

Learning from the Practitioners:

Benefit Sharing Perspectives from Enterprising Communities

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Executive Summary

The Convention on Biological Diversity (CBD) is the first international instrument to deal with issues of ethics and equity with regard to the sharing of benefits derived from genetic resources between those who have conserved them and those who exploit them. Bio-prospecting is usually viewed as a contractual relationship between the end-users of resources (e.g., academics, the pharmaceutical industry, mining firms, etc.) and the local communities or countries where the resources originate. This study focuses on inter- and intra-community equity in economic transactions by examining the management and use of biological resources for income generating activities at the local level by the providers of the resources. In this view the providers of biological resources are also the agents of value addition to the resources, as they are involved in the development and marketing of the final 'bio'-product for consumption. The study also focuses on how various communities in a range of ecosystems share the benefits derived from economic activities and how that affects their ability to meet their needs and ensure social and economic well-being.

Representatives of fourteen communities from various ecosystems were interviewed for the study, during the Ninth Conference of Parties of the Convention on Biological Diversity in May, 2008. The communities they represent were finalists in the biennial awards given by the Equator Initiative of the United Nations Development Programme to communities that have successfully addressed issues of biodiversity conservation and poverty alleviation. They provided information on their priorities for resource use and management, acquisition of benefits and mechanisms for the distribution of benefits among their members, including challenges they face in the process.

There is concern that national governments have insufficient experience in identifying the entry points to implement the access and benefit sharing provisions of the Convention at the local level. The results of this study clearly demonstrate that communities

around the world are already working on access and benefit sharing, irrespective of whether the access and benefit sharing provisions of the CBD are being implemented at the national and local levels and in terms that are not typical of current international discussions on access and benefit sharing. The examples in the study show how some communities have used principles of governance, ethics, equity and resource sharing as key bases for securing livelihoods at the local and household levels. Community activities revolve around the development and use of biological resources for generating profit and mechanisms for sharing that profit. By analysing the implications of their actions on their well-being using Sen and Nussbaum's 'Capabilities Framework' and Maslow's 'Hierarchy of Human Needs', the results showed that community well-being improved in terms of various indicators such as basic needs (i.e., food security, shelter and health), safety needs (i.e., security from natural and economic risks), belonging needs (i.e., equity in governance, access to resources and benefit) and self-esteem (i.e., of degree of autonomy to determine use of resources, economic activities, education, etc.). Hence, such activities could provide a community perspective that would aid in the effort to understand the access and benefit sharing provisions under the Convention and in the work on developing national action programmes on access and benefit sharing. The study is seen by the authors as a pilot exercise in the use of an analytical framework to explore the links between actual community practices on distributing benefits and well-being, one of the implied mandates of the Convention on Biological Diversity. It concludes by providing some suggestions pertinent to the negotiations on the international regime on access and benefit sharing.

1. Preface

The Convention on Biological Diversity (CBD) is the first international instrument to deal with issues of ethics and equity with regard to the sharing of benefits derived from genetic resources between those who have conserved them and those who exploit them. Provisions of the Convention (specifically, Articles 8 (j), 15 (7), 16, and 19), along with the Guidelines on Equitable Access to Genetic Resources and Benefit Sharing (Bonn Guidelines), aim to ensure that the benefits enjoyed by end-users of genetic resources are shared equitably with the providers of such resources.¹

Literature on bioprospecting - the search for and extraction of biological resources for use in the development of new products - and benefit sharing typically examines the contractual relationship between end-users of resources (e.g., academics, the pharmaceutical industry, mining firms, etc.) and the local communities or countries where the resources originate (Laird and Wynberg, 2008). This is the archetypal and mainstream framework. Equity in this scenario concerns how much end-users are willing to pay or share benefits with providers of biodiversity resources based on a fair calculation of costs of the value added and income generated by the user. This literature demonstrates that bioprospecting contracts often fail to facilitate the equitable distribution of benefits, promote the conservation of biodiversity or address the concerns of local stakeholders. Local concerns, which vary depending on context, include tenure rights, reduced demand for labour and resources once the production activities of external stakeholders cease and the elite capture of benefits (Barrett and Lybbert, 2000).

The existing literature raises but does not explore at length an additional issue, which is the effectiveness of the Convention on Biological Diversity in ensuring inter- and intra-community equity in

¹ The text of the Convention is available online at <http://www.cbd.int/convention/convention.shtml>, the Bonn Guidelines are available at <http://www.cbd.int/doc/publications/cbd-bonn-gdls-en.pdf>.

economic transactions relating to biological resources (Barrett and Lybbert, *ibid.*). Specifically, it has been pointed out that there is a lack of literature detailing case studies on the distribution of benefits and costs among members of communities living in close proximity to biological resources.

The present study seeks to address this lacuna in the literature by highlighting the results of research on benefit sharing mechanisms among entrepreneurial communities from different geographic locations across the tropics. Rather than focus on bioprospecting as a contract between local communities and end users the study examines it as the use of biological resources for income generating activities at the local level by the providers of the resources. In this view the providers of biological resources are also responsible for adding value to the resources, for instance through the development and marketing of the final 'bio'-product for consumption. The study also focuses on how various communities in a range of ecosystems share the benefits derived from economic activities and how that affects their ability to meet their needs and ensure social and economic well-being. It is the authors' hope that the study will shed light on community priorities for resource use, acquisition of benefits and mechanisms for the distribution of benefits. It is also hoped that the study will provide some guidance to those focusing on issues of access and benefit sharing (ABS) and contribute more generally to the negotiations that are taking place on the proposed international access and benefit sharing regime. It should be noted that the term "biological resources" is used in the study to include all living resources from nature. This understanding of the term better reflects community definitions, and is inclusive of genetic resources, which are under discussion under the Convention on Biological Diversity.² This is an important distinction to

² The Convention on Biological Diversity refers to "genetic resources" as any material of plant, animal, microbial, or other origin containing functional units of heredity that have actual or potential value and to "biological resources" as including genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

make as it helps to better capture and reflect the value of community-led activities that result in the conservation of bio-diversity.

One of the common comments heard about implementation of access and benefit sharing actions at the national level is the lack of experience of countries in identifying suitable entry points for establishing access and benefit sharing regimes that benefit local communities. Although many case studies are available currently on access and benefit sharing issues from around the world, several of them were developed prior to the entry into force of the Convention on Biological Diversity. This includes the INBio - Merck arrangement, under which Merck, in 1991, entered into an agreement with the Costa Rican environmental organization INBio initially for a period of two years to access biological resource samples in exchange for an initial payment of one million USD; or the Kani Tribe - TBGRI case in which the Tropical Botanical Garden and Research Institute based in a province of India decided to share 50 per cent of the benefits they received from licensing a proprietary Ayurvedic medicine, with the Kani tribe whose knowledge had contributed to the development of the product. A few examples of agreements developed since the Convention's entry into force are seen as having been specifically designed with the Convention's access and benefit sharing principles in mind. For instance, the Hoodia and San community case, in which the Council for Scientific and Industrial Research of South Africa entered into an agreement with the San tribe to share a percentage of benefits accruing from the sale of an anti-obesity drug that was developed by the Hoodia from a substance used traditionally as an appetite suppressant by the San tribes in the region.

What some fail to recognize is that communities around the world are already working on access and benefit sharing irrespective of whether the access and benefit sharing provisions of the Convention on Biological Diversity are being implemented at the national and local levels and in terms that are not typical of current

international discussions on access and benefit sharing. The examples and experiences identified in the study demonstrate how some communities have used principles of governance, ethics, equity and resource sharing as key bases for securing livelihoods at the local and household levels. As mentioned, community activities revolve around the development and use of biological resources for generating profit and mechanisms for sharing that profit. Hence, if such activities can be adapted to the implementation of access and benefit sharing principles under the Convention on Biological Diversity it could provide a community perspective that would aid in the effort to understand the access and benefit sharing provisions under the Convention and could also be useful in the work on developing national action programmes on access and benefit sharing. The study is seen by the authors as a pilot exercise in the use of an analytical framework to explore the links between actual community practices on distributing benefits and well-being, which in truth is one of the implied mandates of the Convention on Biological Diversity.

