The Preventive Systems Approach (PSA) to Protected Area Management: The Case of Mt. Kitanglad Range Nature Park, Bukidnon, Philippines [1]

by

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Summary

While current thinking looks at why degradation is happening and tackling the underlying causes, it is better appreciated that natural resources within protected areas and watersheds can be used for economically productive purposes while maintaining its ecological functions. Degradation does not have to be a consequence for using land for agriculture and forestry. Farmers can engage in farming and management of natural forest resources in both a productive and resource-conserving manner (Garrity DP, 1999). The Integrated Conservation and Development Projects (ICDP, 1992) attempted to emphasize the balance of conservation and development in managing natural areas. A review of ICDPs however, revealed that no ICDP could succeed without the support of various sectors external to the natural area, and that, preventive rules can be placed to support the implementation and gain success in ICDPs.

The Philippine milestone in protected area management is manifested in the declaration of the National Integrated Protected Area Systems Act (NIPAS Act) in 1992. The Act provides that the management, protection, sustainable development, and rehabilitation of protected areas shall be undertaken primarily to ensure the conservation of biological diversity and that the use and enjoyment of protected areas must be consistent with that principle. It is further acknowledge that the effective administration of NIPAS will require a partnership between the Government through the Department of Environment and Natural Resources (DENR) and other interested parties including the indigenous cultural communities. This was in support of the government's center piece for local governance through the enactment of the 1991 Philippine Local Government Code (LGC) which elucidates the roles, functions, powers, and authorities of Local Governments Units (LGUs) in shaping the development template of their localities. Among others, the LGC explicitly mandated the LGUs to manage their natural resource endowments and perform the devolved functions of DENR in order to ensure the maintenance and protection of the environment's integrity. Moreover in 1997, the national government enacted the Indigenous People's Right Act (IPRA Law). IPRA is another milestone in the arena of environment and natural resource management within the context of indigenous culture and life. It embodies a culture-sensitive layer of management regime in protected area and ancestral territories. In some cases where protected area and ancestral domain are one, the IPRA and NIPAS Law are expected to implement a co-management and holistic approach in protecting and managing these areas. While in cases where they are not necessarily one, but, with some parts geographically overlapping each other, the overarching issues and concerns should be addressed through the complimentary efforts of both management entities as stipulated in the NIPAS Law and IPRA. There is much legal space for forging efforts towards environmental sustainability. However, these management entities seemed working in isolation with each other.

Current shift in the paradigm of protected area and watershed management has forwarded two important innovations that supported the earlier findings in the review of ICDPs. These are: the recognition of people and their institutions as key to reversing degradation, and, the concept of extending the management regime of the protected area and watersheds to outlying areas and communities that exert pressures into these areas. The combined experience of these innovations has evolved into a "Preventive Systems Approach" in protected area management and watershed management (PSA). The PSA is

implemented through developing a negotiating tool for complimenting the management regimes of three different, but equally dependent land belts under three management domains: the protected area under DENR, the ancestral domain under the National Commission of Indigenous Peoples, and the privately-held agricultural lands under the jurisdiction of municipal Local Governments Units.

This paper describes PSA as experienced in the municipalities around the Mt. Kitanglad Range Nature Park (MKRNP) in the Province of Bukidnon, in Northern Mindanao, Philippines. The MKRNP is one of the rich-biodiversity reserves in the country. It comprises eight (8) municipalities in the northern portion of the province and the nearest impact area of the nearby Cagayan-Iligan Special Economic Development Corridor. Interestingly, the park is home and territory of most indigenous peoples of Bukidnon. Overarching issues and concerns due to overlapping management rights affect the effective and sustainable management of the park - and thus by far, reflect the future of the national park. The integrity of the biodiversity-rich MKNRP is under serious threat due largely to human-induced activities and perceived agri-industrial growth and development.

Pioneered by the Municipality of Lantapan in the northern fringes of the MKNRP, the LGU emulated a low-cost, participatory and devolved planning and implementation process for watershed resource management. The plan aimed for the judicious use of natural resources in order to be sufficiently productive and supportive to the protection of the park and the watershed. The plan that was completed in 1998 was backed-up by research-based information and decision-support tools from USAID-funded research consortia, the Sustainable Agriculture and Natural Resource Management-Collaborative Research Support Program for Southeast Asia (SANREM-CRSP/SEA), and is presently implemented through public-private partnership. DENR recognized the Lantapan experience as a significant advancement in municipality-led watershed resources management. Inspired by the experience of Lantapan, four other LGUs around MKRNP adapted the planning process with their own innovations, now, reckoned with the Protected Area Management Plan. The municipal watershed resource management plans seek to reconcile and compliment the existing MKRNP plan and the evolving Ancestral Domain Plan of the indigenous peoples.

The PSA hypothesized that protected area and watershed management can be effective and sustainable only if, stakeholders beyond the periphery of these areas are successful in reducing pressures in both the protected and managed areas by doing their share in sustainable natural resource management within their specific communities. Rather than implementing protection activities, it is expected, that preventing encroachment to the park and further degradation of watersheds, through a supportive effort of different management entities will yield better positive impacts on protected area and watershed management. The underlying principle is an ecosystems approach where a single action affects the others and therefore, the layers of command and responsibility of these three management entities have to be reconciled and connected in order to gain a collaborative advantage for the management of these areas.

Within the last two years, significant gains are evident with the implementation of PSA. The Park Superintendent reported a dramatic decline in the number of cases filed for violations in the buffer zone of MKRNP. Portions of the buffer zone are now planted with trees by farmer organizations. The reasons for this development were: enforcement of the preventive rules by the park management, the involvement of communities in non-destructive livelihood projects in the buffer zone, involvement of indigenous peoples in decision-making and planning at the Protected Area Management Board, and the increase in awareness level and participation of people outside the buffer zone in natural resource management projects, through the LGUs watershed resources management plans. In this respect, the LGU officials have strongly demonstrated their supporting lead roles in protected area and watershed management.

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Background and Rationale for a Preventive Systems Approach

Deforestation in the Philippines was on its peak after World War II. This marked the onset of the logging boom in the history of the Philippine environment. To sustain the strong demand for timber and timber products particularly for USA and Japan, highly developed mechanization and large-scale logging characterized the clearing of forests during these bull log-market years. The ravage of forest resources was legally set through the issuance of licenses for logging concessionaires including those who do not possess concepts of reforestation and responsibility. Sustainable measures to protecting the environment were not popularly promoted then because of the notion that such would only impede economic development. Such was the situation of the country's forests few decades back that left the present generation with only 5.6 million hectares of forests from the 20 million hectares a hundred years ago, making the Philippine environment now an ecologically-imbalance system (The State of the Phil. Environment).

Until recently, several undertakings have been made by concerned citizens and institutions to counter the continued worsening problem of deforestation affecting biodiversity as well as indigenous peoples dwelling in the hinterlands. However, forest degradation has been viewed traditionally, in terms of what is happening and treating the symptoms. For instance, if there posits a problem of deforestation, there should be reforestation, and if soil erosion is threatening agricultural production, soil conservation practices should be adopted. In this case, since deforestation threatens biological diversity, the solution would be to set boundaries from the identified wildlife sanctuaries free from people's use.

