

NATIONAL INTEGRATED PROTECTED AREAS PROGRAMME

NIPAP

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MT. PULAG NATIONAL PARK

GENERAL MANAGEMENT PLAN

VOLUME I

DESCRIPTION, ANALYSIS AND PRESCRIPTION¹

AUGUST 2000

This General Management Plan represents the professional opinion of the NIPAP Directorate as advised by the NIPAP technical staff and consultants. The Directorate is confident that the plan represents the best current management option given the present level of technical knowledge, the NIPAS-inspired participation processes that have taken place and, not least, the urgent need to have a management policy now, for conserving the valuable ecological resources of Mt. Pulag. Nonetheless, the Directorate also stresses that the plan is not the last word but merely a Way Forward.

¹ Volume II contains the Appendices

FOREWORD

Message of Hope

Mt Pulag is a beautiful mountaintop where there are no trees but only grass. The grass, flowers, deer, birds and other animals living in Mt Pulag are protected by unseen beings who own them. That is why a hunter must ask permission from Kabunian when hunting. A hiker must also seek consent from unseen beings whenever he urinates or answers the call of nature. And whatever a man does while in Mt Pulag, somebody is watching him. He is called Kabunian. They say that when you keep on shouting while in Mt Pulag, it will rain. When you harm the park like leaving trashes, you are inviting bad luck because you made the home of the unseen being dirty. And when you eat, you should invite those unseen beings. When I heard this story, I was scared. But I was told that there is nothing to be scared unless you do all the things that you should do.

When I grow up a little more and able to hike to Mt Pulag, I would like to see the beauty of Mt Pulag. I would like to see the sun rise. I have never seen a beautiful sun rise. I would like to feel the cold fresh air, walk on the moss covered trail, see a deer, hear the birds, smell the blooming orchids, and see the mountains and places all around. I would like to climb Mt Pulag, the top of the world someday.

I hope that by that time, I will still see the beautiful sun rise, walk the moss-covered trail, smell the blooming orchids, hear the chirping birds, and watch the grazing deer, cloud rats hanging on old oak trees. And I will smell fresh air, drink clean water and enjoy life in Mt. Pulag.

- JESTON MABLAY -
Grade Six Pupil of Kabayan Central School
Poblacion, Kabayan, Benguet

PREFACE

The Mt. Pulag National Park General Management Plan contains recommendations on management approaches to be implemented from year 2000 to 2004. It is based on the strategies laid out in the Management Framework informally adopted by the *Core Group*: PAMB members who volunteered to help draft the Management Plan. The management plan has been prepared in accordance with Republic Act 7586 otherwise known as the National Integrated Protected Areas System (NIPAS) Act of 1992, which seeks to establish protected areas as initial components of the System.

The Plan consists of three main sections: description, analysis and prescription. The description part lays out the facts and figures that highlight the features and attributes of Mt Pulag. The analysis part identifies the various issues, problems and threats and lays down the strategic options to pursue the Protected Area mission. The prescription part identifies the specific actions to address the management goals and objectives stated in the analysis.

The content of this plan was deduced from the series of community consultations and public hearings conducted within the Protected Area. The insights, ideas and propositions of the communities were systematically put into order to capture their common views for the sustainable management of Mt Pulag.

This document was prepared with the assistance of the National Integrated Protected Areas Programme (NIPAP), a special project of the Department of Environment and Natural Resources, with funding assistance from the Government of the Philippines and the European Commission. NIPAP is a 5-year project working within the framework of the NIPAS Act. The program seeks to establish eight priority protected areas in the country, one of which is Mt. Pulag National Park located within the Provinces of Benguet, Nueva Vizcaya and Ifugao.