2. Respondent Communities

The communities that participated in and contributed to the study, which the authors refer to as “respondent communities”, are recipients of the Equator Prize, awarded biennially by the United Nations Development Programme (UNDP) under its Equator Initiative to recognize outstanding grass-roots efforts in the area of biodiversity conservation and poverty reduction. The Equator Initiative is a partnership that brings together the United Nations, Governments, civil society, businesses and grass-roots organizations to build the capacity and raise the profile of local efforts to reduce poverty through the conservation and sustainable use of biodiversity. Several Equator Prize recipients run biodiversity-based businesses and enterprises. Representatives of these communities attended the ninth meeting of the Conference of the Parties to the Convention on Biological Diversity, which was held in Bonn, Germany, in May 2008; some of those representatives were interviewed for this study.

The Equator Initiative communities provide an extensive case set (of more than 1,400 community enterprises) that has been analysed by researchers with regard to various factors contributing to successful community and indigenous enterprises (Berkes and Adhikari, 2005). Previous research done on Equator Initiative communities has highlighted that community based resource management can result in positive social and economic development and that often this development is the result of appropriate institutional linkages and an affinity for land (referred to as a “special relationship to land”) (Berkes and Adhikari, 2005). In a review of the impact of the Equator Initiative, Timmer and Juma call for the expanded use of social mapping exercises and effective use of community dialogue spaces, an Equator Initiative modality that so far has brought together local and indigenous groups to share best practices and connect local practitioners with global processes, thereby influencing policy formation (Timmer and Juma, 2005).

In the present study we have found that principles such as distributive justice, reciprocity, compensation and equity form the basis for how

communities regulate access to their resources and share the benefits that derive from their exploitation. Again, it may be noted that communities are not, however, basing their actions strictly on the debates about access and benefit sharing under the Convention on Biological Diversity, which is perhaps a key reason for de-linked actions and re oriented understanding, at the local level, for national and global policymaking on access and benefit sharing.

2.1 Methodology

2.1.1 Data collection

The Equator Initiative organizes community dialogue spaces at international conferences and other forums relevant to conservation, environment and development. During the ninth meeting of the Conference of Parties to the Convention on Biological Diversity, a dialogue space called the Community Dorf was organized by the Equator Initiative. During this event, 14 detailed personal interviews were conducted with representatives from communities covering a wide range of ecosystems from Latin America, Africa and Asia and the Pacific. A letter outlining the scope, purpose and consequences of the research was provided to participating community representatives. Interviews were based on a pre-designed questionnaire and information was collected both in small group and single person interviews.³

Community representatives provided answers to questions regarding changes in their livelihood activities, management norms and rules and the distribution of benefits from activities. In addition, respondents reflected on the impact that their biodiversity-based enterprise and distribution mechanisms had had on individual and group well-being. The information obtained was chiefly evocative, with representatives focusing more on processes and impact than on quantitative values. The following section highlights the profiles of the communities, and their strategies for management of their bio-physical and economic resources.

³ The questionnaire was translated into French, Portuguese, and Spanish by colleagues at the United Nations University Institute of Advanced Studies.

2.1.2 Demography and type of activities

The majority of respondent communities (13 of 14) come from regions that host multiple ecosystems and have a wide variety of resource dependencies. The economic activities of most communities are closely related to their ecosystems and the natural environment has shaped their traditional skills, knowledge and practices. In some cases, the extent of dependence on natural resources for livelihoods has changed (e.g., hunting wildlife). In other cases, communities have adopted activities that are entirely new to its members. The choice of activities primarily depends on the communities' traditional activities, natural capital (in the form of ecosystems and biological resources) and suggestions or opportunities that come about through links with non-governmental organizations, international organizations and others. Summaries of the location and traditional and current livelihood activities of the respondent communities are presented below.

■ Community: Community Tours Sian ka'an

Location: Mexico, Latin America

Ecosystems: coastal, freshwater and wetland

Traditional activities: apiculture, fishing, resin collection, traditional medicine and hunting

Current activities: ecotourism (main), conservation promotion, bird monitoring, training activities (including agriculture) and fishing. (Note: hunting has been banned.)

■ Community: Pescado Azul Asociación de Mujeres

Location: Ecuador, Latin America

Ecosystems: island and marine

Traditional activities: fishing and farming

Current activities: processing of smoked fish (tuna). The group has started to use other fish too in order to reduce consumption pressure on shark.

■ Community: Estado de Quintana Roo

Location: Mexico, Latin America

Ecosystems: coastal, freshwater, wetland, coral reef, wetland, tropical forest and mangrove

Traditional activities: Fishing, hunting and copra production

Current activities: Sustainable fishing

■ Community: The Equilibrium Fund

Location: Guatemala, Latin America

Ecosystems: agriculture, forest

Traditional activities: handicrafts (wood and bronze), agriculture and chicken farming

Current activities: Producing processed products of Maya nuts, baking, training for baking and other activities and reforestation

■ Community: Barrio El Progreso

Location: Guatemala, Latin America

Ecosystems: forest, freshwater and agriculture

Traditional activities: agriculture, medicinal plants, handicrafts and fishing

Current activities: Forest protection, medicinal plants and products, ecotourism, training for baking, stitching and eco-education in schools

■ Community: Tarcoles, Puntarenas

Location: Costa Rica, Latin America

Ecosystems: forest, coastal, mountain, wetland

Traditional activities: agriculture and fishing

Current activities: low impact/sustainable fishing, processed fish production and ecotourism (early stages)

■ **Community: Talamanca Initiative**

Location: Costa Rica, Latin America

Ecosystems: glacier, rainforest, wetland, coastal, mountain, forest, national park

Traditional activities: farming, non-timber forest products, cacao monocultures and fishing

Current activities: organic fair trade agriculture, community ecotourism, payment for ecosystem services, agriculture, fishing, fruit collection, handicrafts and aquaculture (tilapia)

■ **Community: Chibememe Earth Healing Association**

Location: Zimbabwe, Africa

Ecosystems: grassland, forest, riverine forest

Traditional activities: animal husbandry, small grain production, fishing, hunting, fruit collection, medicinal plants, non-timber forest products and hunting

Current activities: Farming, including cotton, maize, peanut butter, grains and seeds and livestock (milk and meat), oil production, fishing, non-timber forest products and ecotourism.

■ **Community: Sepik Wetland Management Initiative**

Location: Papua New Guinea, Pacific

Ecosystems: wetland, marine, grassland, freshwater

Traditional activities: handicraft, fishing, and farming

Current activities: crocodile conservation, community forestry, plantations, vanilla, tapioca, taro, banana, coffee, copra, timber, butterfly farming and animal husbandry

■ **Community: Luang Namtha Tourism Department - Nam Ha Ecoguide Service**

Location: Lao People's Democratic Republic, Asia

Ecosystems: forest, riverine, mountain

Traditional activities: Rice farming and fishing

Current activities: rubber plantations, handicrafts, eco-guide training and ecotourism

■ **Community: Kalinga Mission for Indigenous Communities and Youth Development Inc.**

Location: Philippines, Asia

Ecosystems: mountains, rivers, forests, hot springs, rice terrace, extinct volcano

Traditional activities: hunting, fishing, non-timber forest products and crafts

Current activities: Sustainable hunting, fishing, farming, rice, coffee, vegetables, handicrafts, weaving and garment making

■ **Community: Shompole Community Trust**

Location: Kenya, Africa

Ecosystems: grasslands, forests, salt spa, hot spring, mountains, riverine, wetland

