



Integrating Biodiversity Into ADSDPP Processes and the Biodiversity - Enhanced ADSDPP into the Mandated Plans of Host Local Governments



Biodiversity Partnership



Department of Environment and Natural Resources



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1 Manual of Procedures

INTRODUCTION

This Manual of Procedures is a companion document to the “Framework for Preparing the Biodiversity-Enhanced Ancestral Domain Sustainable Development and Protection Plan”. It contains the details to the procedural steps, methods and techniques of data generation and analysis, plan formulation process and related matters referred to in the Framework pertaining to planning the management of areas where indigenous communities overlap with key conservation areas, or vice versa.

INTENDED USERS OF THE MANUAL

The principal users of this Manual are the four agencies of the national government that have oversight functions on the planning of ancestral domains, protected areas, and local governments namely the National Commission on Indigenous People (NCIP), the Department of Environment and Natural Resources (DENR), the Department of Interior and Local Governments (DILG), and the Housing and Land Use Regulatory Board (HLURB). It should likewise be made available to provinces, cities, municipalities and barangays where there are protected areas and indigenous communities within their territorial jurisdiction to serve as an added resource in the preparation of their mandated plans. Other interested parties, particularly civil society organizations and aid-granting institutions may also find this Manual helpful.

STRUCTURE AND CONTENTS OF THE MANUAL

This Manual consists of five main sections. The first part which includes this introductory section lays the outline or road map that directs the user to specific portions of the whole document. In a sense, the road map serves as table of contents and index rolled into one. The second part outlines the technical process of identifying, classifying, delineating on the map and demarcating on the ground the areas that will be the subject of the type of planning interventions contemplated in this Manual. The third part is the substantive part of this Manual. It contains the detailed guidelines to preparing the particular type of plan needed for the effective governance of areas that are earmarked for protection but which harbor within their borders indigenous people's communities or, conversely, ancestral domains that happen to contain areas and resources that need to be placed under protection status. There are four variants of the planning process depending on the realities obtaining in the area of application. One variant, denoted as Scenario A pertains to the overlapped area between a NIPAS protected area and an ancestral domain with a CADT. The second variant, Scenario B, applies to a NIPAS protected area overlapping with non-CADT indigenous communities. Scenario C, refers to the overlap between an ancestral domain with CADT and a non-NIPAS protected area. Scenario D pertains to conservation areas with resident indigenous communities the planning of which is initiated by the communities themselves. The fourth part pertains to the process

of mainstreaming these plans (or variations on the same thematic plan) into the mandated plans of local government units having political jurisdiction over the protected areas and ancestral domains in question. The fifth and last part of this Manual which is normally considered non-substantive but nonetheless an important one is the compilation of appendices. Materials which are too long or which contain too many details that, when included in the main body of the text, might disrupt the logic or narrative flow, are better shunted into the appendices. Users are however enjoined not to ignore any reference to an appendix for often, the material in the appendix is integral to the main text and it demands of them a little more time and dedicated attention.

HOW TO USE THE MANUAL

To get the optimum benefit from the use of this Manual, the end users must know at the outset under what situation or scenario they are preparing a particular plan. To ensure that they do, NCIP and PAWB should initially jointly identify the overlapped areas between ancestral domains and protected areas nationwide through the map overlay process as described in Part II of this Manual. The maps should be of sufficiently large scale so that the provinces, municipalities and barangays straddled by the AD/PA could be identified. Having determined under what scenario they are planning, end users will not have a hard time selecting which procedural guide to follow because there is one process guide for each scenario. Brief features of each procedural guide are as follows:

If planning for an overlapped area between a NIPAS protected area and an ancestral domain with CADT, use the guide for preparing a “Harmonized Management Plan” or Scenario A. The process is based on the provisions of DENR-NCIP JMC 2007-01. The assumption here is either that the PA has an existing PAMP and the AD has an ADSDPP, or that both the PAMP and ADSDPP are non-existent. The Harmonized Management Plan therefore is a completely new plan covering only the overlapped area. The elaboration of the process is as complete as possible so that it may serve as a sort of template for the other scenarios. The data gathering tools and analytical techniques combine those of relevant sciences and customary participatory assessment processes so that the discerning users can have the widest possible choice applicable to particular conditions on the ground.

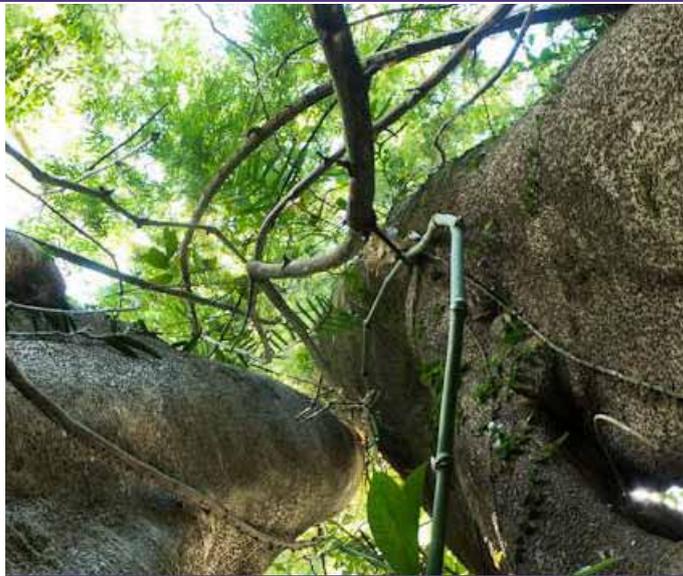
If the plan pertains to an area within a NIPAS protected area which is inhabited by indigenous people who are either migrants or resettled to the area, the approach is to make the existing PAMP sensitive to the ICCs/IPs or Scenario B. The planning process under this scenario is very much simplified. It involves revision of the PA zoning scheme by incorporating into the Strict Protection Zone all areas considered by the IP as “no go zones” such as their burial grounds, sacred groves, hunting grounds, and the like. The Multiple Use Zone will also be revised by accommodating the customary resource use practices of the IP as inherently sustainable and generally consistent with conservation objectives. The procedure for giving formal recognition to customary resource use practices spelled out in DENR-NCIP Joint AO 2008-01 is adopted for the latter purpose.

Under Scenario C the situation is that an ancestral domain with CADT harbors within its boundaries an important resource or area that needs to be placed under biodiversity conservation regime. Assuming that there is already an ADSDPP for the ancestral domain, the proper planning approach is to enhance the ADSDPP with biodiversity conservation considerations. The process is simplified like in Scenario B. It involves management zoning that has the same features as in Scenario B. Furthermore, important additional enhancements to the original ADSDPP process are introduced, particularly on the aspect of extracting greater commitment of support from the LGUs and other stakeholders.

The fourth situation, Scenario D, pertains to the overlap between non-NIPAS protected areas and non-CADT ancestral domains. Often the initiative to conserve the area is taken by the communities within or around the area and is referred to as a community-conserved area (CCA). Consistent with the terms of this study, only CCAs with indigenous communities are considered, hence the name indigenous community-conserved area (ICCA).

The last step in every planning process under any of the above scenarios is the integration of the plans into the plans and planning systems of the local governments having territorial jurisdiction over the planning areas. It would do well for end users to pursue the process up to this last step.

Finally, the frequent reference to the Appendices means that some steps are found in all the variations of the process. Failure to heed the reference to a particular Appendix, one might run the risk of missing some important steps in the process.



2 Identifying and Delineating Overlapped Areas Between Protected Areas and Indigenous People's Communities

Activity I – Identifying all PA and AD overlaps at the national or regional level

Task 1 – Thematic Mapping

- a. DENR/PAWB delineates all key biodiversity areas classified into NIPAS and non-NIPAS
- b. NCIP delineates all areas where significant concentrations of IPs are found, classified into those already granted CADTs or still in process and those not likely to get CADTs.

Note: For purposes determining what amounts to “significant concentration” of IPs, either or both of the following criteria may be used:

- IPs constitute at least one percent (1.0%) of the local population
- The ancestral domain or claimed habitat of IPs is at least five percent (5%) of the LGU territory

Task 2 – Map Overlay Analysis

- PAWB & NCIP overlay the thematic maps (a&b) and identify and tag or color code the overlapped areas.

IP Community	KEY BIODIVERSITY AREAS	
	NIPAS (A)	NON-NIPAS (B)
AD with CADT (I)	IA	IB
IP area No CADT (II)	IIA	IIB

- PAWB & NCIP classify the overlapped areas under the following categories:
 Scenario A = IA + AD with CADT and NIPAS PA
 Scenario B = IB + AD with CADT and Non-NIPAS PA
 Scenario C = IIA + IP area with no CADT and NIPAS PA
 Scenario D = IIB + IP area with no CADT and Non-NIPAS PA (ICCA)
- For each scenario of overlapped area indicate the location by naming the barangay/s, municipalities or province/s straddled.

Activity II – Delineation and Demarcation of the Boundaries of the Overlapped Areas

Activity I produced four scenarios of areas characterized by the convergence of protected areas and ancestral domains. Having been identified at the national/regional level, the location of each overlapped area is only indicative and less precise. For purposes of determining the appropriate governance regime for each scenario, it is necessary to define the boundaries of the overlapped areas with greater precision. This requires conduct of geodetic surveys at a large scale, preferably provincial or

municipal, using common survey instruments. Then to facilitate enforcement of regulations, boundaries should be demarcated on the ground.

Initiative for geodetic surveys shall be taken jointly by the DENR with NCIP in the case of IA; the DENR shall initiate the survey of case and IIA with NCIP concurring; the NCIP shall take the initiative in the case of IB with DENR concurring; and in the case of IIB either of the two agencies shall take the lead depending on whether biodiversity conservation or indigenous people's rights are of more immediate priority concern.

Task 1 – Delineation of boundaries of the overlapped areas at the provincial or municipal level

- a. Using suitable instruments (GPS, transit, theodolite) establish the metes and bounds of the overlapped area.
- b. Plot the boundaries on the map and make printed copies for confirmation by, and information of all stakeholders.

Task 2 – Installation of boundary markers on the ground once the concerned parties are in agreement.



IP as guardian of watersheds



3 Scenario A: Harmonized Management Plan

Scenario A pertains to the case of overlapping protected areas established under the NIPAS with ancestral domains/lands granted CADT under the IPRA. The DENR and the NCIP, conscious of potential and actual policy conflicts and inconsistencies arising from overlapping jurisdictions have come up with Joint Memorandum Circular (JMC) No. 2007-01 expressly formulated to deal with this scenario. It clarifies the authority and responsibilities of each agency concerned in the planning and management of the overlapped areas. It specifies the composition and defines the functions of Technical Working Groups which are responsible for carrying out all the activities involved in planning and plan implementation.

The DENR and the NCIP through their field offices concerned shall now focus on the areas delineated and demarcated as described earlier in this Manual and initiate the preparation of the harmonized plan following the procedure prescribed in JMC 2007-01.

Step 1 – Organization of Planning and Management Bodies

Technical Working Groups Composition

- Provincial Technical Working Group (PTWG)
 Co-chairs: PENRO and NCIP Provincial Office
 Members: PAMB concerned Committee chair
 PPDC and/or MPDC
 PAMB member – concerned barangays
 PAMB member – NGO representatives
 PAMB member – PO representative
 Protected Area Superintendent
 Concerned NCIP Community Development

Officer/s

Provincial Consultative Body chair
 Concerned NCIP Tribal Affairs Assistants
 NCIP Provincial Legal Officer
 Authorized ICCP/IP elders/leaders from
 AD overlapped

each

Secretariat: DENR PAO/ CENRO staff
 NCIP Community Development Officer
- Regional Technical Working Groups (RTWG)
 Co-chairs: DENR RED and NCIP RD
 Members: DENR Regional Technical Director for

PAWCZMS

DENR Regional Legal Officer
 Regional Development Council

representatives

NCIP Regional Technical Management
 Division Chief

Services

NCIP Regional Legal Officer
 Ethnographic Regional Consultative

Body Chair

Secretariat: DENR Protected Areas and Wildlife Division
 staff

NCIP Regional Administrative office

Functions of Technical Working Groups

- Provincial TWG
 - Review of existing management plans
 - Draft the harmonized plan
 - Furnish RTWG copies of draft harmonized plan
 - Assist in resolving conflicts
- Regional TWG
 - Review consistency of harmonized plan with existing laws, rules and regulations
 - Facilitate the consolidation/integration of plans by the concerned PTWGs where the overlap areas are located in more than one province
 - Prior to affirmation, validate harmonized plans with the PAMB and the IP community concerned

Step 2 – Resource Assessment and Inventory

The task of assembling, analyzing, and preparing different types of information for use in the planning for and managing protected areas cum ancestral domains will involve various stakeholders including scientists, academics, government functionaries, non-government sectors and advocates, and the local communities. Being a joint undertaking between the DENR and the NCIP, both agencies should pool their resources together to be able to access the best qualified persons to provide technical assistance. Below are the types of information to be generated and the corresponding tools and expertise needed to produce them. Of course, the type of data to be generated varies from case to case.

Suggested Information Inputs to the Harmonized Management Plan

(Adapted from Lockwood, 2006)

The following data gathering techniques are not meant to be used in every planning case. Rather, the list serves as a menu of tools from which to select what are applicable to specific sites.

Geodiversity inventory

Abiotic features such as mountains, canyons, lakes, waterfalls and rock formations are spectacular features of the landscape that draw visitors to a protected area. The structure and processes of abiotic features shape the aesthetic, cultural and biotic elements of a protected area. Inventory and assessment of the abiotic elements and the overall structure of the landscape are essential in protected area management. As a minimum requirement, the landscape features should be mapped.

The recommended tool for data collection and analysis for this portion is *Landscape Evaluation* preferably led by a geologist or a Landscape Architect. Participatory land use mapping (See Appendices 1-A and 1-B) may be used to prepare the draft land use map before it is put in final form by the experts in the team.

Biodiversity inventory

It is vital to have in-depth information about the ecosystems and species within a protected area in order to conserve them. For some species, there may be extensive amounts of data, and storing and analyzing this data may be the greatest challenge. For other species, there may be very little known, and primary research will need to be conducted. Data may include species composition, diversity, distribution, habitat and vulnerability, or it may be time-series data, tracking the effects of factors such as climate change. (For suggested technique of faunal survey see Appendix 2.)

A biologist or ecologist is needed for this type of inventory. As a matter of expediency, the team within DENR that conducts the Protected Area Suitability Assessment (PASA) may be called in to undertake the biodiversity assessment using their own criteria or else, they can also adapt the criteria proposed by Bryn Green.

(The PASA and Green Criteria are reproduced in Appendices 3-A and 3-B).

Cultural inventory

Since protected areas also overlap areas of cultural values, it is important to establish and maintain data on cultural artifacts, sites, beliefs, practices and rituals. Maintaining maps indicating sites of significance assists in planning activities and developing infrastructure, and can ensure that these sites are not inappropriately intruded upon. Detailed descriptions of these sites should be annotated and maintained. Information can then be provided to planners and front-line managers to assist with planning and management and providing interpretation for visitor groups. Cultural information often has special significance for the local population, as well as being of interest to visitors.

A cultural anthropologist or a historian would be needed as part of the inventory team to conduct the mapping and description of historical and cultural relics that may happen to exist in the planning area. Assistance from the local residents especially the more senior ones is essential. Land use mapping (Appendix 1-B) and historical mapping (Appendix 1-G) would be the appropriate assessment tools.

Traditional Knowledge

Traditional knowledge includes inventories of local biological resources, such as animal, bird, insect, local plant and tree species; knowledge about the seasonal cycles of the plants and animals; the indicators of changes in seasons, weather patterns, animal and invertebrate behavior, and flowering, fruiting, and seeding. This frequently comprises knowledge that is integral to the survival of a local community or indigenous people, as well as knowledge that is often useful to scientists and protected area planners/managers. Use participatory assessment methods such as transect walk, seasonal calendar or a combination of the two (See Appendices 1-A, 1-C and 1-D).

This inventory and assessment is best performed by the indigenous and local communities themselves. The scientists in the team will assist in the proper documentation and taxonomy of the existing species of flora and fauna.

Environmental condition

The condition of the land, including its stability, chance of erosion and likelihood of rock fall or landslides is surveyed as part of the environmental condition of a site. This may be a result of natural processes or generated through human intervention. Threats to the integrity of a natural system, such as degree of pest and weed invasion, need to be documented and managed. Fire fuel load, water quality and quantity, watershed condition, and the health of the wildlife population and vegetation are all considerations relating to the overall condition of the protected area and potentially have considerable management implications. New developments within or adjacent to protected areas will have an environmental impact that will need to be assessed. Ongoing monitoring of the impacts will be required.

The new techniques of *Strategic Environmental Assessment* or the older Environmental Impact Assessment will be useful in this aspect of the characterization of the planning area. (See also Appendix 1-F).

Infrastructure and physical facilities

Protected areas often contain a diverse array of structures and equipment. Some of these relate to visitor use – walking tracks, visitor centers, camping areas, signage and car parks; or for marine areas, jetties, pontoons, marker buoys, and so on. Other incidental infrastructure, such as transmission lines and water storage, needs to be considered. Infrastructure is often required to support management activities and may include staff accommodation, power supply, transport systems and telecommunications facilities. In terrestrial areas there is usually an access network of roads and tracks. Some reserves contain resident populations or visitor accommodation that will need to be documented.

The services of a civil engineer in the team will be indispensable in this regard.

Uses by indigenous peoples, local communities and others

Depending upon their category, protected areas can be subject to a range of domestic consumption, livelihood and commercial uses. Examples include scientific research, access to genetic

resources, honey production, fishing, water use and harvesting of non-timber forest products (NTFPs) such as rattan, resins, or beeswax. Information is needed to ensure the effective and appropriate management of such uses.

This can be done by the local communities themselves using participatory techniques like transect walk (Appendix 1-A) and seasonal calendar (Appendix 1-C).

Visitor use

Many protected areas are valuable tourist attractions and visitor monitoring programs need to be implemented. It is important to monitor the level of visitor use in protected areas. Visitation figures are necessary to estimate environmental impacts and carrying capacity, to make decisions about infrastructure investments, to calculate the regional economic benefit of parks and to monitor visitor satisfaction. The impacts of visitors at sensitive sites should also be measured and monitored.

This task can be done by the local tourism office of the local government having jurisdiction over the planning area.

Community population inventory

Understanding the local community and its economic, cultural, demographic, employment and social structure is crucial. Much of the data may be available from government (national, regional or local) statistics. Some information can only be obtained by written surveys, interviews, focus groups, etc. (Appendices 4-A and 4-B). Human uses – such as business and residential development, hunting, fishing, cutting wood, clearing areas for agriculture and recreation – need to be considered. In the case of community conserved areas (CCAs) and other protected areas in which indigenous and local communities reside, the community's own understanding of history, biodiversity conservation and sustainable resource utilization is critical.

This task can be appropriately performed by the staff of the local planning and development office of the LGU concerned. The data generated should form part of the LGU's socio-economic profile or ecological profile as the case may be.

Social and land-use history

Being informed about the human or social history of the area is invaluable to protected area planners/managers. In combination with the environmental history and the current situation, this information can provide a complete picture of what has occurred in the area. For example, the variety of land uses may help to explain the composition of the landscape. Like cultural resources, social history can be used to provide interpretations for visitors. This, too, can form part of the LGU's ecological profile, with inputs from the local office of tourism promotion. Participatory historical mapping relevant to this section is described in Appendix 1-G.

Step 3 – Analysis of Data

Step 3.1 Identify issues and conflicts

Conflicts as categorized by Lockwood (2006) could take the form of incongruence between:

- a. consumptive uses and conservation values, e.g. animal grazing vs. conservation of rare species of flora;
- b. one resource component and another, e.g. introduction of exotic species vs. propagating native species;
- c. intensity of use and the carrying capacity of the resource being used, e.g. heightened bush camping experience and the resulting problems of vegetation depletion, rubbish and toilet waste disposal, and the like; and
- d. one type of use and another of the same resource or area, e.g. small fisherfolk vs. water sport recreationists, forest-dwellers vs. wildlife tourists, mountain trekkers traversing “no-go” areas such as sacred groves, burial grounds and other ritual areas of ICCs/IPs.

The assessment methods used were not only for resource inventory purposes but also for identifying issues and challenges. Through map overlay, for example, possible zonation issues may arise such as when the designated Strict Protection Zones (SPZ) under NIPAS do not include the areas customarily regarded by IPs as “no-go” zones like burial grounds, sacred groves, hunting areas, etc. The transect walk, for another example, might yield information about specific resources or species to be an important source of

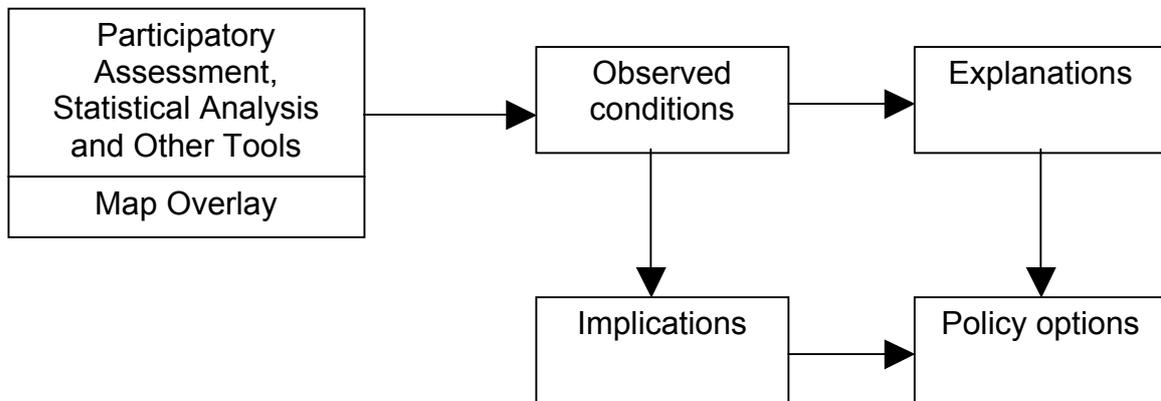
food or livelihood for the IPs but which are also marked out as threatened or endangered by the DENR. Conversely, PAMB policies might allow year round resource extraction activities within the Multiple Use Zone (MUZ) but the seasonal calendar of the IPs might indicate the latter's strict observance of "closed seasons" or "fallow periods".

Another set of issues pertain to threats to the integrity of the resources that are sought to be protected. Direct and indirect threats may come from natural phenomena such as floods, wildfires, landslides, etc. or from human and institutional activities. When the protected area or portions of it are opened for extractive or recreational activities, planners/managers are advised to understand the vulnerabilities of the area resources to better anticipate the impacts of those activities. (See Appendices 5 and 6.)

Yet another set of issues may take the form of backlogs or shortfalls in the provision of public goods and social services for the promotion of well-being of the communities living in the protected area, both indigenous and migrant. Information on these aspects is normally derived from the relevant portions of the LGU's socio-economic or ecological profile. Otherwise, the community-based and focus group interviews will have elicited such types of information. Also, the assessment of infrastructure and physical facilities will provide information on the current state and quality of existing services on the site. Backlogs in social services like education, health, welfare, etc. are determined by simply comparing the state of existing services and facilities with prevailing national standards or regional benchmarks.

To facilitate analysis, the following framework may be used:

Figure 1
Analytical Logic for Planning and Policy-Making



How to use the framework:

Make observations from the different assessment tools you used in the survey and inventory: map overlay analysis, statistical analysis, transect walk, seasonal calendar, focus group discussion, etc.

- a) For every observation you made provide an explanation or explanations by asking the question “why”. To the extent possible, try to find the immediate as well as the remote cause/s of the observed condition.
- b) Project a future scenario of the status quo by asking “So what?”, or else, imagine what will happen if the observed condition continues without any intervention to change it.
- c) Decide whether the “do nothing” scenario is desirable or not. If beneficial, suggest what can be done to sustain the benefits. If undesirable, either suggest measures to mitigate the inconvenience being created by the observed condition, or find ways to solve the condition permanently.
- d) Enter the results under the appropriate columns in the matrix below.

Table 1
Template for Presentation of Results

Observed Conditions	Explanations	Implications	Policy Options

Step 3.2 Resolve conflicts, manage threats or reconcile policies

Conflict resolution through conciliation or mediation is specified in Sec. 12 of JMC 2007-01. Conciliation and mediation require the services of an independent third party to facilitate or mediate the proceedings. If a third party mediator is needed civil society organizations (CSOs) have proven to be effective at playing such a role. In the absence of an independent mediator, however, a third method, negotiation, may be resorted to. Borrini-Feyerabend, G. (1997) defines negotiation as an approach to conflict management “where the parties, with or without the assistance of a facilitator, discuss their differences and attempt to reach a joint decision.” (For more detailed description of the procedural steps in conflict management see Appendix 7). Whatever agreements, concessions, accommodations or protocols reached by the parties concerned are consolidated and processed to become inputs to the solution or action part of the management plan.

Likewise the identified threats to various sectors and aspects of the protected area should be managed. Suggested measures to deal with each specific threat are listed in Appendix 8-A to Appendix 8-H.

Step 4 – Management Planning for the Overlapped Areas

Step 4.1 Establish goals and objectives

Goal formulation is always the first part of any rational planning process. A *goal* is a general statement of ends. Sometimes the term *vision* is used but there is no essential difference between a goal and a vision. A goal or a vision is not necessarily achievable in the planning period, but indicates the general direction to which all proposed actions in the management plan aspire. For example, the overall goal of a harmonized management plan *to promote the social and economic well-being of indigenous communities and at the same time maintain the integrity of the natural environment* may take a long time to realize, if at all. But a vision or a goal is important nonetheless because it can raise aspirations and motivate effort. Goals motivate people to take actions towards what they believe will yield the imagined result.

Moreover, because of their very general nature, goals are by themselves insufficient for directing management. In order for goals to be able to guide specific actions they have to be reduced into objectives. An *objective* is a statement of realistic, measurable and specific ends to be achieved within a specific period of time. Objectives are required for effective evaluation of a plan since if it is unclear what a plan intends to achieve, it is not possible to determine its success or failure. Without objectives, a manager cannot know when a particular action achieved the desired result (and therefore move on to achieving other objectives). Nor can the manager discover if a particular action is, in fact, not achieving the desired result, and whether another action should be tried instead. Ideally, an objective should be: 1) specific, 2) measurable, 3) attainable, 4) realistic, and 5) time limited, or in short, S-M-A-R-T. Below are examples of specific objectives that might be targeted within a specified period of time say, one calendar year.

- conserve native plants and animals;
- secure a culturally important site;
- protect a site of critical livelihood importance;
- provide a range of recreation opportunities; and
- control plant and animal pests.

A simple guide to formulating objectives is to take any issue or problem identified during the data analysis step of this planning process. Then negate the issue or problem, applying the intuitive formula: *a goal or objective is the inverse of a problem*. For example, if it is found that the population of a certain wild pig is getting precariously small and that it is further found that hunting is being carried out on a year-round basis, an objective of the management plan might be to impose a moratorium or closed season on hunting for a specified period.

Step 4.2 Develop policy options (strategies) for achieving objectives

Formulating a goal or objective by the simple expedient of negating an identified problem or issue may be very convenient but it may not yield all the possible solutions, much less the most preferred one, to the problem. A longer process which promises to yield better results is to dig deeper into the cause/s and implication/s of the identified problem. The process is called extracting intelligence or asking the probe questions “why” and “so what”. Finding the answer to the question “why” leads one to dig up the past and try to understand the historical antecedents that will help explain why the observed condition is such as it is. To answer the question “so what”, on the other hand, forces one to look into the future, imagining scenarios about what will happen if the observed condition continues unresolved (Review Fig. A-1). Then based on the answers to these intelligence questions generate *policy options* or *strategies*. (Refer back to Step 4.1).

A policy is a solution statement of the “if-then” variety. A policy is useful in that it automates repeat decisions to save time or to ensure that the same action is taken under the same circumstances, giving a sense of fairness and predictability. Example: If IPs observe a fallow period long enough to allow resource regeneration then they can continue to practice swidden agriculture. A strategy, in contrast, is a cluster of solution statements targeted to various aspects or causes of a problem. For example, to return to the issue of wild pig population getting depleted, perhaps hunting is just one of the causes and regulating hunting may not entirely solve the problem. One cause may

be that the forage area of the animals is severely reduced due to human settlement encroachment into the forests. Another cause may be traced to the increasing popularity of wild animal meat as novelty or exotic foods being served by tourist related establishments. If the goal is to restore the population of wild pigs to sustainable levels a good strategy is to target all the known causes of the animal's diminishing number.

A useful way of getting all of these ideas down on paper is to hold a 'brainstorming' session.

