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Saving the Philippine Hotspots – Are We Succeeding? A Social Science View From the Ground

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The state of biodiversity in the country requires immediate and coordinated response from local communities, the government, and the private sector. Biodiversity loss since the last decade continues today despite the increasing inflow of foreign-assisted investments in conservation initiatives. A number of these efforts provide lessons learned the hard way: the need for strategic partnerships among various stakeholders, no matter how serious their resource conflicts may be; for LGUs to take a stronger position in the control and management of their resource base in the light of Philippine society's political culture and poverty; for policy harmonization among government offices whose programs and administrative directives compete for scarce resource areas; for transdisciplinal, holistic strategies and methodologies to be creatively thought out in order to address complex problems in resource use arrangements; for the primary local communities, including the cultural communities with their unique contribution to cultural and biological diversity, to be given rightful consideration in any conservation effort. These lessons are presented in greater detail in the paper to demonstrate that, indeed, there is hope in conserving Philippine Biodiversity. The paper is a summary of the 18-month nationally-coordinated Philippine Biodiversity Conservation Priority-Setting Program spearheaded by the Department of Environment and Natural Resources (DENR). The program brought together 300 individuals and institutions from both the public and private sectors.

Introduction

Much of the biodiversity loss we experience today in the Philippines is the result of anthropogenic activities in an archipelago which has unique assemblages of plants, animals and cultural systems and varied land forms, diverse landscapes, and vast seascapes. While the life sciences have continuously provided us with expanding knowledge of our rich biological resources, environmental science seems to lag in giving us with management strategies we need to cope with the country's worsening biodiversity status.

Social scientists have a crucial role to play in the analysis not only of the issues confronting biodiversity loss but of conservation initiatives as well. On the positive side, the regard for the social sciences as a soft science which has no links to biology is being revised. The theory and practice of social science in biodiversity conservation is now increasingly being recognized and mainstreamed, just as the ordinary people who

have always come last in most scientific studies, are now being prioritized in conservation action. It is important to assess how we have been trying to save our rich biological heritage and ecological sustainability.

Biodiversity Status of the Philippines

The country's land mass of 300,780 sq. km. is considered the second smallest of 17 megadiversity countries globally, the result of complex geologic histories and biological evolution. Despite its exceptionally diverse biota, however, it is also one of the top threatened hotspots on earth. Considering the size of the Philippines vis-à-vis the other megadiversity sites, it is in fact considered the hottest of hotspots if endemism and diversity in terrestrial and marine plant and animal species are considered on a per unit area basis.[1]

The aggregation of many small biogeographic units makes the country a distinctive and unique place. Biologists recognize five major and at least five minor centers of endemism in the country, each supporting its own unique set of mammals, amphibians, plants, birds, reptiles, and butterflies, and each geographically isolated from the others. For terrestrial mammal endemism, the centers include: Luzon, Greater Mindoro, Greater Palawan, Greater Mindanao and Greater Sulu.[2] It also has within its borders 12 centers of plant diversity and endemism recognized by the World Wildlife Fund/International Union for the Conservation of Nature. These are: Mt. Apo, Mindanao; Mt. Kitanglad, Mindanao; Mt. Pulog, Luzon; the Palanan wilderness area, Luzon; Palawan; Sibuyan Island; Romblon Island; Southern Samar Island; Mt. Baloy, central Panay Island; Mt. Isarog, Camarines Sur Province, Mt. Talinas and Lake Balinsasayao; and Mt. Makiling and Mt. Banahaw. Meanwhile, nine endemic bird areas are identified by Birdlife International in the Luzon Mountains, the Luzon lowlands and foothills, Mindoro, Negros and Panay, Cebu, Palawan, Samar-Leyte-Bohol, the Mindanao lowlands and Sulu Archipelago.

Philippine endemics comprise 60 percent or 530 of the more than 889 species of indigenous or native amphibians, birds, mammals and reptiles. For plants, despite the still inadequate knowledge about the species count, recent biological discoveries and inventories place the estimate of plant diversity in the country within the range of 8,000 to 12,000 species, of which 3,800 to 6,000 are endemics.[3] The 2000

IUCN Red List of Threatened Species included a total of 227 species, among which are 193 species considered as threatened (critically endangered, endangered and vulnerable) for the Philippines. The most threatened families are Dipterocarpaceae, Myristicaceae, Euphorbiaceae, Meliaceae, Leguminosae, Sapindaceae, Annonaceae, Apocynaceae, Sapotaceae, Lauraceae, Palmae, and Elaeocarpaceae.