Traditional activities: hunting, livestock, and farming

Current activities: ecotourism, livestock, farming and research (in collaboration with universities)

■ **Community: Aaharam**

Location: India, Asia

Ecosystems: dryland

Traditional activities: non-specific

Current activities: medicinal plant collection (supply chain for the Grama Mooligai Company Limited), financial self-help groups, dryland crop farming (tamarind, chillies, coriander, mango and vermicompost), biomass fuel and biomass stove production and liquid petroleum gas cylinder sales

■ **Community: Collectif des groupements de femmes pour la Protection de la Nature (COPRONAT)**

Location: Senegal, Africa

Ecosystems: forest, coastal, mountain, agroforestry

Traditional activities: livestock, fishing, jewellery, and traditional medicine

Current activities: small trade (supply chain linkages, e.g., pearl collection, stringing, etc., in pearl jewellery production), agriculture, livestock, non-timber forest products, fishing, pearl harvesting and herbal medicine preparation

All 14 community groups have integrated their livelihood activities, primarily based on biological resources, with market economies, although the extent of integration varies. Some cater to local demand and markets and others to regional markets, while a smaller subset interacts with international markets, with terms of engagement clearly defined for each type of market. The market that a given community serves depends chiefly on the type of products and services it markets, and the uniqueness of and demand for its products and services. Most of the primary products such as fish, agricultural produce and non-timber forest products are sold in villages near where they were harvested. Apart from ensuring regional food security, primary products secure sustained incomes for community groups, capitalizing on assured demand. Marketing in such cases is predominantly direct sale through word of mouth. In some instances, community groups such as the Shompole Trust in Kenya export primary products (such as vegetables) through marketing chains created by agents and traders looking for fresh and exotic produce for distant markets. Some community groups have ventured into novel marketing practices, including the use of brochures, posters on message boards, distribution of pamphlets on vehicles (such as ferries) and, in some cases, advertising through internet websites.

Ecotourism has become one of the mainstream activities for several of the community groups. It is the major revenue earning activity for groups such as Nam Tha and Shompole Trust. What is noteworthy in

these ecotourism projects is the integration of traditional products and services. For instance, on the trekking route featured in Nam Tha's Ecotourism package, tourists encounter, seemingly by chance, community members carrying produce and handicraft products that they receive as gifts, the cost of which is included in the price of the package. Such products are appealing to visitors and at the same time also promote local crafts and services. Some of the most innovative marketing strategies were observed among ecotourism-related enterprises. These include providing complementary stays to targeted, influential individuals, participation in competitions and other means to attract the attention of fashionable media, which attract goodwill and necessary promotion. Community consideration of who gains access to resources and products is dealt with in later sections on benefit sharing. It is worth noting that communities differentiate between resources, products and lands to which outsiders have access and those that are reserved for community use.

2.2 Governance

The role of good governance in ensuring economic development has been well established in the mainstream literature (Kaufmann and Kraay, 2008). Governance is defined as "the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens as well as the state for the institutions that govern economic and social interactions among them" (Kaufmann and Kraay, *ibid*). In a community context, governance thus defined includes the traditions and institutions by which communities enable development and use their assets (including resources, skills and capabilities, and knowledge), thereby improving their economic situation.

The following section explores the effectiveness of extant governance structures in respondent communities for ensuring sustainable use of resources and economic development.

2.2.1 Governance structures in the respondent communities: institutions and norms

In an analysis of the impact of institutional linkages through partnerships to the success of an enterprise, Berkes and Adhikari (2005) indicate that links between local and external agencies are considered fruitful as communities gain from technical and general business management skills and, in some cases, political leverage from external partners. The supporting role of development non-governmental organizations at various levels in the initial stages of enterprise development is especially noteworthy.

All community groups interviewed were structured as one or another formal organizational set-up based on cooperative principles and shared values such as a trust, a cooperative or a producer company.⁴ In most cases, initial mobilization of these structures was facilitated by an external agency such as a non-governmental organization. Members of the communities had also seen one or several ethnic groups that they were connected with pursuing similar livelihood options successfully. Almost all communities in the study use aspects of customary law and ethics in decisions relating to resource use. In several cases, customary law has been revitalized to ensure sustenance of the resources. For example, members of the Talamanca Initiative have creatively used a customary practice called “Chichada si chicha” (fermented corn liquor for labour), a practice of offering liquor in exchange for labour. In the revitalized practice, no liquor is offered, but community members go as a group to help in cacao harvesting on different farms (including their own), which results in an enhanced sense of solidarity. Some communities such as the Masai of the Shompole Trust or the members of the Chibememe continue to follow traditional laws regarding the use of resources. In some communities (e.g., Aaharam), where group identity is derived from collective activity, customary norms for harvesting and use of resources have been revisited and revitalized and practices for sharing have been developed and adhered to.

⁴ A producer company is a registered legal entity that functions like a private limited company but operates on cooperative principles (Companies (Amendment) Act of India, 2003).

All decisions related to community welfare and activities have been taken during general body meetings through effective participation of all members and consensus. In some cases, additional implementation incentives have been devised such as lotteries for community members who save their incomes, inducements to young people to become involved in community activities and rewards for the early repayment of loans (COPRONAT).

2.2.2 Resource management

The following is a narration of the different norms and rules being applied by the communities in the use of various resources:

- **Fish:** Fish constitute one of the most important resources across respondent communities (8 of 14 communities are actively engaged in fishing; one community does not fish for internal community consumption but shares fish resources with migrant communities). The majority of fishing communities zone fish harvesting areas and use a wide variety of fish. These communities vary net size to enable sustainable fishing and prevent the capture of unintended species. Other measures include disallowing outsiders from fishing, stringent punitive action against members who do not conform to the standards on net size, garbage disposal and the like. Some of these measures have been adopted recently in response to the dwindling of fish stocks.
- **Non-timber forest products:** Communities using non-timber forest products such as medicinal plants, honey, maya nuts, etc., usually undertake rotational harvesting of such products. They also refrain from harvesting from sacred areas such as burial grounds and areas with spiritual significance. Some communities (e.g., COPRONAT) employ voluntary fencing of forests and strive to cultivate plants outside of these areas. In circumstances where resources must be extracted from the forest, care is taken to limit harvests to non-commercial quantities. Elsewhere, where communities depend on forests for their livelihoods, food, and medicine (as in the case of the Chibememe Earth Healing Association or the Equilibrium Fund),

collection of non-timber forest products is done with minimum disturbance to other resources.

■ **Agriculture (including land management, productivity, crops, etc.):** Several communities (Aaharam, Chibememe, Kalinga, Shompole, COPRONAT) practice mixed farming and multifarming, cultivating primarily native and traditional varieties suited to their locales. Land management is usually achieved collectively, although ownership varies between collective and individual forms. In most cases, secure tenure rights recognized by the State came after long periods of conflict and negotiation. In some communities (e.g., Chibememe), germplasm of native varieties and special seeds is maintained on special plots handled by elders or chiefs. Produce from these plots is used either for seed purposes or as buffer food. Among members of the Kalinga Trust, land is collectively managed through a traditional system of governance called “bodong”, the basis of which is a community pact designed to avoid conflicts and protect land, life and community.

■ **Ecotourism:** All community respondents engaged in ecotourism have developed codes of conduct for visitors, the provisions of which range from restrictions on the use of consumables (including items such as sunscreen), to codes of conduct for tourists in their dealings with local people and the environment and controlled access to traditional products and resources through authorized outlets or people (Community Tours Sian’kan, Talamanca, Namtha, Shompole). To ensure that the sites remain attractive, communities actively engage in various conservation and maintenance activities that ensures a continuance of available ecosystem services from the region. Ecotourism is an external market-driven enterprise and is subject to variations in demand due to conflicts, social, economic and political conditions and natural disasters. Hence, although ecotourism brings in substantial revenues, it is risky. Communities engaged in ecotourism have sought to establish other economic activities that can to some extent serve as a buffer against economic shocks and resulting fluctuations in demand.