Step 4.3 Process and classify the proposed actions

The output of Steps 4.1 and 4.2 will make a long list of policies, strategies and actions. When collected together these suggested activities become an *agenda*: a list of what to do. When translated into an agenda, a plan becomes a tool for management. Before this to-do list can be used directly for management purposes the activities need to be classified into projects, non-projects or services, and regulatory measures. Processing proposed actions entails the following sub-steps:

- Sift projects from non-projects
- Classify projects by administrative ownership or responsibility
- Process non-projects for possible upgrading into projects, or else, farm out activities to responsible bodies and agencies

a) Sifting projects from non-projects

This sub-step is very important in that it gives a clue to determining possible sources of funds to implement projects. If funding is to be sought from the local government, for example, funding for projects will be taken from the Local Development Fund while funding for non-projects will come from the maintenance and other operating expenditures (MOOE) of particular departments or offices responsible for delivering the service required. In the case of non-projects, identify what office, agency or organization is responsible for delivering the needed services, or what level of legislative body possesses the power to enact a needed law or ordinance, or what executive body has the authority to issue

an order, rule or regulation required. Use the template in Table A-2 below as a guide for classification and enter the result in the format as shown in Table A-3.

Table 2
Projects vs. Non-projects

<p>PROJECTS</p> <ol style="list-style-type: none"> 1. Specific life cycle 2. Definite start and completion points with calendar dates 3. Can be abruptly terminated if goals are not met; always terminated when the project is completed. 4. Often unique; not done before; not repeated when completed 5. Total effort must be completed within fixed budget & schedule. 6. Prediction of ultimate time & cost is difficult. 7. Involves multi-disciplinary skills from different departments or which may change from one life cycle to another. 8. Rate and type of expenditure constantly changing. 9. Basically dynamic in nature. 	<p>NON – PROJECTS</p> <ol style="list-style-type: none"> 1. Continuous life from year to year 2. No specific event tied to calendar dates other than fiscal year budgets 3. Assured of continuous function even in a major reorganization. 4. Usually involves performance of well-established functions and tasks are only slightly different from past efforts. 5. Maximum work is performed within the annual budget ceiling. 6. Prediction of annual expenditure is relatively simple. 7. Involves one or a few inter-related skills and disciplines within one well-defined stable organization. 8. Relatively constant rate and type of expenditure 9. Basically steady state in nature.
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Table 3
Format of Sifting Output

Activities or Policy Interventions	Classification		
	Project	Non-Project	Regulation

b) Classifying projects by ownership or responsibility

Collect all proposed actions classified as projects from Table A-3 and transfer these to column 1 in Table A-4 below. Check for

possible duplications or non-projects wrongly classified and weed them out. As a guide to sifting projects according to ownership or responsibility use Sec. 17 of the Local Government Code as template. (See Appendix 9 for a tabulated summary of Sec. 17.). Opposite each proposed project put a check mark under the appropriate column. Multiple ownership or responsibility for a particular project is possible.

Table 4
Ownership or Responsibility for the Proposed Projects

Proposed Projects	National Government Agency	Local			Private Sector/ Donor Agency
		Province	City/Mun.	Barangay	

c) Processing non-projects

Non-projects, as defined earlier, are activities performed by the staff of particular departments, offices, agencies or organizations on a regular, continuing or routinary basis. If these needed services already form part of the regular functions of the office or are among the regular duties of individual staff then no additional resources are needed to implement them. However, it may well be that the needed services are not yet being performed by any existing office or staff. In this latter case the options might be to create a new executive body or to add to the functions of an existing office. In either case additional resources will be required.

Another form of non-projects is regulatory measures, particularly legislation. Legislation qualifies as a service or non-project because it is a regular function of legislative bodies. But the processing of needed regulatory measures follows a different logic. First, determine what type of regulatory instrument is appropriate to adequately deal with the act, behaviour, or practice to be regulated. Next, identify

what body, group or organization has the requisite authority to issue the instrument. Then find out whether the needed regulation already exists and if so, whether it is being implemented effectively. If not, probe into the reason/s and recommend proper action. If the needed regulation is non-existent, then suggest steps to get the responsible authority to issue the instrument. Once issued and the regulation will be enforced it reverts to being a service by the implementing agency, a non-project.

Table 5
Template for Results of Processing Non-Projects

FORMAT FOR FARMING OUT NON-PROJECTS				
Service/Non-Project Required	Activity or Task Components	Department/Office/Agency Responsible	Capacity Gap of Responsible Dept./Office/Agency	Recommended Action

Step 4.6 Zoning

Zoning is a technique that involves spatially organizing a planning area to facilitate the achievement of management goals and objectives. The mechanical part of zoning entails partitioning the planning area in order to separate incompatible uses and to exclude inappropriate uses from certain areas. The legal or political part of zoning involves prescribing what can and cannot be done within each zone and getting everybody to comply with such regulations. Worboys, et. al. (2006) recognize the value of zoning as an effective tool for managing specific threats to protected areas in the way that zoning schemes can “ensure the appropriate location of intensive uses; help prevent or minimize the fragmentation of large natural areas within protected areas; provide a spatial limit to development within protected areas;

and help to provide additional protective measures for select areas.”

How should we zone the harmonized management area?

Let’s start with the NIPAS management zoning scheme. Originally, under DENR AO No. 25, s. 1992, there were nine possible zones that could be delineated within the protected area and its buffer. But these nine zones could be further classified according to whether or not to allow entry by humans and, where entry is allowed, what human activities can also be allowed and at what intensity. Subsequently, DENR amended DAO 25 reducing the number of NIPAS management zones to only two: Strict Protection Zone and Multiple Use Zone. Under DENR DAO No. 28, s. 2008 the two zones are defined thus:

- 1) *Strict Protection Zone (SPZ)* shall comprise natural areas with high biodiversity value, closed to all human activities except for scientific studies and/or ceremonial or religious use by the ICCs/IPs. It may include habitats of threatened species, or degraded areas that have been designated for restoration and subsequent protection, even if these areas are still in various stages of regeneration.
- 2) *Multiple Use Zone (MUZ)* shall comprise areas where the following may be allowed consistent with the protected area management plan: settlement, traditional and/or sustainable land-use, including agriculture, agro-forestry, and other income generating or livelihood activities. It shall also include, among others, areas of high recreational tourism, educational or environmental awareness values and areas consisting of existing installations of national significance/interest such as development of renewable energy sources, telecommunication facilities and electric power lines.

The new zonation scheme is simplified alright but for purposes of zoning the harmonized area a few modifications need to be introduced.

First, the SPZ should be expanded to include those areas, artifacts and natural resources customarily regarded by the

specific tribal group as “no touch, no go” areas such as their burial grounds, sacred groves, hunting areas, traditional sources of livelihood, and the like.

Secondly, for their effective protection, the no-go areas should have their own buffers of some kind, apart from the buffer for the entire NIPAS protected area.

Thirdly, there has to be a way to distinguish sub-categories of “multiple use” activities such as those associated with living or domestic household activities from activities devoted to production or livelihood. Activities of indigenous communities which are recognized under Joint AO No. 2008-01 as sustainable indigenous practices are a good example of the production-type of multiple use.

Finally, the infrastructure support for both production as well as domestic activities should be a distinct component of the MUZ. This ultimately aligns our zoning with the four land and water use policy areas of the national and local governments namely, *protection, production, settlements and infrastructure* areas thereby facilitating the process of mainstreaming into the plans of the local government concerned.

Step 5 – Implement the plan

Implementation of the harmonized management plan involves performing the three management activities namely, enforcement of regulations, implementation of projects, and delivering continuing and routine services. Regulations are the body of rules and policies formulated to protect the integrity of the environment and natural resources within the area of management. Projects are capital expenditures designed to maintain or improve the quality of infrastructure within the protected area and its buffer zone. Services include housekeeping chores performed by the management staff as well as assistance extended to the resident communities, both indigenous and migrant, so as to safeguard their well-being and promote their general welfare.

Who is responsible for performing the above activities and how will these activities be funded?

On the question of responsibility, JMC 2007-01, Section 10, explicitly assigned the ICCs/IPs concerned the “primary responsibility to maintain, develop, protect and conserve such overlapped areas with the assistance from the DENR and other concerned government agencies”. It is highly probable that at this time indigenous communities are not ready to take on the responsibility of managing a protected area. For this reason the JMC has given the ICCs/IPs concerned the option to temporarily transfer in writing the responsibility to other agencies (presumably the DENR) until such time that they will have acquired the proper management technology and knowhow.

One excellent training ground for the IPs to learn the ropes in protected area management is the Protected Area Superintendent (PASu), a body created to run each individual PA site on a day-to-day basis. The Protected Area Management Board (PAMB) of each NIPAS protected area that overlaps an ancestral domain should make it a policy to deputize as many IPs as are qualified in the area to serve as field officers. The deputation of “tribal communities” as field officers is authorized under DENR AO No. 96-28 dated September 19, 1996. Field officers are authorized under the AO “to investigate and search premises and buildings and effect arrest for the violation of laws and regulations relating protected areas”. The learning here is however limited to that of enforcement of regulatory measures.

Regarding the capacity to plan and manage projects, the IPs should learn as much as they can from their interface with other agencies and organizations that have projects to implement within the ancestral domain. They should seek to participate in every phase of the project management cycle. As regards the extension of social services to the residents of the overlapped area, the ICCs/IPs must invoke the responsibility of the local governments concerned to promote the general welfare of all their inhabitants (Sec. 16, RA 7160). To be able to get the LGUs concerned to acknowledge their responsibility the ICCs/IPs should learn how to mainstream their plans into the local government plan effectively.

On the question of funding, the JMC requires both DENR and NCIP to jointly make funds available for the management of the overlapped areas.

Step 6 - Review effectiveness of actions in achieving objectives

A Monitoring and Evaluation System (MES) will have to be jointly developed by the DENR as directed by Section 11 of the JMC. The said MES will be used periodically to assess management effectiveness as well as the degree of success with which biological diversity conservation and protection is ensured within the overlapped areas. (For more participatory M & E processes, see Appendices 10-A, 10-B and 10-C).



Conflict in IP overlaps



3 Scenario B: Making the Protected Areas Management Plan Sensitive to Indigenous People's Rights and Requirements

This management planning approach pertains to the case of a NIPAS protected area that overlaps a non-CADT indigenous community. Because the protected area is placed under the NIPAS, it can be presumed that there already exists a Protected Area Management Plan as required by law. The question of whether or not to prepare an ADSDPP for the overlapped area depends on what tenure status the ICCs/IPs opt to assume.

1. Option to Claim Area as Ancestral Domain

The NIPAS law has always taken a deferential attitude towards the ICCs/IPs occupying portions of NIPAS protected areas. By being careful not to displace or relocate them, by being respectful of their rights, and by treating them differently from non-tribal tenured migrants, the law has left the ICCs/IPs with the option of eventually claiming the places they occupy as their ancestral domain. Moreover, the IPRA provides protection to those tribes who voluntarily migrated to other places or those who were displaced by natural and man-made calamities and were resettled in other regions. Under Rule III, Part II, Sec. 4 (c) of the IRR of IPRA, ICCs/IPs who were relocated permanently, shall upon their free prior informed consent, be accorded the following rights:

- (1) Relocation to a site, which shall, in all possible cases, be of equal quality and legal status as that which they previously occupied, and which shall be suitable to provide for their present needs and future development;
- (2) Security of tenure over lands to which they will be resettled or relocated; and
- (3) Compensation for loss, injury or damage as a consequence of such relocation or displacement.

In the event that the indigenous communities within a NIPAS protected area opt to claim their area as their ancestral domain and apply for a CADT, the change in their status reverts to that of Scenario A and the management plan appropriate for the overlapped area is the harmonized plan.

2. Option to Remain a Non-CADT Indigenous Community

If for whatever reason the ICCs/IPs could not be granted CADT on the areas they occupy what tenure instrument can they avail of should they desire continued stay in the protected area? For sure, they cannot apply for the grant of mere resource use instruments (RUI) for that would make them of the same category as non-tribal tenured migrants. As observed earlier the law takes a deferential stance towards indigenous people.

2.1 Co-management arrangement

One possibility is for the ICCs/IPs to enter into a co-management arrangement. The reason for this is that

although they may already be represented in the PAMB membership, the indigenous communities are not mere stakeholders but are rights-holders as well on account of their historical and cultural association with the territory and of their direct dependence on the local environment for their livelihood. Under a co-management arrangement, the ICC/IP will transform from their present status as co-managers being members of a single management body (PAMB) to that of governance partners. But are the ICCs/IPs ready for this change of status and relationship?

According to Kothari (in Lockwood, et. al., 2006) the contribution of local communities (IPs included) in protected area management varies. In some cases, they are invited only for consultation or some form of benefit sharing. In others, they are included in the management organization and given the power of influencing decisions as a minority voice. In still other cases, they are included in an organization with technical and/or decision making capacity that requires deliberation by consensus. It may be observed that the PAMB in respect of NIPAS protected areas is designed to function as in the third case above. So how are the PAMBs faring so far?

In an IUCN-commissioned regional review of co-managed protected areas (CMPA), the following is said about the Philippines:

“An example of relatively weak CMPAs is the Philippines where each protected area is expected by law to be run by a management board composed of government officers, NGOs and community representatives. Unfortunately, this has not yet been functioning effectively due to various limitations – from lack of documents in local languages and resources for meetings and workshops, to the fact that the local people are too shy to voice their concerns in the presence of the board chairperson, who is a government officer. For the time being, the decision-making power still remains firmly in the government’s hands.” (Quoted in Kothari, 2006)

It seems that the prospect for adopting the co-management arrangement of the partnership type is not bright in the short term but it is worth keeping this option for the medium or long term. And, while the management of the protected area will still be assumed by the PAMB, measures will be introduced towards encouraging more substantial participation by the indigenous communities to enable them to eventually gain the confidence to deal with other stakeholders on equal footing. In the meantime, what has to be done is to make the existing PAMP responsive to the needs and sensibilities of the ICCs/IPs residing in the protected area.

2.2 Toward an IP-sensitive Protected Area Management Plan

There currently are no policies directed at cases like this. The existing directive that is close to being applicable here is Joint DENR-NCIP Administrative Order No. 2008-01 provided certain slight modifications could be introduced. For example, whereas the Joint AO pertains to the formal recognition of IPs' sustainable production and livelihood practices as compatible with the objectives of biodiversity conservation within their own ancestral domains, the same principles and procedures of recognition could be extended to IP communities inside NIPAS protected areas.

2.2.1 Policy foundation

The idea of formulating a PAMP that is sensitive to the needs and sensibilities of ICCs/IPs finds support in the policy of the State to “protect and guarantee their [ICCs/IPs] right to pursue their economic, social and cultural well-being not only to ensure equitable sharing of benefits from the bounty of the earth but also to enable them to flourish under a balanced and healthful ecology, in accord with the rhythm and harmony of nature” (Sec.1, JAO 2008-01).

This means that the IPs occupying protected areas are treated as virtual partners in conservation both in terms of their cultural practice of keeping “sacred” sites as “no touch, no entry” areas as well

as through their customary resource use systems which are proven to be sustainable and do actually contribute to conservation objectives.

2.2.2 Modified harmonization process

Formulating the IP-sensitized PAMP is a variation on the generic harmonization process as described in the preceding section (Scenario A). Necessarily modifications will be introduced. For example, unlike in Scenario A where the area of overlap is between a NIPAS protected area and an ancestral domain with CADT, under Scenario B, the area occupied by the IP community is not an ancestral domain. Therefore, in the latter case, it may not be necessary to delineate the outer boundary of the “overlapped” area. What need to be delineated are the spatial units of analysis, the ancestral domain management blocks/units as provided for in JAO 2008-01. Ancestral domain management blocks/units are defined in JAO 2008-01 as “indigenous communities/areas or parts thereof which have the same natural, socio-economic and political conditions that are being governed by one traditional leadership system and practicing a single type of traditional and indigenous forest resources management.” Each management unit is characterized by a common set of sustainable traditional and indigenous forest resources management systems and practices (STIFRMSP) which the particular IP community registers for formal recognition as a form of sustainable forest management system. The recognition is formalized and confirmed through a memorandum of agreement (MOA) executed by the key stakeholders including the DENR, NCIP, ICCs/IPs and their elders/leaders and the LGUs concerned.

The most important output of this harmonization procedure is the revised zonation plan in the PAMP to incorporate culturally sensitive areas in the Strict Protection Zone (SPZ) and the customary resource use systems of the IPs in the Multiple Use Zone (MUZ).

Accordingly, there are two major sets of activities involved in making the Protected Area Management Plan IP-sensitive, namely, revising the PAMP zoning scheme and securing the provision of basic services and facilities for the IP settlements as a legitimate and integral part of the management of the protected area.

Activity 1. Revising the PAMP Zoning Scheme

Step 1. Resource assessment and inventory

Use participatory assessment methods such as transect observational walk, seasonal resource use calendar, land use mapping, etc. (Refer to Appendices 1-A, 1-B, 1-C, 1-D and 1-F for a menu of assessment tools.) One facet of the assessment will focus on mapping out areas considered by the particular tribal group as “no-go” areas to be incorporated in the zonation plan of the protected area. Specifically, the following areas are to be delineated to be incorporated in the Strict Protection Zone in addition to those prescribed in DENR DAO No. 2008-17.

Step 2. Revision of the Strict Protection Zone in the PAMP zoning map

After identifying and delineating the areas, resources and artifacts considered “no-go” zones by the ICCs/IPs, the PAMB shall now amend the PAMP zoning map and redefine the Strict Protection Zone as follows:

Strict Protection Zone (SPZ) shall comprise natural areas with high biodiversity value, closed to all human activities except for scientific studies and/or ceremonial or religious use by the ICCs/IPs such as, but not limited to *burial grounds, sacred or worship areas, sacred groves, hunting grounds, sources of traditional livelihood*, and the like. It may include habitats of threatened species, or degraded areas that have been designated for restoration and subsequent protection, even if these areas are still in various stages of regeneration. The SPZ is equivalent to the land use policy area of *Protection* in the LGU planning and zoning.

Step 3. Revising the Multiple Use Zone

The map of the Multiple Use Zone will also be automatically revised. *Multiple Use Zone (MUZ)* shall comprise areas where the following may be allowed consistent with the protected area management plan: settlement, traditional and/or sustainable land-use, including agriculture, agro-forestry, and other income generating or livelihood activities. It shall also include, among others, areas of high recreational tourism, educational or environmental awareness values and areas consisting of existing installations of national significance/interest such as development of renewable energy sources, telecommunication facilities and electric power lines.

The revised Multiple Use Zone of the PAMP will incorporate those areas occupied by ICCs/IPs as their settlements, areas for carrying out their traditional resource use and livelihood activities, and the basic infrastructures that support these activities. The MUZ is equivalent to the three other land use policy areas in the LGU zoning, namely, *Settlements*, *Production*, and *Infrastructure* areas, respectively.

Step 4. Delineating the Production Areas of the ICCs/IPs

The procedure in delineating areas being utilized by the IPs for production purposes shall be in accordance with the provisions of JAO 2008-01 pertaining to the recognition of customary traditional forest resource use practices of indigenous people occupying forest lands.

Task 1. Formulation of a Memorandum of Agreement and Joint Implementing Rules and Regulations

The Memorandum of Agreement (MOA) shall contain, among others:

- a. The commitment of all concerned signatories to the sustainable management of the subject forest area and its forest resources.
- b. The procedures to be followed in carrying out the traditional and indigenous forest management systems and practices consistent with the

traditions and culture therein including the corresponding penalties and sanctions to be imposed for each and every violation to be committed.

- c. Provisions defining the roles and responsibilities of all parties concerned in the documentation of information and/or in the gathering of primary data for the recognition and confirmation of the traditional and indigenous forest management systems and practices.

The output of the joint documentation as well as the stipulations under the MOA shall be used in the formulation of a Joint Implementing Rules and Regulations (JIRR) between and among the DENR, the NCIP, the concerned LGUs and the head or the duly authorized representative of the concerned ICC/IP for a particular sustainable traditional and indigenous forest resource management system and practice (STIFRMSP).

Task 2. Documentation and Characterization of the Management Unit

The documentation of indigenous and traditionally managed forests and the different practices in relation to forest resources management, harvesting and utilization thereof shall be undertaken jointly by the DENR and NCIP in coordination with the indigenous leadership system, Barangay and Municipal LGUs and other concerned stakeholders. The documentation process shall focus not on specific barangay levels but on traditional domain management unit/s as a whole and should capture the integrative landscape/nature of the domain. The documentation shall include but not be limited to the following items:

Description of the Ancestral Domain Management Blocks/Units

- a. Location, general description of the area (e.g. topography, accessibility, slope, hazard/danger

- areas, soil type and structure, etc.) including the area coverage and boundary of the traditional management unit/block by groups/clans or community;
- b. Area covered by each ICC/IP using particular traditional and indigenous forest management systems and practices including the extent and frequency of how the ICCs/IPs harvest/utilize their trees and other forest resources;
 - c. Location Map of the area covered by the traditional domain management unit/block showing the boundaries and adjoining lots;
 - d. Present land uses and prevailing vegetative cover status (prevailing vegetation, including the volume, estimated quantity of the forest resources);
 - e. Inventory of biodiversity resources in the area and strategies on rewarding upland communities for maintaining their watershed areas, if any;
 - f. Known important forest resources in the area (e.g. timber and non-timber, wildlife, etc.) including forest areas with future potential special forest land uses that could generate additional revenue for the community (i.e. eco-tourism and camp site, etc.)
 - g. Nature of trees and other forest resources of the area (whether naturally growing or plantation forest including, if possible, estimated stand age, common name and scientific name; and
 - h. All other information deemed vital and needed for the comprehensive evaluation of the sustainability of a particular indigenous and traditional forest management practice.

Profile of the Community

- a. Indigenous Political Structures including the ethnic or sectoral compositions;
- b. Traditional indigenous resource rights practices;
- c. Approximate population (including the estimated population of the community who are using such particular indigenous and traditional forest management practices);
- d. Common livelihood activities and forest-based activities including the number and nature of the

- industry/ies making use of the resources from the traditionally managed area of the concerned indigenous people/community; and
- e. Traditional indigenous forest management practices on forest protection and conservation, soil and water conservation measures, reforestation and agro-forestation.

The regional offices of the DENR and the NCIP, after consultation with the LGUs concerned and other stakeholders may require additional document/s not herein listed and identified necessary for the determination of the sustainability of the concerned indigenous and traditional practices.

Task 3. Data Evaluation

Upon the completion of the documentation, the DENR, the NCIP and the respective LGUs shall evaluate all the information/data gathered on the sustainability of the indigenous and traditional practices of the concerned ICC/IP based on the criteria as enumerated above.

Task 4. Consultation, Attestation and Approval Process

The result of the evaluation shall be presented and validated by the concerned ICC/IP in a consultation process. The indigenous leadership system shall attest to the veracity of the information and thus approve the STIFRMSP's official registration.

However, if the documented information/data as evaluated do not conform to the sustainability criteria for registration, the concerned ICC/IP, the DENR, the NCIP, the LGUs and other stakeholders who participated in the data collection shall set additional rules and conditions which are acceptable to all parties concerned, that will make the present indigenous and traditional practices compliant. The agreements including the additional terms and conditions to be followed by the ICC/IP shall form part and be expressly provided for in the MOA and the JIRR.

The community, through the indigenous leadership system, shall be the repository of all generated

information/data by the DENR and the NCIP including the Minutes of the Consultation process giving rise to the agreement/s between and among the different parties and stakeholders. The regional offices of the DENR and the NCIP shall keep a copy thereof for record purposes and if needed, all concerned stakeholders may request and secure their respective copy from the concerned indigenous leadership system.

Task 5. Registration

Registration of the indigenous and traditionally managed forest as a result of the comprehensive evaluation, documentation and consultation activities found to be practicing a sustainable forest resources management system and practice shall be issued with a Joint Implementing Rules and Regulations (JIRR) jointly approved by the DENR, the NCIP and all parties mentioned. The presence of the following factors/conditions shall be considered in the registration:

- a. The existing indigenous Forest Resources Management Systems/Practices is promoting forest conservation, protection, utilization and biodiversity conservation;
- b. The basis of the indigenous forest resources management practices shall focus on the maintenance of the watershed system necessary to sustain/maintain the protective and productive functions of the forest through indigenous knowledge approach/practices which will enhance soil and water conservation and biodiversity;
- c. The presence of customary laws, if verified to be within the framework of sustainable forest resource management, which may be written or unwritten rules, regulations, usages, customs and practices traditionally observed, accepted and recognized by the respective ICCs/IPs in the management of forest resources;
- d. The watershed forest management shall be the ecosystem management units and being managed in a holistic, scientific, rights-based, technology-based and community-based manner and observing the principles of multiple use,

- decentralization and devolution actively participated in by the Local Government Units (LGUs) and other concerned agencies with synergism of the economic, ecological, social and cultural objectives, and the rational utilization of all forest resources found therein;
- e. The security of land tenure and land use rights as provided for under the IPRA and other applicable ENR laws, rules and regulations shall be a requirement for sustainable use; and
 - f. The current indigenous forest resources management systems/practices can be harmonized with current ENR laws, rules and regulations.

Task 6. Preparation of the Resource Management Plan

A resource management plan shall be prepared and institutionalized relative to the identified ancestral management units/blocks in the community underscoring collective agreements and commitments on natural resource protection, conservation and utilization. However, for purposes of ensuring sustainability and control, any resource utilization set by the communities shall be documented. All concerned entities (DENR, NCIP, and LGU) shall be informed accordingly for purposes of monitoring and transparency. The following principles shall be observed in resources utilization.

- a. Only those ICCs/IPs with registered STIFRMSP shall be issued with forest resource utilization permit.
- b. That any resource utilization in the form of timber or non-timber shall be replaced by the user with an equivalent number of free seedlings or similar customary arrangement, and as imposed by the community in accordance with its policies and sustainable customs and practices;
- c. That the existing land use as a traditionally managed forest especially for watershed protection shall be regulated and extraction of resources shall be allowed only in areas identified by the community as production site;
- d. The resource extraction shall be in accordance with existing traditional resource rights defined by the community in its indigenous system and practice.

All DENR laws, rules and guidelines on resource utilization shall be applicable in a supplementary manner;

- e. The resources extracted for utilization or to be traded outside the domain/locality by the concerned ICC/IP shall be regulated. The disposition of timber and non-timber products shall be governed by the applicable DENR laws, rules and regulations relative to the requisite shipping/transport documents;
- f. Resources utilization from naturally grown forests for livelihood projects such as carving, handicrafts, manufacturing, etc. shall be regulated and only the allowable volume/number of species needed as raw materials for livelihood projects could be disposed of outside the domain/locality in accordance with existing traditional resource rights and DENR laws, rules and regulations; and
- g. Resources harvested from the established indigenous forest/forest plantation to be further processed into finished products (i.e carving, ornamental, handicrafts, novelty items, etc.) shall be allowed to be transported outside the point of origin to any market outlets subject to DENR laws, rules and regulations.

Task 7. Capability Building/Enhancement Program

There shall be a joint capability building/enhancement framework to implement training programs for the Resource Management Technical Group from the DENR, the NCIP, the LGUs, other stakeholders and ICCs/IPs in order to ensure sustainability in the adoption of appropriate sustainable traditional indigenous forest resources management systems/practices.

Task 8. Integration of the Resource Management Plan into the PAMP and LGU Plans

In order to sustain and enhance the indigenous forest resources management systems, identified Indigenous Knowledge Systems and Practices on forest management shall be included as an integral part of the Protected Area Management Plan (PAMP) and the Comprehensive Land

Use Plan (CLUP). As a step towards the realization of the plan and integration of the traditional forest resources management system, the DENR, the NCIP, LGUs and other stakeholders concerned shall organize a Resource Management Technical Group at the regional level which shall function as a unit to provide direction and support in the integration/recognition and the implementation of indigenous forest resources management systems/practices within the accepted structure and to recommend appropriate mechanism that will provide incentives to communities. *All areas delineated as ancestral domain management blocks/units shall be incorporated in the Multiple Use Zone of the PAMP.*

Activity 2. Managing the IP Settlements, Livelihood and Infrastructure Support

It has been observed in the Framework paper that most protected areas are “lived-in” landscapes, that is, they play a key role of providing a home for human communities especially indigenous people. And, wherever human settlements go agriculture and similar natural resource extractive activities can’t be far behind. The most significant impact of agriculture and human settlements on protected areas is the conversion and disturbance of natural habitats. Such impacts are bound to expand over time as population grows and the need for more building land and livelihood activities such as hunting, livestock grazing, collecting non-timber forest products, cutting timber for building materials, firewood and charcoal making, and the like, increases. There are known ways of carrying out these activities at sustainable levels (See Appendices 8-A to 8-H) and these are probably spelled out in the resource management plans prepared for each management block/unit’s recognized STIFRMSP. Otherwise, regulating such activities is precisely the reason for the creation of the PAMB.