This concept began the implementation of national programs isolating particular places in the country, setting buffer zones and other physical boundaries, free from people's utilization to saving natural areas from total degradation. Protected areas were identified and recognized to play a crucial role in conserving biological diversity and in keeping the forest back to its original state. The classical method of preserving a natural area has always been to declare it off-limits and to enforce exclusion, deliberately evicting and displacing settlers. Boundaries were delineated and guards patrolled. Unsurprisingly, this often resulted in conflicts of interest and hostility between the enforcement agency and the local communities. The approach used by the public sector during the past decade to implement protected area management projects have tended to be top-down in which residents are passive recipients of external interventions. This traditional approach to protected area management has generally been unsympathetic to the constraints faced by local people (Wells and Brandon, 1992). Enforcement just did not work in most countries, either because population pressure on the land was too great or the costs of enforcement were too high (Garrity, D.P., 1995). With the aim to reverse the situation, a major attempt to implement projects with emphasis on local participation and combining conservation and development was launched in the late 80's. This was referred as the Integrated Conservation and Development Project (ICDP) implemented in some parts in Africa, Asia and Latin America. Wells and Brandon (1992) was commissioned by the World Bank to study the implementation of ICDPs in twenty-three projects in those areas. The study reflected that the pressures of growing population and unsustainable land use practices outside protected area boundaries frequently lead to illegal and destructive encroachment. Further, it concluded that the factors leading to degradation of natural ecosystems in developing countries originate far from protected area boundaries, and ICDPs alone cannot address the underlying threats to biological diversity.

Communities next to protected areas and a myriad of extraneous factors provide an enormous pressure to the integrity of the protected area--leaving local communities inside the protected area, unable to balance conservation objectives with that of production and extraction for their survival. Among these factors are laws, markets, social changes and economic forces where local people have little or no influence and control. Wells and Brandon (1992) also included, the vast track of public ownership of lands with unmatched capacity to manage them, and the powerful financial incentives that encouraged overexploitation of timber, wildlife and grazing lands as major factors adversely affecting the protection of protected areas. Interestingly however, the study found out that strengthened guard patrols and imposing penalties for illegal activities remained strong—and that, enforcement activities may not be inconsistent with the ICDP concept if they are integrated with genuine local participation through improved communication and education.

Addressing these issues in a more meaningful way is a tough challenge among different layers of stakeholders. This would require a serious engagement of various levels of genuine partnership of local people and other service providers in the private sector to deliberately take appropriate actions in a holistic manner, not in isolation with the others who are also working in same direction.

The Philippines' milestone in protected area management was marked by the declaration of Republic Act No. 7586 in 1992, otherwise known as, the National Integrated Protected Areas System Act (NIPAS Act). Department Administrative Order No. 25 of 1992, set forth the implementing rules and regulations (IRR) of the NIPAS ACT under the Department of Environment and Natural Resources (DENR). In consonance with NIPAS, the Philippine Local Government Code (LGC) of 1991 also mandates Local Government Units (LGU) from the village, municipal and provincial levels, to proactively engage in environment and natural resource management programs within their political and administrative boundaries. The decentralization and devolution process in implementing the Local Government Code was considered to be an enabling environment whereby national government agencies can work best with local government units along this line. Some functions from DENR were devolved to the local level. Faced with some delimma and pre-Code influence however, some LGUs were not innovative and creative enough in the performance of their devolved functions and in exploring the ample opportunities provided in the Local Government Code. In 1997, the Philippine government enacted the Indigenous People's Right Act through Republic Act No. 8371, otherwise known as, IPRA. The IPRA is an act that recognize, protect and promote the rights of indigenous cultural communities, indigenous peoples, creating a national commission on indigenous peoples, establishing implementing mechanisms, appropriating funds therefore, and for other purposes. The Act envisioned to promote and enhance the protection and management of national parks in respect to customary beliefs and laws of indigenous peoples living within the area. In 1999, DENR has completed the two-year project in developing the Philippines National Watershed Management Strategy, which is very monumental in the sense, that it embodies major shift in the concept of watershed management – recognizing local initiatives, participatory approaches and low-cost methodologies through a holistic management approach. However, the implementation of specific watershed management plans in pilot watersheds have been quite bleak for a number of reasons; it took some time for DENR to negotiate for funding support for implementation in the pilot watersheds; some parts of the plans are becoming obsolete or the

present problems and needs were no longer the same two years ago when the plan was developed; thirdly, the projects are still managed at the national level, allowing marginal participation from LGUs and affected communities. This pattern of causes of delays indicates the effect of top-down and nationally driven projects.

The Philippines NIPAS Law of 1992

The passage of Republic Act 7586 in 1992, known as the National Integrated Protected Area System (NIPAS) has been publicized as one of the most progressive attempts in the tropical area to embody into law scientifically-advanced principles of establishing protected areas that have wide scientific support. The NIPAS Act aims to remedy past deficiencies by focusing on scientific development of natural resource management plans that essentially include maintaining the ecological processes and life-support systems, preserving the genetic diversity and ensuring the sustainable use of all resources found in the 100 designated protected areas in the country.

The Basic Policy and Scope of NIPAS ACT. Section 1 and 2 of NIPAS Act stipulate the following:

The policy of the State provides that the management, protection, sustainable development, and rehabilitation of protected areas shall be undertaken primarily to ensure the conservation of biological diversity and that the use and enjoyment of protected areas must be consistent with that principle. It is further acknowledged that the effective administration of the NIPAS will require a partnership between the Government through the DENR, and other interested parties including the indigenous cultural communities.

Following DENR's four-step process in establishing NIPAS areas; compilation of technical descriptions and maps of the designated areas in Section 2; initial screening for suitability and inclusion in NIPAS; studies and public notification; and preparation of final recommendations for Congressional and Presidential action, the NIPAS site management planning and implementation is undertaken by protected area staff, including an NGO, technical specialists and representatives of local communities within and near the site following a general planning strategy prepared at the national level. This is called the two-tiered management planning or the Plan-to-Plan approach.

Corollary to this, each established protected area is administered by a Protected Area Management Board (PAMB) composed of representatives from the local government, non-government organizations (NGO) and people's organization (PO) who can take part in deciding matters pertaining to planning, protection and administration of the national park. Hence, the board is very influential in the management of the resources within protected areas. The PAMB is technically and administratively supported by the Protected Area Management Office, which is headed by a Protected Area Superintendent (PASu). Further, a major project called CPPAP (Conservation of Priority Protected Areas Project) was launched. The CPPAP is an agreement entered into by the Government of the Philippines through DENR, the NGOs for Integrated Protected Areas, Inc (NIPA), and the Global Environment Facility of the World Bank (GEF-WB) as a medium-term support program for the design and development of a protected area

management; confirm the tenure of the indigenous peoples and tenured migrants; and develop sustainable livelihood consistent with biodiversity protection.