■ **Hunting:** While controversial, for many respondent communities hunting is a traditional activity with symbolic links to beliefs and cultures. With Governments prohibiting or restricting the activity due to rising concerns for wildlife, however, most community groups do not actively pursue hunting. According to some communities, blanket bans have proven counterproductive as population growth of big game animals without commensurate growth in small game (prey) is resulting in loss to life, livestock and property of the communities. Where practised, hunting follows general principles of sustainability, as communities recognize that many species are threatened and that healthy populations of many animals can improve ecotourism prospects. Hunting communities take care to ensure that traps do not affect smaller animals. Traditionally, consumption limits were set through taboos on hunting or eating animals used as totems (Chibememe). Some community groups play stewardship roles in the conservation of wildlife, which is supported by environmental payments by international organizations (Sepik Initiative).

It may be noted that implicit in the resource management practices of all the communities is the assertion that the rights to the resources and their habitats resides with the communities that have been using and nurturing them over generations. This assertion also comes with the recognition accorded by the laws of the countries to which the communities belong. Given this, it is obvious that implementing various provisions of the Convention on Biological Diversity with respect to access and benefit sharing will clearly depend on the consent of the communities. Conversely, implementation can certainly be expected to be in line with Article 8 (j) of the Convention, which states that each contracting party shall, “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.”

2.2.3 Community norms, customary law and rules on benefit sharing

Benefit sharing has been defined as “the action of giving a portion of advantages/profits derived from the use of human (sic) genetic resources to the resource providers in order to achieve justice in exchange” (Schroeder, 2007). The present study subscribes to this definition in general for genetic resources and attempts to evaluate its relevance within a community context. All community groups have evolved sharing mechanisms for distributing the benefits accruing from their different activities. It is noteworthy that although the mechanisms vary between them they are similar in terms of ensuring some form of equity in transactions. Some of the mechanisms are derived from customary law, while others are newly fashioned in accordance with the prevailing circumstances.

Income usually flows into a community group through a combination of the following:

- Income from the sale of products or services, which is the major source of income for most communities;
- Income from grants or donations from non-governmental organizations and other external agencies. The extent of this income varies from community to community. For instance, Sepik Initiative derives a significant share of income from payments from an international conservation organization for the protection of crocodile nests and eggs;
- Government support, including input subsidies, preferential schemes for implementation (e.g., women’s development programmes in India), tenure rights, autonomy to pursue viable economic activities, joint ownership of natural resources, usufructuary rights in natural resources (such as the collection of non-timber forest products) and the like. To reiterate, the entire governance infrastructure of the respondent communities is hinged on the various support and governance framework of the States in which they operate. Direct payments from Governments are not as significant as the degree of

access to supportive services such as credit facilities, roads, health and education services, etc., that government schemes bring.

Non-governmental organizations provide supportive, sometimes catalytic and guiding, roles for communities, especially in the design and implementation of appropriate activities and the identification of sources of grants and networks. Networks, partnerships and institutional linkages (formal and informal) help in successful community business enterprises (Berkes and Adhikari, 2005). While such linkages also help communities to adapt to stress factors, researchers have pointed out that it is important to ensure that the ability of communities to adapt is enhanced in the process of enterprise development (Robinson, 2008), underscoring the need for endogenously developed entrepreneurial activities. Such linkages and access to their networks would qualify as an important non-monetary benefit to the communities.

Most of the respondent communities have chosen to pursue an endogenous development path, which refers to development activities that are determined by the communities themselves to meet their own needs (COMPAS, 2008). This means that they have identified their comparative advantages in terms of resources, skills, knowledge and capacities and have embarked on appropriate activities, integrating mainstream and traditional worldviews on development and well-being. This is evident from the activities of the groups such as the farming practices of Chibememe and Shompole Trust, the fish processing activities of Asociación de Mujeres and others that are based on local varieties and available resources, building upon the inherent skills and capacities of the communities. These community groups insist that they do not want an externally driven industry to be set up in their areas, as they fear loss of control over their natural assets and in some cases do not wish to disturb or excessively exploit their natural capital. One of the groups (Talamanca Initiative), for instance, successfully protested against oil exploration in its region. However, the communities do not seem averse to establishing something of their own. Such increased awareness of self-determination and rights clearly indicates that these communities

would assert their biocultural rights if approached with a request for access to their resources or knowledge, a fact that, given their degree of organization and awareness, could facilitate informed consent discussions and access and benefit sharing negotiations. As noted during an expert consultation on linking Article 8 (j) of the Convention on Biological Diversity to discussions on access and benefit sharing, requiring the free and prior informed consent of indigenous and local communities to prospecting activities is not merely a procedural exercise but is the recognition of a right to lands, resources, knowledge and self-determination (CBD, 2007). While none of the respondent communities have been requested to permit bioprospecting, their social organization has reached a stage where they would assert their rights to both resources and knowledge and would be quite articulate in negotiations.

2.3 Sharing and income distribution

Direct payments for produce such as prices for farm goods are based on individual productivity. In activities such as fishing, where the produce is sold as an aggregation of the harvests brought in by all members, the sharing of total income received is usually from a common pool (e.g., Tarcoles) and the shares are given based on harvest, after deducting a share for a common fund. In the case of medicinal plant gatherers from India (Aaharam), the women's groups sell their resources to a public company (of which they are shareholders), which undertakes to store and market the herbs. The communities receive a fair price for the herbs, have an assured market and receive a large share as dividends from the company. Dividends form a big incentive to the different groups to improve the income-generating potential of their activities. These institutional and market mechanisms are new to the communities but they have adopted them to suit their current realities while striving at the same time to maintain a "community spiritedness".

Some of the groups make around \$5,000–\$7,000 US dollars per month from ecotourism services (such as wildlife ranches, etc.). Fair wages are paid from this income to individual members (who

also include women in prominent roles) and the remaining income after expenses is saved as a community funds. These funds (known variously as trust funds, community funds, savings funds, social funds, environment funds, etc.) are used, in best-case scenarios, for the development of community infrastructure, including:

- Better roads and infrastructure such as bridges, warehouses and the like;
- Education – through the establishment of schools, sponsoring more teachers in local schools and providing scholarships for higher education in distant towns for students from within a given community;
- Health-care facilities, through:
 - Sponsoring doctors and nurses in existing hospitals;
 - Revitalizing local health practices through increasing awareness about native healers and practices as a cost-effective and efficient primary health care alternative. One of the groups (COPRONAT) initially used persuasive methods to get people to use native medicine. To ensure quality and efficacy the native healers are charged with the responsibility of taking a sick person to a modern doctor (in a nearby town centre) if his or her treatment fails to bring relief to the patient. Another group (Aaharam) hands out a kit of medicinal plants suitable for the region and for common ailments to be nurtured as "home herbal gardens", with recipes for preparing simple medicines from them. Both of these measures have been wholly integrated into the groups' routines and apparently have resulted in savings in cost and improved health consciousness;
 - Improving access to food and nutrition through intensive cultivation of a variety of crops;
 - Emphasizing and ensuring sanitation;
 - Using non-toxic cooking fuels (e.g., the women of Aaharam make their own biomass fuel for biogas stoves).

All of these basic and material benefits point to the priorities of communities in the deployment of their resources based on local realities. They also point to areas that policymakers should focus on while drawing up benefit sharing guidelines.