Planning for, and servicing the human settlements inside the protected area however, is probably beyond the mandate and inclination of most of the PAMB members except for the representatives of the local governments. Indeed, settlement planning is a function that properly belongs to local government units. Data collected pertaining to the profile of the community such as demographic characteristics, the condition of their settlements and support infrastructures, and the status of their access to social services should therefore be incorporated into the

planning data base of concerned local government units so that the LGUs will regard IP communities as an integral part of their planning constituency.

An important concomitant of settlement development is infrastructure development. Roads, canals, power lines, pipelines, telecommunication towers, etc., can impact on protected areas. For example, road projects that cut through protected areas not only impact on the ROW and immediate vicinity but can encourage increased visitor use, induce illegal settlements, and serve as conduits for pests and diseases. Power transmission lines, for another example, pose a direct threat to protected areas by the need for clearing the regulation easement. The threat is further intensified when maintenance access roads are constructed along the easement.

Warboys, et. al. (2006) offer some techniques for limiting the impacts of infrastructure developments that are made to traverse protected areas. These include:

- a. Effective liaison with the construction company, its contractors and sub-contractors;
- b. Providing background environmental information and guidelines to the developers, both verbally and in writing;
- c. Setting a substantial bond that can be used to repair any environmental damage;
- d. Constantly monitoring the development;
- e. Having an approved development design that includes a waste treatment system (preferably a completely internalized one) for minimizing such effects as stream pollution from sediments, from grease and oil waste, or from the run-off of acid or alkaline waters;
- f. Cordoning off the development site to delimit the area within which disturbance is permitted;
- g. Starting rehabilitation while the development is still underway;
- h. Offering bonus payments for good environmental results;
- i. Having a proviso in the contract which allows protected area managers to halt work for environmental reasons; and
- j. Contingency plans that deal with potential accidents, such as explosions or fire.

These safeguards are normally stipulated as conditionalities in the Environmental Compliance Certificate issued by DENR prior

to project construction. For additional management responses see also Appendix 8-E and Appendix 8-I.

Step 5. Plan Integration

All of the above-mentioned instruments will be mainstreamed into the PAMP to be enforced by the PAMB through the Protected Area Superintendent.

Mainstreaming those portions of the PAMP which are the responsibility of local governments concerned is taken up in the last section of this Manual.



IP delineating sacred areas



3 Scenario C: Formulating Biodiversity Enhanced Ancestral Domain Sustainable Development and Protection Plan

Under Scenario C there is an overlap between an ancestral domain with CADT and a non-NIPAS protected area. This is precisely the scenario where the provisions of Joint DENR-NCIP Administrative Order No. 2008-01 are applicable. Because the AD has a CADT it is likely that an ADSDPP already exists. The subject protected area is not under the NIPAS so there is likely to be no PAMP existing for the area. In cases like this it is not necessary to prepare a separate PAMP for the protected area. A biodiversity conservation-enhanced ADSDPP may be sufficient for the purposes of a harmonized management plan for the overlapped area.

3.1 Legal Basis

The effort to enhance the Ancestral Domain Sustainable Development and Protection Plan with biodiversity conservation considerations finds support in an explicit provision of the Indigenous People's Rights Act (IPRA) quoted hereunder:

“Ancestral Domains or portions thereof, which are found to be necessary for critical watersheds, mangroves, wildlife sanctuaries, wilderness, proclaimed areas, forest cover, or reforestation as determined by appropriate agencies with the full participation of the ICCs/IPs concerned shall be maintained, managed and developed for such purposes. The ICCs/IPs concerned shall be given the responsibility to maintain, develop, protect and conserve such areas with the full and effective assistance of government agencies...” (Sec. 58, RA 8371).

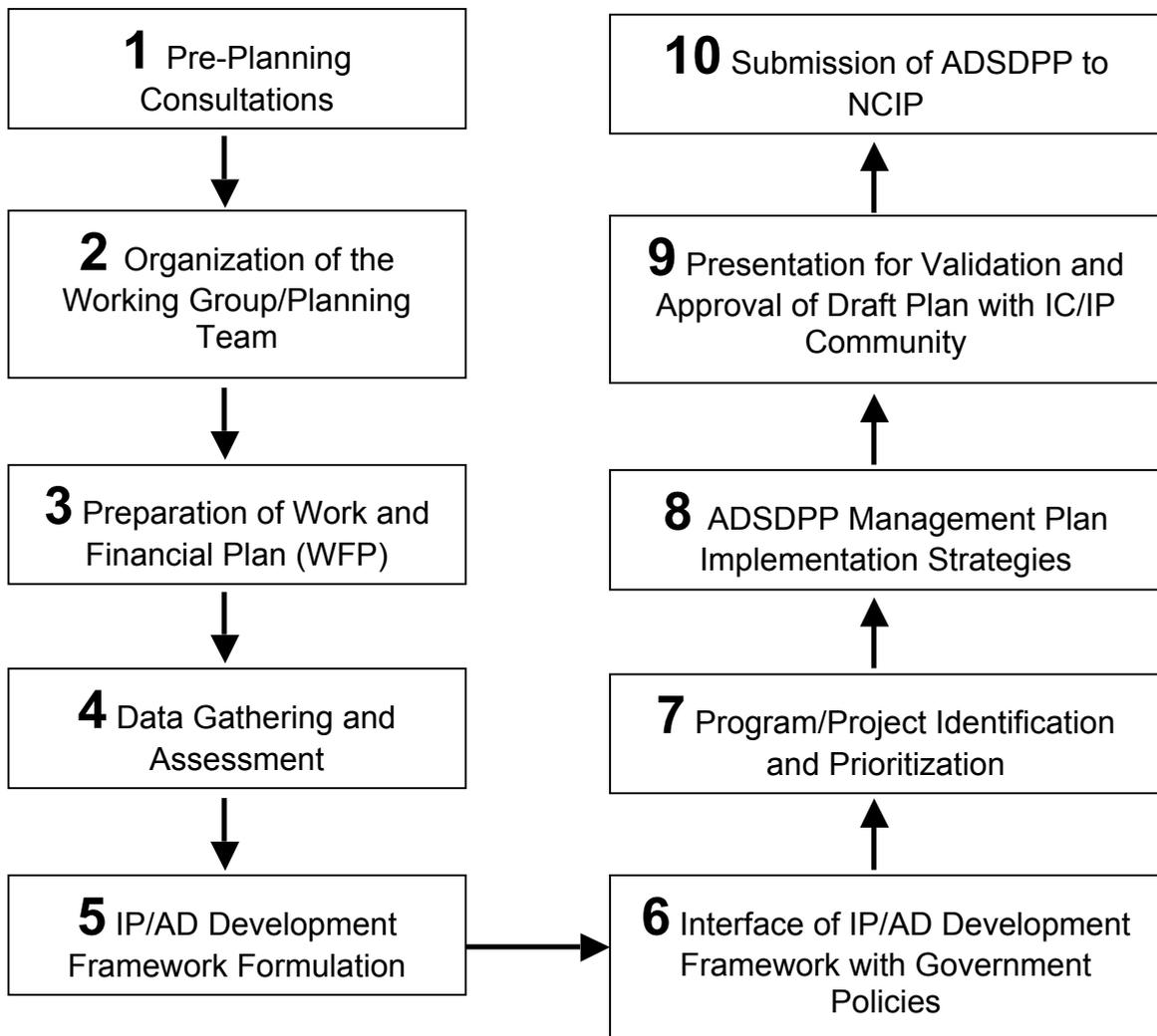
3.2 Enhancing the ADSDPP Process

The procedure for preparing the biodiversity-enhanced ADSDPP is similar to that of Scenario B. But unlike in Scenario B where the IP sensitivity-enhanced PAMP serves as the harmonized management plan, in Scenario C it is the biodiversity conservation-enhanced ADSDPP that serves as the harmonized plan for the overlapped area. Inasmuch as there is a prescribed ADSDPP planning process the proposed improvements and modifications towards biodiversity enhancement will be inserted and annotated directly into each step of the process.

3.2.1 The ADSDPP Formulation Process

The process of formulating the ADSDPP is prescribed by the NCIP through its Administrative Order No. 1, s. 2004. The formulation process shall be guided by the principles of self-determination, participatory planning, and cultural integrity. The main objective of the ADSDPP is to ensure the sustainable development of ancestral domain resources and to enforce the rights of ICCs/IPs to their ancestral domains as well as their rights as a people and as citizens. The process consists of ten (10) steps as follows (See Fig. C.1):

Figure 2
The ADSDPP Formulation Process



3.2.2 The Proposed Modifications

The proposals to enhance the ADSDPP process by incorporating biodiversity conservation considerations are juxtaposed with each step of the process for easy reference as shown in Table C.1.

Table 6
Biodiversity Conservation-Enhanced ADSDPP Process

Original Steps in ADSDPP Planning	Proposed Modifications
<p>a. <i>Pre-Planning Consultations.</i> In preparation for the ADSDPP formulation, a series of consultations shall be conducted by the NCIP field office with the following objectives:</p> <p>1) Fully inform and educate all IC/IP community members of their rights and responsibilities pursuant to existing policies and regulations.</p> <p>2) Get the commitment of concerned IC/IP community members to formulate their ADSDPP.</p>	<p>None</p>

<p>3) Identify members of the working group to formulate the ADSDPP.</p>	
<p>b. <i>Organization of the Working Group/Planning Team.</i> A Working Group or Planning Team shall be organized which shall comprise the traditional leaders and recognized representatives from all ICC/IP sectors such as the women, youth, children, farmer/fisher folks of the tribe that owns the ancestral domain. To facilitate the planning process, sub-working groups may be organized by ancestral domain unit and/or ICC/IP sector to assist the core Working Group.</p>	<p>Add to the Working Group representatives from major stakeholders such as the community, provincial or regional field offices of DENR; the municipal and/or provincial planning and development coordinators; and civil society organizations with proven record of work and strong advocacy for biodiversity, indigenous people's rights, and related fields.</p>
<p>c. <i>Preparation of Work and Financial Plan</i></p>	<p>Concerned bureaus of DENR through their field offices may be considered as possible source of funding. Likewise,</p>

<p>(WFP). Prior to the formulation of the ADSDPP, the core Working Group (WG) shall prepare a work and financial plan indicating the planning activities, specific outputs, schedules, responsible persons/groups per activity, and the budgetary requirements including probable resources or sources of funds. This shall be done in consultation with the Council of Elders and other members of the community. Thereafter, the same shall be endorsed to the NCIP, through the provincial and regional offices, for approval and possible funding assistance.</p>	<p>international NGOs may be able to assist in fund sourcing.</p>
<p>d. <i>Data Gathering and Assessment.</i> Data gathering or baseline</p>	<p>Suggest specific methods of participatory rapid appraisal such as transect walk, historical mapping, land use mapping, seasonal calendar, etc.</p>

<p>survey and assessment is the preliminary step in the planning process to produce the ancestral domain profile and situationer. The Working Group(s) shall conduct a participatory baseline survey focusing on the existing population, natural resources development projects, land use, sources of livelihood, income and employment, education and other concerns. The survey shall include the documentation of the ICC/IP culture of IKSPs or historical accounts of inventory of documents relative to the sustainable development and protection of the ancestral domain. Likewise, it includes the</p>	<p>Refer to the menu of techniques described in Appendix 1-A to Appendix 1-G. For purposes of survey and mapping for zoning, adopt the 2-zone scheme under NIPAS: Strict Protection Zone (SPZ) and Multiple Use Zone (MUZ). Then delineate ancestral domain management blocks/units and use these as the spatial units of data inventory and analysis. Within each management block do a transect walk and identify and map out areas, artifacts, resources, etc. which the particular tribal group considers as “no-go” areas, as well as those areas defined in DENR DAO No. 26, s. 2008 as constituting the Strict Protection Zone. If need be, request the assistance of the Protected Area Suitability Assessment team in determining the conservation value of the natural resources and wildlife species found within the ancestral domain. After mapping out the SPZ continue collecting more information from each management unit. In addition to those suggested in the preceding paragraph, check out the following data sets suggested in JAO 2008-01 if there are data left out which have to be collected:</p> <ol style="list-style-type: none"> 1) About the domain <ol style="list-style-type: none"> a) Location, general description of the area, (e.g. topography, accessibility, slope, presence of hazard/danger areas, soil type and structure, etc.) including area coverage and boundary of the traditional management unit/block by groups, clans or community. b) Area covered by each ICC/IP using particular traditional and indigenous management systems
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<p>appraisal of the quality and quantity of existing natural resources in the ancestral domain. The baseline survey shall target both secondary and/or primary data with the aid of survey instruments and procedures.</p>	<p>and practices including the extent and frequency of how the ICCs/IPs harvest/utilize their trees and other forest resources.</p> <ul style="list-style-type: none"> c) Location maps of the area covered by the traditional domain management unit/block showing the boundaries and adjoining lots. d) Present land uses and prevailing vegetative cover status (prevailing vegetation, including estimated volume or quantity of the forest resources). e) Inventory of biodiversity resources in the area and strategies on rewarding upland communities for maintaining other watershed areas, if any. f) Known important forest resources in the area (e.g. timber and non-timber, wildlife, etc.) including forest areas with future potential of special forest land uses that could generate additional revenue for the community (e.g. ecotourism area, campsite, etc.) g) Nature of trees and other forest resources of the area (whether naturally growing or plantation forest) including if possible, estimated stand age, common name, and scientific name. h) See other information deemed vital and needed for the comprehensive evaluation of the sustainability of a particular indigenous traditional forest management practice. <p>2) About the community</p> <ul style="list-style-type: none"> a) Indigenous political structures including their ethnic/sectoral composition. b) Indigenous traditional resource rights practices.
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- c) Approximate total population including the estimated population of the community who are using such particular indigenous and traditional management practices.
- d) Common livelihood activities and forest-based activities including the number and nature of the industry/ies making use of the resources from the traditionally managed area of the concerned indigenous people/community.
- e) Traditional indigenous forest management practices on forest protection and conservation, soil and water conservation measures, reforestation and agro-forestry.

Finally, check out Scenario A above for a more comprehensive and more organized data inventory.

The Working Group shall assess the data/information, identify and prioritize problems/issues and concerns, determine needs and gaps, and try to understand the underlying causes and how particular problems affect particular sectors of the community. The output shall be presented to the community for validation of its accuracy and reliability before proceeding to the succeeding steps of the ADSDPP formulation process.

For data analysis, use the analytical framework suggested in Scenario A as an alternative or supplement to SWOT analysis which is more popular but quite shallow. (Refer back to Figure A-1)

<p>e. <i>IP/AD Development Framework Formulation.</i> Immediately after the validation of the assessed data, the community shall collectively formulate the framework for their development as a people and the sustainable development and protection of their ancestral domain. This shall reflect their collective vision, mission, general objectives or long-term goals, priority concerns and development strategies that will set the direction of the program/project identification and prioritization in the ADSDPP. The process shall involve the evaluation of alternative development options without compromise of</p>	<p>Suggest a menu of evaluation techniques such as cost-benefit analysis, checklist of criteria, etc., to select the most preferred development option. If you formulated your vision or goals try using the Goal-Achievement Matrix (GAM) as evaluation tool. The unique feature of the GAM is that it relates the ends with the means directly. (See Appendix 19 for a description of the GAM technique.)</p>
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<p>the ICCs/IPs' duties and responsibilities to their ancestral domains. The framework shall be written in the language understood by all IC/IP community members, and translated in English.</p>	
<p>f. <i>Interface of IP/AD Development Framework with Existing Government Policies/Plans/Programs/Projects, Rules and Regulations.</i> After completion of the IP/AD development framework, other government and non-government agencies, most crucial of which are the DENR, DA, DAR, DPWH, and so forth shall be invited to present their existing policies/plans/programs/projects so that the ICCs/IPs will be</p>	<p>This step of the process should be split into two sessions. The first session is designed to gather inputs from government and non-government entities in the form of their plans, programs, projects, policies and regulations to see how these impact on the IP/AD plans and activities.</p> <p>The second session will be conducted after Step g wherein the proposed interventions have been classified and the agencies responsible have been identified. This session will be an opportunity for the IPs to lobby for the inclusion of their proposed projects before concerned national agencies for the latter to include in their budget for the ensuing year.</p> <p>Proposals to LGUs will be taken up during the period when the ADSDPP will be integrated into the LGU plans. It should be noted that the budget cycle of local governments is different from that of the national government.</p>

<p>fully apprised of development opportunities as well as limitations. The inputs, with possible commitments, will further guide the identification of programs in the ADSDPP. On the other hand, other GOs and NGOs will be informed of the real desires and aspirations of ICCs/IPs, which they may consider in the review and reformation of their respective policies, plans, programs and projects.</p>	
<p>g. <i>Program/Project Identification and Prioritization.</i> Based on the development framework, programs/projects/activities including basic services required shall be identified and prioritized. A brief description of each program,</p>	<p>To facilitate the identification of agencies, offices, organizations and entities responsible for the implementation of proposed programs, projects and activities to realize the vision and goals of the plan, adopt a system of sorting the proposals as suggested below:</p> <ol style="list-style-type: none"> 1) Classify proposed actions into projects, non-projects, and regulatory measures (see Appendix 11). 2) Identify the proper legislative or executive body that has the authority to issue the needed rules and regulations. (See Appendix 14).

<p>project and activity shall be presented and suggestions on implementation strategies and/or mechanisms may be included. The presentation shall include all available resources and external assistance that could be tapped by the IC/IP community.</p>	<p>3) Identify the proper level of government responsible for rendering particular services and delivering particular facilities using Section 17 of the Local Government Code as reference (see Appendix 9).</p> <p>4) Prioritize projects using either the “Project-Resource Impact Matrix” or the “Levels of Urgency” Classification system (see Appendix 16 and Appendix 17).</p> <p>5) Prepare project briefs for priority projects and target probable sources of funding such as local and national governments, civil society organizations, private sectors, and foreign donors (see Appendix 18 for the format and contents of a project brief).</p>
<p>h. <i>Management Plan.</i> Proposed plans to implement and manage the ADSDPP and its specific parts shall be indicated to include the monitoring and evaluation systems and tools to be used in measuring and checking the process of development programs and projects. The Council of Elders/Leaders shall oversee the implementation</p>	<p>The original ADSDPP guidelines failed to include zoning as an important component of the management plan. Zoning should no longer be neglected this time around. If the AD overlaps a protected area, the NIPAS zoning scheme should be adopted. The zones delineated in Step 4, viz. Strict Protection Zone and Multiple Use Zone should now be finalized with technical assistance from DENR and LGUs concerned. The zoning map shall form part of the Plan that will undergo subsequent legitimization process before it can be implemented.</p> <p>At this point the critical factors in the implementation of the ADSDPP are the bodies that will be created to assist the Council of Elders/Leaders. Assistance will be needed to enforce the zoning plan. Another task wherein the CEL needs assistance is the enforcement and monitoring of the resource use</p>

<p>and management of the ADSDPP notwithstanding the visitorial powers of the NCIP. To assist the Council of Elders/Leaders (CEL), the IC/IP community may institute a special body or bodies that will take charge of specific tasks that will be identified.</p>	<p>management plans for the registered AD management blocks' STIFRMSPs. (Refer to Appendix 22 for ethnic group-specific leadership and governance roles as an additional guide in creating appropriate management bodies for ancestral domains cum protected areas.)</p> <p>Perhaps initially the ICCs/IPs may have to avail of assistance from relevant agencies while going through the process of developing their capacity to manage the ancestral domain-cum-protected area effectively.</p>
<p>i. <i>Presentation, Validation and Approval of Draft ADSDPP with IC/IP Community Members.</i> The working group shall conduct IC/IP community assembly(ies) to present the draft ADSDPP for their validation and approval. The presentation shall be aided by visuals including maps and in a manner that is understood by all IC/IP community members. When applicable, the</p>	<p>None</p>

<p>English translation of the ADSDPP shall also be subject to validation.</p>	
<p>j. <i>Submission of ADSDPP to NCIP.</i> Upon validation and approval, the community through its Council of Elders/Leaders shall submit the ADSDPP to the NCIP through the Provincial Office (PO). The ADSDPP shall be incorporated into the Medium Term or Five Year Master Plan for ICCs/IPs, which shall be the basis of programs/projects to be identified in the annual and medium term budgetary proposals of the NCIP as well as other agencies</p>	<p>None</p>

3.3 Mainstreaming the BD-enhanced ADSDPP into LGU Plans

Although this is not considered a step in the plan formulation process, it is a very important step because of the following reasons:

- a. The nested pattern of local governments is such that all areas of land and marine waters within 15 km of the shore in the country are part of the territorial jurisdiction of local governments. Therefore, all protected areas and all ancestral domains, depending on their size and location, fall within the political jurisdiction of the various levels of local governments.
- b. If the management zones are integrated into the CLUP and zoning ordinance of the host city or municipality—which alone has zoning powers—the PA and AD management zone regulations stand a greater chance of being enforced.
- c. The local government is an institution that is relatively more stable and permanent. It has the facilities and the capacity to assist its constituents in their planning activities on a sustained basis.

For the mechanics of plan integration turn to the next section of this Manual.



Sacred Sites



3 Scenario D: Planning for the Indigenous Community- Convesevd Area

The last scenario involving overlapped areas pertains to identified protected areas which have not (yet) been placed under the NIPAS sharing space with IP communities which, similarly, have not (yet) been awarded CADT. A particular area or resource to be protected may not be placed under the NIPAS at all but it bids to be protected nonetheless because of some important economic, social, ecological, cultural and spiritual values it provides to the environment and human population living within or in nearby communities. Geographically, the area to be protected might lie within a vital corridor that links a network of protected areas. Similarly, the resident ICC/IP may be culturally intact with their customary practices and institutions actively in operation but

they could not be granted CADT for the reason that they may have voluntarily migrated or been displaced and resettled but have not exercised their right to claim the destination area as their ancestral domain.

Part of the given scenario is that both the area to be protected and the ICC/IP are under some pressure or threat to their integrity and survival. Because of the importance of the area or resource to the life of the ICC/IP they usually take the initiative to protect the area and conserve its resources for upon it depends the survival of their race and culture..

4.1 Planning process for an indigenous community-conserved area

In planning indigenous community-conserved areas (ICCA) determine first what area to conserve and decide on what governance mode to adopt for the conserved area. Then on the basis of the chosen governance mode determine whether any of the three scenarios – Scenario A, Scenario B or Scenario C – is applicable. If none of the scenarios fits, then use the process proposed below..

4.1.1 Determining what areas to conserve

- a. Key Biodiversity Areas (KBA) not included in the initial NIPAS nor are currently being considered to become additional components (Ong, in Haribon, 2002) which are known to harbor a predominantly indigenous population.
- b. Ancestral domains or adopted habitats of ICCs/IPs which are experiencing some form of threat and are also putting at risk the indigenous community's very survival and cultural integrity.

4.1.2 Determining what governance mode is appropriate for each type of area to be conserved

- a. In the case of a:
 - 1) Establish as NIPAS protected area,
 - 2) Apply for CADT,

3) Do both.

If any of the above options is feasible then plan the area using the approach under Scenario A or Scenario B.

- b. In the case of b, apply for CADT and plan the ancestral domain adopting the approach under Scenario C.
- c. If none of the options for a and b is feasible, plan as an indigenous community-conserved area (ICCA).

4.2 Steps in ICCA Planning

For a model methodology we may adopt the “Stages of Systematic Conservation Planning” proposed by Sahotra (2012) as the basic outline and modify it to suit local conditions and realities. (Refer to Appendix 21.)

Step 1 *Delineate the planning area*

There are two overlapping concerns in this study which determine to a large extent how the boundaries of the planning area are to be delineated: the concern for biodiversity conservation and the interests of the ICCs/IPs whose habitat happens to be the same area that is sought to be conserved. To delineate the ICCA planning boundary therefore requires the reconciliation of two sets of criteria, one for selection of biodiversity reserves and the other for determining a sustainable territory that will allow a particular ethnic group to live and flourish as a human community.

For the first set of criteria, i.e., for selection and delineation of biodiversity reserves, let us borrow from the Commonwealth of Australia as cited by Bakarr and Lockwood (in Lockwood, M. et. al., eds., 2006):

- a. Boundaries should be set in a landscape context with strong ecological integrity such as watersheds.
- b. Large reserved areas are preferable to small reserved areas.
- c. Boundary-to-area ratios should be minimized and linear reserves should be avoided where possible except for riverine systems.
- d. Reserve designs should aim to minimize the impact of threatening processes, particularly from adjoining areas.

- e. Reserves should be linked through a variety of mechanisms, wherever practicable, across the landscape.

For the second set of criteria, namely, determining what could be an optimal territory for ICCs/IPs, there has to be a way of classifying indigenous people in terms of the geographical range within which they effectively carry out their customary social, cultural, political and livelihood activities. We could turn for help to anthropologist F. Landa Jocano (1998) who developed five categories of indigenous communities according to the level of their social organization. These categories and the typical settlement pattern associated with each category are briefly described below:

- a. *Pisan* (campsite) – an Agta term for small exogenous groups living in campsites, possessing simple technology, and living by foraging and hunting. They are mostly found in the fringes of interior highlands. Included in this group are the Aeta, Agta, Ata, Ati, Baluga, Batak, Dumagat, Mamanwa, and Tasaday.
- b. *Puro* (settlement) – a “sulod” word for semi-sedentary, amorphous aggregate of persons who may not be related to one another. They live in particular named settlements but are occasionally mobile being swidden or kaingin cultivators. Examples of this group are the Mangyan and the T’boli.
- c. *Ili* (village) – a Bontoc word for “village”, consists of people living in villages of various sizes, mostly large and compact. The population is larger and less dispersed than *Pisan* or *Puro*. Villages are usually divided into named political wards or agricultural units. The settlements are composed of villages often dispersed within or near a clustered series of irrigated terraces and other holdings, near streams and surrounded by terraced rice fields, or clustered in canyons or small hill slope terraces. Members of this group include the Ifugao, Bontoc, Kalinga and Manobo.
- d. *Magani* (district) – a Manobo word for “renowned warrior”, used to represent a social organization headed by warrior chiefs. Social stratification consists of the bagani or mengal families led by males of unquestioned reputation in warfare and courage who occupy the apex; the commoners who own some property, dominate occupational specializations, and have medium income who are in the middle; and the slaves who are property-less who occupy the bottom of the social strata.

Settlements consist of a series of villages forming a district. Examples are the Agusan Manobo, Mandaya, and northern Kalinga.

- e. *Banwa* (domain) – a Manuvu word for “domain”. This group is the most structurally complex. There are a few examples found only in Mindanao. Members live in self-contained villages located in adjacent and contiguous territory bound together as a single socio-political unit under a centrally located political office of the *datu*. Several villages constitute a *banwa*. The villages are independent and self-sufficient units that interact with one another. Kinship is important for interpersonal and interfamilial relations but not significant for defining *banwa* identity. The community, more than the family or neighborhood, is the center of important activities.

So what is a sustainable territory for an IP community? It would seem from the above descriptions that the most extensive territory should be reserved for the nomadic foragers and hunters. Correspondingly, the more sedentary a particular group the smaller the geographical area they need to sustain their livelihood, culture and lifestyle. This generalization, however, is intended to serve as a supplementary set of criteria, not a substitute to the principle of self-delineation.

After delineating the two areas separately, overlay the two tracings and trace the boundaries of a third polygon that represents the closest fit between the two areas. Otherwise, if one area is completely contained in the other, adopt whichever is the bigger area as the final planning area.

Step 2 *Identify all stakeholders*

Stakeholders are those social actors who have a direct, significant and specific stake in a given territory or a set of natural resources. This may be due to geographical proximity, historical association with the place, dependence on the resources for livelihood, institutional mandate, economic interest, or a variety of other concerns. Borrini-Feyerabend and Brown (in Lockwood, et. al., eds, 2002) suggest a way to distinguish true stakeholders namely, those who are usually aware of their own interests in the management of the territory or set of resources; who possess specific capacities

and comparative advantages for such management; and are willing to invest specific resources toward such management. Prospects for successful implementation are enhanced if all the relevant agents participate in the planning process from the beginning. The stakeholders will also have a role in implementing and monitoring the conservation plan at later stages. For a better understanding of their attitudes and level of participation stakeholders may be grouped into those who will be affected by policies and actions during plan implementation and those who have no pecuniary interest in the outcomes of the plan. Further, the latter group may be split into those who are mandated by law or by their institutional charter to provide inputs and invest resources in the undertaking and those who are participating voluntarily driven solely by their own conviction or advocacy. The following is a list of the potential stakeholders in any protected area management.