Along with Indonesia and Malaysia, the Philippines falls within the region of the highest marine diversity, spanning at least 3 biogeographic regions with 6 biogeographic sub-zone classifications that include: Sulu Sea, South China Sea, Visayan Sea and surrounding archipelagic island clusters Celebes Sea, Northern Philippine Sea and Southern Philippine Sea. The three countries hold the 'coral triangle', the region believed to have the highest marine mollusk diversity containing an estimated 27 percent of all marine mollusks. The region similarly has the highest coral, sea grass and fish diversity in the world.

Identifying the Country's Hotspots

The country undoubtedly has a very rich national patrimony in its biological resources, although the uneven historical development of Philippine communities has created imbalances in biodiversity status and local capabilities to address threats. While the challenges of restorative ecology and new demands created by this century require the recognition of the unique and interdependent roles of each ecosystem, it is expedient that the inter-related knowledge of scientists and planners, decision-makers and publics, academicians and field workers be maximized in reviewing how bad our biodiversity status is and recommend what to do next.

It was this shared perspective that spurred more than 300 individuals and institutions from both the public and private sectors to work together over a period of 18 months from January 2000 to mid 2001 in a nationally-coordinated exercise called the Philippine Biodiversity Conservation Priority-Setting Program. This was convened by the Department of Environment and Natural Resources' Protected Areas and Wildlife Bureau (DENR-PAWB), Conservation International–Philippines, and the University of the Philippines–National Academy of Science and Technology's Biodiversity Conservation Program (UPS-NAST BCP) under the Center for Integrative and Development Studies. Out of a common

desire to seek a balance between human needs and the earth's resources, the recently concluded priority-setting exercise provided institutional players and actors a rare opportunity to strive for a consensus on where to direct conservation work in the Philippines.

Seven working groups carried out the data gathering and experts' assessments for the priority-setting: four were taxon-based (plants, vertebrates, herpes, arthropods), two ecosystem-based (inland waters and marine), and one called "socio-economic". Common to all the groups was the data-gathering approach: a series of consultation workshops; review of primary and secondary data sets from previous scientific studies, herbarium collections, project documents and reports, government planning documents, area profiles, and the like; construction of data-bases; scoring; and mapping.

The biologists considered species richness/uniqueness/ distinctiveness, endemism, species status, habitat diversity and importance in their criteria. Meanwhile, the social scientists assessed biodiversity pressures as associated with demographic, social, economic factors as well as human impact on resource utilization. Against maps which locate the threatened sites and protected areas, data on relative density and in-migration were qualitatively assessed in accordance with the following:

- type of habitat accessed and used by the population
- proportion of the population dependent on the resources in the habitat
- settlement pattern or distribution of the population over the habitat or resource area.

The severity of tenurial issues relied on expert knowledge of the local situation. Information on poverty incidence was based on provincial sources whenever available, or the regional average.

Because the manner by which people manage their environmental resources is a very crucial influence on ecological processes, natural resource utilization was qualitatively assessed relative to a hierarchy of biodiversity threats in each habitat type vis-à-vis the following:

- percentages of population dependent on the resource
- sources of environmental degradation

- effects on habitat
- level of technology used in resource use
- introduction of invasive and exotic species
- impact of strategic development plans
- threats from unplanned development

Conservation initiatives and opportunities from project documents and experts' knowledge (anthropologists, field researchers and project implementers of development agencies from both the government and non-government sectors, leaders of networks of peoples' organizations) were similarly reviewed.

The project resulted in the identification of one hundred seventy (170) most important terrestrial and inland water sites, and 36 marine priority areas. When classified into clusters, this translates to 19 terrestrial corridors that include the following : Sierra Madre, Palawan, Bataan-Zambales, Northern Cordillera, Caraballo, Bicol, Halcon-Baco, Sablayan, Samar, Kanlaon, Leyte, Panay Mountains, Central Cebu, Talinis, Caraga (Agusan-Diwata), Central Mindanao (Kitanglad-Mt. Apo), Malindang, Zamboanga Peninsula, and Tawi-tawi. There are also eight marine corridors consisting of the following : Batanes area, Mindoro-Batangas, Mindoro-Calamianes, Mindoro-Romblon, Negros-Panay, South of Balabac Island, Siargao Straits, and the Masbate-Bicol-Samar area.