The Indigenous People's Rights Act (IPRA) of 1997

The enactment of IPRA is another milestone in the arena of environment and natural resource management within the context of indigenous culture and life. It embodies a culture-sensitive layer of management regime in protected area and ancestral territories. In some cases, where protected area and ancestral domains are one, the IPRA and NIPAS Law are expected to implement a co-management and holistic approach in protecting and managing these areas. While, in cases where they are not necessarily one, but some parts are geographically overlapping each other, the overarching issues and concerns should be addressed through the complimentary efforts of both management entities as stipulated in the NIPAS Law and IPRA.

Section 4 of IPRA defines Ancestral Domain as generally belonging to Indigenous Cultural Communities (ICC) or Indigenous peoples (IP) comprising lands, inland waters, terrestial areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs, by themselves or through their ancestors, communally or individually since time immemorial, continuously to the present, except when interrupted by war, *force majeure* or displacement by force, deceit, stealth or as a consequence of government projects or any other voluntary dealings entered into by government and private individuals/corporations, and which are necessary to ensure their economic, social and cultural welfare. It shall include ancestral lands, forests, pasture, residential, agricultural, and other lands individually owned whether alienable and disposable or otherwise, hunting grounds, burial grounds, worship areas, bodies of water, mineral and other natural resources, and lands which may not longer be exclusively occupied by ICCs/IPs but from which they traditionally had access to for their subsistence and traditional activities, particularly the home ranges of ICCs/IPs who are still nomadic and/or shifting cultivators (IPRA, 1997).

The Local Government Code of 1991

Republic Act (RA) 7160, otherwise known as the Local Government Code of 1991 is a landmark legislation that introduce sweeping changes in the Philippine political processes (Tabunda & Galang, 1992). It introduces major policy innovations that give flesh to some long-held ideas, which may be summed up in one word: **decentralization**. In broad terms, this means the transfer of power and authority from the central institution to the lower or local levels of a government system. The Code expresses its full adherence to decentralization as a matter of State Policy that the LGUs shall enjoy genuine and meaningful autonomy to enable them to attain their fullest development as self-reliant communities and make them more effective partners in attaining national goals. To implement this policy, the Code declares that the State shall provide for a more responsive and accountable local government structure instituted through a system of decentralization, which gives more power, authority, responsibilities and resources to LGUs. The Code spells out the operative principles of decentralization to guide the State in formulating and implementing policies and measures on local autonomy, which is obviously stressed on devolution (Tabunda and Galang, 1992). In support of the exercise of powers, the Rules on Interpretation that the "general welfare provisions of this Code shall be

liberally interpreted to give more powers to local government units". In other words, the LGUs have more flexibility in exercising their powers to ensure, among other things, the following (Guide to Implementing the LGC, 1992):

- ☐ Preservation and enrichment of culture;
- ☐ Promotion of health and safety;
- ☐ Right of the people to a balanced ecology;
- ☐ Development of appropriate and self-reliant scientific and technological capabilities;
- ☐ Improvement of public morals;
- ☐ Economic prosperity and social justice;
- ☐ Full employment among their residents;
- ☐ Peace and order; and
- ☐ Comfort and convenience of their inhabitants

In support of the above, the Code outlined the basic services and facilities assigned to LGUs. On top of the list is the Agriculture and Environment & Natural Resources sector. To operationalize this, the Department of Agriculture was deconcentrated through the devolution process. Roles, functions and authorities were devolved to LGUs with corresponding assignment of field personnel. But, the budgetary requirement to effect this major change was not clarified—leaving the LGUs at the battlefield of soldiers without ammunition. In like manner, DENR was devolved at the provincial level. It set-up a Community Environment and Natural Resources Offices (CENRO) to cover more than one municipality. Both central and regional offices of these agencies are still maintained purposely to coordinate and provide guidance in the implementation of projects. Still, the central bureaucracy shadows the devolution process.

The 1998 Philippines National Watershed Management Strategy

Completed in 1998 and adopted in 1999, the strategy embodies a holistic approach to watershed management as oppose to the conventional strategy which focus only in the forestry sector – meaning watershed management is just about reforestation. The monumental document is another milestone, however, it is meaningless unless it is vigorously pursued according to the principles and new practices it presented.
As this enormous effort gets underway, DENR, national and local NGOs, local governments and other stakeholders are grappling with ways to proceed in utmost success. The prevailing scenario still holds a "To each His own" game, where each management entity holds their own management regimes apart from the other.

In view of the above opportunities however, effective management of protected areas, wildlife sanctuaries, watersheds and the like, tend to be very elusive. Wells and Brandon made very strong conclusions in their study of the 23 ICDPs, that long-term management of protected areas depend on the cooperation and support of local people. It is not politically feasible nor ethically justifiable to exclude the poor who have limited access to resources, else the progress of ICDP would be very bleak.

Looking back individually the concepts of ICDPs, the Philippine NIPAS Act, the IPRA and the Philippines Local Government Code, results in a mindset and framework of protected area

management on a piecemeal basis. Each of them obviously follows the same set of principles to reach a common vision, and aims to accomplish the same thing. But, the dynamics of management regimes in the context of NIPAS, IPRA, the New Watershed Management Strategy, and even local governments still holds some limitations within their specific mandates and geographic jurisdictions. NIPAS' concerns are bounded within their geographic scope. While IPRA holds on to the fact that ancestral domain management had specific geographic and cultural scope, as well. Likewise, the local governments have their own geographic and administrative limitations. In most cases, these different management entities experienced overlapping management responsibilities by the fact that protected areas are also often claimed as ancestral domain, and some parts of the ancestral domain are definitely within the municipal territory. The sub-ecosystems form the watershed system of a given unit area. Arguments still remain on the geographic area of a watershed. Government referred watershed as the area where water is drained, but focuses their intervention only a few meters away from riverbanks. There is lack of understanding that watersheds are farther away from riverbanks and thus – more often the area connecting two micro-watersheds are the intensively cropped areas. There is a chain of responsibility to this effect, in which to some degree, have resulted to a conflict of interests - forming some resistance to change for better ways of managing the protected areas and watersheds in an integrated manner.

The Missing Linkages: Functional roles of Local Government Units, the Indigenous Peoples and the Protected Area Management System

The review of ICDPs in 1992 prompted the holistic concept of protected area management. However, progress was slow due to lack of experience and negotiating tools to build an institutional mechanism that untangles the individualistic nature of the different management entities.

Better yet, two new paradigm shift in protected area and watershed management is gaining wider acceptance. These are:

1. The evolution of a demand-driven and community-based approach that allows local people to actively participate in the management and sustainable utilization of their resources for multiple purposes; and

2. The extension of national park management beyond its limited area of jurisdiction towards the surrounding larger communities whose livelihood activities exert more pressure in both these natural and managed areas. Complementation of management regimes in the context of the NIPAS Law, the IPRA and the Local Government Units pose a challenge on developing a negotiating tool to ensure that all stakeholders are positioned at their best advantage.

The first paradigm shift in Protected Area Management

It is increasingly accepted that Local Government Units need to assume more responsibility for planning, implementation and evaluation of these activities within their areas with the guidance and support of government-line agencies, NGOs and POs all over the country.