Potential Protected Area Stakeholders

(adapted from Borrini-Feyerabend and Brown, 1997)

- a. Agencies with legal jurisdiction over the protected area at municipal, provincial or national level
- b. Individuals, families and households (e.g. landowners within or around the protected area)
- c. Community-based groups such as farmers' associations
- d. Local traditional authorities such as councils of elders or traditional chiefs of tribal communities
- e. Elected officials at barangay, municipal, or provincial level
- f. Appointive officials of local and national government service departments such as health, education, welfare, agriculture, forestry, police, fire protection, and the like
- g. Environmental or development NGOs with local, national or international networks
- h. Commercial and industrial enterprises organized at local, national or international level
- i. Universities and research institutions
- j. The international (development assistance) community

Step 3 *Compile and assess data*

Planning the conservation of "lived-in" landscapes requires geophysical, biological, economic and socio-political data. Sufficient resources are typically not available to collect all the data that would be useful. Data collection should be cost-

effective and focused on those parameters that are the most important. What data are most relevant is determined by the study region and the planning goals and objectives. (Refer to the relevant portion of “Harmonized Planning” in Scenario A for a menu of suggested data sets and some participatory techniques of data gathering. Refer also to Appendix 15.)

Step 4 *Evaluate biodiversity and conservation values*

Care must be taken to ensure that biodiversity is appropriately represented and quantified. If there are no independent professionals available, it is suggested that the DENR team that conducts the Protected Area Suitability Assessment be engaged to ascertain the quality and quantity of conservation values present in the planning area. Also, refer to Appendix 3-B for additional criteria.

Step 5 *Assess biodiversity threats and area vulnerabilities*

Probably the planning area may have been selected precisely because of built-in vulnerabilities or the presence of external threats (Refer to Appendix 5 for an inventory of potential threats to protected areas). Such vulnerability can arise from socio-political factors (for instance, influx of refugees fleeing insurgency), economic pressures (such as mining, logging, ranching, and commercial fish farming) development impact (such as major public works projects expected to traverse any portion of the planning area) and existing ecological factors, or global change factors (such as climate change). (Refer to Appendices 23 and 24 for the list of possible impacts of climate change on indigenous people living in tropical ecosystems and in coastal and marine environments.)

Step 6 *Set conservation goals and targets*

Formulate two sets of goals: the general long-term goals and the specific objectives and targets. The general goals should be stated in the form of desired outcomes. Then for each desired outcome generate tangible, observable or measurable indicators of success. Then set specific objectives targeting the partial or full attainment of the success indicators.

Examples of general and specific goals:

General goal: Major threats to biodiversity and ecological integrity removed.

Specific objectives:

- a. To provide livelihood alternatives to counter the threat of unsustainable natural resource extraction practices.
- b. To regulate poaching of wildlife, hunting and fishing during spawning season.
- c. To set up a quarantine service to check the introduction of exotic species of flora and fauna.

Another approach to goal formulation is to start with the analysis of the problems and issues identified in step 4 and step 5. Determine the cause-effect relationship of the issues and arrange them in a “problem tree”. Then using the dictum “A goal is the inverse of a problem”, negate every problem and transform the problem tree into an “objectives tree”.

Step 7 Formulate strategies, programs, regulations and other forms of intervention to achieve the goals and targets

A systematic way to generate appropriate interventions to achieve the goals and targets of conservation is to go back to the major components of the planning area as identified in the data collection and analysis (Steps 3, 4 and 5) namely, biophysical, biological, socio-cultural and politico-economic. Then for each major component determine the appropriate types of intervention to address the issues, concerns and threats. Suppose that all proposed interventions can be grouped into *preemptive* (enforcement of zoning and other regulations intended to prevent certain unwanted behavior or to minimize certain risks or remove certain threats), *restorative* (rehabilitation of degraded habitats and disturbed ecosystems or re-introducing certain species that had vanished), and *developmental* (investments in projects designed to create a long-term positive impact on the quality of life of the resident community and enhance the integrity of the biophysical environment). Cross tabulate the major components against the categories of interventions as in the table below. This creates management cells, each cell representing a particular component and a specific action proposed for that component. Examine each of the 12 cells created and fill up those cells requiring specific forms of intervention commensurate to the identified problems and issues.

Strategy Generation Matrix

Major Components	Types of Intervention		
	Preemptive	Restorative	Developmental
Geophysical	1	2	3
Biological	4	5	6
Socio-Cultural	7	8	9
Politico-Economic	10	11	12

Finally, process all the interventions in order to facilitate implementation according to the following sub-steps:

- a. Sift projects from non-projects (Refer to Appendix 11).
- b. Classify projects according to ownership of responsibility (Refer to Appendix 12).
- c. Break down non-projects or services into activity or task components and farm them out to responsible offices or agencies (Refer to Appendix 13).
- d. Process all needed regulatory measures and determine which law making body is responsible for each (Refer to Appendix 14). In connection with rule making, determine whether rules have to be enforced in the context of zoning. If so, refer to the relevant section of the Harmonized Plan process under Scenario A for guidance.

Step 8 Implement the conservation plan

Implementation of the ICCA management plan is handicapped by the absence of policies covering protected areas outside of the NIPAS and of indigenous communities that are without a CADT. While it may have been relatively easy to assemble and deploy various stakeholders to contribute towards plan formulation, implementation is almost entirely a socio-political process. The existence of, or creation of a management body is crucial to the success of plan implementation. What local institution or organization is able to carry out the basic intervention measures to manage a protected area that harbors resident IP communities?

Without question, wherever there are IP communities inhabiting the planning area, priority should be given to the existing leadership structure in the ICC/IP to serve as the core management body of the ICCA. Given the wide disparity of

tribal groups in terms of level of social organization, however, some tribes may not be ready to assume management responsibilities for their areas unaided. According to the classification of ethnic groups developed by Jocano cited in Step 2 above, tribal groups belonging to the *Ili*, *Magani*, and *Banwa* with their well-developed political structures characterized by hierarchical positions and well-differentiated functions, a few of them having no less than a constitution and by-laws, may be able to take on management responsibilities for their respective protected areas after some orientation and capability building. Capability building is necessary considering that the basic interventions they will implement which include, but are not limited to: a) removal of threats to the integrity of the protected area, b) promoting the well-being of the resident communities, c) active and direct recovery and rehabilitation of degraded resources and disturbed ecosystems, and d) promoting stakeholder involvement and drumming up societal support for the protected area, are vastly more demanding than the customary governance activities their tribal councils are used to perform (Refer to Appendix 22).

In the case of areas inhabited by the nomadic *Pisan* and the semi-sedentary *Puro* which have no social stratification, no formal political institution that defines power and authority, and no permanent leaders, management of the conserved area may be handled by some other body with representatives from the tribal groups concerned. Perhaps it is in the latter case where the co-management provision of the Local Government Code (Sec. 3, i) applies. A memorandum of agreement could be forged among the appropriate level of local government, the DENR and the NCIP, and under the terms of the agreement the local government concerned will assume management responsibility over the ICCA through a duly organized committee under the barangay, municipal or provincial development councils and, where it exists, the Local Government Environment and Natural Resources Office.

Step 9 *Monitor performance*

Biodiversity conservation is not a one-off process of delineating conservation area networks that can then be left to persist on their own. Both human encroachments and natural changes can alter the conservation status of a

delineated area. Global factors such as climate change also play a role. Consequently, conservation performance must be continually monitored, and the planning process must be periodically repeated as part of administration. (Refer to Appendix 10 for participatory methods of monitoring and evaluation.)



Ancestral Domain Overlap



4 Integrating the BD-Enhanced ADSDPP and the Harmonized PAMP and ADSDPP in Local Government Planning

1. Legal Mandate

Rule 10.8 of the Revised IRR (DENR DAO 2008-26) of the NIPAS Act (RA 7586) emphatically directs the Protected Area Management Board (PAMB) to “ensure that the Management Plan is integrated into the comprehensive land-sea use plans of the LGU including the complementation of activities.” Similarly, the PAMB is directed to “ensure the harmonization of the Management Plan and the ancestral domain plans of ICCs/IPs.”

In like manner, Sec. 2 (d) of the IRR (NCIP Administrative Order No. 1 s. 1998) of the IPRA directs ICCs/IPs to “submit to the municipal and provincial government unit having territorial and

political jurisdiction over them their ADSDPP in order for the same LGU to adopt and incorporate the same in the Municipal Development Plan, Municipal Annual Investment Plan, Provincial Development Plan, and Provincial Annual Investment Plan.” The Revised IRR (NCIP AO No. 1 s. 2004) reiterates the same directive and adds: “The LGUs are also encouraged to provide financial and technical assistance in the implementation of the ICCs/IPs’ development plans” (Sec. 9).

2. Rationale for Integration

- 1) All protected areas and all ancestral domains, depending on their size and location, fall within the political jurisdiction of the various levels of local governments. Local governments in turn receive their share in the Internal Revenue Allotment according to the size of their territory, including the protected areas and ancestral domains, among other factors. It behooves LGUs therefore to use their IRA share for the protection and upkeep of every portion of their territory and to promote the well-being of all inhabitants thereof. Integrating the ADSDPP and the PAMP into the LGU plans will provide guidance to the local officials on what additional policies they need to formulate and what priority projects should receive allocation from the local budget.
- 2) Both the ancestral domain and the protected area have delineated management zones. Management zones within NIPAS areas are enforced by the PAMB through the PASu. For their part, ancestral domain zones are to be enforced by the Council of Elders/Leaders but the level of preparedness of such indigenous political structures varies according to the level of social organization of particular tribal groups. If the management zones are integrated into the CLUP and zoning ordinance of the host city or municipality, the zoning powers of the latter could be brought to bear toward a more effective enforcement of PA and AD management zone regulations.
- 3) The local government is an institution that is relatively more stable and permanent. It has the facilities and the capacity to assist its constituents in their planning activities on a sustained basis. For example, a very important service an LGU can possibly provide is that of archiving the profile, IKSP, ethnography, maps and other forms of information which

the IP community may not yet be in a position to manage, and updating the same data sets in connection with the periodic updating of the LGU's socio-economic or ecological profile.

- 4) Plan integration is consistent with the concept of co-management of the environment and natural resources. The legal bases of co-management are the relevant provisions of the Local Government Code (Sec. 3, i), the Joint Memorandum-Circular of the DENR and the NCIP regarding management of protected areas within ancestral domains (JMC No. 2007-01), and the IRR of both the NIPAS Act and the IPRA, as noted above.
3. Determining at What Level of LGU to Integrate the ADSDPP/PAMP

3.1 Categories of AD/PA by geographical extent

If we take the city/municipal level as the reference point, we create three categories of AD/PA according to geographical extent of coverage:

- 1) *Coterminous* - an AD or PA whose boundaries exactly coincide with those of a city/municipality.
- 2) *Over-bounded* – an AD or PA that is confined in one or a few barangays within one city/municipality.
- 3) *Under-bounded* – an AD or PA that straddles several cities/municipalities within one province or across a number of contiguous provinces

3.2 Where to integrate

In determining at what geo-political level the harmonized management plans or the biodiversity-enhanced ADSDPP should be most effectively integrated, we can use the above categories as a basis. As a general principle:

- a. In the case of *coterminous domains* there is no need to integrate. The ADSDPP can serve as the mandated plan of the city/municipality concerned provided that customary concepts and terminologies are translated into the usual nomenclature and account codes consistent with government procedures. More details

on this in the next section below. (terminologies to be used will be from DILG and HLURB/government).

- b. Over-bounded domains should mainstream their plans into the city/municipality where they are located. Over-bounded domains have the potential to adopt alternative approaches to integration as discussed in the next section below.
- c. Under-bounded domains are better linked to the provincial government. Because some tribal groups are thinly spread across a wide area straddling several municipalities, ADSDPP planning should be orchestrated at the provincial level and the plan output integrated into the provincial plans. In cases where the management of the domain involves enforcement of zoning regulations the zoning component of provincially-prepared ADSDPPs should be mainstreamed into the zoning ordinances of component cities and municipalities because only cities and municipalities have zoning powers. Also, where the needed government intervention requires immediate frontline services such as primary health care, literacy programs and the like, mainstreaming into the municipal level plans would yield quicker results. Requests for funding of capital investment projects however, will probably have greater chances of success if made at the provincial level.

4. Approaches to Plan Integration

The concept of mainstreaming has two dimensions: 1) incorporation of one plan into another plan and 2) organic integration of one or more plans into a seamless whole.

4.1 Plan incorporation

Incorporation is the traditional approach to mainstreaming. It involves the physical grafting of a plan document into another plan document. How is it normally done? First, the two plans are prepared separately and at different times as stand-alone plans by different bodies expressly tasked to produce the desired output, e.g. PAMP or ADSDPP and the mandated comprehensive plans of the LGU. When the plans are

completed the ADSDPP or PAMP are then grafted into the existing comprehensive plans of the LGU. The grafting can be done in two ways:

1) The “grafted” plan is adopted in its entirety as an integral part of the “host” plan, in this case the CLUP or CDP through a Sanggunian resolution. The two plans may or may not be bound together under a common cover.

2) Literally tear apart the plan to be mainstreamed and insert the pieces into relevant sections of the LGU comprehensive plans. The mechanical insertion however hardly makes the grafted elements integral and organic to the host document. Worse, after the adoption nothing much else happens.

4.2 *“In-process” integration*

The second approach can be dubbed “in process” method. It involves the use of any or all of the components of the local planning system as entry points. Under this approach there is reasonable assurance of seamless integration of plan documents as well as institutionalization of systems and procedures. But you must be familiar with the local planning system to begin with.

4.2.1 The Local Planning System in the Philippines

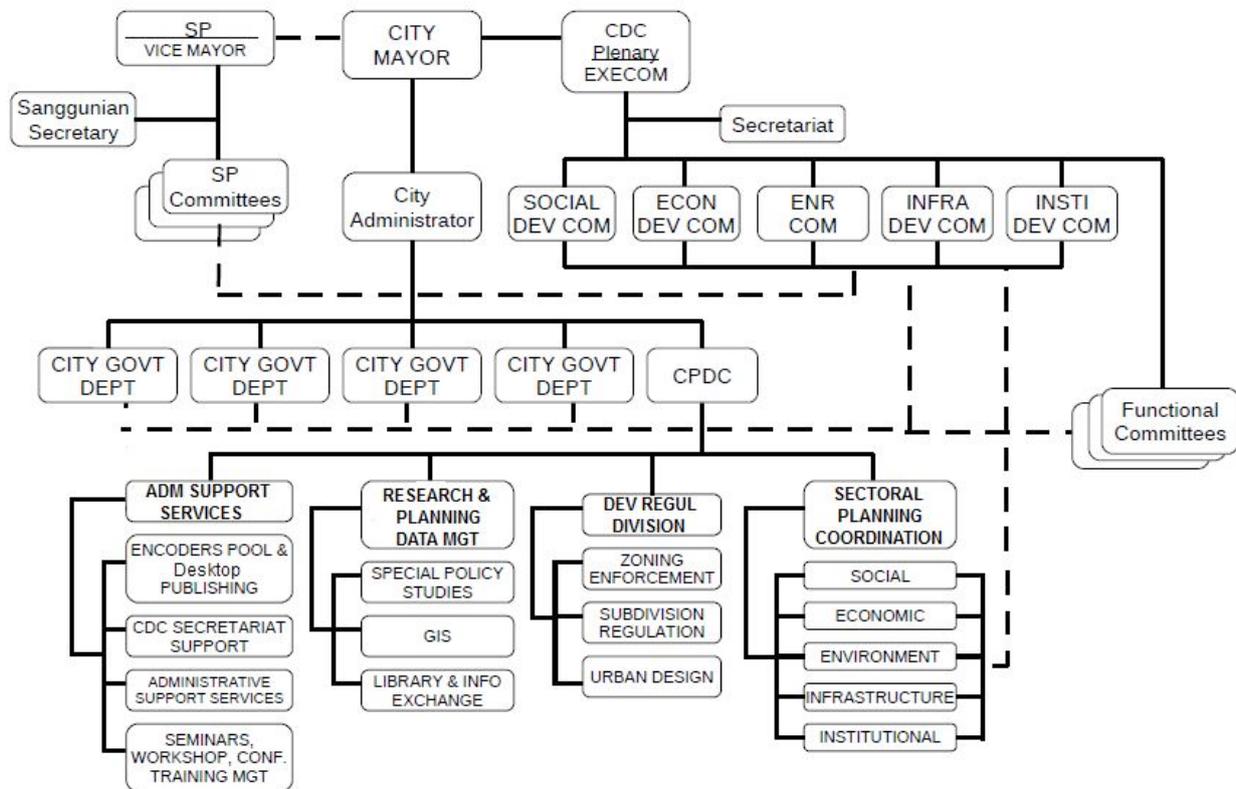
The Local Planning System as mandated by the Local Government Code (RA 7160) is a four-component system designed to answer the questions: Who are supposed to plan? What plans are they supposed to make? How are they going to make them? And what resources and tools do local governments have with which to implement their plans? The first question pertains to the local planning structure, the second refers to the mandated plans, the third is about the planning processes, and the fourth pertains to the authority levers with which local governments implement their plans.

1) The local planning structure

On the structure for local planning, there are two components – political and technical. The political

component is the deliberative body. It lays down policies and takes decisions. It consists of the Sanggunian, the local development council (LDC), the congressman, and non-government sectors. The technical component provides support to the political component by making available data and information processed, analyzed and presented in formats that help facilitate the tasks of the political component to make informed decisions and formulate relevant policies. The technical component is the principal workhorse of the local planning structure. It consists of 5 sectoral committees created to assist the LDC in the performance of its functions. Within the LDC also are any number of functional committees composed of the Local Special Bodies, bodies created by specific laws such as the DRRM Council, and ad hoc committees that are cross-sectoral in composition. (Refer to Figure 1).

Figure 3
Organization for Local Planning



2) The mandated plans

Regarding the mandated plans, LGUs are required by the Code to prepare the comprehensive land use plan (CLUP) and the comprehensive development plan (CDP). The CLUP is the long-term guide for the physical development of the local territory. It is implemented principally through a zoning ordinance. The CDP which embodies the programs, projects and activities developed by the different sectoral and functional committees serves principally as the development agenda of the incumbent local administration and is coterminous with the term of the local chief executive. It is implemented through the LGU's 3-year investment program and the annual budget. The CLUP and the CDP are broad policy guides and often they require the preparation of other more detailed master plans covering more focused areas, systems and themes which are identified and proposed in the CLUP or the CDP. Master plans reduce the CLUP and the CDP to "actionable" programs, services or regulatory measures. The ADSDPP or the PAMP when incorporated into the LGU's CLUP or CDP becomes an example of area master plans which seek to put in more detail the proposed policies and interventions appropriate for particular zones delineated in the CLUP. (Refer to Figure 2 and Table 1.)



contour farming done by IP

Figure 4
The Comprehensive Plans and Other Master Plans

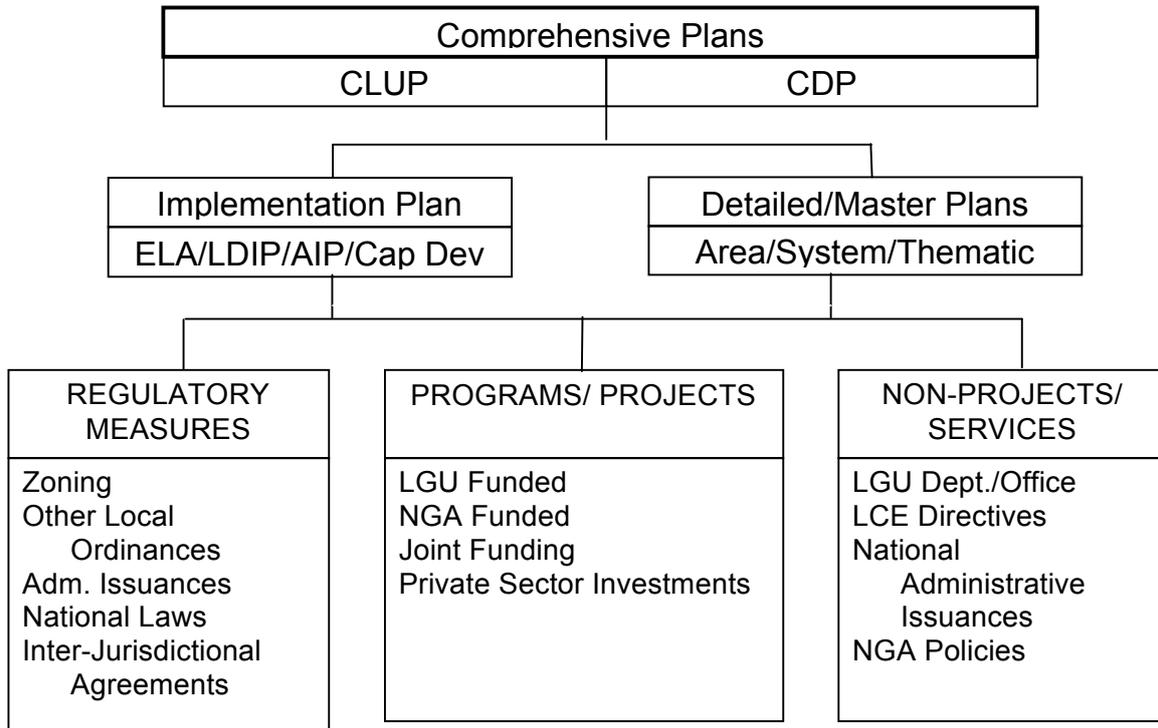


Table 7
Types of Plans and Local Planning Bodies Responsible

Type of Plans	Planning Body Responsible	
	Sectoral Committee	Functional Committee
Area Plans	<ul style="list-style-type: none"> ▪ Forest Management ▪ Protected Area Mgt Plan ▪ Food & Feed Crop Devt ▪ Sloping Area Agri Devt 	<ul style="list-style-type: none"> ▪ Coastal Resource Mgt ▪ Watershed Management ▪ Urban Redevelopment ▪ ADSDPP
System Plans	<ul style="list-style-type: none"> ▪ Water Supply System ▪ Wastewater Mgt ▪ Drainage Master Plan ▪ Flood Control System 	<ul style="list-style-type: none"> ▪ Traffic Management ▪ Transport Management ▪ Irrigation System Plan ▪ Solid Waste Mgt Plan

Thematic Plans	<ul style="list-style-type: none"> ▪ SMED Plan ▪ Culture and Arts Promotion ▪ CPC Action Plan ▪ Food Security Plan ▪ Entrepreneurship Program 	<ul style="list-style-type: none"> ▪ Local Tourism Plan ▪ Local Poverty Action Plan ▪ Disaster Risk Mgt Plan ▪ Gender and Devt Plan ▪ Local Shelter Plan
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3) Planning processes

Regarding the planning process, the law does not prescribe procedural details. Instead the law admonishes LGUs to undertake their planning in a less technocratic and more participatory and consultative manner.

4) Authority levers

The fourth component pertains to the principal instruments for implementing the LGU plans, namely, zoning in the case of the CLUP and investment programming in the case of the CDP. In addition to zoning and investment programming, there are other tools at the disposal of LGUs. Some of the more common ones include taxation, private investment incentives, and co-management arrangements.

4.3 Mainstreaming into the Local Planning System

Under the “in process” approach to plan integration, any or all of the four components of the local planning system can be used as entry point. Let us see how and what it takes to integrate the ADSDPP, the PAMP, and their variants, harmonized management plans, pertaining to areas of overlap into each component of the local planning system.

4.3.1 *Integration into the Local Planning Structure*

The first entry point of mainstreaming is in the organization of a sectoral or functional committee of the LDC. Sectoral committees represent the five development

sectors namely, *social, economic, environmental, infrastructure* and *institutional*. Organized as standing committees, sectoral committees are coterminous with the term of the LDC. A functional committee, on the other hand, is an ad hoc working group organized to address a development issue that is cross sectoral in character. It is formed with members drawn from the permanent sectoral committees of the LDC. Other individuals and groups with relevant expertise, interests or advocacy are welcome to participate in the activities of these committees. The sectoral committees are organized once every three years along with the LDC at the start of a new electoral term. The functional committees are formed any time as the need arises except for the multi-sectoral bodies created under specific laws or local ordinances. From these working bodies emanate the policies, plans and programs that the LDC deliberates and decides on (See Table 2). *Representatives of ICC/IP communities should endeavor to become members of these working committees if they want plans and policies for their areas of concern taken up and given priority.* At the very least, members of the PAMB, including the IP representatives in the PAMB should make themselves available either to sit as members of the different committees of the LDC or to serve as resource persons to the LDC on matters pertaining to their areas of expertise or responsibility (Sec. 107d, RA 7160).

Conversely, in the case of overlapped regimes the harmonization of the PAMP and ADSDPP requires involvement of the LGU planning officers through their membership in the TWG (JMC 2007-01). Even when the PAMP and the ADSDPP are being prepared separately it would be a good idea to have the LGU planning officers be part of the TWG for both plans.

4.3.2 *Integration into the Planning Process*

With the involvement of PA and AD representatives in the LDC sectoral and functional committees formulating the mandated comprehensive plans and, conversely, the involvement of LGU planning officers in the activities of

the TWGs that prepare the PAMP or the ADSDPP or the harmonized management plan it is inevitable that an active borrowing and lending of data inputs, cross-application of analytical techniques, and complementation of proposed solutions between and among the working groups exist. For example, thematic maps compiled and used in connection with the preparation or revision of the Comprehensive Land Use Plan can be reused in the identification of areas for protection in the SPZ, and production, settlements and infrastructure developments in the MUZ of protected areas and in BD-enhanced ADSDPP. In like manner, the ethnographic survey, resource use cycle, IKSP and other information about each tribal group may be incorporated into the LGU's socio-economic profile that serves as inputs to all sectoral development plans in the CDP. Finally, the Problem-Solution Matrix and the Vision-Reality Gap analysis are useful analytical tools for generating proposed policies and intervention measures common to both groups. A series of plenary and break up group workshops ensure that a highly participatory and consultative process is followed by both groups. (Refer to Figure 3).