Major Sources and Types of Human Pressures

Pressures on the status of biological resources and habitats come mainly from extractive industries (mining and logging), infrastructure development (road building) and land conversion (from forest to agricultural land and settlements as well as industrial estates). While poverty and demographic factors (especially population growth and migration) are often faulted for these inter-related development and ecological processes, inequitable access to resources and weak institutional factors are just as much at the root of the precarious state of biodiversity.

As early as the 19th century, large-scale logging first deforested Negros, Cebu, and Bohol in the Visayas, and Ilocos, Nueva Ecija and Pangasinan in Luzon. Along with these provinces, Benguet, Mountain Province, Cagayan, Isabela, and the provinces of eastern and central Mindanao were similarly cleared for logging, mining, and plantations for

export crops or mono-cropped gardens in the next 100 years. In the early 20th century, the exploitation of forest resources supported the colonial agenda of helping US-based machine manufacturers.[4] American investments in the sawmill industry in the Philippines accounted for 41 percent, with the local politico-economic elite accounting for 34 percent.[5] Logging in the Baguio area up to Mt. Data similarly supported corporate mining in Benguet for almost 70 years, only to give way to temperate vegetable gardens for the domestic market.[6] In the 1960s, central and eastern Mindanao became expansion areas not only for human settlements, but also for logging and plantation economies which produced pineapple, banana, coconut, palm oil and rubber for export.[7]

Both Mindanao and Luzon's Central Cordillera still experience this history of social neglect, economic and cultural marginalization, and land disenfranchisement as more and more settlers take over open areas. Meanwhile, population pressure is highest in the Visayas where the resource base has become smaller for a large cash-poor agricultural population dominated by a small land owning and business elite.[8]

Among proximate drivers, general pressures experienced today in almost all islands include habitat destruction from land conversion (from forest to agricultural and from agricultural to industrial and residential), extractive resource utilization by industries (large and small-scale logging and mining), and weak or unsustainable management (forest fires, weak pollution controls, unregulated/destructive collection). In marine and coastal areas, biodiversity losses result from mangrove deforestation, conversion to mariculture, as well as destructive, over- and unregulated fishing.

For ultimate drivers, extremely high pressure from human activities is being experienced by central and western Mindanao, Panay, Southern Cordillera, Zambales, Bataan, Laguna, Bulacan, Rizal and Quezon. Most of the remaining identified priority sites are assessed to have very high socio-economic pressure.

Corporate mining practically threatens most of the Central Cordillera, Sierra Madre, Mindoro, Marinduque, the Bicol region, Cebu, Negros Occidental, as well as western, northern and eastern Mindanao. Out of the country's total land area of 300,000 sq.km., as many as 73 applications for Financial or Technical Assistance Agreement (FTTA) as

of February 1999 already covered 20 percent of the country, 60 percent of which are in areas under applications for CADC.[9] Specifically, as wide as 950,225 hectares nationwide are the object of mining applications for gold and copper alone in 14 out of 84 FTAAs being processed by the Mines and Geodetic Bureau as of the previous year. Meanwhile, applications for Mineral Production Sharing Arrangement (MPSA) had reached 1,450 by then. Further, 45 Exploration Permits (EPs) covering 452,561 hectares have already been granted. Operational mines produce industrial pollution which degrade inland and coastal waters and thus affect riverine and marine resources notably in Ilocos Sur, La Union, Abra, Benguet, Camarines, Mindoro, Masbate, Negros, Samar, northeastern Mindanao, and Davao. Elsewhere, unregulated small-scale mining of non-metallic minerals (including quarrying) contribute to widespread erosion in almost all the considerably populated islands.

Twenty-one operational Timber License Agreements (TLAs) as of 1998 cover some 1.03 million hectares located in the Comprehensive Agrarian Reform (CAR), Autonomous Region of Muslim Mindanao (ARMM), and Regions 2, 4, 9, 10, 12 and 13. Where TLAs had ended or were cancelled, logged-over areas are now subjected to unsustainable agricultural practices by a continuously expanding migrant settler population. Meanwhile, unregulated logging (despite the presence of TLAs) in areas within or close to protected sites continues, and much more so where no protected areas have been declared. This trend is reported for example in northern Sierra Madre and Surigao. Lastly, small-scale logging and upland rainfed agriculture with minimal regulation are observed almost in all hilly lands in the country.

The expansion of industrial estates which require land conversion and massive infrastructure development are the key sources of biodiversity pressures. Physical plans for the expansion of settlements to decongest envisaged Regional Industrial Centers (RICs) indicate further encroachment into important bird areas and buffer zones of protected areas in the northern and central Sierra Madre, Central Cordillera, Mindoro, Panay, eastern and central Mindanao.