Recently, focused attention has been on evolving a demand-driven and community-based approach to natural resources management and sustainable utilization of their local resources for multiple purposes, with the aim of providing optimal benefits to the greatest number of people living in, or downstream of, individual watersheds. This approach exemplifies a 'bottom-up' management, but this does not conclude however, that 'bottom-up' approach is the only best way to do it. Neither "top-down" nor a "bottom-up" approach is likely to work on its own: they are mutually dependent. They should meet somewhere in the middle of the endeavor.

The development of sustainable upland farming systems that are consistent with natural resource conservation likewise requires a different problem-solving and adoption process from that of adoption of single technical practices that may enhance production. Land degradation can only be solved ultimately by the land users. It involves the adoption of complex inter-related activities. Success in managing protected areas depends upon enhancing rural people's inherent abilities to apply and adapt new and indigenous technologies, and to involve and evolve local institutions to manage and conserve the depleting resources better. Hence, the government's environmental programs being enforced have to complement the social and economic needs of the local communities surrounding the natural areas.

The second paradigm shift in Protected Area Management

Current arguments about protected area and watershed management have successfully reverted the view that human settlements are incompatible with the conservation objectives of the protected area and watersheds - that people can become effective resource users and managers. This has given way to a number of social forestry programs, the latest - the Community-Based Forest Management (CBFM) Program. However, success of these programs is under critical test of time. Impact assessment has yet to be seriously considered by concerned agencies to weigh the costs and benefits of these programs. Nevertheless, despite flaws and challenges to implement current innovations in forest and protected area management, DENR remains committed to people oriented and community-based approaches to managing natural areas within their jurisdiction. This commitment however, is already over-turned by the events of time. Wells and Brandon (1992) noted that successful ICDPs would never succeed without the support of outside communities for which people within the park have little or no control at all. Park communities are like soldiers without the gear to win the game. But, this is not like a playing or battlefield where DENR or government can coach one of the opposing teams in order to win. This is about survival and life - everyone has to co-exist and live - therefore, everyone has to manage! The urge therefore, is for all concerned agencies to concert their efforts and complement the efforts of the other. An integrated approach is the only answer. It is about a preventive and systems approach for protected area management that provides a promise for wider, sustainable and successful implementation of ICDPs. The management radius of park protection need to expand without necessarily re-engineering the present structures, but re-

inventing better ways of maximizing benefits from the already existing structures through reconciliation, complementation or integration of three management regimes as mandated by law.

Only then, if we establish stronger linkage of these three management entities to develop an integrated and preventive systems approach, we begin to see the light of successful protection of the integrity of protected areas in harmony with those living within and outside the park.

The Case Study Site: Mt. Kitanglad Range Nature Park

The Kitanglad Range Nature Park in Bukidnon is acknowledged as one of the most important biodiversity reserves in the Philippines. It supports the richest known vertebrate fauna (mammals and birds) in the country (Amoroso et al., 1996; Heaney, 1992, 1993 unpublished). It is the habitat of many endangered, endemic, rare and economically important species of animals and plants. Heaney (1992) observed thirteen of the fourteen species of birds endemic to Mindanao, including the critically endangered Philippine Eagle (*Pithecophaga jefferyi*). One genus of mammal is endemic to the park alone, the poorly known *Alionycteris paucedentata*. The park is a relatively small ecosystem of approximately 50,000 hectares, but is also of exceptionally high conservation value in terms of high endemism of the vascular flora (Amoroso et al. 1996; Pipoly and Masdulid, 1995 pers. com.). This includes the endangered rootless vascular plant (*Tmesipteris lanceolata* Dang.) (Amoroso et al, 1996). The park was recently found to have the highest tree density ever reported in a tropical forest (Pipoly and Masdulid, 1995 personal communication). This combination of a small, manageable size, and a rich, singular biodiversity, conforms to the type of protected ecosystem that Sayer (1995) proposes ought to receive the most determined attention in tropical biodiversity protection.

Mt. Kitanglad has at least two types of vegetative cover: forest and grassland/brushland. The forest cover includes the lowland residual dipterocarp forest; the montane forest; and the mossy forest. These forest types vary in both species composition and structure. Transitional forms occur when one type grades into the next. The lowland residual dipterocarp forest (up to 900 masl) dominates the landscape from the base of the mountain. It is characterized by the abundance of members of the lauan or dipterocarp family. The trees in the montane forest (1,000-2400 masl) assume a shorter height than those in the lowland residual dipterocarp forest. In the mossy forest (2,500 masl and above), trees have a stunted growth and are festooned with thick mats of mosses, lichens and epiphytic ferns. The brushlands/grassland and cultivation are confined to the lower portion of the park. The area increased in size as an estimated 6,447 hectares of forest were raked down by fire in 1983, during one of the worst El Nino occurrence of the century (CPPAP, handbook series, 1997).

The park covers seven (7) municipalities and one (1) city in the north-central parts of Bukidnon namely: Lantapan, Impasug-ong, Sumilao, Manolo Fortich, Libona, Baungon, Talakag and the City of Malaybalay. There are twenty-eight (28) barangays comprising the buffer zone of Mt. Kitanglad and resemble each other in terms of physical and social features (CPPAP, Handbook series, 1997). See attached Fig. 1 of diagrammatic representation of three management entities.

Mt. Kitanglad is among the few large and relatively pristine sites selected by the World Wildlife Fund, Inc. (WWF), an international non-government organization and local NGO as one of the ten priority sites for Phase I of IPAS. It is one of the recipients of the Conservation of Priority Protected Areas Project (CPPAP) from the Global Environment Trust Fund (GEF). The implementation of CPPAP in the Philippines virtually strengthens the mandate and implementation of the NIPAS Laws. The CPPAP works on the following areas: site development, resource management, socio-economic management and coordination (CPPAP Handbook series, 1997).

Mt Kitanglad supports the life of Watersheds in Bukidnon:

The case of Manupali watershed

The people residing in the Manupali watershed, covering largely, the municipality of Lantapan, downslope from the Park, exerts pressures on both the natural and managed ecosystems, particularly on the remaining protected forest. Amoroso (1997) noted an alarming rate of habitat destruction due to human activities, including illegal cutting of trees, over-harvesting of minor products, shifting cultivation, and conversion of forest lands to agricultural production. The present landscape of the upper reaches of the Manupali watershed consists of essentially three belts of land:

1) *The national park*, consisting mostly of pristine forested land existing at high altitudes (>1200 masl) with few current household land claims and National Park status,
2) A zone of land surrounding the park that is managed by the Department of Environment and Natural Resources (DENR) as production forest: *this is the external buffer zone* of the park. This is land on the fringe of the forest and has now been mainly converted to agricultural fields interspersed with *imperata*-dominated grassland. Encroachment here has been partly sanctioned through the expectation of social forestry stewardship contracts, with eviction no longer a tenable management option, and
3) *Privately owned agricultural land* that is further down slope from the public DENR lands. These landholdings comprise a mosaic of agroforest, crop, and fallowed fields, with remnant forest existing in the steep ravines which border the streams that drain the national park.