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ACRONYMS

ADMP	Ancestral Domain Management Plan
BSAT	Benguet School of Arts and Trade
CADC	Certificate of Ancestral Domain Claim
CALC	Certificate of Ancestral Land Claim
CAR	Cordillera Administrative Region
CASCADE	Caraballo and Southern Cordillera Agricultural Development
CECAP	Central Cordillera Agricultural Programme
CENRO	Community Environment and Natural Resources Office
CHARM	Cordillera Highland Agricultural Resource Management
CLOA	Certificate of Land Ownership Award
DAO	Department Administrative Order
DAR	Department of Agrarian Reform
DECS	Department of Education, Culture and Sports
DENR	Department of Environment and Natural Resources
DFNS	Debt-For-Nature Swap
DOH	Department of Health
DOT	Department of Tourism
DPWH	Department of Public Works and Highways
DSWD	Department of Social Work and Development
EC	European Commission
EO	Executive Order
EU	European Union
FPE	Foundation for the Philippine Environment, Inc.
GMP	General Management Plan
ICCs	Indigenous Cultural Communities
IPAF	Integrated Protected Area Fund
ITAG	Igorota Tribal Assistance Group
JVOFI	Jaime V. Ongpin Foundation, Inc.
LGUs	Local Government Units
LREP	Land Resources Evaluation Project
NEDA	National Economic and Development Agency
NGO	Non-Governmental Organization
NIA	National Irrigation Administration
NIPAS	National Integrated Protected Areas System
NPC	National Power Corporation
NTFP	Non-timber Forest Product
PAMB	Protected Area Management Board
PASA	Protected Area Suitability Assessment
PASu	Protected Area Superintendent
PAWB	Protected Area and Wildlife Bureau
PAWD	Protected Areas and Wildlife Division
PENRO	Provincial Environment and Natural Resources Office
POs	People's Organizations
PPDO	Provincial Planning and Development Office
SRPAO	Survey and Registration of Protected Area Occupants

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The production of this General Management Plan would not have been possible without the dedication and persistence of the Kalanguyas, Ibalois, Kankanaeys, Karaos and other Indigenous Peoples of Mt Pulag who participated in the conduct of consultations and public hearings from where the ideas, concepts and insights of this manual were derived.

Grateful thanks are extended to the members of Protected Area Management Board particularly to the Core Group who contributed critical inputs to this plan.

Acknowledgement is also given to the guidance and leadership of the DENR-Cordillera Administrative Region particularly the Protected Areas and Wildlife Division (PAWD). PAWD Chief Leo Viray and his staff have been consistently behind the production of this plan.

The PAO staff headed by former PASUs Jude Accos and Lucy Exconde and incumbent PASU Emerita Tamiray for their dedication and support (technical, logistical, moral) for the completion of this plan. Appreciation is also given to Dorothy Pucay for sharing valuable inputs and editing this GMP.

And to all individuals who have played a part directly and indirectly in the production of this plan, **thank you very much.**

SUMMARY

1. Mt Pulag National Park was proclaimed in February 20, 1987 by virtue of Presidential Proclamation No. 75. It was also partly or wholly covered by other proclamations – Proclamation No. 217 in 1920 and Proclamation 548 in 1969. In April 2000, Proclamation No. 268 established the Upper Agno River Basin Resource Reserve which covers the environs of Mt Pulag National Park. As an initial component of the NIPAS Act the area is currently being established as a protected area under the NIPAS framework.
2. Mt Pulag National Park covers approximately 11,550 hectares of public domain that lies on the north and south spine of the Grand Cordillera Central Mountain Ranges. It straddles portions of the provinces of Benguet, Ifugao and Nueva Viscaya. The specific areas include portions of the municipalities of Bokod, Kabayan and Buguias in Benguet; the municipality of Tinoc in Ifugao; and the municipality of Kayapa in Nueva Viscaya
3. Mt Pulag is one of eighteen sites identified as ecosystems and habitats containing high plant diversity in the country. It has floral affinities with those of temperate continental Asia, Australasia and to some extent Peninsular Malaysia. Studies showed that Mt Pulag contains 528 plant species, 42% of which are endemic to the area.
4. The park is the habitat of 76 bird species, 14 of which are migratory, 9 endemic to Luzon and 30 endemic to the Philippines. Also, 14 bird species have a global distribution of less than 50,000 km² and 9 are threatened. In addition, there are several threatened mammal species which includes the Philippine Brown Deer, Northern Giant Cloud Rat, and Long-haired Fruit Bat.
5. Mt. Pulag is an important watershed providing the water necessities of many stakeholders for domestic and industrial use, irrigation, hydroelectric power production and aquaculture.
6. Mt Pulag is inhabited by the Kalanguyas, Ibalois, Kankanaeys, Karaos and other ethno-linguistic groups. In 1995, the total population of the 13 barangays comprising the park was 12,613. with an average annual growth rate of 4.14% from 1980-1990 and 1.7% from 1990-1995.
7. The threats and constraints to Mt Pulag include the expansion and encroachment of agricultural farms, timber poaching and wildlife hunting, unregulated tourism, infrastructure development, bio-prospecting activities, overlapping of tenurial instruments and the detrimental influence of economy of supply and demand particularly on the diverse indigenous resource management and practices.
8. The park is administered by the Interim Protected Area Management Board representing 33 local stakeholders. The Protected Area Office (PAO) has 19 full-time staff including 5 DENR-detailed personnel. The PAO is headed by the PASU who implements the day-to-day management of the park.
9. The mission which was derived from the outcome of consultations and public hearings from the communities seeks “ to strive for a community based protected area based on indigenous knowledge systems that sustain and conserve the cultural and biological diversity of Mt. Pulag.”
10. The prescription is based on 9 field programs, each with a goal designed to support the mission, long-term and short-term objectives, and actions as basis for the preparation of the work plan for the protected area and valid for the duration of the plan (2001-2004).
11. A system of zones will be established in accordance with the NIPAS law and traditional zoning system. Sustainable resource utilization will be ensured using indigenous management systems. All activities will be participated in by local communities.