The institutional analysis showed a weak consideration of the biodiversity conservation component in most physical framework and development plans, which predominantly equate development with economic growth in terms of increases in regional gross domestic product

from industries and agriculture. Without environmental mitigation, investments for development projects which are already earmarked for the expansion of mining and forest-based industries especially in eastern Mindanao and the whole stretch of Sierra Madre may result in further biodiversity losses. Industrial estate expansion and physical integration are being pursued with infrastructure projects that cut through critical watersheds and the few remaining primary and secondary forests, unfortunately with less attention and investments given to putting in place beforehand the crucial environmental safeguards. At the moment, the resistance of local communities and advocacy groups is restraining the direction for all-out resource extraction in these areas.

Assessing Conservation Initiatives: Lessons Learned

In the face of these threats, it must be recognized that there are nonetheless so many promising programs as well as unexplored and largely untapped local capacities for conservation work in the Philippines. Other than the contribution of organized communities, non-governmental organizations, the DENR, and foreign sources of support, the islands have a comparative advantage in the rich diversity of a plurality in cultural systems which can be harnessed for biodiversity conservation despite the many threats and problems we face.

Protected area programs of the DENR through Protection Areas Management Bureau (PAMB) and projects under the Community-Based Forestry Management Program, as well as organized sectors of Philippine society take the lead in conservation initiatives in the face of these pressures. Efforts with prospects of succeeding and being sustained are those which are managed by local government units with institutionalized mechanisms and structures, especially where strong support is provided by indigenous cultural communities, non-governmental organizations and external funding agencies. Very high conservation efforts are presently being demonstrated in Mt. Isarog, Mt. Kitanglad, Sierra Madre National Park, and northern Palawan. Selected protected sites with high conservation initiatives are also located in Palawan, Panay, Mindoro, Samar, central Sierra Madre, the Cordillera Central, western and central Mindanao, and Zambales-Bataan.

Interestingly, these areas with high conservation efforts are the home of cultural communities. As a nation of cultural pluralism, the

Philippines' more than 110 indigenous peoples (IPs) or "cultural communities" comprise a conservative estimate of 17 percent or 12,887,291 out of the total population of some 75 million. They function as smaller and numerous distinct communities with traditional lifeways persisting in varying degrees relative to the impact of colonialism, the impositions of the Philippine state, penetration by the market economy, influence of Christian missionaries, and the formal educational system.

By self-identification, around 110 ethnolinguistic groups[10] are distributed in the major island clusters of Luzon (33 percent), Visayas (6 percent) and Mindanao (61 percent). They comprise a considerable proportion of the population in Mindanao[11] where the resource base is mostly forested, riverine and marine.

Island Cluster	Count	Percent
Luzon	4,168,694	33
Visayas	800,780	6
Mindanao	7,917,817	61
Total	12,887,291	100

Source: NCIP 2000

To many of our communities in the Philippines, therefore, the important diversity in our midst which we must protect and conserve is not only biological but also cultural. This has implications to approaching biodiversity conservation work at the local level, and from the perspective of what is acceptable as common ground by external agencies and the people.

Varied cultures value biological diversity in different ways. In recognizing that the dominance of the ecological principle underlying biodiversity (inter-relatedness and interdependence) in most cultural communities is inversely related to the degree of influence of introduced or formal

institutions, it is important to find out how their conservation practices can be tapped and mainstreamed. This is not to say that all indigenous peoples are good conservationists — their indigenous knowledge system (IKS) which can be harnessed for biodiversity conservation must be historically contextualized. How biological and cultural diversity is appreciated is reflected in the natural resource management systems that are in place in these communities.

The practical manifestations of the appreciation of biodiversity as well as its values among cultural communities include the use of indigenous knowledge in natural resource management practices, the influence of traditional decision-making structures in the management of natural resources, distinctions in property regimes for varied arrangements for land use, access and ownership, and technological knowledge in maintaining/ promoting agricultural diversity on the basis of sustainable development principles (as in the practice of integrated farming systems or multi-cropped areas). For example, there are local controls regarding the proper use of and against over-exploitation of resources. These controls include small-scale, regulated and scheduled hunting and fishing, forest resource utilization, fuel-wood gathering and cutting wood for domestic use only, and watershed maintenance (as in the *muyong* in Ifugao). Despite the persistence of old practices, there is community innovation in seed exchange to protect the genetic diversity particularly in food crops. Through loose formations, cultural communities improve on their technologies in organic pest control mechanisms which include the *pangkalnibigih* (Ikalahan), *holok* (Ifugao), burning of leaves and branches of *aribubtung* in the swidden (Tagbanuwa) to drive away rice worms, or the fern *ariway* to drive insect pests away, and in the observance of simultaneous cropping calendars regulated by community rituals.

