bahamas, Cayman Islands
      (United Kingdom), Cuba, Dominican Republic, Haiti,
      Jamaica, Puerto Rico (United States), Turks and Caicos
      Islands (United Kingdom)
237   Southern Caribbean Sea – Aruba (Netherlands), Colom-
      bia, Netherlands Antilles (Netherlands), Panama, Trinidad
      and Tobago, Venezuela
238   Northeast Brazil Shelf Marine – Brazil

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Terralingua is an international, non-profit organization concerned about the future of the world's biological, cultural, and linguistic diversity. Within this broad focus it has two main aims:

- supporting the perpetuation and continued development of the world's linguistic diversity
- exploring the connections between linguistic, cultural and biological diversity, through a programme of research, information, applied work, and advocacy.

WWF is the world's largest and most experienced independent conservation organization with over 4.7 million supporters and a global network active in 96 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.

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