2.3.1 Terms of partnerships with external agencies

The respondent communities are often approached by external agencies such as universities and conservation organizations to cooperate in research and conservation-related activities, respectively. The communities do cooperate, subject to terms that they negotiate. Those terms include the following:

- **Academic research:** Communities are beginning to look at the economic potential of partnerships with external agencies on academic research. The Shompole Trust, for example, charges a fee for its cooperation with an academic research institute on research related to wildlife.
- **Commercial activities:** None of the respondent communities had a direct working relationship at the time of interviews with external agencies to undertake industrial prospecting of their resources. Some of them have supply contracts to supply businesses such as pharmaceutical companies with raw materials for the development of products. The Chibememe group, for example, prepares African Kigelia juice and sells it to pharmaceutical companies, which use it in cosmetics. Most of the communities, however, indicated clearly that they would insist on signing prior informed consent certificates and would look hard at the economic and conservation impacts of any proposal.
- **Conservation activities:** Conservation activities often serve as entry points for communities to generate economic returns in return for enhanced environmental stewardship roles. For instance, the Sepik Wetland Management Group gets paid for the conservation of crocodile nests. Similarly, the Talamanca Initiative enters into environmental payment arrangements with external partners.

These positions on terms of engagement with various partnerships are relevant to discussions linking article 8 (j) of the Convention on Biological Diversity with access and benefit sharing, both with respect to the prior informed consent of indigenous and local communities and the negotiation of mutually agreed terms and material transfer agreements between the users and providers of genetic resources and related traditional knowledge. Recognizing that negotiations on access and benefit sharing should reflect an acknowledgement of their rights, indigenous and local communities have been calling for conducting the negotiations on the international regime on access and benefit sharing within the framework of the United Nations Declaration on the Rights of Indigenous Peoples. In that context it has been suggested that benefit sharing arrangements offer the only way out of poverty for indigenous peoples. In a wide ranging consultation, experts called for an expansion of benefits to indigenous and local communities to include rights to lands, territories, resources, knowledge and socio-cultural elements such as support for traditional lifestyles, food security and easy access to medicines and products, particularly those developed using their knowledge (CBD, 2007, *ibid*).

2.3.2 Inclusion of women

Women play varying roles in the respondent communities. In most, they are active in the decision-making and implementation activities, sometimes anchoring the major activities of the groups (e.g., Asociación de Mujeres, the Equilibrium Fund, Aaharam, COPRONAT, Estado de Quintana Roo). Whatever their role, women are no longer considered to hold inferior positions within their societies. They have equal claim to wages and shares. Many of the women-headed groups said that the early days in the groups' existence were very difficult. The members of the groups were met with often harsh opposition when they ventured out, be it for conservation-related or economic activities. An illustrative case is that of Asociación de Mujeres, where the women faced stiff resistance from the men of the community when they embarked on fish-processing activities. In sharp contrast to that difficult start, however, they now have a working value-addition agreement with the local fishermen's group.

2.3.3 Revival of traditional knowledge and promotion of local resource use

The economic success of the ventures undertaken by the respondent communities has encouraged community members to reconsider aspects of their traditional knowledge that impart “asset specificity”, that is, uniqueness attributable to the particular resources, knowledge, skills and practices of each community. There seems to be a tendency to maintain traditions while adapting them to suit contemporary circumstances, as seen in the examples on shared labour, community pacts for land ownership, sharing of resources among community members during times of economic stress under obligations and terms set in customary values and norms, integration of traditional medicine and other similar practices among the members of the Talamanca, Kalinga, Chibememe and COPRONAT groups, among others. This tendency may perhaps be attributed to a growing sense of belonging to a shared value system. It is important to note that while cultural factors determine the social and economic aspirations of the respondent communities their definitions of economic development are relatively broad and often include material, physical and spiritual well-being. The process of integration, however, has brought forth a new set of challenges for them, some of which are mentioned below.

2.3.4 Challenges faced by the respondent communities in the process of economic integration

While economic development has brought prosperity, in some societies it has also yielded another measure of development: more leisure time, as the time community members must spend to meet their needs is less than it was. Representatives of some community groups are concerned that some community members spend their time “idling”, which they see as undesirable and uncharacteristic of their communities.

Some communities are facing the problem of young people that are inclined toward a mainstream educational system and showing scant regard for traditional world views. One encouraging sign, however, is

that the community has taken cognizance of the issue and is seeking to address it, possibly through the introduction of bicultural education.

Some communities have been successful in tackling absolute poverty and have access to basic necessities and some comforts. They have not, however, pursued a parallel process to improve the health and educational infrastructure within the community. It is perhaps coincidental that in these cases their path to economic development was primarily through a conservation activity the impetus for which came from an external agency, as in the case of Sepik Initiative. It is also important to note that communities choose what areas they wish to focus on depending on their exposures, capacities and perceptions at the inception of a given activity. All of the respondent communities were enthusiastic and aspirational about their future activities when interviewed and were at the stage of consolidating achievements and addressing various challenges arising as a natural outcome of conflict that can be expected to arise during a mainstreaming process.

2.3.5 Factors that have enabled community success

The following summarizes the key factors that have enabled the communities in the study to be successful bio-entrepreneurs, realizing goals of economic development with an emphasis on best practices for sustainable resource use:

- Use of local resources and adaptive use of inherent capacities;
- Autonomy to govern resources and determine the path for economic development;
- Facilitative role of macrogovernance structures;
- Often catalytic role of non-governmental organizations and other partners in terms of organization, fund-raising, distribution and enterprise development;
- Strong domestic demand for produce;
- Innovative use of markets and marketing mechanisms
- Fairly comprehensive approach to addressing various social problems through the benefits of economic activities.

As mentioned in the preface, the provisions of the Convention on Biological Diversity incorporate values of market efficiency, ethics and equity among stakeholders into environmental goals. By recognizing the need to alleviate poverty using their endowments and within a framework of equity, these communities have shown that implementation of access and benefit sharing can go beyond rhetoric. They also demonstrate that several factors are required for the effective implementation of access and benefit sharing, including appropriate governance structures, effective markets, ethical practices, equitable partnerships between all actors, good institutional linkages and an emphasis on appropriate monetary and non-monetary benefits.

3. Well-being of Communities: Impact of Bioenterprises and Benefit Sharing

While it was interesting to study how the respondent communities adapted to various livelihood challenges and ensured biodiversity conservation, it would also be useful to understand how the enterprises established by the communities had an impact on their well-being, as this would be an indication of whether the economic paths chosen by the communities are sustainable. Data obtained from the interviews was used for the purpose and was incorporated into a schematic analytical framework, which is presented below.

Although there is still no definitive definition of the term “well-being”, it is generally accepted that it is an overall feeling experienced by people as a result of various needs being met. These needs have been identified by various researchers as including a productive life with reasonable life expectancy, health with access to nourishment and shelter, security of one’s self and actions, social affiliations without discrimination, control over one’s environment and the ability to coexist with nature and one’s surrounding environment (Nussbaum and Sen, 1993).

3.1 Measurement of well-being

To measure the well-being of communities, the “capabilities framework” developed by Nussbaum and Sen (ibid) was used as an analytical framework. The capabilities framework helps to describe the well-being of a social group (community) whose members have made decisions within the “freedoms given to them” and available “capabilities” (including natural endowments, skills, norms, values and markets). It does not presuppose well-being based solely on “rational economic choice”, but anchors well-being in both moral and economic choices.

Some researchers (Clarke, 2006) have attempted to measure the well-being of nations by correlating it to the achievement of Maslow’s “hierarchical framework of human needs”, which include “basic needs”, “safety”, “belonging”, “self-esteem” and “Self-actualization”.

The Maslow framework, used in tandem with the capabilities framework, was considered by the authors to be an ideal analytical tool for capturing the well-being of a community. The present study attempts to achieve this by capturing the revealed aspirations of the respondent communities and indicating how the needs of the communities are being met.