Among indigenous communities, a total of 181 Certificates of Ancestral Domain Claim (CADC) has been issued as of 2000, covering an area of 2,531,968 hectares.[12] While only a small proportion of these have prepared Ancestral Domain Management Plans (26 out of 181 CADC covering 360,165 hectares) at the end of year 2000, the prospects are bright for conservation efforts to be sustained, especially if supported, among the Manobo, B'laan, Bungkalot, Ubo, Eskaya, Ati, Tagbanua, Samal, Subanen, Tiruray, Ibaloy, Kalanguya, Agta, Palawan and Dumagat. Many of these cultural communities still observe resource

management practices with regulation in accordance with their sound and time-tested indigenous knowledge systems. Where the customary system is still a strong regulatory mechanism for resource access and use as in central and eastern Mindanao, the Sulu islands, the northern Cordillera and central Sierra Madre, upland agriculture, forest extraction, and marine activities remain guided by ecological principles which promote sustainable practices. The issuance of the first Certificate of Ancestral Domain Title (CADT) to the town of Bakun in Benguet in July 2002 sets a new hope among cultural communities for state recognition of their right to manage and benefit from their own resource areas.

The National Integrated Protected Area Program (NIPAP), Coordinating Council of the Philippine Assistance Program (CPPAP), WB-GEF supported initiatives in at least 20 sites are only some of the 25 major conservation-related programs assisted from external sources, and they have accumulated a wealth of experiences and models that can strengthen the biodiversity agenda. Preliminary resource inventories and assessments were made in most of these programs, just as basic organizing and capability-building exercises have already put in place the mechanisms for advancing the conservation agenda. The seeds sown by various programs related to community-based resource management must be nurtured. The Community-Based Coastal Resources Management Program (with USAID assistance), Regional Resources Management Program (with World Bank support), and various agricultural development and livelihood assistance programs of the DENR and DA (with support from the ADB, DANIDA, CIDA, WWF and NORDECO), as well as by academic institutions and the non-governmental organizations in their separate initiative, can offer models of strategies which have worked to promote sustainable resource management.

Social mobilization and sustainability come out as the two most crucial issues in conservation. This can be explained in the fact that the underlying causes of biodiversity loss are not simply ecological processes (the proximate drivers) that happen because of weak management, but which are created by a long history of destructive resource utilization propelled by profit motivation and survival within an intricately entrenched political, socioeconomic and cultural milieu (the ultimate drivers). Biodiversity loss is a complex issue (or a complex of numerous issues): it is multidimensional, it involves many stakeholder groups with conflicting

interests, and it is historically rooted and therefore, to a large extent, operates in institutionalized practices in society.

But building an ecological conscience requires more than the usual advocacy agenda. What it demands is a social mobilization approach throughout the conservation effort – to identify the situation and the issues, strategize how to address these issues in a coordinated manner, mobilize in synergy those who can act to solve them, and ensure that the actions are sustained to produce the desired conservation action. The most effective instrument of a genuine and effective advocacy program is a critical mass of ecologically conscientized social actors who will do what they say convincingly to advance the conservation agenda.

Table 1. Key Social Mobilization Strategies and Action Values in Conservation

Conservation Strategies	Conservation Action Values
Multidisciplinary/multidimensional in scope and approach	• "conserving biodiversity, not poverty" ▫ *biological conservation* ▫ *ecosystem protection* ▫ *sustainable livelihood* ▫ *cultural integrity/ community solidar*
Inter-agency participation and coordination and policy harmonization	• appropriate agency involvement • recognition of agency capacity and mandate • mechanisms for coordination
Partnership with the local community and other stakeholders	• social acceptability • strategic alliances among stakeholde groups • local community in various appropria modes of participation
Eco-governance: transparency, political will, management *in situ*	• primacy of conservation goals • recognition of political factors • appropriate co-management scheme • policy harmonization
Aiming toward sustainability through institutionalized actions	• depolitization of the conservation agen • building self-reliance founded on soci justice

What are some of the lessons learned in the reviewed conservation initiatives? These are summarized in Table 1.