12. PA policies and regulations will be strengthened and integrated into those of the LGUs and other agencies working in the area and properly enforced. Fire protection and management will be integrated in the overall management of the PA. Close coordination will be maintained with the municipal Philippine National Police and civil authorities.
13. Researches will be undertaken to support the other programs of PA management. The priority studies include biodiversity, agroforestry, watershed, natural resource valuation, and indigenous resource management. The academe and research institutions will be tapped to strengthen research capabilities and generate management support and resources. Information available to PAMB and decision makers will be improved through the institutionalization of the biodiversity monitoring system and development of database for biodiversity information.
14. An effective information system will be developed to update the stakeholders on PA management. Information will be disseminated through reports, popular newsletters and other forms of mass media. PA management and environmental education will be integrated into the curriculum of local schools and social action programs of religious organizations.
15. Alternative livelihood, agroforestry and other sustainable upland farming techniques will be promoted to reduce pressure on the PA. Community-Based Forest Management will be established to promote the sustainable management of forest resources. Waste disposal and management will be taught to the various communities. Cultural traditions and traditional resource uses will be sustained and integrated in PA policies.
16. Ecological tourism will be promoted and developed through interpretative media such as brochures, signages, orientation talks, trail identification and management, and waste management. Local tour guides will be trained and accredited. The carrying capacity of the tourist areas will be set.
17. All PA policies and regulations will be integrated into the policies of various stakeholders and local government units. Linkages and networks will be established and strengthened. Regional line agencies will concur with the PAMB and the policies of the PA plans and programs. The Environmental Impact Assessment will be strictly enforced in all major development undertakings in the PA.
18. The PA management and operations will be strengthened by training the PAMB and improving the capabilities of the PAO staff. Volunteer groups will be organized, trained, deputized and mobilized to complement the implementation of various PA activities. Necessary logistics will be provided. PA offices and infrastructures will be constructed. The legal requirements for the establishment of the protected area pursuant to the NIPAS Act will be accomplished.
19. A financial scheme will be developed to sustain the long-term operations of the PA. Various line agencies will be tapped to support the different programs. Revenues will be generated from the potential users of the PA services and resources. The PAMB will devise a mechanism for the efficient and effective use of the Integrated Protected Area Fund (IPAF).

INTRODUCTION

This document elaborates on the management strategy based on the Management Framework informally adopted by the Core Group¹. The strategy defines the direction management will take over the long term. The document also details the actions to be implemented in the three years following its adoption and approval, the target being 2001-2004.

The General Management Plan (GMP) has three main sections: description, analysis, and prescription. The description states the facts about the park that are used as basis for the detailed and specific management strategies deemed appropriate in the area. Errors or omissions, if any, should be simply corrected. Any disagreement about something, e.g. boundary, should be stated without judgment.