Researchers attempting to measure well-being are faced with the task of identifying measurable and comparable indicators for various components. Using Clarke's model of measuring well-being by defining indicators for each component within Maslow's frameworks, and consistent with the view that value judgments are best made by the researcher in line with the tenets of normative social choice theory, the present research attempts to define well-being using the following framework of needs and related indicators:

- Basic needs: captured by indicators related to food, health and shelter;
- Safety needs: captured by indicators related to settled lives and security from risks, including economic and natural risks;
- Belonging needs: captured by indicators related to social groups and equity in transactions, including gender equity and non-discrimination;
- Self-esteem and self-actualization needs: captured by indicators related to autonomy, confidence and education.

A recent report by the International Institute for Sustainable Development on sustainability indicators for measuring the well-being of the First Nations community in Winnipeg, Canada, concluded that a number of key factors affected the community's well-being. The factors included cultural identity, education, security, housing, health, governance, community services and employment (IISD, 2008). These are similar to the well-being indicators developed for this study as can be seen in the following section.

3.2 Scores and rationale

Scores were assigned on a scale of -2 to 1 or 2, (providing for number of potential events or possible scenarios) as assigned below. Some of the scores capture *changes* to the different indicators. Others, such as those relating to tenure and autonomy, pertain to conditions that hinge on the laws of the country, and hence reflect the *status* of respective indicators. It is worth reiterating here that the data were evocative in nature and not quantitative. The various indicators used to capture well-being and their corresponding scores are listed below.

3.2.1 Basic needs

Food, clothing and shelter are considered basic requirements of humans. In addition, access to good health is an important requirement that enables one to meet one's other needs. Hence, the indicators for basic needs considered for the present study include:

- Food security: improved food consumption and capacity to buffer (much improvement when both are considered to equally increase (2); moderate improvement when either consumption or capacity to buffer increase (1); no change (0); moderate decline when either consumption or capacity to buffer decrease (-1); sharp decline when both decline (-2));
- Health security: improved access to health care facilities (much improvement if better health care can be accessed near the area where community(ies) live(2); moderate improvement if better health care can be accessed at a distance, such as nearest district or city headquarters (1); no change (0); moderate decline, if some services from the available health care facilities have become dysfunctional (-1); sharp decline, if most services from available health care facilities have become dysfunctional (-2));
- Shelter provision: improved quality of houses built (much improvement (2); moderate improvement (1); no change (0); moderate decline (-1); sharp decline (-2)).

3.2.2 Safety needs

Safety needs are met when community members have the freedom to make decisions related to their assets (which can be determined through clear tenure rights) and when they are in a position to mitigate fears related to economic and natural risks. Hence, the indicators identified include:

- Settled: improved clarity of property tenure (very well defined tenure rights, i.e., when ownership of property is well defined (2); Somewhat clear tenure, i.e., when usufructuary rights and ownership rights in a given property do not match (1); no tenure rights (0); partial loss of tenure rights, i.e., when access to and ownership of portions of traditionally owned land are removed (-1); removal of tenure rights (-2));
- Economic security:
 - Savings: improvement in various ways of saving such as bank accounts and other formal and informal mechanisms (much improvement (2); moderate improvement (1); no savings (0); moderate reduction in savings (-1); sharp reduction in savings (-2));
 - Alternative economic opportunities: improvement in economic alternatives: three or more alternatives (2); two alternatives (1); no alternatives (0); moderate reduction in alternatives (-1); sharp reduction in alternatives (-2).
- Security from natural risks:
 - Insurance: improved access to various schemes that protect against different kinds of risk to life, property and collateral: (much improvement, i.e., access to several schemes such as for crops, life, etc.; more than two schemes (2); moderate improvement, if access to a single scheme (1); no schemes (0); moderate decline, i.e., few schemes become defunct (-1); sharp decline, i.e., several schemes become defunct (-2));
 - Community funds: improvement in social funds used for various community purposes (much improvement, i.e., several types of funds are in place in areas such as education, health and

infrastructure (2); moderate improvement, i.e., few types of funds are in place (1); no change (0); moderate decline, i.e., some funds have become defunct (-1); Sharp decline, i.e., severe curtailing of funds has occurred (-2));

- Conservation activities: improvement in activities related to protection and sustainable use of natural resources, awareness raising, advocacy leading to action, etc. (much improvement, i.e., more than two activities are in place (2); moderate improvement, i.e., two activities are in place (1); absent (0); moderate decline, i.e., few activities have been stopped (-1); sharp decline, i.e., several activities have been stopped (-2)).

3.2.3 Belonging needs

The presence of social groups and equity in transactions among the different members of the groups enhances community solidarity and a sense of belonging among the members of a community. Such equity should extend to women and to all members of the community. Hence, the indicators identified for belonging needs are as follows:

- Social groups: improved number of organized ethnic and social groups (much improvement, i.e., when there are several groups (2); moderate improvement, i.e., when there are few groups or strengthening of only existing groups (1); absent or no change (0); Moderate decline, i.e., loss of some groups, especially social groups (-1); sharp decline, i.e., loss of several groups, especially ethnic groups (-2));
- Equity in transactions:
 - Gender equity, i.e., improvement in the engagement of women in economic activities and leadership. There are two sets of scores in this area, one for economic activity and one for leadership:
 - Much improvement, i.e., all women are involved in economic activities (2); moderate improvement, i.e., some women are involved (1); absent or no change (0); moderate decline, i.e., a reduction in women engaged in activities (-1); sharp decline, i.e., no women are engaged in activities (-2);

- Much improvement, i.e., women occupy at least 25 per cent of leadership positions (2); moderate improvement, i.e. some degree of women representation is present (1); Absent or no change (0); Moderate decline, i.e. there has been some reduction in women leadership (-1); Sharp decline, i.e. women leadership has become defunct (-2).
- Equity among all stakeholders: improvement in the degree to which a community is inclusive of all its members in providing access to resources and leadership and just in the allocation of benefits derived from various activities. The scores follow the same logic as in the case of equity among women:
 - Equal rights of access to resources (much improvement (2); moderate improvement (1); absent or no change (0); moderate decline (-1); sharp decline (-2));
 - Equal rights to occupy leadership positions (much improvement (2); moderate improvement (1); absent (0); moderate decline (-1); sharp decline (-2));
 - Equal rights to share in returns commensurate with contribution and justice (much improvement (2); moderate improvement (1); absent or no change (0); moderate decline (-1); sharp decline (-2)).

3.2.4 Self-esteem and self-actualization needs

An important component of this segment is the prevalence of autonomy, which provides communities the freedom to choose the path that brings maximum returns in terms of their own well-being. The other indicators chosen include the ability to pursue educational aspirations and overall confidence level of the community, which may be evident from a community's success in negotiating with different external agencies. They include:

- Autonomy over regulation of resources: (highly present (2); somewhat present when co-owned with others like the State (1); absent (0); some loss of autonomy (-1); sharp decline (-2));

- Autonomy over economic activities: (highly present (2); somewhat present when co-owned with others (1); absent (0); some loss of autonomy (-1); sharp decline (-2));
- Autonomy over local governance: (highly present (2); somewhat present when co-owned with others like the State (1); absent (0); some loss of autonomy (-1); sharp decline (-2));
- Education: improvement in physical and financial accessibility of educational institutions where members of the community aspire to learn (much improvement (2); moderate improvement, i.e., at least some of educational aspirations are met (1); absent (0); moderate decline, i.e., access to some institutions is more difficult (-1); sharp decline, i.e., access to several institutions is more difficult (-2));
- Confidence: improvement in the ability of the respondent communities to negotiate with external agencies to arrive at mutually desirable outcomes. This is a subjective notion but is useful to capture the psychological well-being of communities (much improvement, i.e., communities have developed successful partnerships and networks with various kinds of agencies (2); moderate improvement, i.e., communities have developed successful partnerships with a few agencies (1); absent (0); moderate decline, i.e., some existing partnerships have failed (-1); sharp decline, i.e., several existing partnerships or linkages have failed (-2)).