Holism in conservation

The factors leading to biodiversity loss are complex and intricately connected. For example, destructive resource utilization because of poverty and tenurial insecurity resulting from scarce and unproductive land, population pressure, weak policy enforcement and uncontrolled external demand. The objectives in social mobilization strategies for conservation need to address all these, while requiring flexibility in choosing entry points and periodically shifting programmatic foci when working with very specific communities.

Many environmental programs have neglected the provision of a livelihood component or have chosen to do so only as a belated realization, if not as a short-term solution. As one farmer from eastern Abra puts it in a recent stakeholders consultation on his first introduction to the concept, the biodiversity conservation program being promoted in the area may not gain supporters if it only appears to advocate non-use of biological resources (which the farmer mistakenly equates to "conservation"). Yet, the site is very rich in forest resources with important economic values that are as yet unassessed and untapped, and could very well be included therefore in an envisaged long-term sustainable development plan. In short, unless conservation scientists and project implementers are also able to include in their advocacy messages the other aspects of social reality which are interconnected in the local people's minds, the appreciation of biodiversity conservation may not get very far.

There are also conservation initiatives which are limited to improving the vegetative stand (as in many agroforestry programs), without full regard of the conservation needs and functions of ecosystems. In like manner, development and conservation goals are either not delineated (resulting on the misuse and mismanagement of resources), or declared as incompatible (by purists among conservationists). Productivity in our modernizing world which breeds uniformity, monocultures, and genetic modification is considered as anathema to diversity, yet productivity is incessantly being pushed as an answer to poverty thus destroying diversity, the very building block of life and sustainability.

The holism we need to inculcate as we work to build an ecological conscience is one that should consider sustainability of life support systems for the present and the future.

Inter-agency participation and cooperation : the need for policy harmonization

The institutional arrangement for addressing biodiversity loss is highly bureaucratized, compartmentalized, and segmented, oftentimes resulting in competition, conflicts, duplication, disjointed action, and the like. This bureaucratization is reflected in the enforcement of policies and program implementation.

Protection vs. land release for expanding agricultural production, forest protection vs. forest production, food security vs. high value production through monocrops, mines and logs or even industrial estate development — these are conflicting motivations in agency mandates and policy guidelines that need to be harmonized.

A key area for advancing conservation agenda is the harmonization of policy conflicts and program implementation issues. While the political and economic environment in the country makes policy harmonization difficult to pursue, institutionalization of the conservation action agenda will only prosper if the policy framework is reviewed. Aside from the Philippine Constitution and numerous administrative orders of various line agencies are at least 12 important national laws which bear on the management of primary ecosystems for protection. These include Presidential Decree 705 (Forestry Reform Code), RA (Republic Act) 7160 (Local Government Code), RA 7586 (National Integrated Protected Areas System), RA 8371 (Indigenous Peoples Rights Act), RA 7076 (Small Scale Mining Act), RA 7942 (Philippine Mining Act) and RA 6647 (Comprehensive Agrarian Reform Law).

Protection and production agenda are not necessarily clearly delineated in existing land classification system, nor are they differentiated in land use plans and actual land use practices. The present land classification system assumes the inclusion of areas classified since the 1920s as part of the public domain (excluded from alienation and disposition for private ownership) even forests and watersheds which no longer serve their intended function on account of human impacts which have transformed

the land uses. An example is the Mt. Data National Park in the Central Cordillera which is logged-over area now transformed into mono-cropped vegetable gardens.[13] Furthermore, present legislation does not distinguish clearly between the allocation of different land uses and their management pending the enactment of a Land Use Policy Bill.[14] The reclassification of lands is one area of policy harmonization which has yet to be resolved by central and local governments along with the sharing of benefits among many stakeholders.

The analysis of major laws, executive orders, presidential decrees, administrative orders and the like, shows that these have created conflicting agency mandates which confuse the locus of decision-making and accountability. There are more than sufficient safeguards for conservation in most protection laws but government programs and development plans emphasize agricultural and industrial productivity with less regard for environmental safeguards to the extent that protection lands and coastal waters are encroached upon. There are operational Timber License Agreements even in watershed and protected areas or in sites with Certificates of Ancestral Domain Claims. Considerable unregulated (illegal) logging happens in areas adjoining the coverage of a TLA. Mining applications have been approved even in areas protected by the Indigenous Peoples' Rights Act. Developers of industrial estates and expansion of human settlements draw resources from one critical area while shifting accountabilities to other management units or to other areas. The locus of decision-making and accountability is difficult to define in such areas like eastern and central Mindanao, Sierra Madre, the central Cordillera, and practically over marine and coastal areas because of management issues resulting from these overlapping access instruments.