The analysis intends first to reveal, as uncontroversial as possible and without judgment, the current situation in the area. The analysis then considers different strategies for dealing with those problems, and states which strategies to follow in the plan. Arguments in this section were based on the various consultations and public hearings conducted.

The prescription is the meat of the GMP. It defines exactly what is to be done in terms of objectives and actions. It takes the form of nine programs, each with a goal. Collectively, the goals are long-term and designed to achieve the mission. Each goal has one or more general objectives. These general objectives, called program objectives, are medium term and may be modified after a number of years as conditions change. The specific objectives are the working objectives which are to be achieved within the planned period. Thus the program objectives provide continuity between successive revisions of the GMP, while the specific objectives are re-designed with each revision of the GMP. Actions are listed under each specific objective. These actions are the basis for the work plan of the protected area to be prepared by the Protected Area Superintendent (PASu).

Although the NIPAS Act vests management authority of the Mt. Pulag National Park in the DENR, the Act makes extensive provisions for the stakeholders' involvement in direct management through the Protected Area Management Board (PAMB). The PAMB which represents the members of the communities within the Park is responsible for the administration of the park, and must endorse the GMP.

¹ PAMB members who volunteered to assist in the drafting of the General Management Plan.

1 DESCRIPTION

1.1 Background and Legal Status

Mt. Pulag and adjacent mountain ranges was proclaimed as a National Park by virtue of Presidential Proclamation No. 75 on February 20, 1987. The park covers approximately 11,550 hectares of public domain in the municipalities of Bokod, Buguias and Kabayan in the province of Benguet; Tinoc in Ifugao Province and Kayapa in the province of Nueva Viscaya. Prior to Proclamation No. 75, Mt. Pulag National Park was partly or wholly covered by other proclamations. Proclamation No. 217, series of 1920 included the present park as part of the Central Cordillera Forest Reserve. In April 19, 1969, Proclamation No. 548 established the Ambuklao-Binga Watershed Forest Reservation, which also included portions of the park. However, Proclamation No. 268 issued on April 23, 2000, establishing the Ambuklao-Binga Watershed Forest Reservation as Upper Agno River Basin Resource Reserve within the framework of the NIPAS Act, excluding the portions encroaching within Proclamation 75, now supercedes Proclamation No. 548.

Mt. Pulag National Park² was established to protect and preserve the natural features of the area such as its outstanding vegetation and wildlife. It likewise aims to protect the vital interests of the communities dependent on the water catchment's function of the area which supply them with vital water for irrigation, drinking water and hydroelectric power.

In September 1990, Mt. Pulag National Park was one of the sites chosen for the three-year *World Wildlife Fund-US Debt for Nature Swap Programme*. The Programme, initially implemented by the Haribon Foundation and later by the Philippine Business for Social Progress, sought to establish an independent administration and supervision for the park that would focus resource protection and law enforcement; visitor management and development; research studies and resource restoration; and, community organization and information/awareness. However, during the two years of the project, activities were limited to park protection and Information and Education Campaigns (IEC).

From 1994-1995, a grant from the Foundation for Philippine Environment allowed for the continuation of activities on park protection and IEC initiated through a tripartite agreement between the Department of Environment and Natural Resources (DENR), the Igorot Tribal Assistance Group, and the municipality of Kabayan. During that period, the Protected Area Suitability Assessment (PASA), Resource Basic Inventory (RBI), Survey and Registration of Protected Area Occupants (SRPAO) and Initial Protected Area Plan (IPAP) were prepared in support to the requirements needed to proclaim the park as a NIPAS site. When the project ended, the management of Mt. Pulag was placed under the Protected Areas and Wildlife Division under the DENR-Cordillera Administrative Region (CAR).

The National Integrated Protected Areas Programme (NIPAP) was the most recent project to operate in Mt. Pulag National Park. A special project under the DENR, funded by the European Commission and the Government of the Philippines, NIPAP started providing assistance in 1997 to help protect, conserve and manage the natural habitats and biodiversity of the area. Today, the establishment of Mt. Pulag as a Protected Area under the NIPAS Law is the priority activity in the area.

² The official name of the park, as written in the proclamation, is Mt. Pulog National Park. In 1996, the PAMB members approved Resolution No. 1, titled "Changing the name of Mt. Pulog National Park to Mt. Pulag National Park". Mt. Pulag has since been used.