Table 8

SUGGESTED SECTORAL COMMITTEE COMPOSITION						
Sectoral Committee	Core Technical Working Group (Must be there)		Expanded Technical Working Group (Nice to have around)		Full-Blown Sectoral Committee (The more the merrier)	
1. SOCIAL DEVELOPMENT	MPDO Staff MHO LDC Rep (brgy) District Supervisor Sanggunian Rep	SWDO POSO LDC Rep (CSO) PTA Federation	Police Chief Local Civil Registrar PCUP Housing Board Rep Manager GSIS/SSS	Fire Marshall Population Officer Nutrition Officer NSO	Sports Organizations Religious Leaders Media Reps Inner Wheel Club Charitable Organizations	Labor Groups Senior Citizens YMCA YWCA School Principals
2. ECONOMIC DEVELOPMENT	PESO Tourism Officer MPDO Staff LDC Rep (CSO)	Agriculturist Coop Devt Officer LDC Rep (brgy) Sanggunian Rep	Chambers of Commerce & Industry DTI Representative Bank Managers Sidewalk Vendors Transport Orgs	Trade Unions Market Vendors Cooperatives	Lions Club Rotary Club	Jaycees Academe Other interested groups and individuals
3. PHYSICAL/LAND USE	Municipal Engineer	Zoning	Electric Coop Rep	Water	Other interested groups and individuals	

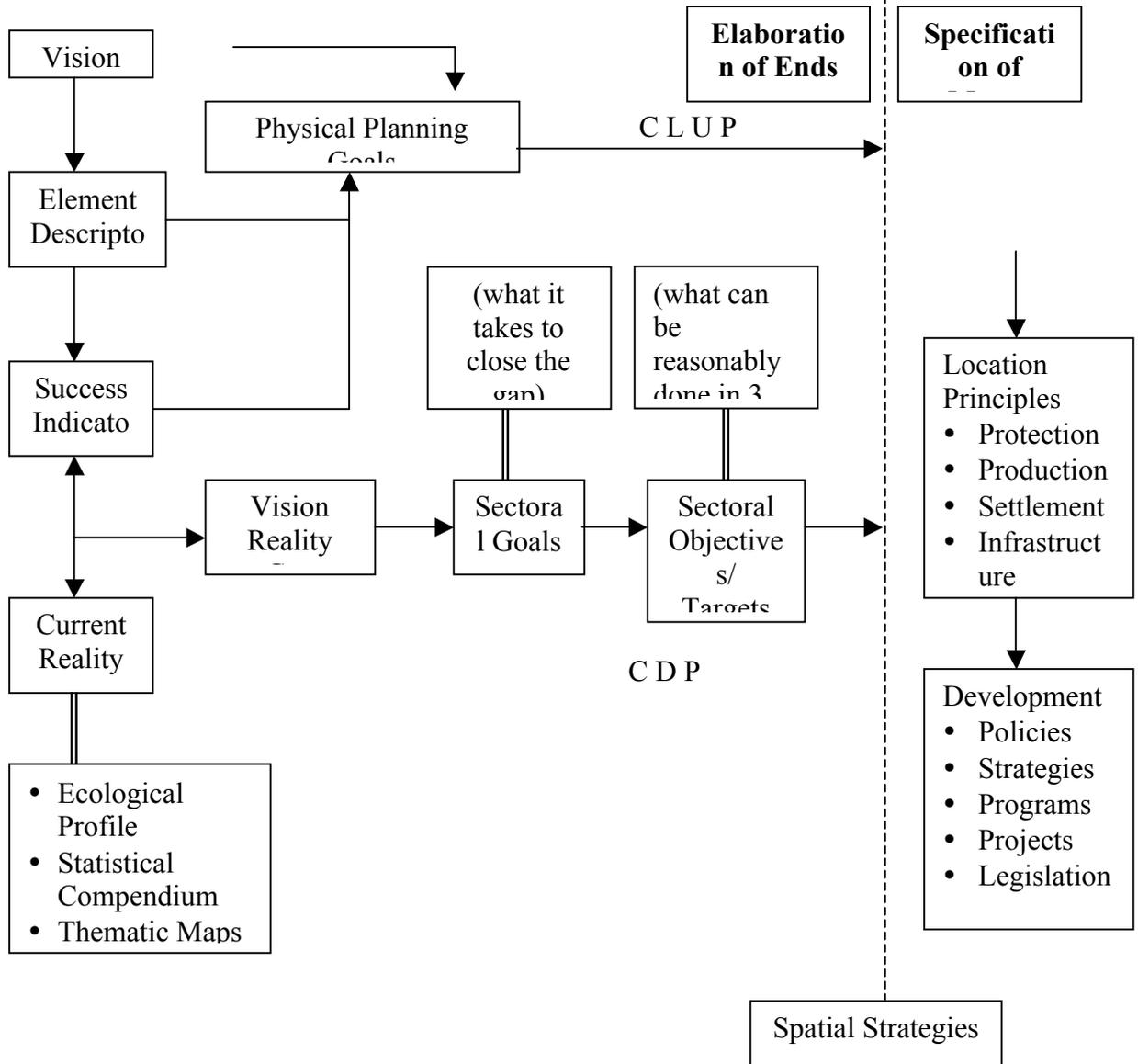
DEVELOPMENT	MPDO Staff LDC Rep (CSO) Municipal Architect	Officer LDC Rep (brgy) Sanggunian Rep	Real Estate Developers Professional organizations Telecommunications companies	District Rep Academe	individuals
4. ENVIRONMENTAL MANAGEMENT	MPDO Staff LDC Rep (brgy) General Services Head	Sanggunian Rep LDC Rep (CSO) LG-ENRO	Sanitary Inspector CENRO FARMC Reps Heads of private hospitals	Academe PENRO BFAR Rep	Environmental Advocates Other interested groups and individuals
5. INSTITUTIONAL DEVELOPMENT	MPDO Staff LDC Rep (brgy) LDC Rep (CSO) LGOO Local Administrator	Sanggunian Rep	HRDO Treasurer Budget Officer Assessor Academe		Religious groups Good Governance advocates Other interested groups and individuals
CORE TECHNICAL WORKING GROUP – composed of Local Government officials and functionaries whose tasks and responsibilities address the concerns of the particular sector directly or indirectly.					
“NICE TO HAVE AROUND” – other LGU officials, national government agencies operating in the locality, and important non-government organizations with functions and advocacies touching on the concerns of the particular sector. When added to the core TWG the resulting body becomes the Expanded TWG.					
“THE MORE THE MERRIER” – other groups and individuals, mainly from non-government sectors, who have a stake in local development in whatever capacity, enrich and enliven the full-blown committee’s deliberations with their varied views, agendas, and advocacies.					



Sacred site northern luzon

Figure 5

Simplified CLUP-CDP Planning Process



4.3.3 *Integration into the LGU plans*

For all intents and purposes, the ADSDPP and the PAMP are area master plans that pertain to specific portions of the local territory (Refer back to Table 1). Therefore they form an integral part of the comprehensive plans of the city/municipality or of the province. In order to make explicit the integration of the contents of the plans the proper starting point is the LGU's **vision statement**. It is true that PAs under NIPAS and ADs are self-governing territorial units. However, being geographically nested within the territorial jurisdiction of the LGU PAs and ADs ought to have their vision and goal statements consistent with if not directly supportive of the concerned LGU's vision. Secondly, the **management zoning** of AD, PA and their overlapped areas must be consistent with the four land use policy areas of the CLUP. Already, there is apparent equivalence between the CLUP land use policies and the two-zone scheme of NIPAS. Greater effort however is still needed towards establishing an ethnic group-specific system of equivalence between their customary land use classification and terminology and those of the government. (See Table 3 for an example). Thirdly, proposed policies and actions that seek to promote the **socio-economic and cultural well-being** of the human inhabitants of protected areas, be they ICCs/IPs or non-tribal migrants, should find their way into the sectoral components of the CDP as a matter of right being citizens of the state. The ultimate test to the integration of all plans is seen in the way their proposed **policy interventions are expressed in "actionable" forms** that can be prioritized and implemented through the use of the resources and powers at the disposal of the LGU, namely, projects, services and regulatory measures.

Table 9
Indigenous Land Use Types and the CLUP Land Use Categories
(Cordillera as Case Example)

CLUP	Indigenous	Translation
Settlements	ili kubu or lotangan avong or inatep panbaljan boble or bable	township residential areas nipa hut made of cogon grass and sticks residential area small villages or communitites
Infrastructure	the same	
Production	payo or payew muyong, pinugo or tayan habal mabila-u uma magullon or pastolan pinugo keyuwan pig pen and composting lot	rice fields private forests private swidden lands cane lands swidden areas grazing land or grass lands private tree lots communal woodland for gathering firewood
Protection	pun-lubukan or kaybebka-an dap-ay pangaiwan pun-anupan or anupan petdawan	burial grounds community ritual site forests hunting grounds rivers and streams for watering animals

4.3.4 Integration in plan implementation.

Plans *per se* cannot be implemented unless they are broken down into smaller units or items of development management: projects, non-projects or services, and regulatory measures (Refer back to Figure 2). The activities involved in translating the proposed plan and policy interventions into “actionable” forms are described in detail in Scenario A and compiled as Appendices 11 – 14.

Projects are positive instruments for building up the capital assets of government and the community, for enhancing the quality of existing public facilities and services, as well as for leveraging new private sector

investments in the locality. Projects are funded through the investment or development funds of concerned national agencies, or of the local government unit. Some projects could be bank rolled by the private sector or by civil society organizations. Implementation of projects is the responsibility of concerned departments of the executive branch, whether by administration or by contract. Proposed projects in the ADSDPP and to a limited extent the PAMP may be incorporated in the City's investment program and implemented with funds taken from both the city's development fund and the concerned agencies' budgets, as authorized by law. To prepare projects for inclusion in the LGU's investment program, you have to perform the following additional activities:

- a. From the output of the activity "Sorting projects by ownership" (Appendix 12), select the projects that are owned by or under the responsibility of the specific LGU to which you are integrating your plan.
- b. If you have several projects for funding by the LGU you might want to improve your chances of success by not submitting all of them at the same time. Remember that there are many other sectors vying for the use of the same scarce resource. So you have to prioritize. For this purpose, you can use any of the three methods of prioritization given in Appendices 16, 17 and 19.
- c. Transform each priority project into a project brief and submit this to the Local Development Council through the local planning and development coordinator's office. Appendix 18 will show you the format and contents of a project brief.

Non-projects or services, on the other hand, are activities and tasks necessary to carry out other proposed interventions in the plan which need not be developed as full-blown projects. Some of these tasks may already form part of the regular functions, or are an additional work load of existing departments or offices. Still some of these activities may require the creation of new executive bodies altogether. Funding for such services is covered by the maintenance and other operating expenditures (MOOE) component of the concerned offices' or departments' budgets. To the extent that these needed services



4 Integrating the BD-Enhanced ADSDPP and the Harmonized PAMP and ADSDPP in Local Government Planning

Regulatory measures that fall beyond the prescribed powers of the local government are enacted by the National Legislature or Congress. This is the obvious function of the Congressman who is represented in the development councils of all levels of local governments. Needed regulatory measures that are within the LGU's authority are enacted by the Sangguniang Bayan/Panlungsod/Panlalawigan and are enforced by the executive branch. Some regulatory measures may also be promulgated through administrative or executive orders by the Local Chief Executive. In the particular case of necessary regulations to implement the harmonized PAMP and enhanced ADSDPP, the AD/PA zoning scheme should be integrated into the local zoning ordinance. This will enable the LGU to exercise its authority to declare the SPZ as "no-build zones" or zones with varying degrees of restrictions to human settlements and production activities as the case may be in order to maintain the integrity of the PA and the AD. Other specific regulations to reinforce the authority of the PAMP/PASu or of the Council of Elders/Leaders will be enacted through single-subject ordinances or through executive orders as the need arises. Appendix 14 will show you how to process your proposed legislation for lobbying before the proper legislative bodies concerned.

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5 Appendices

Appendix 1

Participatory Appraisal Techniques

1-A Observational walks and transect diagrams

Transects are observational walks across an area or through a village. The walks help identify important aspects of the local environment (biological, physical and social) which may be discussed on the spot. They can also be used to verify, through direct observation and discussions with people met along the way, the information gathered by other means. At the end of the walk the information collected can be summarized in a transect diagram which includes the key environmental features identified, an indication of relevant problems and resources, etc.

Purpose

There are two broad categories of transects: social and land-use. The former can provide information on housing density and types, infrastructures and amenities, cultural and economic activities, etc. The latter focuses on environmental and agricultural features such as cultivated land, forests, hill areas, types of soil and crops, and evidence of environmental degradation. The two can also be combined.

Steps in using the tool

- Decide which issues to focus on and what information needs to be gathered.
- Identify local people to participate in the walk and explain to them the purpose of the exercise (three to five people will be enough to get a cross-section of views while keeping the discussions focused).
- During the walk, take notes on relevant features. Seek clarification from people met along the way. Discuss problems and opportunities.
- After the walk discuss the notes with the participants and together prepare a transect diagram of the area covered. The notes and diagram can be used in feedback meetings with the community at large.

1-B Land-use mapping

Land-use mapping can be a lengthy process with multiple benefits for community organizing and conflict resolution (Poole, 1995). It can also be a short exercise as described here. As a short exercise, it consists of representing the geographical distribution of specific features (environmental, demographic, social and economic) in a particular territory as perceived by community members. Participants are asked to draw their own map (on a large sheet of paper, or on the ground), or to plot features on a purchased map or aerial photo. A variety of symbols (e.g. different types of vegetation, alphabetical letters or icons) can be used for specific features. If the map is drawn on the ground, it can be photographed to keep for future reference.

Purpose

Land-use mapping is especially useful for providing a snapshot of the local situation, including property boundaries, the location of key resources, features of particular importance to the community, etc. The map can be a valuable resource for future impact assessment and monitoring exercises. As a snapshot of the land-uses at a particular point in time, it is a source of baseline data.

Steps in using the tool

- In a community or focus group meeting, explain the purpose of the exercise to participants.
- Ask them to decide on the symbols to be used for the different features to be identified.
- Ask a participant to be responsible for drawing or plotting symbols according to the suggestions of the others, or have the participants construct the map together as a group. At times it may be useful to have a drawing already made (e.g. to delist areas in the forest where different communities collect products).
- Promote wide participation by posing questions to individuals as needed. Encourage the group to discuss different perceptions and to reach agreements on conflict points.
- Once the map is finalized, it can serve as the basis for identifying problems, resources and opportunities for action, for developing indicators for impact assessment, trend analysis, gender analysis, etc. It can also be useful as a baseline to monitor changes over time.

1-C Seasonal calendars

Seasonal calendars are drawing or series of symbols illustrating the seasonal changes in various phenomena of environmental nature (such as rainfall) or social nature (such as labor demand or household income).

Purpose

The calendars generate information on seasonal variations in local problems, resources, constraints and opportunities. For instance, they can explore the use and reliance on various resources, the times when the community or specific groups are fully occupied (and therefore constrained in the contributions they can offer to the conservation initiative), drought or flood seasons, hungry

periods, cultural events, and so on. Calendars will differ depending on the occupations of the different stakeholders. For this reason it may be best to do this exercise separately with different interest groups.

Steps to using this tool

- Within a focus or community group, begin with a general discussion on the activities undertaken in the community throughout the year. This helps to focus the group on the task in hand. Make a list of all the issues/activities mentioned so they are not forgotten when the participants start to construct their calendar.
- Decide the appropriate format to use; calendars can be drawn in a variety of ways. The format and the symbols for the various items and activities should be selected by the participants. One method which could be suitable for literate communities is to use a large sheet of paper with the months or seasons written along the top and the activities undertaken listed down on one side. The participants then fill in the matrix by putting ticks under the months in which each specific activity is undertaken. For illiterate people, symbols can be used to represent the months and activities. For instance, different lengths of sticks can be used to signify the different amounts of rainfall, or the availability of game in the forest. Another method is to draw a large circle with symbols representing the different months around the outside. The circle can then be divided into segments with symbols for different activities placed inside each of the segments.
- Once one or more calendars have been drawn, discuss the results. For information on labor demands, ask the group to estimate the proportion of time each spends on the various activities. These proportions can then be shown in graphic form on the calendar (e.g. portions of a square or of a circle segment).

1-D Combined transect walk and seasonal calendar

TRANSECT OF PROTECTED AREA/ANCESTRAL DOMAIN					
Tenure or legal status					
Physiographic zones					
Existing land use or land cover					
Source; Snelder & Bernardo 2005, 132					
Resource use cycle (Tribals)					
Wet season					
Dry season					
Year-round					
(Non-Tribals)					
Wet season					
Dry season					
Year-round					

How to conduct the combined transect walk and seasonal calendar

1. Draw a transect line across your planning area that best represents the actual landscape and project horizontally.
2. Subdivide the landscape into physiographic units using such factors as elevation range, slope, landforms, etc.
3. Based on existing policies indicate the legal status such as land classification or land tenure of each physiographic zone.
4. Walk through along the transect line noting first the actual land use or land cover of each physiographic zone.
5. With the help of informants fill up the seasonal use of the resources in each physiographic zone. Make separate entries for tribals and non-tribals.

6. Analyze the output by noting inconsistencies at several levels, e.g. between legal status and actual land use; between actual land use and seasonal use by tribals; between seasonal resource use by tribals and non-tribals, etc.

1-E Problem and solution mapping

Problem and solution mapping is undertaken in a group situation using a simple map of the relevant features or an aerial photo of the area. People are asked to mark on the map where they think there are problems and how they think those problems can be solved. If problems have been identified in the assessment stage, then people would just be asked to contribute their ideas for solving the problem.

Depending on the problem, they might, for example, draw such things as a new irrigation canal, an area for forest regeneration, a fence to control wild animals, a road realignment, etc. In other cases they may simply draw some zoning suggestions, i.e. for the areas where collection of wild resources is allowed, for areas where housing should be banned, and so on.

Purpose

Problem and solution mapping enables all participants to contribute their ideas and suggestions. By drawing those on a communal plan, they manage to make them visible to all and usually find a way to integrate them.

Steps in using the tool

- Explain the situation that has to be dealt with (e.g. pollution of a coastal area, land erosion, depletion of a species) in simple and, if possible, non-judgmental terms.
- Explain that the point of the exercise is to find out together what can be done to respond to the problem and stress that everyone must be given a turn at recording their ideas on the map or photo.
- There should be one map or photo for every 10-15 people present who are asked to work as a group.
- Hand out colored pens to each of the groups and ask them to discuss the problem and draw possible solutions on the map. Be available to help identify areas/features on the map, if required.

- Once everyone has had an opportunity to mark their views on the map, encourage them to look at the maps from the other groups (if there are any) and compare and discuss the different solutions.
- Ask the group to write their suggestions on a large sheet of paper which everyone can see and to present them to the others. Get people to discuss how effective each proposed solution would be and how it could be undertaken.
- Facilitate consensus on the actions required to address the problem outlined in the opening presentation.
- Get the participants to rank the agreed activities in order of priority.

1-F Community-based environmental assessment

Community-based environmental assessment provides a community perspective on the state of the environment, prior to or during a conservation initiative, as part of a monitoring or evaluation exercise. A list of environmental aspects or factors is agreed upon by the community. The state of each factor is determined by allocating a certain value (e.g. excellent, good, poor, disastered, etc.) or number to it. It is not the actual value or number that is important but the way those change over time as recorded by ongoing observations.

Purpose

Community-based environmental assessment provides a framework by which insiders can make observations and judgements about the state of certain environmental factors.

Steps in using the process

- In a meeting with concerned community members, discuss the purpose of the assessment and how it can be carried out.
- Decide what is to be measured (e.g. well-being of the community, well-being of a particular natural area) and define what indicators will be used (e.g. abundance of specific species in the area, pollution, soil erosion, migration, morbidity and mortality, wealth, literacy, access to clean water, and so on).
- Write up the values to be used and what each represents (e.g. 5 = very good; 1 = very bad).

- Draw up a list of all the items to be evaluated. If the group is small (less than ten) work through the list together to reach a consensus on what value should be attributed to each item at the present time. If the group is larger, divide into smaller groups, with each group having the same list of items to evaluate. Then bring the groups together to negotiate a common list of allocated values. Record and store the results and decide when the exercise will be repeated (e.g. after six months or one year).
- At the agreed time, repeat the exercise of assigning a value to the items to be assessed. Discuss the reasons for the values attributed and the causes of changes since the previous exercise (if relevant).
- Identify the actions which need to be taken in response to the analysis and who should take responsibility for each task.

1-G Historical mapping

Historical mapping is based on a series of participatory mapping exercises aimed at portraying changes in a particular resource and/or settlement pattern in the community at different intervals in its history. Three to four maps are drawn: one showing the situation which currently exists and one showing the situation which existed at some time in the past (say 20 years ago). Other maps are drawn to show what the area will look like if present trends continue and, if appropriate, to show how people would like the area to look in the “ideal future” (say 20 years from now).

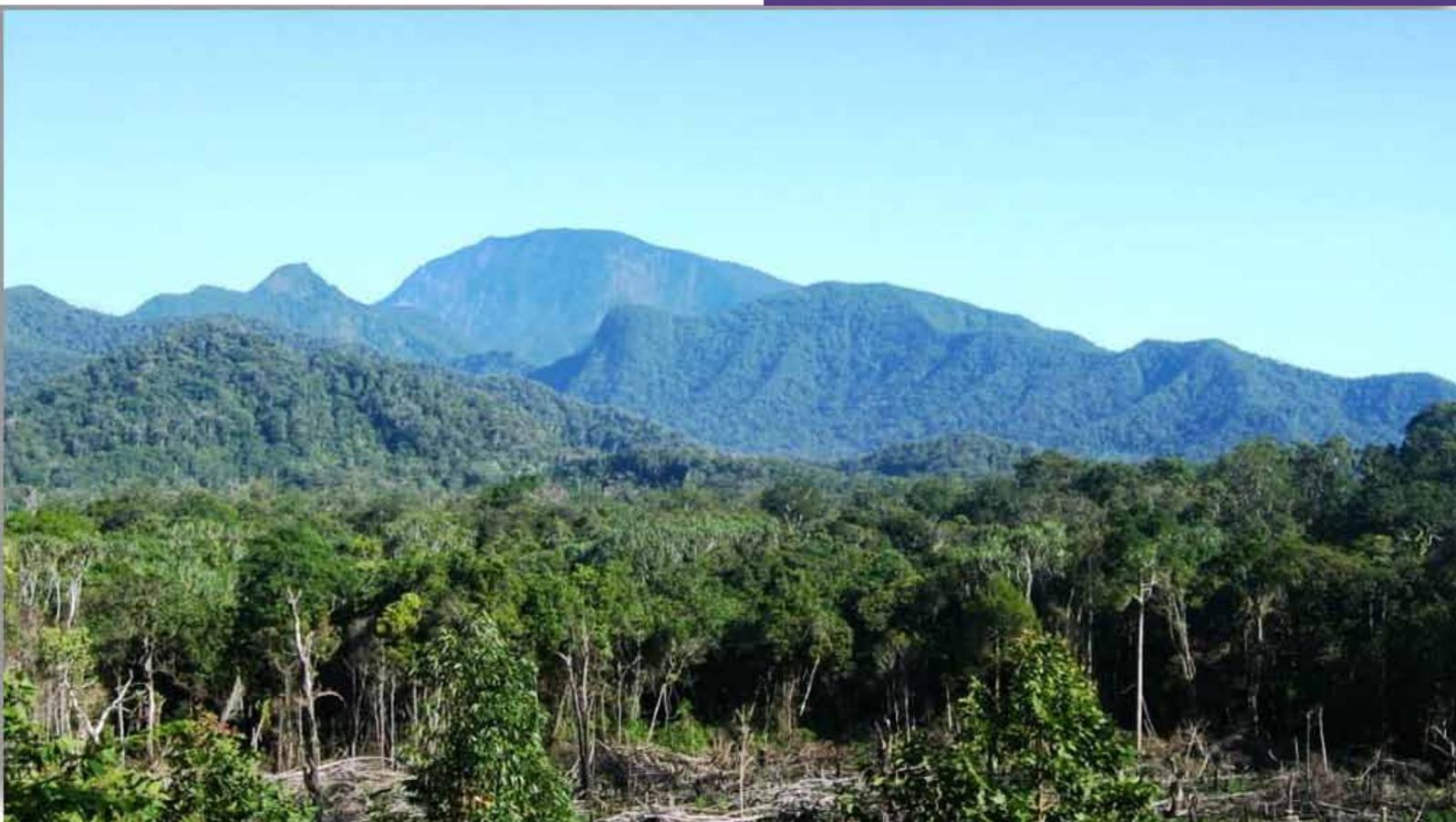
Purpose

Historical mapping helps to introduce the time dimension in participatory environmental appraisal. It also provides visual evidence of changes which have occurred over time and in this way helps to identify causes of environmental degradation. By projecting the results of these activities into the future, the need for changes in behaviour usually becomes apparent.

Steps in using the tool

- A map of the current situation (environmental, demographic, etc.) is drawn (this is best done on a large sheet of paper) with input from all participants.
- With the help of elderly community members and historical photos, if available and appropriate, the same exercise is carried out with respect to the situation that existed when these members were much younger (say 20 to 30 years ago).
- The current and past maps are compared. Participants identify the major changes which have taken place. They then identify the likely causes of these changes and summarise them on a large sheet of paper or board.
- Based on the list of changes and causes, a map is drawn showing the situation which will exist in the community in 20 years if the current trends continue. This can be followed by another “positive” map showing how people would wish their area to look in the “ideal” future.
- Discussion about the future map or maps is then facilitated with the aim of identifying the changes that will be needed to reduce environmental degradation and to achieve the “ideal” future.

Sacred site Bukidnon



Appendix 2

Field survey techniques for fauna inventory

Fauna field survey technique	Notes
1. Direct identification – observation and listening	Skilled observers are invaluable for enhancing information about wildlife. Gird, frog and some mammal species have distinguishing calls or sounds from which they can be identified. Standard fauna inventory forms have been produced by many organizations to facilitate the recording of observations.
2. Observation – fauna tracks and diggings	When often difficult to discern, signs of fauna, such as footprints and scratchings, are an invaluable aid to fauna observers and researchers.
3. Collection and analysis of fauna scats	Predator scats can be valuable for rapid inventory of native fauna populations. Researchers have found that the scats from such animals are deposited close the food source. <i>After carefully</i> collecting the scat (given the chance of contracting a disease such as hydatids), it can be dried and analyzed for hair and bone content. Scats from native animals themselves are important inventory diagnostics.
4. Collection and analysis of bird pellets	Some birds regurgitate bone, feather, fur and other fragments of their meals that they are not able to digest. Owl pellets, for example, contain a wealth of small mammal bones in stratified deposits at some cave sites. They have provided valuable contemporary and historical records of small mammal populations used as prey by the birds.
5. Fauna signs in their habitat	Animals runaway in heath and native grasslands, burrows, nesting hollows, incisions in trees that mark nesting sites, claw marks on trees, and litter and damage to trees and shrubs from animal

	feeding are all signs that indicate the presence of fauna.
6. Trapping and collection of insects	Water traps, flight interception traps, light traps, and bait traps are methods used for collecting insects.
7. Spotlighting	Many species are only active during the night. The use of a portable light will reflect the retina colour of animals' eyes. The colour, shape, and size will help in identifying species.
8. Call playback	Many animals have distinctive calls, and when these are recorded and played back through a loud speaker, species can be prompted to respond.
9. Use of pit-traps	This is a technique used by zoologists to capture small mammals, reptiles and invertebrates. Use is made of a barrier and a small container that is sunk into the ground. Animals are directed to the container by the barrier and are captured in the pit as they try to pass through the 'opening' in the barrier.
10. Reptile searches	This technique is usually undertaken for a small area and during the middle of the day. Favoured habitats for these species (under logs and rocks, in leaf litter, in hollows and so on) are searched.
11. Use of hair tubes	A hair tube is a length of plastic pipe (about 90mm in diameter for small species) that has a bait sealed at one end and double-sided sticky tape on the side of the pipe. When feeding, the small mammal leaves some hair on the tape, which is subsequently analyzed to determine the species.
12. Use of small mammal traps	Collapsible aluminum traps (Elliot traps), which capture their specimens live using a bait, pressure pad and spring rear-door trap, are a common tool of scientists undertaking fauna inventories. Typically, specimens are captured, identified, weighed, measured and released on site. Larger live traps (cage traps) are used for

	the capture of larger specimens.
13. Use of nets, including harp nets and 'fish' nets	Harp nets (vertical filaments of nylon organized to form a barrier to bats) are generally placed on bat flight paths. They are designed to minimize their detection from bat sonar signals and to minimize any impact on the bats. Nets are commonly used for the capture of birds.
14. Use of specialized traps	Large traps are often used for the capture of bigger animals, such as salt-water crocodile (<i>Crocodylus porosus</i>) of northern Australia. This technique is used when a 'problem' animal needs to be relocated.
15. Aerial monitoring	Aerial methods of monitoring fauna and their environment offer distinct advantages when dealing with remote areas or areas that are otherwise inaccessible, such as major waterways or other water bodies to count waterfowl and eagles. Even relatively small fauna may be indirectly monitored in this way – for example, beaver dams. Analysis of aerial surveys may be facilitated using computer programmes.
16. Global positioning systems (GPS) and geographic information systems (GIS)	GPS and GIS permit efficient and accurate collection of spatial data, while combining and comparing time-sequential maps and satellite imagery for estimating, for example, global change and environmental degradation. GIS are also ideal for comparing flora and fauna species diversity with variables in their habitats in order to help manage conservation areas. Conversely, habitats can be identified with overlay analysis, producing maps of where field teams might locate rare or endangered species of plants and animals.

Appendix 3

3-A

Criteria for Determining Suitability for Protected Area Status (Under NIPAS)

A. Natural Properties

1. Representativeness: Exemplification of habitat types within the biographic zones.
2. Naturalness: Intactness of environment from human development activities, with at least 60% intact for excellent rating; 50%, good; 40%, fair and below 40%, poor/very poor.
3. Abundance: Presence and number of individual per species of flora and fauna in the site.
4. Diversity: Presence and number of flora, fauna in the site.

B. Management Attributes

1. Socio-Economic Acceptability: Attitude of local community towards protected area management.
2. Accessibility: Access to the area for recreational, educational, scientific, management and livelihood activities.
3. Size: Sufficiently in size to allow management and administrative purposes and compatible uses as a protected area.
4. Importance: Value of area in terms of scientific, educational, recreational and other purposes.
5. Uniqueness: Presence of rare threatened/endangered, indigenous and endemic species or unusual geological/archeological features.
6. Criticalness: Dependency of important flora and fauna on the area for certain life stages of entire life histories.
7. Threats: Existing/potential habitat destruction/disturbances from human activities in the area.
8. Traditional Uses: Cultural importance of the area to the ICC including practices, beliefs and traditions.

3-B

The Nature Conservation Review Criteria (Green, 1996)

1. *Size (extent)*. Sites should be big enough to ensure that edge effects (e.g. sprays, drainage) do not extend over the whole area, and that the right habitats for different species are present, and in sufficient extent.
2. *Position in an ecological/geographical unit*. Sites including a number of different ecosystems, and those adjacent or near to sites representing other ecosystems are regarded as more desirable as reserves than those representing a single ecosystem. The location of a reserve near another one is important in reducing its isolation and bolstering its species complement. If a large reserve cannot be acquired, groups of smaller ones in the same locality are a good alternative, especially if they are linked by habitat corridors through which species migration can occur. The presence of more than one ecosystem on a site, and especially of ecotones between ecosystems, also adds considerably to species richness.
3. *Diversity*. Species and habitat are very much functions of the size and location of sites, and big sites with a good representation of ecosystems are held to be desirable as reserves because of the species richness they confer.
4. *Rarity*. Many protected areas have been established primarily to protect rare species. Rarity of species and habitats, with diversity and representativeness, have always been accepted as a primary consideration in the selection of protected areas. Rarity—especially its extreme, *the unique*—is a key element in all valuable systems.
5. *Typicalness (representativeness)*. Protecting the species and ecosystems best represented in the country rather than those that are rare. As criteria, rarity and typicalness can clearly be in conflict; the important thing is the geographical area under consideration.
6. *Fragility*. Some species and ecosystems are more vulnerable than others and therefore more deserving of protection. They may be vulnerable because of inherent forces of change, such as succession or they may be particularly threatened by human activities.
7. *Naturalness*. It is self-explanatory and earns general sympathy, but is a difficult criterion to apply in a country where no ecosystems are truly natural.
8. *Potential value*. It recognizes that some modified ecosystems like woodlands managed as plantations, or

drained peatlands, have the potential to be readily restored to a more natural self-sustaining basis.