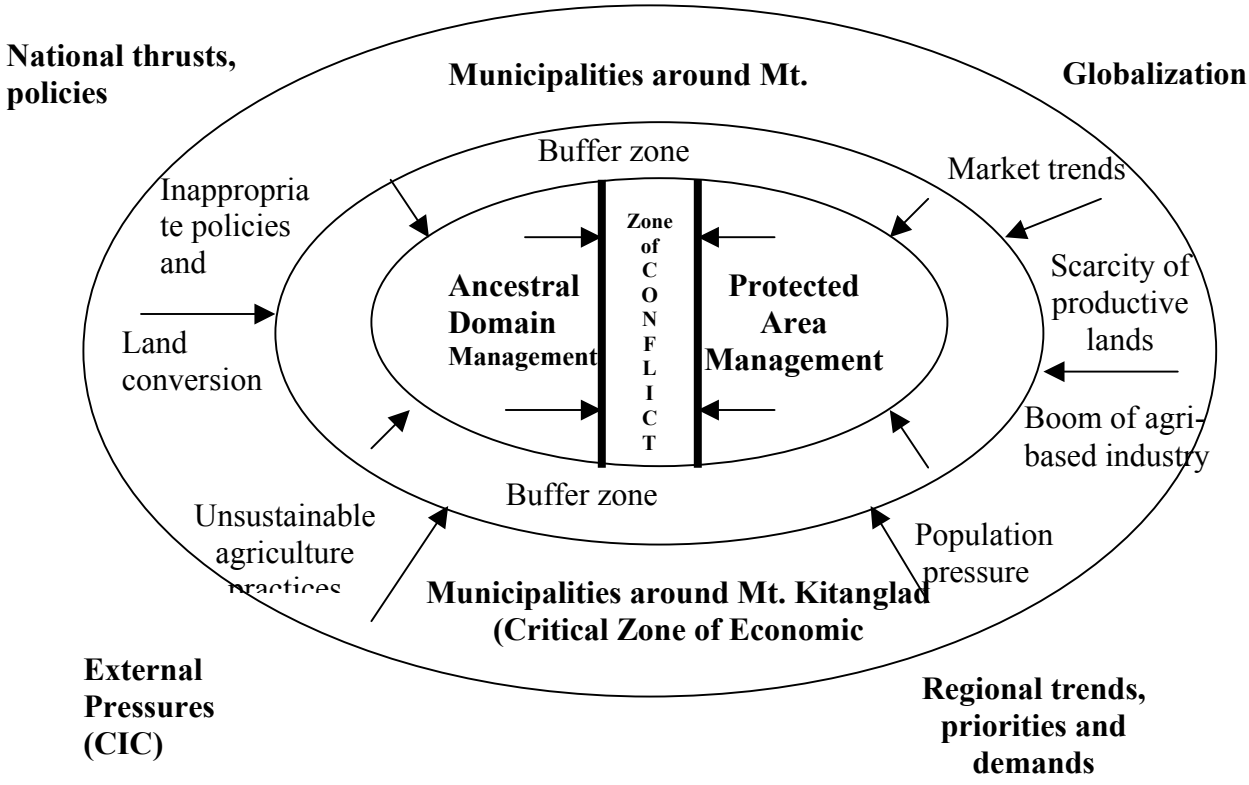
The Participatory Learning Landscape Appraisal (PLLA), and our research during the initial years (1993-96), documented the land use practices (COPARD, 1996, Banaynal, 1996). This work highlighted the urgent need to develop an integrated and sustainable buffer zone management program. The indigenous Tala-andig people regard the public lands as their ancestral domain. Initial research indicated there was a significant self-perception among communities on the boundary of the Park that the protection of the natural biodiversity was in their own self-interest (Cairns, 1996). Key concerns of the local people were protection of the hydrological resources of the upper watershed for water supplies, and of the spiritual and cultural values of the forest. They attributed the current failure to protect these resources was due to the lack of institutional mechanisms to manage these systems that explicitly included local needs for

more secure land tenure and alternative livelihoods. Lack of secure land tenure by the households residing in the buffer zone outside the park boundaries was a critical problem.

The case of Cagayan-River Watershed

The Cagayan-River watershed covers the municipalities of Libona, Baungon and Talakag. One of the major tributaries supports a Hydro-electric plant for the electrification needs of Cagayan de Oro City and Misamis Oriental. Other tributaries support an extensive irrigation for large and small- scale agriculture and domestic uses. In these areas, the park's integrity is threatened by extraneous factors, like the prospected boom of agri-based industry due to its proximity to the Cagayan-Iligan Corridor, a special economic development zone of greater Mindanao. Market-driven economy and land conversion are seen to trigger serious environmental problems around these areas. When these are not abated or if mitigating measures are not considered, the park is at the verge of complete destruction.

Fig.2: Scenario when there is no integration of Management objectives



Background of the Preventive Systems Approach (PSA)

The Sustainable Agriculture and Natural Resources Management (SANREM) Program is a global research effort that aims to develop a new paradigm for research on sustainable agriculture and natural resources management (Hargrove et al, 2000). The program takes the whole landscape and lifescape of a watershed as the basis for formulating and resolving major management issues. It includes communities and local government bodies as reviewers, partners, and implementers of the research. The approach seems well suited to tackling some of the key methodological issues in protecting the natural habitats of unique tropical biodiversity encountering human pressure.

One of the three global sites where SANREM has been working is the Manupali watershed on the southern border of the Kitanglad Range Natural Park. The work in Phase 1 of SANREM, was concentrated in Lantapan because it encompasses more than half of the northern portion of the Manupali watershed. The Biodiversity Consortium at the Philippine site was a component of SANREM during its first phase (1993-98). It was composed of collaborating organizations including a university, NGOs, and government agencies, convened by the International Centre for Research in Agroforestry (ICRAF). The work was also linked with the global program on Alternatives to Slash-and-Burn. Its objective was to conduct research to develop tools and approaches that combined improved biodiversity conservation with the better livelihood opportunities through agroforestry for the communities that live near the Kitanglad Range Nature Park.

Our program goal was to elucidate a more fundamental understanding of people-ecosystem interactions to guide the development of practicable natural resource management plans and processes. The research aimed to develop the elements of a workable *social contract* between buffer zone communities and the non-local stakeholders concerned with resource protection. We hypothesized that there were two essential conditions for sustainable buffer zone management and biodiversity conservation in the Kitanglad National Park, as well as the rehabilitation of the watersheds:

1) Agricultural/agroforestry intensification in the buffer zone and privately-held lands to enhance income growth, complemented by other forms of off-farm employment generation in the local and national economy, and

2) Community-supported enforcement of the boundaries of the natural forest ecosystem

Our work focused on both aspects. We investigated appropriate technical innovations suited to the biophysical and socio-economic conditions of the buffer zone, and we studied how to induce institutional innovations to enable better natural resource management. The social contract underlying the model links the provision of assistance in intensifying agriculture to local responsibility for park boundary protection.