It is to be noted that the limitations of the study include limited sample size and that all of the respondent communities are successful, resulting in an inherent bias in the sample type. The study therefore does not fully capture various possible scenarios. As provisions for such scenarios are also provided for in the model, however, it is believed that the analytical framework will be useful for similar exercises in the future, including a broader set of cases. It is also to be noted that well-being is not being measured for comparison between communities, but is used as an indicator for each community of its own development. Details are set out in Table 1.

Table 1: Well-being indicators for the respondent communities⁵

Needs	Basic needs			Safety needs					
					Economic security (from risks)		Security from natural risks		
Community name	Food	HLTH	SLTR	Sett	SVNG	ALT	Ins	COMFUN	CON
Community Tours Sian ka'an	2	2	2	2	2	2	0	2	2
Asociación de Mujeres	2	2	2	2	2	2	0	1	2
Estado de Quintana Roo	2	2	2	2	2	2	0	0	2
Maya Nut	2	2	2	2	2	2	0	1	2
Barrio El Progreso	2	2	2	2	2	2	0	1	2
Tarcoles	2	2	2	2	2	2	0	1	2
Talamanca	2	2	2	2	2	2	0	2	2
Chibememe	2	2	2	2	2	2	0	1	2
Sepik Initiative	2	1	1	2	1	1	0	0	2
Luang Namtha	2	2	2	2	2	2	0	2	2
Kalinga	2	2	2	2	2	2	0	1	2
Shompole	2	2	2	2	2	2	0	2	2
Aaharam	2	2	2	2	2	2	0	1	2
COPRONAT	2	2	2	2	2	2	0	2	2

Dependence on bioassets and poverty are often believed to be the underlying causes that bring down the level and quality of biodiversity assets. What is proved by the present study, applying the principle of proof by exception, is that engaging in a diversity of livelihood activities, including those related to bio-assets, encourages conservation of resources. The study also highlights that equitable partnerships and linkages with appropriate institutions can help

⁵ The scores 0, 1 and 2 represent respectively absence (or no change in status), some improvement and much improvement in the fulfilment of a particular need. Please note that in this study no decline in status was observed for any of the indicators.

Belonging						Self-esteem				
Equity in transactions										
SOC	WOMECON	WOMLDR	ACSRSC	ASCLDR	EQBS	AUTRSC	AUTECO	AUTLOG	EDU	CONF
2	2	1	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	1	2
2	2	2	2	2	2	2	2	2	1	2
2	2	2	2	1	2	2	2	2	1	2
2	2	2	2	2	2	2	2	2	1	2
2	2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	1	2	2
2	2	2	2	2	2	2	2	2	2	2

HLTH: Health; **SLTR:** Shelter; **Sett:** Settled; **SVNG:** Savings; **ALT:** Alternative economic activities; **Ins:** Insurance; **COMFUN:** Community Funds; **CON:** Conservation activities; **SOC:** Social groups; **WOMECON:** Involvement of women in economic activities; **WOMLDR:** Involvement of women in leadership; **ACSRSC:** Equality in access to resources; **ASCLDR:** Equality in access to leadership; **EQBS:** benefit sharing commensurate with contribution; **AUTRSC:** Autonomy to regulate resources; **AUTECO:** Autonomy on economic choices; **AUTLOG:** Autonomy over local governance; **EDU:** Education; **CONF:** Confidence level

communities better to capitalize on the strength of their products and use their resources in a sustainable fashion.

In terms of well-being, the results indicate that most of the communities have done well in terms of realizing most of their needs. What is of relevance here is that whereas economic needs have been largely met due to the communities' enterprises, they have been effective and equitable thanks to collective norms on distribution of incomes. It is noteworthy that benefit sharing mechanisms are being implemented and are likely to continue to occur as long as economic utility (in terms of income and satisfaction of wants of the communities) can be derived from the resources (and products/ services) under the laws of appropriate governance structures, whether federal or locally controlled. Customary law and ethical principles, when encouraged and creatively employed, play a significant role in ensuring equity and distributive justice and strengthening solidarity among members of a community.

One of the conclusions that may be drawn from the present study relates to how the engagement of communities affects the conservation of biodiversity and the well-being of communities that are dependent on it. It would not be improper to conclude from the study that the active engagement of local communities in policies and decisions will improve both the rate of conservation, and the well-being of communities.⁶

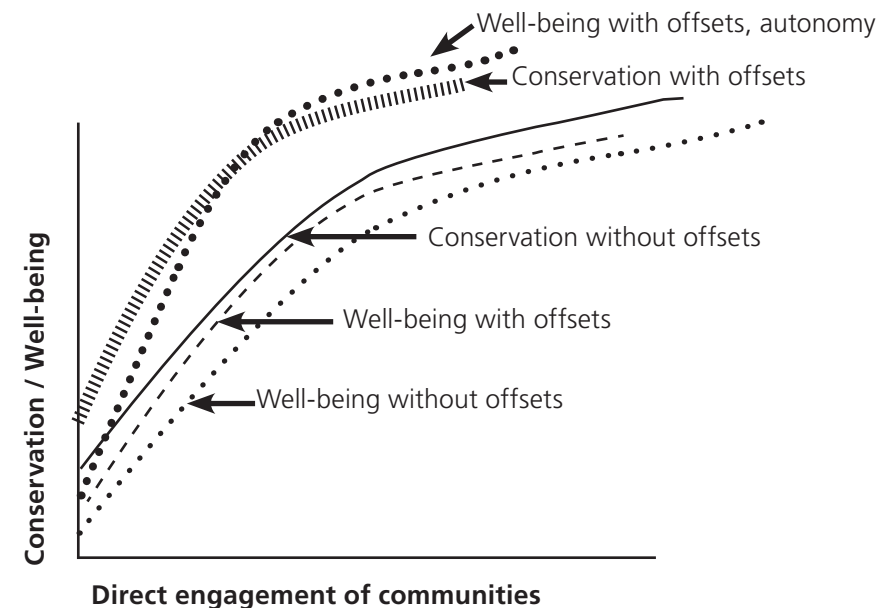
Biodiversity offsets, for example, through measures such as payment for ecosystem services and even carbon trading should result in increased conservation. Corresponding to this, it is likely that such

⁶ One of the comprehensive definitions of the conservation of biodiversity states that it generally refers to human efforts to correct, reverse, prevent, or discontinue activities that are causing declines in biodiversity, i.e., pollution, deforestation, chemical waste, etc. (Jessica J. Miller and livingunderworld, at <http://www.livingunderworld.org/biodiversity/>). It is hence considered a positive action "embracing preservations, maintenance, sustainable utilization, restoration, and enhancement of the natural environment" (Global Biodiversity Strategy, WRI).

measures will also enhance the well-being of communities, given the economic incentives and assuming that communities enjoy a degree of autonomy over their governance structures, local resources and economic activities comparable to that seen in most of the respondent communities in the study.

The rate at which well-being improves will not necessarily equal or exceed the rate of increase in conservation activities, as seen in the case of the Sepik Initiative. Increased autonomy coupled with engagement, however, facilitates the realization of several well-being requirements that could perhaps accelerate the rate of improvement in well-being. This notion is represented graphically in the following figure:

Figure 1: Impact of engaging communities in benefit sharing on conservation and well-being



4. Linking the findings with current debates on access to genetic resources and benefit sharing

As mentioned above in the introduction, one of the purposes of the present study is to discover the extent to which current debates and negotiations on access and benefit sharing issues at various levels are well informed and inclusive. The Convention on Biological Diversity provided a visionary principle for dealing with ethics and equity in sharing the benefits of conservation and sustainable use but countries are still struggling to translate that principle into ground-level action. While it has been viewed as something that can facilitate implementation of the objectives of the Convention on Biological Diversity, access and benefit sharing is increasingly considered to be something that hinders it.