Equitable sharing in environmental resources considered as national wealth is not well supported by any institutional program for capability-building among LGUs to enable them to negotiate judicious terms from the framework of sustainable environmental management. LGUs hardly engage in resource valuation and negotiation because they are not equipped with the required technical skills for resource accounting. Where resource evaluation is an emerging tact, biologically rich areas have yet to be recognized as potential income centers of local communities through innovative access and use arrangements based on a genuine recognition of prior ownership rights, tenurial security and resource

entitlements. Despite the provision of a development fund (and a proportion of this fund particularly for ecological purposes) in the International Revenue Allotment as provided by RA 7160, most LGUs are similarly not able to apply the spirit of the law because of weak conservation awareness.

The implementing rules and regulations in existing resource management policies carry overlaps, gaps and gray areas. A protected area's management unit (the Protected Areas Management Board) in one site (e.g., central Mindanao) cannot effectively collect user fees to maintain the site, because local groups within the site have set up a parallel structure, while a member of the same group has parceled out an approved CADC to individual settler-buyers.

These are just a few examples of policy issues, revealed during the consultations that need to be reviewed and corrected.

Partnerships with the local community and other stakeholders

"Local participation," "grassroots-based initiatives," "community-based projects" – these have become the catchwords of our development era since the post-war period and, more so, with the formation of civil society groups since the 1970s. Yet, local stakeholders have varying degrees and modes of engagement in conservation action. To illustrate

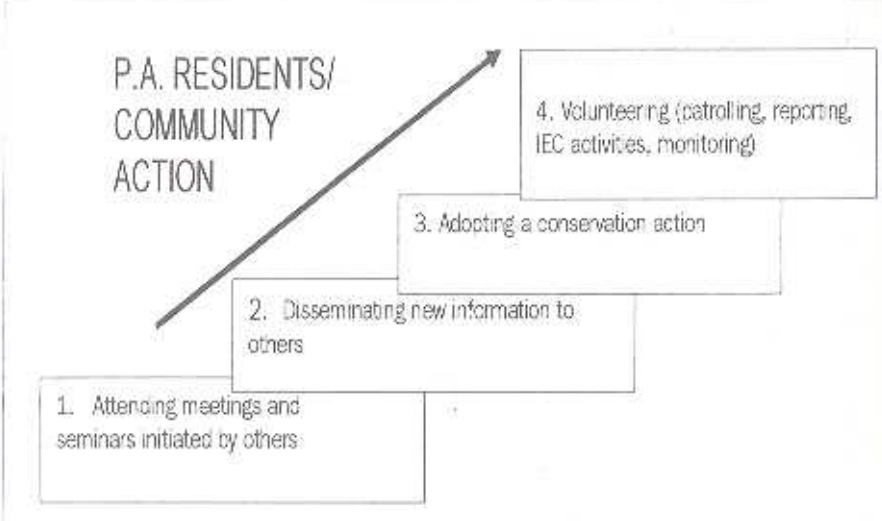

Figure 1. Levels of local participation in a typical advocacy mode

(see Fig. 1), residents in a protected area may show "participation" with mere attendance in a meeting (action type no. 1), part of the local

Table 2. Modes of Local Participation in Conservation Action

I. PA RESIDENTS / COMMUNITY

Typical advocacy mode

1. Attending meetings and seminars initiated by others
2. Disseminating new information to others
3. Adopting a conservation action
4. Volunteering (patrolling, reporting, IEC activities, monitoring)

Training mode

1. Attending training activities
2. Disseminating to others the technologies learned
3. Using the technologies learned
4. Teaching others about the technology adoption experience
5. Improving/innovating

Protected area mode

1. Protected area mapping/delineation; resource inventory
2. Land use planning/natural resource management planning
3. Adopting/innovating natural resource management practices
4. Replicating (in other sites, teaching others)

II. LOCAL GOVERNMENT UNITS

1. Attending meetings and seminars initiated by other groups/ agencies
2. Disseminating new information to others
3. Adopting a conservation action
4. Monitoring the action
5. Providing counterpart resources
6. Regulating : local policy development
7. Participating/leading in the policy enforcement (confiscating, penalizing, etc.)

protocol among organized innovators, as qualitatively differentiated from higher levels of involvements as in assuming conservation tasks as volunteers (action type no. 4).