9. *Recorded history.* It is important if a reserve is to be used for research and education, when the results of studies which have gone before will clearly add to its value for future work.
10. *Intrinsic appeal.* It is a debatable criterion based on the argument that some groups of species, for example birds, merit special consideration because they are of wider appeal than, say spiders. But if amenity rather than scientific aims are uppermost in the intended uses of the protected area, it is clearly a valid consideration.
11. *Information content.* The information content of an ecosystem is one which has been suggested, particularly in the context of woodlands. Places important as *staging posts* for migratory species, or as *refugia* where local environmental history has conspired to bring about rich assemblages of species, often endemics, are obviously worthy of priority in protection. Endemics and other isolated populations are often not very closely related to any other species so that their protection is important in maintaining genetic diversity. The symbolic *use* of protected areas is also a factor in their selection and protection. Sacred groves, temple mountains and places of pilgrimage of religious significance protect wild areas in many countries.



Appendix 4

Surveys of the Resident Communities

4-A Focus group interviews

Focus group interviews are semi-structured discussions with a group of people who share a common feature (e.g. women of reproductive age, shareholders in an irrigation system, users of a particular service, etc.) Participants are chosen by means of sampling procedures (e.g. from a cross-section of ages, a variety of land-area ownership, different resource-users, etc.). Depending on local conditions, a focus group can include as few as five and as many as 15 or more individuals. A list of open-ended questions is used to focus the discussion on the issues of concern but, as for natural group interviews, follow-up questions can be developed during the conversation.

Purpose

Focus group interviews were developed in market-research to determine customer's preferences and expectations. Since the 1980's they have been used increasingly for sociological studies and in participatory research, particularly research to identify and describe group perceptions, attitudes and needs.

Steps in using the tool

- Identify a list of key questions to guide the interview. Develop a system for analyzing the information collected; for example a matrix of topics and variables, or just a list of key topics and possible responses (e.g. negative/positive, concerned/not concerned) plus a space for comments.
- Identify the groups in the community concerned about the topic under investigation.
- Decide on the number of focus groups and the number of participants in each group. In a small community two or three groups (e.g. men/women; elders/adults/youth; agriculturalists/herders; wealthy/poor) of five to ten participants each, may be sufficient.
- Conduct a practice (pilot) session with other community members (another community altogether if similar circumstances exist) to check that the questions are relevant

- and easily understood and that the type of responses can be summarized in the analysis system designed for the purpose.
- Before starting each focus group interview, explain the purpose of the exercise. Pose your questions to the group and be sure that each participant feels comfortable in speaking. Over-talkative participants should be controlled and silent ones stimulated. Limit the duration of the session; a focus group interview should last about one hour.
 - Since the interviewer also acts as a group facilitator, another person should record the discussion and jot down the meaning of the interventions as well as the most characteristic quotes. If this is not possible, a tape recorder could be used, provided the group members give their prior permission. Tape recording is particularly helpful for reviewing the information in detail.
 - Carefully review and analyze the interview notes or tapes to extract key statements, issues raised and patterns of responses in accordance with the analysis framework designed at the beginning of the process. The framework may need to be amended to accommodate unexpected responses.
 - If possible, review the interview summary with the participants for them to check that their comments have been recorded and analyzed correctly.

4-B Semi-structured interviews with key informants

Semi-structured interviews involve lists of questions to be addressed to knowledgeable individuals in a relaxed and informal way. Unlike questionnaires with standardized questions and closed-ended answers, semi-structured interviews only include general questions. This leaves the interviewer free to rephrase them as appropriate and to add further inquiries such as “Who?” “Where?” “When?” “Why?” and “How?” based on the respondent’s answers and conversation flow.

Purpose

Semi-structured interviews can be used to obtain specific, in-depth, quantitative and qualitative information on specific points of interest. Decision-making systems, gender-related issues, use of natural resources, household economics and many other topics can be effectively explored with this tool. Information can be given as well as received during the interview.

Steps in using this tool

- Design an interview guide and a summary form of the responses (similar to those used for focus-group interviews).
- Identify the key informants to interview. Some selective identification may be needed to ensure all key perspectives and/or fields of knowledge are covered. New informants can be added on the basis of the results of the early interviews.
- Conduct at least one practice interview with other members of the interview team or with other community members to check that the questions are clear and in a logical order.
- Organize a time and place for the interview, convenient to the person being interviewed.
- Before the interview commences, inform the person of the extent to which you can ensure confidentiality (e.g. the information may be generalized and not attributed to any particular individual).
- Make only brief notes during the interviews, filling out the summary form immediately afterwards. A tape recorder can be used, provided the person gives their prior permission.
- Unexpected information may surface during interviews. If more than one person is interviewing, the interviewers should discuss together on a daily basis any new information or problems encountered during interviews, as well as the preliminary results. Adjust the interview guide and summary form, if necessary, in response to these findings.



Appendix 5

Protected Area Threats (From Worboys, et. al., 2006)

Threat class	Type	Potential consequences that can threaten protected areas
Underlying cause	Human population growth	Unsustainable natural resource consumption
	Material aspirations, especially in high Human Development Index (HDI) countries	Unsustainable natural resource consumption
	Inadequate legal and political systems	Policies that fall into secure environmental protection
		Lack of political commitment
	Inadequate economic systems	Corruption leading to failures in governance, enforcement and management
		Failure to fully account for environmental costs and benefits of decisions
		Poverty, leading to indirect threats
	Dysfunctional social, cultural or political relations Community attitudes and values	Subsidies for environmentally damaging activities
	Knowledge and	Inequity of ownership, management and benefit flow

	education deficiencies	<p>War and civil conflict impairing capacity to manage</p> <p>Community attitude and values are at variance to the objectives for conservation</p> <p>Impaired capacity to identify solutions to environmental problems</p> <p>Lack of awareness of protected area benefits</p>
Indirect threat	<p>Climate change</p> <p>Inappropriate land- and sea-use decisions</p> <p>Poverty</p> <p>Off-site pollution</p>	<p>Changes to habitat and species distribution and abundance, and an increase in extinctions</p> <p>Changes to the physical environment (stream-flow regimes, flood patterns, rainfall, ice distribution, fire frequency and severity, and storm frequency and severity)</p> <p>Inundation of low-lying areas through rising sea levels</p> <p>Thermal impacts to corals and coral bleaching</p> <p>Land-use change, habitat destruction and fragmentation arising from development, agriculture, resource extraction, and human settlement</p> <p>Tourism developments and increasing visitor-use</p>

	<p>Off-site impoundment of rivers, diversion of water and drawdown of groundwater</p> <p>Off-site natural events (tsunami, fire, earthquake, volcanicity, avalanche and glacier brake-up)</p>	<p>pressure</p> <p>Lack of options to adopt sustainable practices</p> <p>Polluted water (marine or terrestrial) affecting protected areas</p> <p>Air pollutants damaging biodiversity and scenic values</p> <p>Unsustainable water use impacting upon ecosystems</p> <p>Damage to natural ecosystems, infrastructure and human life</p>
Direct threat	<p>Illegal activities</p> <p>War and civil conflict</p> <p>Poor management</p> <p>Insufficient management resources</p> <p>Introduced animals, including pest animals</p> <p>Introduced plants, including weeds</p> <p>Fire</p>	<p>Poaching of wildlife, hunting, fishing, arson, logging and mining</p> <p>Damage to natural ecosystems, infrastructure and human life</p> <p>Damaging management policies and actions</p> <p>Incompetently executed actions</p> <p>Failure to act, or inadequate management response to threats</p> <p>Damage to natural ecosystems</p>

	<p>On-site pollution</p> <p>On-site impacts of chemicals</p> <p>On-site impoundment of rivers, diversion of water and drawdown of groundwater</p> <p>Livestock grazing</p> <p>Urban expansion</p> <p>Unsustainable plant and animal resource extraction</p> <p>Mineral resource extraction</p> <p>On-site infrastructure and tourism development</p> <p>Unsustainable visitor use</p> <p>On-site natural events (tsunami, fire, earthquake, volcanicity, avalanche and glacier break-up)</p>	<p>Damage to natural ecosystems</p> <p>Damage to natural ecosystems, cultural heritage, infrastructure, property and human life</p> <p>Damage to natural ecosystems, recreation and tourism values</p> <p>Damage to natural ecosystems and human health</p> <p>Damage to natural ecosystems</p> <p>Damage to natural ecosystems, recreation and tourism values</p> <p>Impacts upon habitats and natural ecosystems</p> <p>Damage to natural ecosystems, recreation and tourism values</p> <p>Damage to natural ecosystems, cultural heritage, recreation and tourism values</p> <p>Damage to natural ecosystems and cultural heritage</p>
		<p>Damage to natural ecosystems, social and cultural heritage</p> <p>Damage to natural ecosystems, infrastructure and human life</p>

Appendix 6

Vulnerability of Geo-Conservation Rules

(From Worboys et. al., 2006)

<p>1. Values are vulnerable to inadvertent damage simply as a result of diffuse, free-ranging human pedestrian passage, even with care.</p>	<p>Examples include fragile surfaces that may be crushed underfoot, such as calcified plant remains, or gypsum hairs in some karst caves that can be broken by human breath.</p>
<p>2. Values are vulnerable to the effects of more focused human pedestrian access, even without deliberate disturbance.</p>	<p>Examples include risk of damage by entrenchment through the advent of pedestrian tracks; coastal dune disturbance; drainage changes associated with tracks leading to erosion by runoff; risk of damage as a result of changes caused by changes to fire regime; and defacement of speleothems simply by touching their surface.</p>
<p>3. Values are vulnerable to damage by scientific hobby collecting or sampling, or by deliberate vandalism or theft.</p>	<p>Examples include exploitation of some fossil and mineral sites and karst caves.</p>
<p>4. Values are vulnerable to damage by remote processes.</p>	<p>Examples include hydrological or water-quality changes associated with the clearing or disturbance of watersheds; fracture/vibration due to blasting in adjacent areas (potentially causing such damage as breakage of stalactites in caves); and sites susceptible to damage if subsurface seepage water routes change due to the</p>

	creation of new fractures.
5. Values are vulnerable to damage by high intensity, shallow linear impacts, depending upon their precise position.	Examples include vehicular tracks, minor road construction and the excavation of ditches or trenches.
6. Values are vulnerable to higher intensity but shallow generalized disturbance on site.	Examples include clear-felling of forests and replanting, but without stump removal or major earthworks and associated drainage changes.
7. Values are vulnerable to deliberate linear or generalized shallow excavation.	Examples include minor building projects, simple road construction or shallow burrow pits.
8. Values are vulnerable to major removal of geo-materials, or large-scale excavation or construction.	Examples include quarries and sites of large dam construction.
9. Values are vulnerable only to very large-scale contour change.	Examples include mega-quarries.
10. Special cases include erosion caused by sea-level rise resulting from humanly induced greenhouse warming, and sites where the value is rendered inaccessible through inundation beneath an artificial reservoir, although the physical characteristics of the site may remain intact.	

Appendix 7

Conflict Management

A process for negotiation/mediation

There are three broad categories of approaches to managing conflicts. They differ in the extent to which the parties in conflict control the process and the outcome. These categories are:

Negotiation: where the parties, with or without the assistance of a facilitator, discuss their differences and attempt to reach a joint decision. The facilitator merely guides the process in a non-partisan manner to help the parties clarify and resolve their differences.

Mediation: where the parties agree to allow an independent, neutral third party (usually a person trained in mediation) to control and direct the process of clarifying positions, identifying interests and developing solutions agreeable to all. As with negotiation, this is a voluntary process which the parties can opt out of at any time.

Arbitration: where each side is required to present their case to an independent person who has legal authority to impose a solution. Agreements are enforceable through law.

Conditions for negotiation/mediation

There are a variety of conditions which can affect the success of a negotiation. They should be present before a negotiation process is undertaken. The conditions are:

1. All the people or groups who have a stake in the negotiations should be willing to participate.
2. Parties should be ready to negotiate. They should be psychologically prepared to talk to each other; they should have adequate information; and an outline of the conflict management process should be prepared and agreed to. This is particularly important when dealing with different racial/ethnic groups, especially those which have a tribal system where speaking rights are subject to tradition and the consensus of other members. The negotiation/mediation process should allow time for the different cultural decision-making time frames to be

- accommodated, e.g. to select a spokesperson and to decide the approach to be taken.
3. Each party should have some means of influencing the attitudes and/or behavior of the other negotiators if they are to reach an agreement on issues over which they disagree.
 4. The parties should have some common issues and interests on which they are able to agree for progress to be made.
 5. The parties should be dependent on each other to have their needs met or interests satisfied. If one party can have their needs met without cooperating with others, there will be little incentive for them to negotiate.
 6. They should have a willingness to settle their disagreements. If maintaining the conflict is more useful to one or more parties (e.g. to mobilize public opinion in their favor) then negotiations are doomed to failure.
 7. The outcome of using other means to resolve the problem should be unpredictable. If one party is sure of complete victory for their point of view if they go to court, or directly to the government, they are unlikely to be prepared to negotiate a settlement where only some of their interests will be met.
 8. All parties should feel some pressure or urgency to reach a decision. Urgency may come from time constraints or potentially negative or positive consequences if settlement is or is not reached.
 9. The issues should be negotiable. If negotiations appear to have only win/lose settlement possibilities, so that one party's needs will not be met as a result of participation, the parties will be reluctant to enter into the process.
 10. Participants should have authority to actually make a decision.
 11. The parties should be willing to compromise even though this may not always be necessary. On some occasions an agreement can be reached which meets the needs of all participants and does not require sacrifice on the part of any.
 12. The agreement should be feasible and the parties should be able to put it into action.
 13. Participants should have the interpersonal skills necessary for bargaining as well as the time and resources to engage fully in the process. Inadequate or unequal skills and

resources among the parties may hinder settlement and should be addressed before negotiations commence.

Steps in negotiation/mediation exercises

The process of negotiation can be viewed as comprising 13 basic steps. These steps can be used as a checklist for anyone called upon to facilitate such a process.

The steps give no indication of the time required to complete them. The actual negotiation/mediation process may take a number of sessions. If the need for more information is identified at any point, the process should be stopped until that information is provided. If the parties reach a point where no progress is being made, they may decide to break the process and either get back together at a later date or enter into an arbitration process instead.

The basic steps are as follows:

1. Prior to the parties' meeting, check that all or most of the conditions listed above are present. This will require meeting with the parties individually to clarify their attitudes and positions.
2. Set a time and place to meet that is agreeable to all parties.
3. At the beginning of the negotiation, ask each party to explain their position clearly: what they want and why. They should not be interrupted except for points of clarification.
4. After all parties have stated their case, identify where there are areas of agreement.
5. Identify any additional information that any of the parties need in order for them to be able to understand the claims made by other parties. If necessary, stop the process until they can be provided with that information.
6. Identify the areas of disagreement.
7. Agree on a common overall goal for the negotiations (e.g. the sustainable use of a resource and the maintenance of livelihood for a particular group or community).
8. Help the parties to compile a list of possible options to meet this goal.
9. List criteria against which each option should be measured (e.g. urgency of need, feasibility, economic returns).
10. Evaluate each option against these criteria.
11. Facilitate an agreement on one or more options that maximize mutual satisfaction among other parties.
12. Decide on the processes, responsibilities and time-frames for any actions required to implement to agreement.
13. Write up any decisions reached and get the parties to sign their agreement.

Appendix 8

Managing Threats to Protected Areas

8-A Potential management responses

Pollution type	Potential pollution events	Potential management response
Liquid waste pollution	<p>Background pollution and contamination of streams, rivers, groundwater, water ways and aquatic environments, such as a contaminated river flowing through a protected area</p> <p>Incidents such as liquid pollutant spills that enter a protected area (e.g. an oil tanker spill or chemical truck spill)</p>	<p>Take steps to ensure that the quality of water flowing from the protected area is higher than the water received.</p> <p>Ensure a whole-of-government and community-based partnership response to prevent the pollution.</p> <p>Ensure a whole-of-government and community-based partnership response to clean up the pollution.</p> <p>Ensure that the management agency has the capacity and the resources to deal with the incident either on or off the protected area.</p> <p>Have cooperative arrangements in place to deal with the incident, and ensure that the cleanup does not impact upon the</p>

		protected area.
Solid waste pollution	A domestic waste tip created on the boundary of a protected area Dumping of solid waste materials adjacent to a protected area (such as a mine dump)	Negotiate with land-use authorities and neighbors for the removal of the solid waste.
Atmospheric pollution	Dust, acid rain, toxic gaseous pollutants and global warming gases	Ensure a whole-of-government and industry partnership response to stop the pollution. Ensure a whole-of-government and industry partnership response to clean up the pollution.
Radiation pollution	Radiation fallout due to a nuclear accident	Ensure a whole-of-government response to prevent potential accidents. Ensure a whole-of-government response to clean up the pollution.

8-B Management response for hunting, fishing and poaching

Illegal activity	Aspects of the activity	Potential management response
Hunting, fishing and poaching for food	Meat, fish and other food taken for local use	Licensed sustainable subsistence hunting for some protected areas.
	Traditional bushmeat hunting	Discussions and negotiations with parties.
	At times of	Law enforcement.

	conflict, bushmeat is used for food	
Hunting and fishing for financial return	Bushmeat trade Fish for sale Hunting for furs, skins, tusks (ivory), antlers and body parts Hunting for animal body parts for medicinal use Hunting for the pet trade	Law enforcement. Implementation of international agreements, such as the Convention of International Trade in Endangered Species of Wild Flora and Fauna (CITES), which ban or control the sale of animal products. Transboundary agreements and joint law enforcement actions. Consultation, if possible, with parties involved in conflict. Partnerships with customs agents, the police and other government authorities to monitor and check incoming and outgoing wildlife. Monitoring nests of endangered bird species to reduce the stealing of eggs, hatchlings and young fledgeings.
Hunting and fishing for sport	Trophy hunting	Law enforcement.
Hunting and fishing for cultural reasons	Social customs	Law enforcement. Potential agreements with communities
Hunting and	Human life,	Cooperative agreements

fishing for protection	livestock and crop protection	with communities for dealing with animals that pose threats. Fencing of reserves.
Hunting and fishing for research	Animal research and zoo collection	Cooperative agreements with research institutions and zoos.

8-C Management responses for fuelwood collection and timber harvesting

Activity	Potential management response
Illegal extraction of fuelwood for domestic use	Negotiate with users. Determine sustainable extraction levels and methods, followed by licensing of the activity. Active management may be required to help people who require fuel in refugee camps or urban settlements. Monitor impacts.
Fuelwood used for commercially motivated illegal trade	Determine whether sustainable extraction is appropriate and, if so, at what levels and by what methods. Sustainable use may be licensed under conditions that ensure that local communities benefit. Ensure law enforcement.
Illegal logging	Ensure law enforcement. Secure government support for the integrity of the protected area regulations. Seek international support.

8-D Management response for mining and other extraction activities

Activity	Potential management response
Fossil, mineral and gemstone collecting	<p>Develop an education program to help prevent collecting.</p> <p>Ensure law enforcement to prevent collecting.</p>
Prospecting for gold, precious metals and gemstones	<p>Develop and deliver education program to help prevent prospecting.</p> <p>Secure local community support to help prevent the extraction.</p> <p>Increase emphasis on law enforcement.</p> <p>Secure government support to prevent prospecting.</p> <p>Prosecute cases through the courts.</p> <p>Providing alternative livelihood options for artesiansal prospectors.</p>
Mineral and petroleum exploration or extraction in IUCN Category I-IV areas	<p>Promote landscape planning and strategic environmental assessments to avoid mining concessions in protected areas.</p> <p>Ensure law enforcement to prevent exploration and extraction.</p> <p>Establish legislative gazettal of protected areas to the center of the Earth to prevent subsurface mining.</p> <p>Secure government and international support to prevent exploration and extraction.</p> <p>Provide alternative livelihood options for artesiansal miners.</p>
Mineral and petroleum exploration or extraction in	<p>Promote landscape planning and strategic environmental assessments to avoid mining concessions in protected areas.</p>

<p>IUCN Category V-VI areas</p>	<p>Allow limited exploration or extraction subject to an approved environmental impact statement (EIS) and community support.</p> <p>Negotiate license arrangements which ensure that protected area values are not compromised.</p> <p>Where possible, negotiate license arrangements that yield economic benefits to the protected area management agency and the local community.</p> <p>Require a security bond.</p> <p>Ensure that rehabilitation funds are set aside for repairing damage after exploration and mining works are completed.</p> <p>Provide alternative livelihood options for artisanal miners.</p>
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8-E Operational systems and policies aimed at reducing threats

Management system or policy example	Threat targeted
<p>Locate visitor-use developments outside of the protected area</p>	<p><i>Tourism development and natural areas</i> Encourage the development of visitor facilities (such as accommodation and restaurants) in towns and villages outside of protected areas and provide simple destination facilities within a protected area. This helps ensure that the natural integrity of the destination is restrained.</p>
<p>Create 'hardened' visitor access routes</p>	<p><i>Impacts of large numbers of visitors at key destinations</i> For high-use visitor areas of a suitable Recreation Opportunity Spectrum (ROS) category, the provision of hardened walking routes (gravel, paved, bitumen or elevated</p>

	walkways) can help to keep visitors on designated walking routes and prevent soil erosion impacts.
Limit visitor numbers	<i>Excessive use of very sensitive destinations</i> Provide a planned limit for visitor-use numbers (annual) and limit the number of visitors during sensitive times, such as very wet conditions or during a species breeding season. The control of visitor numbers and frequency of use through tickets and guided walks and other techniques can be used.
Use clean earth moving equipment	<i>Introducing pathogens into pristine natural areas</i> The introduction of non-natural soil-borne pathogens and weeds into a protected area is a major threat. Machinery to be used in protected areas may need to be cleaned of all soil and sterilized.
Rehabilitate immediately following works	<i>Soil erosion</i> Earthworks are commonly undertaken within protected areas. A policy of immediately completing rehabilitation works following earthworks helps to eliminate any potential for soil erosion.
Use sterile plants or local native species for rehabilitation	<i>Preventing the introduction of weed species</i> Soil conservation works often use quick-growing species such as grasses to immediately pioneer plant growth for disturbed sites. Sterile (single-season) grass species are often used in conjunction with suitable local native species seed stock for rehabilitation. This helps to reduce the risk of weeds.

8-F Management responses to a threat of introduced animals

Management goals	Focus for the response	Potential management actions
Prevent introductions	A whole-of-government approach Individual protected area approach	Stringent quarantine measures at the borders of countries and islands. National prohibition policies for some animal species. International conventions restricting trade in animal species.
Plan responses for potential introductions	Individual protected area vulnerability to introduced animal species	Research of animal species that may be introduced. Analysis of the management response required.
Prevent the spread of existing introduced animals	Minimizing the spread of introduced species	Containment (if possible) and treatment of introduced animal species. Priority provided to those introduced animal species with the greatest potential for impact.
Control introduced animal species	Use of range of humane control techniques	Control techniques include: <ul style="list-style-type: none"> • herding and removal • live trapping • tranquilizing and removing • targeted poisoning • shooting.
Undertake performance evaluation	Monitoring of introduced animal	Completion of a baseline evaluation for the introduced animals pre-

	populations	treatment. Completion of change in condition (from baseline) evaluations following management treatments.
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8-G Management responses to the threat of introduced plants

Management goal	Focus for the response	Potential management actions
Prevent introductions	<p>A whole-of-government approach for preventing introductions</p> <p>Individual protected area approach for preventing introductions</p>	<p>Stringent quarantine measures at the borders of countries.</p> <p>National prohibition policies for some commercial nursery species.</p> <p>Protected area policies preventing the planting of introduced species.</p> <p>Use of local native plant species for rehabilitation.</p> <p>Cleaning and sterilization of earth-moving equipment.</p> <p>Use of clean seed-free fill, gravel and other introduced materials.</p>
Plan responses for potential introductions	Individual protected area vulnerability to introduced species	<p>Research of plant species that may be introduced.</p> <p>Analysis of management response required</p>
Prevent the spread of existing	Minimizing disturbance to soils	Rapid rehabilitation of any disturbed soil areas

<p>introduced plants</p>	<p>Minimizing the spread of introduced species</p> <p>Minimizing the influence of vectors</p>	<p>Use of local native plant species for rehabilitation.</p> <p>Containment and treatment of introduced plant species.</p> <p>Priority for those introduced plant species with the greatest potential for spreading.</p> <p>Management of the movement of vehicles and people may be required to minimize the spread of introduced plants.</p>
<p>Control introduced plant species</p>	<p>Use of a range of techniques to control introduced plants</p>	<p>A range of techniques, guided by careful scientific research, may be used, including the :</p> <ul style="list-style-type: none"> • application of fire • use of shading control from native species • intensive hand weeding by volunteers • use of carefully researched and selected pathogens • use of insect predators • use of chemicals.
<p>Undertake performance evaluation</p>	<p>Monitoring of area of introduced plants</p>	<p>Completion of a baseline evaluation for the introduced plants pre-treatment.</p> <p>Completion of change in condition (from baseline) evaluations following management treatments.</p>

8-H Management responses to the threat of unplanned (non-natural) and illegal fires

Management goal	Focus for the response	Potential management actions
Prevent non-planned fire	A whole-of-government approach for preventing unplanned fires	<p>Seasonal burning-off bans as summer approaches.</p> <p>Total fire bans during extreme (very hot and windy) fire weather days.</p> <p>Prevention of arson through cooperative surveillance with police and other organizations.</p>
	Individual protected area approach for preventing unplanned fires	<p>Seasonal fire bans based on a scientific indicator, such as a dryness index.</p> <p>Twelve-month ‘fuel stove only’ policies for hiking areas.</p>
Manage fire events	Planned response to fire events	<p>Multi-organization and cooperative fire operations.</p> <p>Use of pre-planning and incident-control procedures.</p>

8-I Management Responses to the Threat of Developments within Protected Areas

Management goal	Focus of the response	Potential management actions
Manage development to prevent or minimize reduction in	Use the legislative basis and purpose of protected areas to exclude	Ensure that there are no weak links in the legal basis and framework of protected areas, including:

<p>protected area values</p>	<p>inappropriate development</p> <p>Adopt a whole-of-government approach</p> <p>Use established formal and legal processes for development approval</p>	<ul style="list-style-type: none"> • legislative support for conservation and protection • clarity of purpose of protected areas • a management plan with clear best practice conservation objectives supported by the community • zoning to exclude inappropriate developments from specific areas, with associated clear conservation objectives for each zone. <p>Ensure that the community is fully informed of the development proposal.</p> <p>Implement fully transparent environmental impact assessment processes.</p>
<p>Manage approved developments</p>	<p>Performance bonds</p> <p>Accountability for compliance</p> <p>Monitoring of</p>	<p>Prior to formal approvals, secure substantial replenishable financial performance bonds for non-compliance.</p> <p>Prior to final approval, accountability for environmental performance is conveyed on all operatives for the development organization (including subcontractors), based</p>

	<p>compliance</p> <p>Designated areas</p> <p>Stop work</p> <p>Infringements</p> <p>Rehabilitation</p>	<p>on an approved development plan and environmental impact statement (EIS).</p> <p>Final approval for the developments depends upon resources provided to fund agency staff and resources needed for the monitoring of environmental compliance.</p> <p>Final approval defines designated areas that required to be used for development construction.</p> <p>The power of stop work is vested in the officer in charge of the protected area, and may be invoked for contraventions of the approved development.</p> <p>Any contraventions to the governance basis for the protected area may invoke infringement proceedings and penalties.</p> <p>The development is not officially completed until the rehabilitation work has been finished and approved by the protected area manager.</p>
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Appendix 9

National Government Functions Devolved to Local Government Units Under the Local Government Code of 1991 (Sec.17)