Robust insights were drawn from results of the 5-year research in Lantapan. It did a remarkable job in synthesizing the lessons drawn from working within multi-disciplinary teams through inter-institutional collaboration. ICRAF's work on assembling the elements of a social contract

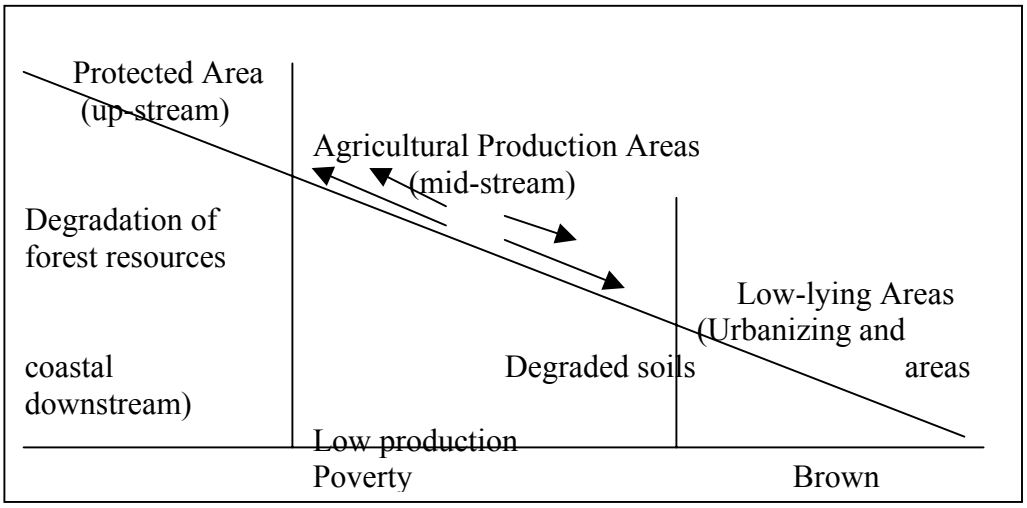
brought significant lessons that served as basis in articulating the "Preventive Systems Approach" (PSA) to protected area management. We found out that, the foremost policy issue impinging on local natural resource management systems is the reality of overlapping land rights and management priorities. There are three sets of overlapping management claims and systems in the vicinity of the Park. These are: the Park and production forest land administered by the state (DENR), the ancestral domain claim of the Tala-andig people, and the jurisdictions of the eight municipalities that interact geographically around the park. SANREM policy research focused on understanding the ways in which the three overlapping jurisdictions can be reconciled, and in developing a scientific basis for management plans by the three sets of entities. The work aimed to provide options leading to a consensus that would meet the various stakeholders' concerns. We envision the development of a natural resource management system for the buffer zone of the Park that is based on a holistic Park management plan, coordinated with an ancestral domain management plan. These need to be supported by the municipal-level natural resource management plans. The conventional management practice of protected area and watershed management is that of curing the symptoms of resource degradation and rehabilitating those that were already degraded. The recognition of forest occupants and resource users as potential co-manager of the area is but a recent milestone from the conventional practice. However, this understanding is still confined within the context of the park's jurisdiction.

While concerned agencies work hard to control forest encroachment through guard patrolling and providing livelihood activities to buffer zone families, much less attention are provided to the larger communities behind the buffer zone that exert more pressures on destructive encroachment and further degradation of the protected area and watersheds.

These communities outside the buffer zone can be the larger private owners, smallholder farmers and the entire population where very intense agricultural production and natural resources utilization is taking place. This is the very pressure that is continuously posing threat to the integrity of the protected area. Forest and watershed management in its very essence is situated within the complex and broader system of intertwined networks of social, economic, physical, biological and political linkages that it generates sensitive vested economic and political interests and demands (Elmer Mercado, 1998). But, little attention was focused to factors affecting the conditions of protected areas and watersheds external to them. The conditions of protected areas reflect the exigencies or external circumstances beyond their control. The pressures come from outside the park and not from within. Two scenarios may happen: 1) farmers who are cultivating their lands unsustainably for a long time and depleting their land resources (e.g. Degraded soil and depleted nutrients) tend to move uphill towards the protected area where the resources are still rich and abundant, thus, putting more pressures into the forest, and 2) farmers will move downhill, resulting into some social, economic and environmental unrest in urbanizing areas. Both ends of the loop are affected by the pressures created at the center. The possible way to solve this is to minimize movement of farmers upstream or downstream, and keep farmers on their place, wherever they are now — and stay there productively in a sustainable manner. If farmers can be prevented from moving uphill and stay productive on their land by using sustainable agriculture practices, further displacement could be minimized and a diaspora can be avoided. This can be effectively achieved through local governments' leading a proactive role in

natural resource management planning and implementation on a scale that captures their constituents' interests and welfare alongside the conservation objectives of natural resources.

Fig.3 :Impacts of pressures created midstream to the lower and upper environments



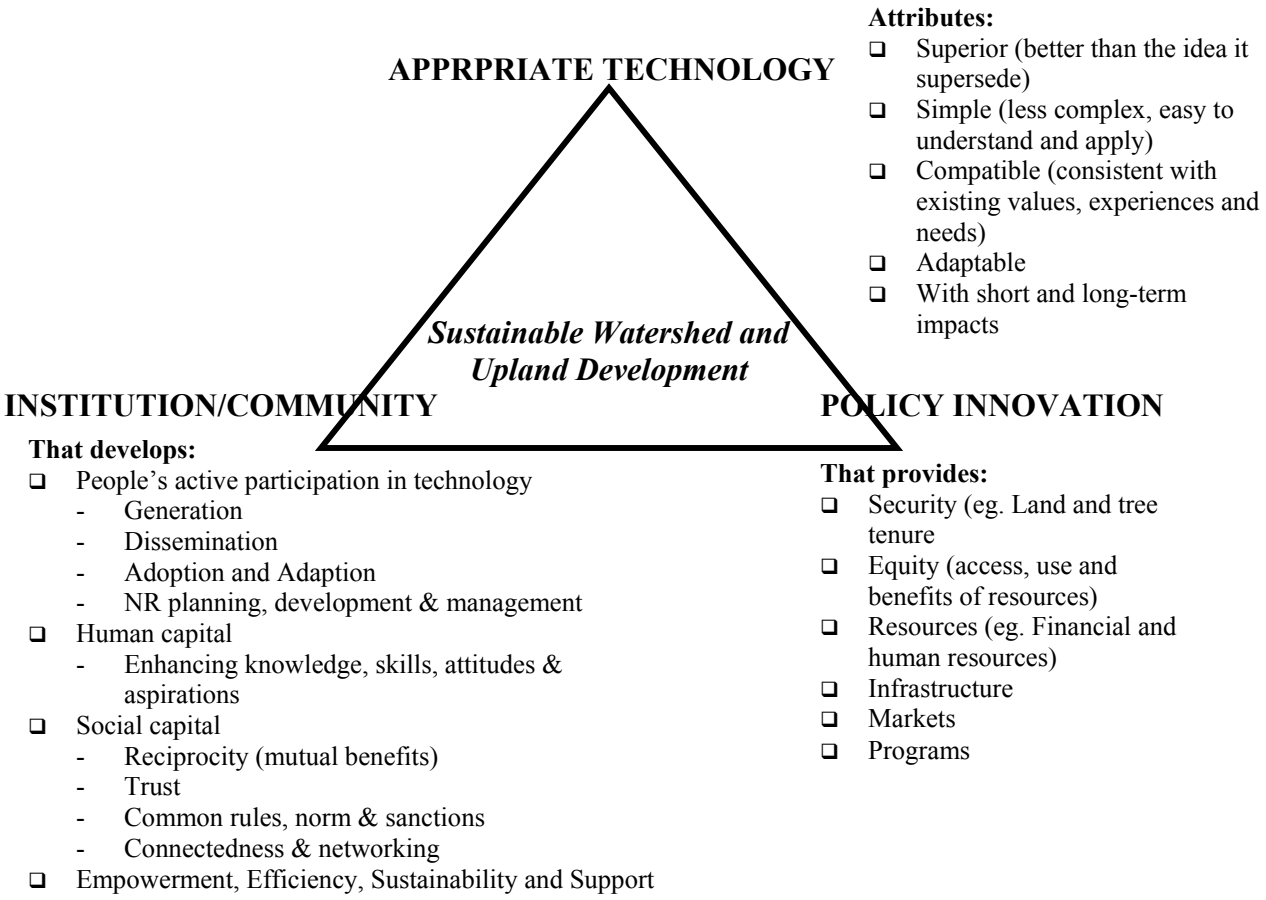
Moving to this concern, we proposed a Preventive-Systems Approach (PSA) to "Protected Area and Watershed Management" that extends beyond the boundaries of the park – and that enjoins, larger communities in the privately-held lands to do their share of sustainable natural resource management for the short term benefits and long term security of their land and future. It should be realized that a protected area is part of a larger system of farming communities cultivating the lands for their living. Hence, farming activities practiced in the managed areas outside the natural areas, in turn directly, or indirectly affect the conditions of the area being protected.