Table 2 below summarizes the range of possible local community engagements in conservation.

Indigenous peoples' rights advocacy has pushed farther the limits of local participation. Along with environmentalists of all colors, the need to draw the lines between green capitalism and social ecology has become important.[35]

The experience of the Tagbanwa of Coron and Mangyans of Mindoro in their ancestral domain management plan preparation, described as a minoritization, despite being the majority in their homeland or as an example of "consultation aggression", has been the prevailing trend in a conservation model where the "biosphere people" can easily force "ecosystem people" into the mold of a nation-state (even a boundaryless) society. The assertion of Tagbanwa and Mangyan of their social ecological cause, and its eventual recognition by the central authority is a landmark in Philippine conservation. Yet, as with the Kalahan of Nueva Vizcaya whose success in the much touted first Philippine model in community forestry, sustainability issues need to be addressed in the face of increasing external and internal demands on an expanding population with a set collectively managed land. The people will ultimately have to address the imperatives of survival in a predominantly green capitalist world of conservation.

Ecological governance

In view of the entrenched institutional weaknesses in Philippine society, eco-governance as a strategy is a crucial element of the ecological conscience that must be built. Transparency, political will and management in place are important elements of this suggested strategy.

Any development goal pursued by the local government units, with whom environmental functions must be increasingly devolved, must be guided by the proper conservation values and goals. LGUs, the business sector, and planners must be guided by harmonized conservation-related policies and implementing rules. The conservation experiences in the country are very rich in stories of conflict and disharmony. Just as

strategic alliances are important to push the conservation agenda, so must adaptive co-management schemes be aggressively developed to encourage management *in situ*.

Lastly, good ecosystem governance will also require support through capability building activities, to include the following concerns where there are presently serious technical gaps in the country:

- Environment and Natural Resource Accounting
- Land Use Planning (that integrates Forest Land Use Planning and biodiversity conservation)
- Determination of property regimes and rights and appropriate tenurial instruments
- Market-based schemes, cooperative endeavors and credit mobilization particularly for small-scale producers
- Various approaches to zoning and management planning to dissuade encroachment into protected areas and critical habitats
- Innovative contractual arrangements toward community-based resource management as well as partnerships with corporate-led projects
- Environmental impact assessment of infrastructure, forestry, plantation, mining, and industrial projects
- Monitoring of resource extractive activities
- Exploring environment-friendly schemes for livelihood generation
- Promotion of gender equity

Institutionalization and building up sustainability

Political conditions or the peace and order situation as well as alliances, play an important role in the entire cycle of a conservation action. Philippine society is effectively run on the basis of the electoral system, yet there are niches that can be created for conservation action especially at the local level as the critical mass of conservationists in strong civil society groups expands. The depolitization of biodiversity conservation is a key element in building up sustainability, along with the provision of sustaining mechanisms as conservation communities grow.

Postcript

Planning exercises for subsequent conservation projects are closely looking into lessons from previous initiatives. With the priority-setting project being a preliminary step toward appreciating the human pressures and conservation efforts, social scientists are concerned that the first

result of the interdisciplinary work of conservation scientists, planners and field workers will not end with the list of evaluated sites. The role of local government units, organized communities and private institutions implementing rural development projects has not been fully explored during the consultations and workshops. More detailed assessments must be done next by local actors, using the broad strokes of biodiversity status evaluation that have emerged.

As the Working Group Members have articulated in the beginning of the project, the future of conservation efforts in the country will depend on how well social feasibility is ascertained early on in the priority-setting process and decision-making on which sites are now to have actual programs. Equally important is how well-placed are the mechanisms for sustainability as the partnership of government, local community, scientists, and the private sector becomes real.

Endnotes

1 Heany, 2000.
2 Vetteveer, 1998.
3 Mittermeier, 1997.
4 Roth 1988: 43-44; Ucker 1988:223-228.
5 Dela Cruz 1941: 147.
6 Boquiren, 1995; Cordillera Studies Center, 1994.
7 Rodil, 1994.
8 ESSC, 1999.
9 ESSC, 1999.
10 NCIP, 2000.
11 Rodil, 1999.
12 NCIP, 2000.
13 Cordillera Studies Center, 1994; Reyes-Boquiren, 1995; 2001.
14 De Guzman, 2001.
15 Green capitalism is associated with environmental movements that seek a happy alliance between the market economy and global resource managers or protectors. In contrast, social ecology relies on local or "ecosystem" people to solve threats to the environment on which their survival depends.

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