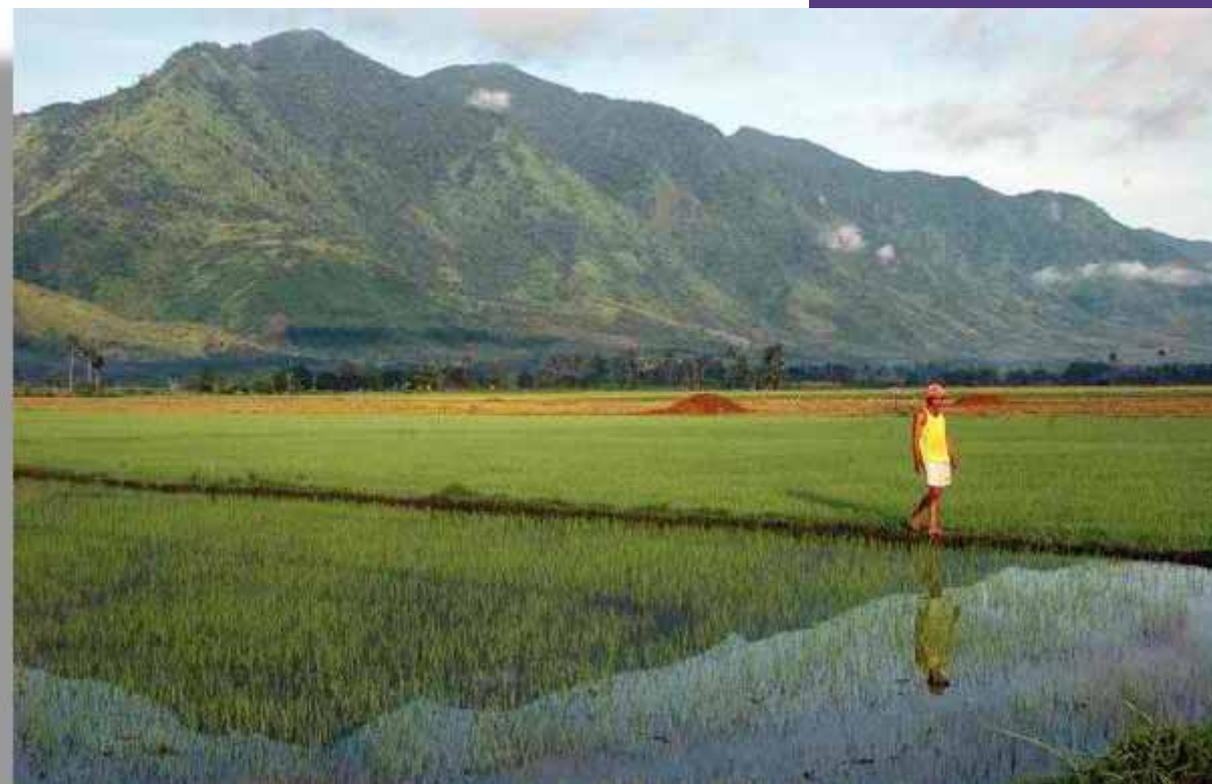
Functional Area	Barangay	Municipality	Province	City
Agriculture	Agrilcultural support services, e.g. planting materials distribution, farm produce collection, buying station	<ul style="list-style-type: none"> • Extension & on-site research for agriculture, fishery, livestock, & poultry (mainly seed production and distribution) • Quality control of copra • Improvement and development of local distribution channels e.g. cooperatives • Inter-barangay irrigation systems • Soil and water use and conservation • Enforcement of fishery laws in municipal waters • Conservation of mangroves 	<ul style="list-style-type: none"> • Extension and on-site services and facilities including control of pests and diseases • Dairy farms, livestock markets, animal breeding and artificial insemination centers • Assistance to farmers and fishermen organizations • Transfer of appropriate technology 	Same as those of provinces and municipalities
Health	<ul style="list-style-type: none"> • Maintenance of barangay health center and day care center • Services and facilities on general hygiene and beautification • Solid waste collection 	<ul style="list-style-type: none"> • Primary health care • Maternal and child care • Control of communicable and non-communicable diseases • Access to secondary and tertiary health services • Purchase of medicines, medical supplies, and necessary equipment • Solid waste disposal system • Services and facilities related to hygiene and sanitation 	Hospitals and other tertiary health services and facilities	Same as those of provinces and municipalities

Public Buildings and Open Spaces	Multi-purpose hall, multi-purpose pavement, sports center, plaza, etc.	<ul style="list-style-type: none"> • Municipal buildings, cultural centers, public parks, playgrounds, sports facilities and equipment • Public cemetery 	Provincial building, freedom parks, and similar public assembly areas	Same as those of provinces and municipalities
Infrastructure	Maintenance of barangay roads and bridges and water supply system	<ul style="list-style-type: none"> • Municipal roads and bridges • School buildings, and facilities for elementary and secondary levels • Clinics, health centers • Communal irrigation, simple water impounding projects, etc. • Fish ports • Artesian wells, spring development, rainwater collection systems, etc. • Seawalls, dikes, drainage and sewerage and flood control • Traffic signals and road signs 	<ul style="list-style-type: none"> • Provincial roads and bridges • Inter-municipal waterworks, drainage, sewerage, flood control, and irrigation projects • Reclamation projects 	Same as those of provinces and municipalities
Transport and Communications			Inter-municipal telecommunications services	Adequate communication and transportation facilities
Housing			Low cost and other mass dwelling projects	Same as those of province
Public Enterprises		Public markets, slaughterhouses, and other municipal enterprise		Same as those of province
Tourism		<ul style="list-style-type: none"> • Tourism facilities and other tourist attractions including acquisition of 	Tourism development and promotion	Same as those of provinces and

		<p>equipment</p> <ul style="list-style-type: none"> • Regulation and supervision of business concessions • Security services for tourism facilities 	program	municipalities
Welfare		<ul style="list-style-type: none"> • Program on child and youth welfare, family and community welfare, welfare of elderly, and disabled persons • Community-based rehabilitation programs for beggars, street children, scavengers, juvenile delinquents, and victims of drug abuse • Livelihood and other pro-poor projects • Nutrition services • Family planning services 	<ul style="list-style-type: none"> • Welfare services for rebel returnees and evacuees • Relief operations • Population development services 	Same as those of provinces and municipalities
Natural Resources and Environment		<ul style="list-style-type: none"> • Community-based forestry projects • Management and control of communal forest • Establishment of tree parks, greenbelts, etc. • Environmental management system 	Enforcement of community-based forestry laws, pollution control law, small-scale mining law and other laws on environmental protection	Same as those of provinces and municipalities
Information Services	Information and reading centers	<ul style="list-style-type: none"> • Maintenance of public library • Information on investments and job placements • Tax and marketing information systems 	<ul style="list-style-type: none"> • Upgrading and modernization of tax information and collection services • Industrial research and development 	Same as those of provinces and municipalities

			services and technology transfer <ul style="list-style-type: none"> • Investment support services including access to credit financing 	
Justice and Protective Services	Maintenance of Katarungang Pambarangay	<ul style="list-style-type: none"> • Sites for police and fire stations and substations • Municipal jail 	Provincial jails	Same as those of provinces and municipalities

Sacred Zone



Appendix 10

Types of Participatory Monitoring and Evaluation

10-A Stakeholder accounts

Stakeholder accounts—verbal presentations based on a set list of questions about key aspects of the conservation initiative—can provide good grassroots perspectives about the initiative’s operations and achievements. Field-based staff and stakeholder representatives prepare a presentation for a meeting with the community and the management of the initiative. Visual materials may or may not be used, depending on resources available and the type of issues to be covered. A variety of groups should be given a chance to present to ensure that all the issues are covered in depth and that the interests of all stakeholders are considered. Each presentation should take no longer than 20 minutes.

Purpose

Verbal presentations are a form of story-telling. As such, they can be a natural and non-threatening way of communicating concerns and ideas for some traditional cultures. People listen to the accounts, assess the messages, ask questions to clarify particular points, and then in a group setting (involving both the local people and management of the initiative), decide what changes need to be made and how these can be achieved.

Steps in using the tool

- Together with the local stakeholder representatives (e.g. the Conservation Council if one exists) prepare a list of topics to cover in the presentations. Questions should be open-ended and may differ for field workers and stakeholders. Appropriate questions for stakeholders could be: “What has changed for you since the initiative began? What has changed in the environment? How do you know these changes have occurred? What do you think is working well in the initiative? What is not working so well? Have you had any problems with the initiative staff/management? Are you happy with the way these problems were dealt with? Can you suggest things that would make the initiative work better?” Some of these questions would also be appropriate for the field workers. The field staff may be interested in presenting on topics such as the adequacy

of their training, supervision and provision of resources. These may be addressed but they are best dealt with in detail in a separate meeting for staff only.

- Identify which stakeholder representatives and field staff will give the presentations and provide each of them with the list of questions to use as a guide. Stress that they should feel free to raise other matters they feel need to be covered. Allow at least a week for people to prepare their thoughts before the meeting.
- At the evaluation meeting, encourage those present to ask questions after each presentation, and to add to the information presented.
- Note the main points/issues to be addressed on a blackboard/flip chart, etc.
- At the end of the presentation, review the main points, and discuss the options/strategies for addressing the issues/problems raised and for building on the successes.
- Before coming to any conclusions, it may be appropriate to follow up the presentations with a field visit to view specific aspects raised in the presentations.

10-B Community involvement in plan the evaluation

Evaluating initiatives provides an opportunity for both outsiders and insiders to reflect on the past in order to make decisions about the future. In a participatory process to design an evaluation, insiders are encouraged and supported by outsiders to take responsibility for and control of planning what is to be evaluated and deciding how the evaluation will be done. Much of the material acquired from the participatory information gathering, assessment and planning exercises can be used in participatory evaluation.

Purpose

Involving the community in developing an evaluation process ensures that all aspects of concern are covered. It also enables the skills and knowledge available within the community to be identified and utilized for information collection and analysis. This reduces reliance on outsiders (e.g. consultants) who may be much more expensive and less formed to do this work.

The results of the evaluation exercise should enable decisions to be reached on whether to change the objectives of the conservation initiative, change the strategy, change activities or continue all or some of these. In a participatory evaluation both specific activities and the objectives of the initiative are considered, with the objectives of learning what worked and why, and what was not successful and why it wasn't.

Steps in using the process

These steps can be undertaken with a group of stakeholder representatives (e.g. a Conservation Council) or in a meeting open to everyone.

- Review the objectives and activities of the initiative and the reasons for the evaluation i.e. “what do we want to know?”
- Develop evaluation process—these can be written on large sheets of paper or a blackboard—and rank them.
- Decide who will do the evaluation (e.g. the whole community in an open meeting, a team representing major stakeholders, or an outside consultant).
- Identify direct and indirect indicators. Direct indicators are facts and information that directly relate to what is being measured (e.g. the number of cattle owned by a family). Indirect indicators provide information on aspects which cannot be easily or accurately measured (e.g. whether a family possesses a radio or a bicycle can, in some communities, be an appropriate indirect indicator of its total wealth).
- Identify the information sources for evaluation questions. If the information is not currently available, decide which information-gathering tool would be appropriate. If a tool has been used before, it may be used again to update the information and show the change that has occurred.
- Identify the skills and time required to obtain the information, including any expertise that may need to be recruited from elsewhere.
- Decide the time-frame for gathering and analyzing information. Timing needs to take into account factors such as seasonal constraints, religious holidays, and field staff availability.
- Decide which people will gather which information. If an outside evaluator is to be employed, designate someone to whom this person will report.

- Decide how the information should be analyzed and presented to the wider community and the staff of the conservation initiative for discussion and drawing conclusions.

10-C SWOL analysis

Strengths, weaknesses, opportunities and limitations (SWOL) analysis is a structured brainstorming process to elicit group perceptions of a specific aspect of, for instance, a community, environment or project. The aspect is analyzed in terms of the positive factors (strengths), negative factors (weaknesses), possible improvements (opportunities) and constraints (limitations).

Purpose

SWOL analysis can be useful for evaluating activities carried out in a conservation initiative. It can be focused on specific aspects of the initiative, such as services provided by external agencies or activities being undertaken by a local community. It can also be used by specific interests (or stakeholders) to clarify their views on a proposal before meeting with other interest groups.

Steps in using the tool

- A number of specific aspects/topics to be evaluated are identified and listed one below the other on a blackboard or sheet of paper.
- A four-column matrix is drawn on the side of the first column, and the four categories are explained to participants. To this end it may be helpful to phrase the four categories as questions e.g. “What are the good things about this particular service/activity, what has worked well?” (S); “What are the things that have not worked well?” (W); “What chances do we have to make things better?” (O) and “What things might work against us to stop us achieving the opportunities?” (L).
- For each aspect to be evaluated, listed on the first column, the group identifies the strengths, weaknesses, opportunities and limitations, which are recorded in the relevant columns on the side.
- There are two ways to approach this exercise. You can go through all the strengths and then all the weaknesses for all the aspects to be evaluated; or you can go through the four

categories for each item before moving onto the next item. A small test of the process use may help you decide which approach will work best in each instance.

- Where there are different opinions asked about an issue, the facilitator should help the group to reach a consensus. Some points may need to be discussed at length. Comments are recorded on the matrix only after agreement has been reached.



Appendix 12

Sifting Projects by Ownership

Processing Interventions: Projects

1. Sift all projects according to ownership or responsibility using Sec. 17 of the Local Government Code as template. Classify under the following headings:

PPAs	National	Local			Private Sector
		Province	City/Mun.	Barangay	

2. Collect all municipal/city projects and process as inputs to the Local Development Investment Program (LDIP).
3. Distribute the other projects to various levels and sectors concerned.
4. Lobby national projects before your Congressman or directly to NGAs concerned.
5. Invite private investors to take on projects that promise reasonable returns.



Appendix 13

Processing Non-Projects

1. **Collect all non-projects** and check for possible project upgrade.

Criteria:

- If there is a definite output to be produced
 - If there is urgency in the production of the output
 - If the activity is not likely to be repeated within the next three years
2. **If project upgrade is not possible, retain the activity as non-project.**
 - Break down the service or non-project into activity or task components.
 - Match the activity/task components to the existing capacity of the office responsible for carrying out the activity/task.
 - Suggest appropriate actions as needed.

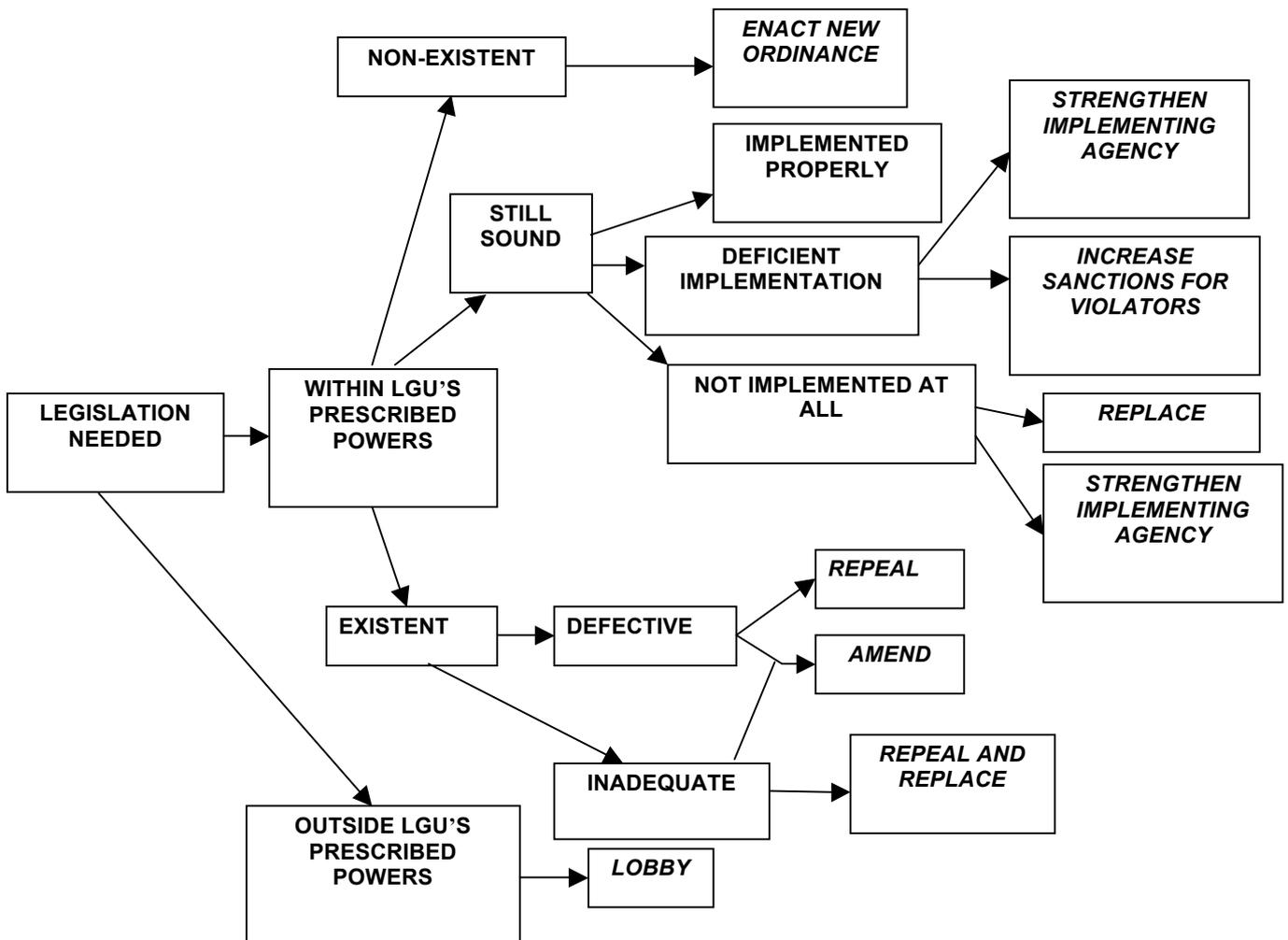
FORMAT FOR FARMING OUT NON-PROJECTS				
Service/Non-Project Proposed	Activity or Task Components	Department/ Office Responsible	Gaps in Capacity of Responsible Dept./Office	Recommended Action

Appendix 14

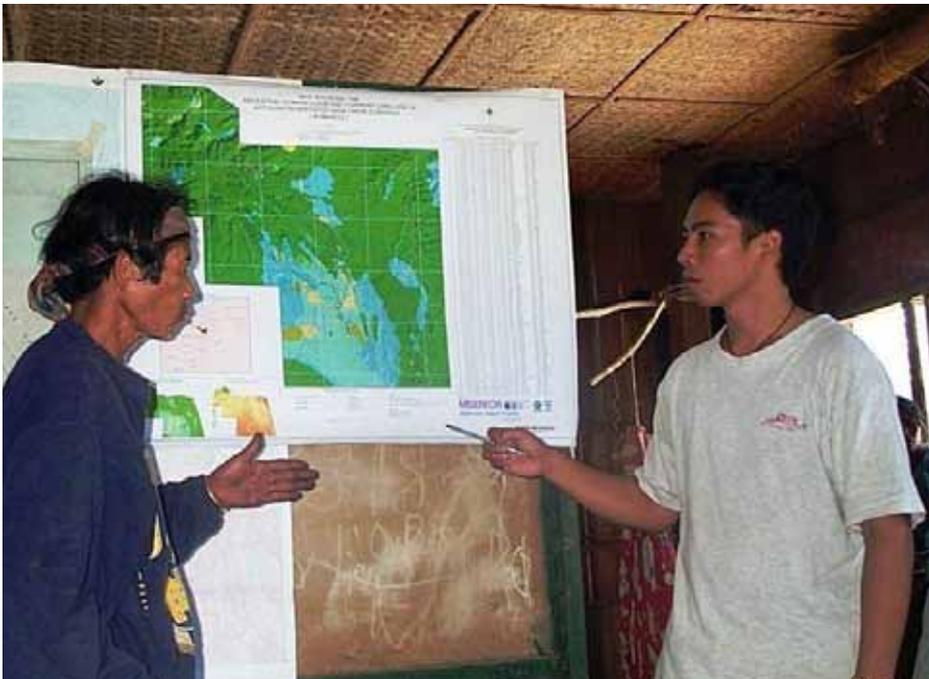
Processing Needed Legislation

Process all needed legislations, separating those that are within the power of the SP to enact. The rest will be lobbied at higher levels, say provincial or national. Sift all the needed local legislations using the fishbone analysis. *Consult the SP Secretary or, if available, the computerized legislative tracking system.*

Identifying Legislations



FORMAT FOR PROCESSING NEEDED LOCAL LEGISLATION						
Ordinance Needed	STATUS			Subject Classification (1-12)	SP Committee for Referral	Possible Sponsorship
	New	Amendment	Replacement			



ancestral domain boundary

Appendix 15

Information Types for PA Planning and Management (De Lacy, et. al, 2006)

Geodiversity inventory

Abiotic features such as mountains, canyons, lakes, waterfalls and rock formations are spectacular features of the landscape that draw visitors to a protected area. The structure and processes of abiotic features shape the aesthetic, cultural and biotic elements of a protected area. Inventory and assessment of the abiotic elements and the overall structure of the landscape are essential in protected area management. As a minimum requirement, the landscape features should be mapped.

The recommended tool for data collection and analysis for this portion is *Landscape Evaluation* preferably led by a geologist.

Biodiversity inventory

It is vital to have in-depth information about the ecosystems and species within a protected area in order to conserve them. For some species, there may be extensive amounts of data, and storing and analyzing this data may be the greatest challenge. For other species, there may be very little known, and primary research will need to be conducted, either by the management organization or by a consultant. Data may include species composition, diversity, distribution, habitat and vulnerability, or it may be time-series data, tracking the effects of factors such as climate change.

A biologist or ecologist is needed for this type of inventory. As a matter of expediency, the team within DENR that conducts the Protected Area Suitability Assessment (PASA) may be called in to undertake the assessment using their own criteria or else, they can also use the criteria proposed by Bryn Green (see Annex ____).

Cultural inventory

Since protected areas are also designated on cultural values, it is important to establish and maintain data on cultural artifacts, sites, beliefs, practices and rituals. Maintaining maps indicating sites of significance assists in planning activities and developing

infrastructure, and can ensure that these sites are not inappropriately intruded upon. Detailed descriptions of these sites should be annotated and maintained. Information can then be provided to front-line managers to assist with management and providing interpretation for visitor groups. Cultural information often has special significance for the local population, as well as being of interest to visitors.

A cultural anthropologist or a historian would be needed as part of the inventory team to conduct the mapping and description of historical and cultural relics that may happen to exist in the planning area.

Traditional knowledge

Traditional knowledge includes inventories of local biological resources, such as animal, bird, insect, local plant and tree species; knowledge about the seasonal cycles of the plants and animals; the indicators of changes in seasons, weather patterns, animal and invertebrate behavior, and flowering, fruiting, and seeding. This frequently comprises knowledge that is integral to the survival of a local community or indigenous people, as well as knowledge that is often useful to scientists and protected area managers.

This inventory and assessment is best performed by the indigenous and local communities themselves. The scientists in the team will assist in the proper documentation and taxonomy of the native species of flora and fauna.

Environmental condition

The condition of the land, including its stability, chance of erosion and likelihood of rock fall or landslides is surveyed as part of the environmental condition of a site. This may be a result of natural processes or generated through human intervention. Threats to the integrity of a natural system, such as degree of pest and weed invasion, need to be documented and managed. Fire fuel load, water quality and quantity, watershed condition, and the health of the wildlife population and vegetation are all considerations relating to the overall condition of the protected area and potentially have considerable management implications. New

developments within or adjacent to protected areas will have an environmental impact that will need to be assessed. Ongoing monitoring of the impacts will be required.

The new techniques of *Strategic Environmental Assessment* will be useful in this aspect of the characterization of the planning area.

Infrastructure and facilities

Protected areas often contain a diverse array of structures and equipment. Some of these relate to visitor use – walking tracks, visitor centres, camping areas, signage and car parks; or for marine areas, jetties, pontoons, marker buoys, and so on. Other incidental infrastructure, such as transmission lines and water storage, needs to be considered by management. Infrastructure is often required to support management activities and may include staff accommodation, power supply, transport systems and telecommunications facilities. In terrestrial areas there is usually an access network of roads and tracks. Some reserves contain resident populations or visitor accommodation that will need to be documented.

The services of a civil engineer in the team will be indispensable in this regard.

Uses by indigenous peoples, local communities and others

Depending upon their category, protected areas can be subject to a range of domestic consumption, livelihood and commercial uses. Examples include scientific research, access to genetic resources, honey production, fishing, water use and harvesting of non-timber forest products (NTFPs) such as rattan. Information is needed to ensure the effective and appropriate management of such uses.

This can be done by the local communities themselves using participatory techniques like transect walk and seasonal calendar.

Visitor use

It is important to monitor the level of visitor use at protected areas. Visitation figures are necessary to estimate environmental impacts and carrying capacity, to make decisions about

infrastructure investments, to calculate the regional economic benefit of parks and to monitor visitor satisfaction. Many protected areas are valuable tourist attractions and visitor monitoring programmes need to be implemented. The impacts of visitors at sensitive sites should also be measured and monitored.

Community inventory

Understanding the local community and its economic, cultural, demographic, employment and social structure is crucial. Much of the data may be available from government (national, regional or local) statistics. Some information can only be obtained by surveys (written, interviews, focus groups, etc.). Human uses – such as business and residential development, hunting, fishing, cutting wood, clearing areas for agriculture and recreation – needs to be considered. In the case of community conserved areas (CCAs) and other protected areas in which indigenous and local communities reside, the community's own understanding of history, biodiversity conservation and sustainable resource utilization is critical.

Social and land-use history

Being informed about the human or social history of the area is invaluable to protected area managers. In combination with the environmental history and the current situation, this information can provide a complete picture of what has occurred in the area. For example, the variety of land uses may help to explain the composition of the landscape. Like cultural resources, social history can be used to provide interpretations for visitors.

Financial management

All management requires effective and transparent financial administration. Consequently, a financial accounting system must be put in place with adequate collection, recording, analysis and presentation of financial data – for example, income, expenditure, inventories, payrolls, reconciliations, assets, balance sheets, profit-and-loss reports and so on.

Appendix 16

Project-Resource Impact Matrix

Proposed Projects	Natural Resources	Human Resources	Infra-structure	Financial	Other Resources	Total Impact	
						(+)	(-)

Rating Symbols:
(+) Indicates that project increases stock or improves quality of existing resources
(-) Shows depletion of stock or reduction in quality of existing resources

How to Use the Project-Resource Impact Matrix

Instructions:

1. List the short-listed projects horizontally.
2. List the resources available in the locality grouped into NATURAL, HUMAN, INFRASTRUCTURE, and FINANCIAL. Put one type of resource at the head of one column.
3. Split the column for total score into two: one for positive scores, and the second for negative.

Rating Procedure:

1. Examine each item in terms of its demand or impact on each type of resources.
 - If the project contributes to an increase in the quantity or an improvement in the quality of the resource, put a positive (+) sign in the appropriate cell.
 - If the project is expected to lead to a decrease in the quantity or lowering of the quality of the resource, put a negative (-) sign in the proper cell.
 - If no effects are seen, one way or the other, put a ZERO (0) in the appropriate matrix cell.
2. Enter the total positive scores and total negative scores in the proper cell.
3. Subtract the total negative from the total positive scores for each project.
4. Reject the projects with net negative scores.
5. Rearrange the projects with the net positive scores from the highest to the lowest. The resulting ranking may be indicative of priority.

Appendix 17

Ranking Projects by Level of Urgency

Levels of Urgency	Criteria
Urgent	<ul style="list-style-type: none"> • Cannot be reasonably be postponed • Would remedy conditions dangerous to public health, safety & welfare • Needed to maintain critically needed programs • Needed to meet emergency situations
Essential	<ul style="list-style-type: none"> • Required to complete or make usable a major public improvement • Required to maintain minimum standards as part of on-going programs • Desirable self-liquidating projects • External funding is available
Necessary	<ul style="list-style-type: none"> • Should be carried out to meet clearly identified and anticipated needs • Needed to replace obsolete or unsatisfactory facilities • Repair or maintenance projects to prolong life of existing facilities
Desirable	<ul style="list-style-type: none"> • Needed for expansion of existing projects • Designed to initiate new programs considered appropriate for a progressive community
Acceptable	<ul style="list-style-type: none"> • Nice to have, but can be postponed without detriment to present operations if budget cuts are necessary
Deferrable	<ul style="list-style-type: none"> • Recommended for postponement or elimination from immediate consideration in the current LDIP • Questionable in terms of over-all needs, adequate planning or proper timing.