The PSA believes that successful management of protected areas and watersheds should involve three important components. These are:

- Technical innovations appropriate for the biophysical and socio-economic conditions of the people;
- Institutional innovations that support a workable social infrastructure for the delivery of appropriate services; and
- Policy innovations that support sustainable management of natural resources

The diagram below describes the relationship of these three major components.

Fig.4. Framework of Sustainable Watershed Management



Conservation of the resources within protected areas can only be done by a strong and committed partnership of the Protected Area Management Team and the Local Government Units of the municipalities. The Mt. Kitanglad Nature Park has come up with their management plan and is presently implementing some parts of the plan. The evolving Ancestral Domain Plan also possesses high conservation goals for the park. The missing end of the rope should now connect the efforts of municipalities around Mt. Kitanglad in developing their respective watershed resource management plans, in harmony with the management objectives of the protected area and the indigenous communities. This is essentially a plan that would combine the concept of park conservation and management with rural developmental activities to benefit local people while addressing threats to biological diversity. Communities midstream and downstream should put their conservation investment along with upstream investments - in order to achieve a balance and stable socio-ecological environment and thus-- attain sustainable development. This approach can then be called, the "Preventive Systems Approach" or (PSA) to Protected Area and Watershed Management. There is a saying that goes – "an ounce of prevention is far better than a thousand doze of treatment."

The application of the Preventive Systems Approach (PSA)

The sections below present the experience of the PSA. It presents the experience and lessons in Lantapan and the other municipalities around MKRNP. Examples of locally-led and community-based efforts towards natural resource conservation in both the natural and managed areas are outlined to illustrate an important NRM system that greatly support the goals of protected and ancestral domain management. They are:

- ***Local Government-led mechanisms***

In 1996, a local-level and demand-driven Natural Resource Management (NRM) planning process began in the municipality of Lantapan, Bukidnon that was aimed to elevate the declining productivity level of forestal and agricultural production thereby ensuring that its future generations will still be able to benefit its natural resources. Lantapan is one of the eight municipalities that hosts the biodiversity-rich Mt. Kitanglad Nature Park and is part of the Manupali Watershed. At that time, the town mayor felt that it would be beneficial if they will make use of the assembled scientific and research outputs of existing research institutions in the municipality by incorporating these in a plan (Garrity and Amoroso, 1998). The alarming condition of the locality's environment as well as the availability of information and technical assistance from various research institutions prompted the local government to prioritize natural resource management as a core program in its agenda, thus, the development of the Natural Resource Management and Development Plan (NRMDP). The environmental research-based information from SANREM provided the meat of the plan. While the planning process was largely drawn from the Local Government, ICRAF's significant contribution to the plan stemmed mostly from its research work on soil and biodiversity conservation. One remarkable feature in the NRM process in Lantapan was the creation of a local multi-sectoral body -the Natural Resource Management Council (NRMC) that was a representation of community-sector groups combined with technical persons and legislators. The local planning team was designated to develop the NRMDP. The NRMDP of Lantapan articulated their vision below.

A stronger community partnership towards a well managed natural resources and ecologically balanced environment for a sustained development in Lantapan by the year 2002.

Three key pillars evolved for the realization of this vision and that includes water, soil, and biodiversity conservation. To support these, the NRMDP has also identified capability-building programs for the Council, the LGU, and the community people.

The NRMDP is now on its second year of implementation and has implemented the priority action programs as stipulated in the plan. Among others, ICRAF has maintained its strong partnership with the local government to help achieve mutual goals and benefits for the farmers of Lantapan. It is actively collaborating with the LGU in institutional development and working directly with the farmers for technology development, dissemination and adoption. Currently, ICRAF is leading a major dissemination effort under the NRMDP's biodiversity and soil conservation components. It employs the Landcare approach as a people-centered movement for dissemination, promotion and adoption of conservation farming techniques such as; Natural Vegetative Strips (NVS), which is considered an effective alternative to labor intensive soil

conservation technologies, tree timber farm enterprise, entrepreneurial production of good quality planting materials for important tree species through nursery establishment and other improved agroforestry systems.

Innovative features of the NRMDP

Some innovative features of the Lantapan NRM planning and implementation include:

1. Organization of a multisectoral Natural Resource Management Council (NRMC), which represents a cross-section of community groups, local legislators and municipal and provincial government line agencies that, by goodwill, served as voluntary local planners.

2. Backed-up by research-based information and technical assistance from different local, national and international stakeholders and partners.

3. The NRMC underwent capacity-building activities, which is also a way of leveling-off the council members' expectations and roles and to address the information needs and planning skills of the diverse members.

4. Adoption of the "Technology of Participation" (ToP) approach that was developed by the USAID-funded Governance on Local Democracy (GOLD) Project. This was effective in eliciting information and ideas from the planning participants during workshops on visioning, strategic directions and action planning.

5. It underwent verification and consultation processes with local government officials from the barangay (village) up to the municipal levels with the local people during public assemblies. The different barangays passed a resolution to manifest their approval and support to the plan.

6. The Sangguniang Bayan (Legislative Council) legitimized the plan while executive support was assured through the approval of the Municipal Ordinance that set forth the implementing guidelines of the plan.

7. The plan is being implemented using the principle of "public-private partnership". The approach utilizes participation of various GO and NGO partners in the municipality by inviting them to focus their work towards achieving the objectives of the plan. A formal partnership was forged by the LGU and various stakeholders in implementing the plan through a Memorandum of Understanding signed by all concerned parties.