From the study the following points emerge clearly:

- Communities are involved in designing, developing and using principles that are relevant to access and benefit sharing for their own activities irrespective of the state of development of the international access and benefit sharing regime in their locations.
- While often recognizing these activities as good community-based natural resource management practices useful for the conservation and sustainable use of biological resources, those negotiating the international regime on access and benefit sharing currently do not fully recognize the utility of identifying and using such community experiences to develop implementable activities related to access and benefit sharing at the local level.
- If countries are serious about using access and benefit sharing principles under the Convention on Biological Diversity as a basis for improving the livelihoods of communities and dealing with related conservation and sustainable use issues, they will gain by understanding and including communities and their perspectives

in their efforts to define the nature, scope and elements of the international regime on access and benefit sharing.

- Experiences from the respondent communities and their activities analysed in the present study indicate that the activities of community that build on their capabilities can be sustainable and are directly linked to human well-being (see also the diagram above).
- Local enterprises based on biological resources also enable better valuation of payments for ecosystem services schemes. This implies that co-benefits related to development principles can also be linked to well-designed access and benefit sharing principles. The experiences identified above indicate that the engagement of communities broadens the definition of benefits within the access and benefit sharing principles under the Convention on Biological Diversity.
- As communities are major stakeholders both as suppliers of biological resources and recipients of benefits from their use, the access and benefit sharing principles under the Convention on Biological Diversity need to be understood from their perspective first rather than from legal and regulatory perspectives.
- In consequence, country efforts with regard to ethics and equity norms in conservation action need to link to community experiences and priorities. This would be in line with Article 10(c) of the CBD text which requires contracting parties to, as far as possible *“Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.”* Taken together, operationalizing Art 8(j) and 10(c) is a broad responsibility for countries since it applies directly to the *relationships* between communities and biological resources and their ecosystems. This is unlike the narrow subset of genetic resources within which current discussions are underway.
- In a similar vein, the negotiations on an international access and benefit sharing regime under the Convention on Biological Diversity

will gain from considering the governance and operational principles of community-managed conservation and benefit sharing action along with theoretical assessments on linking conservation and equity under the Convention.

- Initiatives such as the Equator Initiative, which have recognized over one thousand community based success stories linking conservation and development, need to be replicated and strengthened at the regional and national levels.
- Support for the identification and translation of lessons learned from community-based initiatives like the Equator Initiative should be given the utmost priority when it comes to building capacities and raising awareness on access and benefit sharing issues.

Considering the outcomes thus far of the Convention on Biological Diversity's Ad Hoc Open-ended Working Group on Access and Benefit Sharing, the present study identifies some critical areas for consideration by those negotiating the international access and benefit sharing regime that could facilitate better implementation at the national and sub-national levels, with particular relevance to communities.

Some key recommendations for the Open-ended Working Group to consider at its forthcoming meetings follow:

- In their submission for the seventh meeting of the Open-ended Working Group (UNEP/CBD/WG-ABS/7/INF/5), the authors recommended that indigenous and local communities be allowed to maintain, reinforce and develop their distinct social structures and that their to self-determination be respected. They also called for recognition of the fact that traditional knowledge and practices associated with genetic resources were dynamic and evolving and that no domestic regulation or legislation should fix the knowledge base at any given point in time. The examples and case studies cited in the present study reflect the fact that communities have

developed and evolved unique practices to regulate access to and use of biological resources according to their own understanding of resource use, value addition and associated practices of sharing benefits. Thus, the discussions on formalizing the access and benefit sharing regime at the global and national levels should be cognizant of the successes that communities have had in coming up with a flexible and implementable mechanism for both access and benefit sharing.

- The Working Group should consider whether there is a general understanding that several communities of research practice are particularly relevant to conservation and sustainable use and, if so, whether they are involved in commercial research activities.
- The inconsistencies that characterize the legal treatment of genetic resources form a serious obstacle to current negotiations under the international regime on access and benefit sharing (Pisupati, 2005). These can be described as inconsistencies regarding the sources of resources, user groups, ownership, and conversion of non-exclusive resources into exclusive resources through intellectual property protection. This paradox boils down to a simple question: if a user obtains the right to genetic resources from one of a large group of holders, how can the user convert it into an exclusive right without permission from all the other holders? This question is being easily answered by the practices identified by respondent communities in the cases presented in the present study. The communities are not interested in exclusivity of resource rights but rather in using the benefits collectively. One can see this even in typical bioprospecting examples such as the San-Hoodia case, where the San and other tribes, who are dispersed across countries, have the same knowledge related to biological resources and have agreed to share the benefits arising from their commercial use among all communities that share the heritage (Wynberg, 2008). In the event that the negotiations on the international regime on access and benefit sharing do not take into account the experience of communities thus far we will merely

add to the complexity of developing legal systems for dealing with access and benefit sharing at the national level.

- There exists a wide diversity of community-level procedures, norms and rules that address access to natural, biological and genetic resources, that form part of a community's customary laws. These customary laws and community-level procedures pertaining to traditional knowledge and resource use are relevant to the international regime on access and benefit sharing. Procedures for prior informed consent and mutually agreed terms, when they have not been established, can draw on existing practices.
- The study presents the social and economic rationale for fair and equitable benefit sharing and the participation of local communities in decision-making. It demonstrates how the twin goals of improved well-being (which addresses poverty alleviation along with other indicators) and biodiversity conservation can be catalysed by suitably designed benefit sharing mechanisms. Such mechanisms do not involve mere money transfers, but an acknowledgement of inherent capabilities, access to wide and appropriate institutional linkages and supportive services and sufficient autonomy to allow communities to pursue their aspirations.
- To reiterate a point made earlier on co-benefits, it should be noted that policy linkages are not just related to policies elaborated within the framework of the Convention on Biological Diversity, but also to broader development principles such as the Millennium Development Goals (especially related to health, poverty alleviation, environment and mother and child care), and principles in such areas as human rights (as enunciated by the United Nations Permanent Forum for Indigenous Issues and various instruments of the International Labour Organization), land use resource rights and others.
- Though not always consciously, local communities adapt to changing policy environments and, given a fair chance, demonstrate creative linking of policies and practices. Such policy practice linkages have

not yet been fully explored by policymakers in respect of policies that exists in some countries featured in the study, such as Costa Rica, Mexico, the Philippines and India. With greater interaction (and with growing interest on the part of policy bodies in localizing implementation) it is possible to cause an expansion in such linkages between policymakers and practitioners. Some of the challenges highlighted by the respondent communities in the study have arisen due to implementation of policies and practices that are socially and culturally insensitive and hence could have been addressed had the policies and practices been designed within a framework of respect for different worldviews.

- For now practice, driven by practical considerations, is moving ahead of policy, which is driven by political compulsions. This then implies that there is a need for in-depth analysis of policy-practice linkages, in the absence of which effective implementation of policies will continue to be hindered.

It would be useful to have a database of best practices on a longitudinal scale and to use them in policy discussions. As stated earlier, the present study only begins to explore the implications of community best practices. While the results have been encouraging, the authors are aware that they are based on a biased sample. The results, however, clearly indicate that there exists a greater scope to expand on the study's assumptions, refine the methodology and obtain participatory and precise responses that can provide more inputs to national and intergovernmental policymaking processes.

In conclusion the present study portrays the manner in which communities are using and sharing biological resources for conservation, economic well-being and local development. Governance and resource-use regimes offer lessons to policymakers at the national and global levels that can help them to understand the basic principles that communities have applied to the use of and sharing of the benefits from biodiversity at the local level. If policymakers do

not understand these principles and take them into account there is a danger that the current negotiations on an international regime on access and benefit sharing might result in provisions on access and benefit sharing under the Convention on Biological Diversity that are not reflective of community perspectives – making the provisions and policies either irrelevant or difficult to implement at the local level.

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