Appendix 18

Format and Contents of a Project Brief

1. Name and type of project
 - Must be brief and catchy
 - Short description must be added
 - Project proponent or originator of idea
2. Activity components
 - With indicative duration of each component
 - What are the things that need to be done to produce the desired output?
3. Estimated cost of resource inputs per activity component

Classified into manpower, materials, equipment, etc. by activity component, where applicable and in pesos if possible

Materials	_____
Manpower (Labor)	_____
Equipment	_____
Etc.	_____
TOTAL	Php _____

4. Justification for the project
 1. Rationale / objective derived from the CLUP/ CDP
 2. Indicate the issue being addressed as identified in the plan
5. Target beneficiaries
 1. Population sectors or geographical areas
 2. Specify how they will be benefited
6. Target outputs or success indicators
 1. Quantify if possible
 2. Include indicator of success and means of verification
7. Possible risks or external factors that could frustrate the realization of the project
 1. May be natural, social, economic, etc
8. Expected private sector response
 1. Specify desired private sector response to the impact of the project, esp. investments

Appendix 19

Goal-Achievement Matrix

Using the Goal Achievement Matrix (GAM) for Ranking Alternative Urban Forms

1. List the Alternative Urban Forms in the order corresponding to the numbers in the GAM Form
2. Invite various societal sectors or stake -holders to do the assessment. Each group with not more than 3 representatives shall first assign weights to each of the goals based on the group's perceived importance of each goal to their own interests or advocacies. Make sure the sum of the weights should be 1.00 or 100%.

Sectoral Goals	GOALS	SECT OR ASSIGNED WT.	Alternative Urban Forms				
			1	2	3	4	5
	A home for people who are healthy & who are fair & just in all their dealings	0.15					
	An economy that is competitive & sustainable	0.20					
	An environment that is wholesome, tourist-friendly & ecologically balanced	0.18					
	Support infrastructures that are adequate, efficient & risk sensitive	0.25					
	A local government structure that is capable, responsive & efficient	0.12					
	Optimum contribution of the city to provincial & regional development	0.10					
	TOTAL SCORE	1.00					

Weight given according to the perceived importance of the goal to the interests of a societal sector.

3. Rate each alternative according to its perceived contribution to the attainment of a particular goal using the rating scale given below.

4. Multiply the rating you gave by the corresponding weight of the goal and enter the product (score) in the appropriate cell. After completing one alternative add its scores algebraically then move on to the next.

RATING SCALE

Rate each urban form according to its perceived contribution to the attainment of a particular goal.

- 3 : Urban Form contributes greatly to the fulfilment of goal
 2 : Urban Form contributes moderately to the fulfilment of goal
 1 : Urban Form contributes slightly to the fulfilment of goal
 0 : Urban Form does not contribute to the fulfilment of the goal
 (1) : Urban Form slightly inconsistent with the goal
 (2) : Urban Form moderately inconsistent with the goal
 (3) : Urban Form greatly contradicts the goal

Sectoral Goals	GOALS	SECT OR ASSIGNED WT.	Alternative Urban Forms					
			1	2	3	4	5	
	A home for people who are healthy & who are fair & just in all their dealings	0.15	3					
	An economy that is competitive & sustainable	0.20	3					
	An environment that is wholesome, tourist-friendly & ecologically balanced	0.18	1					
	Support infrastructures that are adequate, efficient & risk sensitive	0.25	2					
	A local government structure that is capable, responsive & efficient	0.12						
	Optimum contribution of the city to provincial & regional development	0.10						
	TOTAL SCORE	1.00						

This is the rating of the project vis-a-vis the goal. (See Rating Scale)

Weight given according to the perceived importance of the goal to the interests of a societal sector.

Sectoral Goals	GOALS	SECT OR ASSIGNED WT.	Alternative Urban Forms					
			1	2	3	4	5	
	A home for people who are healthy & who are fair & just in all their dealings	0.15	3 .45					
	An economy that is competitive & sustainable	0.20	3 .60					
	An environment that is wholesome, tourist-friendly & ecologically balanced	0.18	1 .18					
	Support infrastructures that are adequate, efficient & risk sensitive	0.25	-2 -0.50					
	A local government structure that is capable, responsive & efficient	0.12	1 .12					
	Optimum contribution of the city to provincial & regional development	0.10	0 0					
	TOTAL SCORE	1.00						

This is the rating of the project vis-a-vis the goal. (See Rating Scale)

Sector-assigned wt. X Rating = score

Weight given according to the perceived importance of the goal to the interests of a societal sector.

5. Then enter the total score of each alternative from each stakeholder group in the Summary of GAM Scores and get the "Grand Total Score" of each Alternative Urban Form.
6. Rank the Alternatives with the one garnering the highest grand total score as number one, the next number two, and so on.

Alternative Urban Form	STAKEHOLDER GROUP RATING					Rank
	Bus.	Academe	Women	Gov't	Grand Total Score	
1. Concentrated in Poblacion Only	1.85	.70	1.00	2.80	6.35	5
2. Concentrated in Selected Cluster Centers	0.80	2.50	3.50	1.75	8.55	3
3. Dispersed	1.1	0.35	0.85	3.80	6.10	6
4. Bi-Polar	0.50	2.85	3.75	1.50	8.6	2
5. Urban Ring	2.10	1.25	2.00	2.00	7.35	4
6. Concentrated in Upland Only	2.75	2.00	3.25	0.95	8.95	1

GAM Rating Sheet

Stakeholder _____

Vision/Goals	Weight	Alternative Spatial Strategies				
		A	B	C	D	...n
1. Role of City/Municipality						
a.						
b.						
c.						
2. The City/Municipality as Human Habitat						
a. Settlements, population and social services						
1)						
2)						
3)						
b. Economy						
1)						
2)						
3)						
c. Natural environment						
1)						
2)						

3)						
d. Infrastructure support and built environment						
1)						
2)						
3)						
e. Government institutions						
1)						
2)						
3)						
TOTAL SCORE						
RANK						

Summary of GAM Results

Stakeholders	Total Score Given to Alternative				
	A	B	C	D	...n
Grand Total					
Over-all Rank					

Appendix 20

Preparing Protected Area Management Plans (Adapted from Michael Lockwood)

Establish participatory mechanisms and structures

The type and degree of public participation adopted in a planning project will depend upon the governance arrangements and the approach taken by the planner and management agency. Stakeholders may come together in a formal setting, such as an advisory committee meeting, or a planner may receive in informal deputation or phone call from an interested and sometimes irate individual. In many planning projects, the planner is in the position of being a facilitator or leader of a group of people. For example, the planner might be the convener of a departmental steering committee set up to direct the planning project, as well as an advisory committee made up of representatives of key interest groups.

Groups and individuals who might be included in a participation programme can be drawn from within the department itself, from other government departments and agencies, and from the general public.

Collect relevant data

High-quality information is an important basis for many aspects of protected area management, and area management planning is no exception. Incorrect, insufficient or inadequate resource data can severely hamper the effectiveness and quality of a management plan. However, complete knowledge of a resource is, of course, unobtainable. Collecting and compiling information takes time and costs money, and both of these factors usually place stringent limits on the data collection effort. It is therefore particularly important to concentrate on collecting relevant data. Planning is not about collecting information for its own sake. Comprehensive statistics on visitor activities may be essential for an area with a significant recreation component, while another area may require only general impressionistic information on visitor activities.

After pursuing all potential sources of information, a planner may find that a key area has not been covered adequately. For example, the distribution and requirements of endangered plant species recorded in the planning area may not be known. In this case, the planner has two options.

The required information can be gathered in the course of the planning projects so that it is available to assist management decisions contained in the plan, or the plan can simply specify an action in relation to the collection of this information.

The first option is by far superior because it will enable a management decision to be made regarding (in this case) the endangered species, which can then be integrated within the planning process. This means that there can be public input and discussion of the issue, the options for managing the species, and decisions regarding the preferred management actions. However, time and money may preclude selection of this option and the planner may simply have to include a recommendation in the plan regarding future research on the species.

In some cases, it may be appropriate to publish the resource data collected as a separate document—a resource inventory. This can be particularly valuable in two respects. First, if there has been very little published information available on the planning area it gives interested parties access to relevant information early in the planning process. This can considerably improve the quality and utility of input received from people and groups outside the planning team. Second, it can help the planner to avoid cluttering up the management plan with a large volume of background information. An excess of such information can distract the reader from the plan itself and make the document too long and unwieldy.

Identify and analyze the issues

The process of compiling a resource inventory should provide a good basis for identifying and analyzing problems and issues associated with the planning area. The public participation component of the planning process is also used to identify issues. Issues may involve conflicts between:

- various uses and conservation of natural values—for example, between cattle grazing and conservation of a significant

- species, or building of a major visitor access route and preservation of scenic quality;
- one resource component and another—for example, between an introduced species and a native one;
- various uses and the resource upon which they depend—for example, the quality of a bush camping experience can be diminished by problems of vegetation depletion, rubbish, disposal of toilet wastes and so on that are the result of camping, and
- one use and another—for example, fisherfolk and water-sport users; forest-dwelling peoples and wildlife tourists; bushwalkers and trail bike riders; or water-skiers and swimmers.

Classifying issues according to this framework can assist the planner in understanding the nature and context of the issue. This can be the first step in identifying the underlying cause of the issue or problem. In addition, tackling a problem involving two resource components is likely to require a very difficult approach in comparison to one involving two conflicting uses.

Establish goals and objectives

A *goal* is a general statement of ends. It is not necessarily achievable in the planning period, but indicates the broad ends to which management aspires. Examples of goals that might appear in a protected area management plan are to:

- conserve native plants and animals;
- secure a culturally important site or a site of critical livelihood importance;
- provide a range of recreation opportunities; and
- control pest plants and animals.

Goals, because of their very general nature, are by themselves insufficient for directing management. However, it is still important to specify these broad statements of direction in a management plan.

An *objective* is a statement of realistic, measurable and specific ends to be achieved within a specific period of time. Objectives are required for effective evaluation of a plan since if it is unclear what a plan intends to achieve, it is not possible to determine its

success or failure. Without objectives, a manager cannot know when a particular action achieved the desired result (and therefore move on to achieving other objectives). Nor can the manager discover if a particular action is, in fact, not achieving the desired result, and whether another action should be tried instead. Ideally, an objective should be:

- specific;
- clearly stated;
- measurable;
- realistic; and
- where appropriate, time limited.

Develop options (actions) for achieving objectives

Once goals and specific objectives have been established for each management issue, a planner must explore the possible options for achieving these objectives. Some options will be evident to the planning team from their own professional experience and knowledge of the planning area. Others may be generated through stakeholder and agency staff participation in the planning process. A useful way of getting all of these ideas down on paper is to hold a 'brainstorming' session.

Select actions

Once the range of possible options for achieving each objective has been established, some basis is required for selecting the best option or combination of options. There is a wide range of methods that could be used to test the options:

- professional judgement;
- dialogue involving planners and stakeholders through informal discussion or formal proceedings, such as enquiries or conferences; and
- systematic application of procedures such as benefit-cost analysis (BCA), multi-criteria analysis, impact assessment or voting.

Zoning

Zoning is a technique that involves spatially organizing a planning area to facilitate the achievement of management goals and/or objectives. Zoning can direct management towards achieving specific objectives in certain sub-area in the overall planning area. It can also provide the basis for partitioning the planning area in order to separate incompatible uses and to exclude inappropriate uses from certain areas.

Ideally, the zoning scheme should be developed from a wide range of spatial resource information, including:

- land capability factors, such as slope, soil type and hydrology;
- a general description of vegetation communities;
- sites of botanical and zoological significance;
- sites of cultural and historical significance;
- landscape values;
- recreation activities and opportunities;
- current land uses;
- timber and non-timber forest resources (for a forest management plan); and
- management decisions regarding land use.

Implement the plan

As noted earlier in 'Approaches to planning', effective implementation is a problem that has long plagued the planning process. It is important that in the effort of developing and compiling a management plan, linkages to the implementation phase are not neglected. Processes must be in place to develop detailed budgets and works programmes based on actions specified in the management plan. Such supporting documents indicate the allocation of time, staff and money required to accomplish each task. Works programmes detail who will be carrying out what tasks on what day.

Review effectiveness of actions in achieving objectives

Monitoring the consequences of actions recommended in a management plan enables a planner to determine whether the actions are, in fact, achieving the objectives set out in the plan. Once the actions have been completed and the corresponding action achieved, management can proceed to deal with a new objective. If the action is not making adequate progress towards achieving the related objective, then a new action or series of actions may need to be developed.

Appendix 21

Stages of Systematic Conservation Planning (From Sahotra Sarkar)

Delineate the planning area

Stakeholders must explicitly discuss the precise geographical boundaries of the planning region at the beginning of any planning exercise. Different stakeholders may have different preferences for the boundaries of the planning unit. (Thus the choice of the planning region interacts with the identity and views of the stakeholders. The boundaries of the planning region will typically have a strong influence on what types of data compilation and analysis may be feasible.)

Identify all stakeholders

Conservation plans have little chance of successful implementation if they do not manage to negotiate successfully the socio-political issues relevant to the planning region, incorporate constraints, and take advantage of opportunities. Prospects for successful implementation are enhanced if all the relevant agents participate in the planning process from the beginning. The stakeholders will also have a role in implementing and monitoring a conservation plan at later stages. Stakeholders include biological and other experts. Obviously, the delineation of a planning region depends on the expert stakeholders and the choice of the planning region influences who qualifies as experts and other stakeholders. Though it is often ignored in practice, determining who is a legitimate stakeholder requires attention to normative issues.

Compile and assess data

Conservation planning requires both biological and socio-political data. Sufficient resources are typically not available to collect all the data that would be useful. Data collection, for instance through surveys, should be cost-efficient and focused on those parameters that are the most important. Increasingly, planning is becoming reliant on publicly available resources such as the Global Biodiversity Information Facility (GBIF) and remotely sensed data. What data are most relevant is determined by the study region and the planning goals and objectives.

Treat data and construct models as necessary

Almost all data have inbuilt spatial and other biases that have to be removed through statistical refinement and modeling. In many planning contexts, species' geographical distributions have to be modeled from sparse opportunistic records and modeled environmental data. An extensive methodology has been developed for this purpose.

Identify and evaluate biodiversity constituents and surrogates

Care must be taken to ensure that biodiversity is appropriately represented and quantified. First, appropriate constituents of biodiversity must be selected by stakeholders to represent the most important components of the regional biota that deserve conservation attention. If full distributional information on the biodiversity constituents is not obtainable, as is typically the case, surrogates for them must be identified.

Set explicit biodiversity goals and targets

It is crucial to be explicit about what constitutes adequate biodiversity protection. Quantitative targets of representation must be set for all biodiversity surrogates. Spatial configuration and other goals must similarly be explicitly specified—these goals are typically imposed to enhance the persistence of biodiversity in a conservation area network.

Review existing conservation areas for performance with respect to targets

Prioritize additional areas for conservation management

The existing protected areas, if there are any, must be analyzed to determine the extent to which they already satisfy the specified goals and targets. New areas must be prioritized so that the specified goals and targets may be met when these areas are included in an expanded conservation area network. The problem is one of constrained optimization (as discussed in the text below). This stage may involve only achieving representation targets or may also incorporate other criteria, both spatial and socio-political. If these other criteria are being incorporated, multi-criteria analysis becomes relevant.

Assess biodiversity constituent and selected area vulnerabilities

A selected area may itself be vulnerable, in which case there is usually a poor prognosis for all its biodiversity constituents. Such vulnerability can arise from socio-political factors (for instance, development threat), existing ecological factors, or global change factors (such as climate change). Alternatively, only some of the constituents in the area may be vulnerable because of the quality of the habitat. If those constituents require that area to meet the relevant goals and targets, then the area itself should be considered vulnerable. Assessing vulnerability is typically very difficult. This part of systematic conservation planning remains poorly developed.

Refine the network of selected areas

If vulnerable areas are not entirely irreplaceable, a good strategy is to exclude them from nominal conservation area networks and repeat the area prioritization process. The vulnerability analysis must then be performed again, and the entire cycle must be reiterated until all goals and targets are met in a “safe” set of potential conservation areas.

Carry out multi-criteria analysis

If not all relevant criteria were incorporated at the stage of prioritizing new areas, a multi-criteria analysis must be performed to ensure that these criteria are incorporated into the design. Typically, multi-criteria analysis is done by generating a large number of “solutions” or potential conservation area networks, each of which satisfies the criteria that were used for area prioritization. These solutions are not evaluated and ranked using the other criteria.

Implement conservation plan

A nominal conservation area network must be implemented by devising appropriate management plans and then ensuring that they are put into practice. Implementation plans must take relevant contextual issues into account. While scientific analyses contribute towards devising a plan, implementation is almost entirely a socio-political process.

Monitor network performance

Biodiversity conservation is not a one-off process of delineating conservation area networks that can then be left to persist on their own. Both human encroachments and natural changes can alter the conservation status of a delineated area. Global factors such as climate change also play a role. Consequently, conservation area network performance must be continually monitored, and the planning process must be periodically repeated as part of administration.



IP farming

Appendix 22

**Leaders and Governance Roles in Selected
IP Communities
(Adopted from Domingo, O.Z., 2004)**

Ethnic Groups	Individual Leaders	Governance Role	Council of Elders	Governance Role
Bontoc or Bontok, Bontoc Igorot	amam-a (am-ama; Amama)	<ul style="list-style-type: none"> • individually, has no power to make decisions for the village • member of the council of elders 	intugtukan	<ul style="list-style-type: none"> • hear, review, and make judgment on disagreements among members of an ato • make laws or amend custom laws when they see it • impose fines on villagers based on precedents • impose fines on offenders from other villages that have no peace pacts with them • make peace, accept or reject challenges to war

				<ul style="list-style-type: none"> • release or adopt people who move from one ato to another • schedule the agricultural calendar • advise and counsel villagers who need help (although this is normally handled by the amam-a in a particular ato)
	pinakarsu	<ul style="list-style-type: none"> • go-between or mediator in conflicts with other villages 		
Ifugao or Ipugaw, Ipugao, Yfugao	Monbaga (civil cases)	<ul style="list-style-type: none"> • initiate negotiations in peace-pacts, serve as witnesses in cases dealing with property, mortgages, marriage, and other transactions 		
	monkalun (criminal cases)	<ul style="list-style-type: none"> • to wound or kill the offender, when one party attacks 		

		the other during a period of truce		
	mumbaki	<ul style="list-style-type: none"> • holder of rules of native society • health officer • adviser 		
Kalinga	ap-apu (Buwaya group)			
	pangat (Lubwagan and other groups)	<ul style="list-style-type: none"> • peacemakers or determiners of rights (manlilintog) • provide advice and help on all matters • see to it that every child is properly cared for and provided • choose go-betweens called mangi-ugud • nominate or confirm choice of mangdon si bodong 		
	mangi-ugud	<ul style="list-style-type: none"> • go-between settles disputes between kinship groups • impose punishments while mediation is in process when an existing peace agreement 		

		between kinship groups is violated		
	mangdon si bodong	<ul style="list-style-type: none"> • negotiate/hold peace pact • keep kin of offered party in check 		
Mandaya	Likid (mangkatadong/magtambagay)	<ul style="list-style-type: none"> • counsel and advice • handed down the unwritten laws and customs of the Mandaya to the younger generation during informal meetings 		
	Bagani	<ul style="list-style-type: none"> • adviser of the likid • in the absence of the likid, assumed full responsibility for settling disputes 	angtutukay	<ul style="list-style-type: none"> • review petitions of commoners to redress a wrong or take revenge against another outside the domain by means of warfare • assess the size and strength of a war party being organized, and the number of captives and values

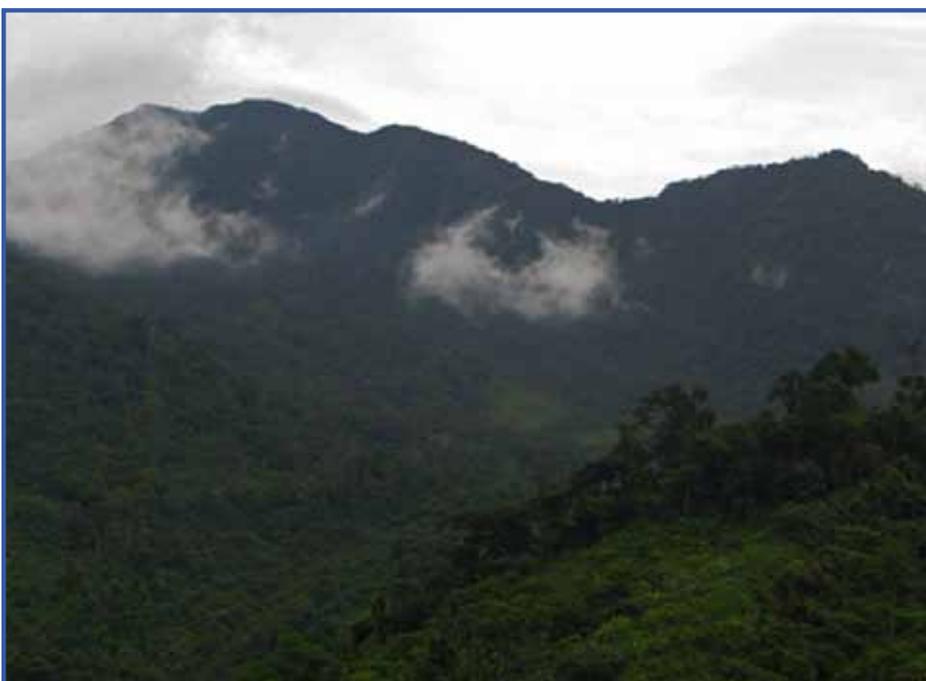
				<p>to be taken up</p> <ul style="list-style-type: none">• acquire additional choice forest areas• hear, arbitrate, and settle all intradomain disputes arising from theft, adultery, violence, rape, murder, etc.• select a bagani successor among the sons of the bagani's first wife if the present warrior chief is unable to rule or had passed away• transmit the demands, needs, and grievances of commoners to the ruling
--	--	--	--	---

				bagani
	Maniklad	<ul style="list-style-type: none"> bagani's adjutant; stood in front of the bagani during a tribal war 		
Mangyan Alangan	kuyay	<ul style="list-style-type: none"> caretaker of the seeds for swidden agriculture and priest at agricultural rites 	Banada (association of kuyays)	<ul style="list-style-type: none"> protector against "social, political, and economic menaces from the Christian lowlanders"
Mangyan Batangan	da:naama	<ul style="list-style-type: none"> caretaker of the settlement; parcels out available land for clearing to each household 		
Mangyan Buhid	fangayatan	<ul style="list-style-type: none"> age, experience, and expertise 		
	gurangon	<ul style="list-style-type: none"> moral leadership; point of reference in the community arbiter in disputes, magico-legal expert 		
Mangyan Hannunuo	only informal leaders		council of elders	<ul style="list-style-type: none"> settles disputes
	panudlakan			
Mangyan	puon-balayan	<ul style="list-style-type: none"> acts on moral 		

Iraya		and legal matters		
Mangyan Tadyawan	pagkatifunan	<ul style="list-style-type: none"> • administrator of justice, arbiter of disputes, decides swidden sites; occasional medicine man 		
Manobo	datu	<ul style="list-style-type: none"> • mediator and arbiter • judge—to hear cases and impose penalties; to ensure that the penalty or fine (tamok or manggad) is paid immediately • maintainer of peace and order within the territory and peaceful relations with other territories and sub-tribes • spokesperson and ambassador of goodwill • provider of the needs of people especially when they face shortages • medium for passing on 		

		<p>traditional values to succeeding generations</p> <ul style="list-style-type: none"> religious performer to marry couples (and raise the bridal dowry if the groom cannot afford it); to invoke gods and goddesses during calamities; and to give marital advice or to help raise the economic requirements for the aggrieved party in a divorce 		
	datu manigaon			
	manigaon	<ul style="list-style-type: none"> settle disputes in accordance with the customs, traditions, and practices 		
	bae	<ul style="list-style-type: none"> mediating over minor disputes; giving advice on a variety of issues; managing economic activities of the 		

		community; provides the opportunity for women to participate in discussions about community issues		
Maranao or Maranaw	solotan or sultan and datu	<ul style="list-style-type: none"> settles disputes, promotes peace and order, performs traditional rites, and assists in religious ceremonies 		
T'boli	datu	<ul style="list-style-type: none"> interpretation of T'boli laws and settling intertribal disputes 		



Sacred site Palawan

Appendix 23

Impact of Climate Change on Indigenous People Living in Tropical and Sub-tropical Ecosystems

There are more than 1,400 distinct indigenous peoples in these ecosystems, most of whom are hunters and gatherers living in the world's tropical rain forests and rotational agriculturists or shifting cultivators. Most of forest peoples, majority of whom are indigenous peoples, are highly dependent on forest ecosystem. There are also fisherfolks and lowland farmers found in the plains of these ecosystems. Such ecosystems are found in Asia, Latin America, Africa and some parts of Australia. Most of the countries where these ecosystems are found are considered as mega-diverse countries. Climate change brought about the following:

- The practice of rainfed agriculture which characterizes rotational agriculture or swiddening is highly disturbed because of infrequent rains, shorter wet seasons or prolonged monsoons leading to lower crop yields exacerbated by longer lives of pests and occurrence of new pests. Seed germination and seed life are altered. Schedules and performance of cultural rituals which accompany agricultural seasons from planting, weeding to harvests are disturbed.
- Changes in the behavior and migration patterns of birds which have been traditionally used to guide hunters and mark agricultural seasons causing disorientation of hunters and gatherers and shifting cultivators.
- Worsening drought conditions and desertification, leading to lesser availability of drinking water, increased numbers of forest fires causing rapid loss of forest cover, adverse impacts on indigenous land rights and gathering livelihoods; and a serious loss of biodiversity, including traditional medicinal and ritual plants.
- Changes in habitation of living areas and movements away from communities beset with diseases, areas prone to landslides, droughts or floods have caused cultural disruptions because sacred areas or groves have to be abandoned, practice of traditional livelihoods cannot continue any longer and cultural rituals related to agricultural and forestry practices are practiced less and less. Land rights and customary land tenure systems are undermined and violated.

- Rainfall has become infrequent and unpredictable causing changes in flood patterns of rivers affecting the regular routines of indigenous peoples, particularly women and children, who catch fish and other water creatures for food.
- Increase in incidences of vector-borne diseases, such as malaria and dengue fever, because of increasing temperatures and deforestation. Warmer forests are favorable habitats for mosquitoes acting as vectors. New diseases such as meningitis, which were not endemic and widespread, emerged in Ghana and other tropical countries.
- Increased flood in low lying areas because of deforestation has led people in those areas to evacuate or adopt their lifestyles to constant flooding.

Sibura



Appendix 24

Impact of Climate Change on Indigenous People Living in Coastal and Marine Ecosystems

Sea level rise due to melting of glaciers and sea-ice and the expansion of water because of a rise in temperature results in the following:

- Cause some low-lying coastal areas to become completely submerged, while others will increasingly face short-lived high-water levels. These anticipated changes could have a major impact on the lives of indigenous peoples. They may have to be relocated outside of their traditional territories.
- The small island developing states (SIDS) will be especially vulnerable to the effects of sea level rise, and to changes in marine ecosystems, because of their major dependence on marine resources (UNEP, 2002).
- The sea has an enormous capacity to store heat. Warmer water, combined with anticipated changes in ocean currents, could have a devastating impact on marine ecosystems and biodiversity.
- One potential result could be a reduction in the upwelling of nutrients and phytoplanktons, which would in turn reduce productivity in key fishing areas where many indigenous peoples live.
- Decreased growth may also be seen in coral reefs, with high concentrations of carbon dioxide in the water impairing the deposition of limestone required for coral skeletons (UNEP, 2002). Island communities, who rely on coral reefs, will be especially vulnerable.
- Coral bleaching due to warmer sea temperature causes uncertainty and loss of livelihoods of fisherfolk because of difficulties in maintaining the viability of fish and other marine flora and fauna.
- Loss of coral reefs decreases marine life, undermines shoreline protection and loss of medicinal plants which depend on coral reefs.
- Coastal erosion is exacerbated by sea-level rise; stronger hurricanes and typhoons lead to loss of land and property and dislocation of indigenous peoples. The phenomenon of indigenous peoples becoming environmental refugees have

emerged. The issue of what rights are they entitled to come into the picture as they get displaced from their traditional territories are forced to move to other countries or territories.

- Loss of mangrove forests destroys the shield against strong typhoons, tsunamis, strong tidal waves. This has also meant the loss of vital marine life which are essential for the subsistence of indigenous peoples. Food insecurity due to difficulty of maintaining viable fish populations has worsened.
- Vector-borne and water-borne disease outbreaks have occurred due to flooding and rising temperatures, and destroyed sewage and drainage systems. These diseases include dengue fever, malaria, cholera, among others.
- Salt water intrusion on ground water have caused the salinization of freshwater resources. Water insecurity becomes worse which easily leads to conflicts between indigenous peoples and between them and others. Their water rights are undermined and the practice of water-related cultural rituals and ceremonies is also affected.
- The effect of climate change on coral reefs and on plant life on the island affects the gathering of such plants for traditional medicines, therefore, the continuation of traditional practices is threatened.
- Changes in rainfall patterns make the peoples' traditional knowledge on when to plant crops and what crops to plant already unreliable.



cpm big tree



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