8. The LGU is contributing financially to the implementation of the plan from the budget allocation for its Human and Ecology Security (HES) Program, as mandated in the implementing guidelines.

Lessons Learnt

While the Lantapan NRM planning experience is quite recent, some important lessons are already emerging. These include:

1. Local NRM planning and implementation may not require large sums of money and a highly structured bureaucratic procedures. LGUs must understand that environmental programs may not be an "expenditure" activity.

2. Many local governments in the Philippines have the potential to manage their own natural resources. Therefore, forest management, authority, functions and responsibilities can be decentralized, just as municipal agricultural offices have been devolved.

3. LGUs can tap the resources of different external programs and coordinate, channel and focus them to help resolve local environment and resource degradation problems.

4. The keys to success are partnership, collaboration and cost sharing.

- ***Farmer-led and community-based efforts for Natural Resource Management***

ICRAF has been instrumental in developing a farmer-led approach to technology development and dissemination (Lai, Catacutan and Mercado, 1998), which has resulted in an unexpected boost in the adoption of soil conservation technologies and agroforestry practices among farmers at its outreach site in Claveria, Misamis Oriental. Its key institutional innovation for effective conservation farming technology dissemination is the Landcare approach: a process that is led by farmers and community groups with support from the local government and technical backstopping from ICRAF.

The most well-known Landcare movement originated in Australia, where it has evolved as a participatory community-based approach and grounded model designed to effect change in complex and diverse situations (Swete-Kelly 1998). Landcare is a method to rapidly and inexpensively diffuse agroforestry practices among upland farmers, based on the farmer's innate interest in learning and sharing knowledge about new technologies that earn money and conserve natural resources (Garrity and Mercado, 1998). It also refers to groups of people, concerned about land degradation problems, who are interested in working together to do something positive for the long-term health of the land. Today, there are more than 3,000 farmers in Claveria, Misamis Oriental who are members of the Claveria Landcare Association (CLCA). These farmers are maintaining more than 200 fruit and timber tree nurseries and are actively doing extension work to disseminate conservation farming technologies to fellow farmers. It now serves as an effective and efficient venue for farmers and others to discuss environmental issues and share learning, skills and technologies geared towards profitable agriculture on sloping lands through sustainable utilization of the resources for the well-being of the local people and communities.

In 1996, Lantapan took a bold step in integrating Landcare into their NRMDP as a major strategy for a grassroots-oriented technology dissemination program. In 1999, more than 50 Landcare

groups were formed in Lantapan. They established 60 community-based fruit and timber tree nurseries and have adopted soil and water conservation (SWC) technologies and agroforestry. From farmer-based Landcare groups, the membership expanded to the youth sector, students and women sectors. Lately, they have expanded their interests to resolving community-level issues and mobilized themselves in projects like: stream rehabilitation, river clean-up drive, and riparian vegetation and buffer zone reforestation. With membership and issues expanding, Landcare demonstrates a community-based model for natural resource management at the local level.

The core of the Landcare model is two-fold: effective local community groups and partnership with government (Campbell and Siepen, 1996; Lai, Catacutan & Mercado, 1998). This grassroots approach is generally recognized as a key to success in all community-based developmental activities. Groups respond to the issues that they see as locally important, solving problems in their own way. In other words, Landcare depends on self-motivated communities responding to community issues, not issues imposed by any external agency. Approaches that use well-grounded theory (where participants determine the key issues rather than these being pre-determined) are more likely to effect permanent and positive change (Mercado, et.al. 1998).

Landcare groups are supported by the local government through technical and financial assistance as well as by providing incentives to adopters of farming conservation technologies. It maintains its networks with different institutions to ensure that those ideas and initiatives are shared and disseminated. Thus, Landcare is a partnership between local communities and the government---all working together to change the way the land is used - is an important feature of Landcare.

Putting the pieces together and the gains so far

Now combining the gains of LGU-led NRM planning and farmer-led initiatives form the basis for a holistic NRM system that support protected area, watershed and ancestral domain management. All three management entities need to work hand-in-hand to cement a chain of action for collaborative advantage. Within two years of implementation, the Park Superintendent reported a dramatic decline in the cases filed against offenders in the buffer zone of MKRNP. These were due to the following reasons:

1. Enforcement of preventive rules for protected area management
2. Involvement of buffer zone communities in non-destructive livelihood projects
3. Involvement of indigenous peoples in planning and decision-making in the Protected Area Management Board (PAMB)
4. Culture-sensitive development work
5. Increase level of awareness and participation of people and communities outside the protected area, through the implementation of LGUs Watershed and NRM Plans demonstrated in the front line by dedicated farmers and local farmer groups.

Inspired by the experience in Lantapan, four other LGUs around MKRNP adapted the process in Lantapan. These are the municipalities of: Baungon, Libona, Manolo Fortich and Impasug-ong.

Their plans are reckoned in the interest of the protection of the MKRNP and the watersheds emanating from the park. The LGUs now realized that conservation is a noble undertaking and it can be done better through building partnerships for collaborative advantage. This and all, is the essence of Integrated Conservation and Development.

Conclusion

This paper discussed two important changes in the paradigm of protected area and watershed management. The first one is on the increasing interest on community-based and locally led institutions whether, farmer groups or local government units that form part of a participatory approach for natural resource management. Locally led institutions are deemed to be the key for addressing local issues and problems with some guidance from external agencies. The second one, is on the view that protected area and watershed management should not limit its management concerns within their area of jurisdiction, but extend their efforts beyond their territory to link and work with larger communities outside the protected area where serious problems arising from pressures in the park emanate. This can be done by working closely with local governments surrounding the park's periphery and watersheds, and facilitating them in their task to develop their respective natural resource management plans. In this manner, there will be a unified effort among all sectors of society as a strategy to prevent destructive encroachment, resource degradation and maintain a sound protected area and watershed management. This is based on the hypothesis that, keeping farmers from leaving their farm for the forest, to stay on their farms productively overtime, greatly minimizes pressures in both the natural and managed ecosystems - thus, maintaining the integrity of the protected area, as well as the midstream and downstream ecosystems. We summarized the relationship of reconciling, complimenting and co-managing the protected area and watersheds through the three management entities and their respective domains, as the "Preventive Systems Approach" or PSA.

There is much legal space for local governments to undertake environment and natural resource related programs. They are the driving force for the ultimate resolution of natural resource degradation. Both national public and non-government agencies can only be there to guide them and perhaps, facilitate an iterative learning process, but the ultimate role is in the hands of local people side by side with strong local government leadership. The government needs to reconcile their programs to meet the interests and address the needs of the affected communities living around the area to avoid conflict between the protected area management and local people. In the past, the traditional approach of managing the park in isolation with other programs did not work because it was unable to balance their competing objectives and needs. Conservation of biological diversity will be achieved most with local people maintaining the judicious use of the basic resources. The Preventive Systems Approach (PSA) promotes that local communities should be enjoined in a compatible utilization of the natural resources within natural areas and the managed ecosystems.

The problems of environmental degradation are enormous and complex compared to the modest resources available to solve them, but we are confident, that this is not an expenditure activity, it's a people's activity and therefore, these problems can be largely solve by people themselves.

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