1.2 Location and Boundaries

Mt. Pulag National Park lies on the north and south spine of the Grand Cordillera Central that stretches from Pasaleng, Ilocos Norte to the Cordillera Provinces. The park is situated at 16° 30' 36" north longitude and 120° 50' 20" east latitude (Figure 1: Location map). The park boundary follows the technical description defined in Proclamation 75 enclosing approximately 11,550 hectares of public domain with altitudes ranging from 1100m to 2922m. It falls within the administrative jurisdiction of two Regions: Cordillera Administrative Region (CAR) and Cagayan Valley (Region 2), three provinces, Benguet and Ifugao in CAR and Nueva Vizcaya in Region 2, and five municipalities, Bokod, Buguias and Kabayan in Benguet, Tinoc in Ifugao and Kayapa in Nueva Viscaya.

The park is located 85 km northeast of Baguio City. It can be reached via a national highway leading to the western portion of the park, Kabayan Poblacion. From the national highway, an unscaled side road, running from Ambangeg to Babadak, is the main access to the park in the south; this was established by the Benguet Corporation Bobok Timber Project as a logging road in the 1960s. Nine kilometers north of Kabayan Poblacion, another side road leads to Brgy. Ballay, then to Brgy. Tawangan proper, bisecting the northern portion of the park. A web of foot trails criss-crosses the park. Trails start either at the foothills or the middle of the mountains where the road system ends.

1.3 Physical Geography

1.3.1 Topography

The whole park is located within the Philippine Cordillera Mountain Range and is very rugged, characterized by steep to very steep slopes at the mountainsides and generally rolling areas at the mountain peaks (Figure 2: Topographic map). The park embraces three closely clustered, rugged and steep mountains that have watercourses running through sharp slopes. Almost the whole park has a slope greater than 50% (Figure 3: Slope map). These three mountains are Mt. Pulag (2,922 m), Mt. Tabeyoc (2,819 m), and Mt. Panatoan (2,650 m). Four other peaks in the park rise to more than 2, 200 m. Caves are found in several places. Mt. Pulag is the most prominent feature of the National Park. It is the highest peak in Luzon and the second highest mountain in the Philippines.

1.3.2 Geology and Soils

Benguet Province is generally composed of mountainous topography owing to the Philippine Cordillera Range. The area is uplifted by tectonic stresses forming high and steep slopes (Figure 3). Mt. Pulag, identified as an extinct volcano, is capped by impressive and massive lava flows. Its rim, down to the middle part of the slope, is thought to have been extruded during the late Pliocene to Early Pleistocene. Andesite and dacite lava flows intercalated with pyroclastics constitute the rock type of this unit, and their chemical composition ranges from intermediate to basic. Volcanic rocks of andesite origin are gray when fresh and reddish yellow to reddish brown when weathered.

The soils of the park are classified into two groups: mountain soils and the soils with high content of swelling clays. The mountain soils are composed of entisols, inceptisols, ultisols and alfisols. The entisols are soil of recent origin and are usually wet, moist or dry. They can be highly productive or infertile soils.

Productivity varies greatly depending on their location and properties. The inceptisols are soils that exhibit minimal horizon development. They are often found in fairly steep slopes. Ultisols are acid soils with relatively low native fertility that have formed under forest vegetation. This type of soil has yellowish or reddish color due to formation of iron oxide and cannot be used for continuous agriculture without use of fertilizer and lime. The alfisols are forest soils with relatively high native fertility.

1.3.3 Climate

Benguet Province falls under two climatic types. The northeastern part, where Mt. Pulag is located, is under Type III – no pronounced maximum rain period, dry from November to April and wet the rest of the year. The Philippine Atmospheric Geophysical and Astronomical Services Administration (PAG-ASA) meteorological data of Benguet from 1988 to 1999 shows that heavy rains fall from April until October; it is dry from November to March (Table 1).

Data shows that the province has a mean annual rainfall of 3,921 mm, ranging from 2,617-4,968 mm. in the past 12 years. Rainfall was highest from July to September while the driest were December to February. The lower areas at the southern and western portion experience a lower annual rainfall as compared to the higher areas from central to the eastern portions up to Mt. Pulag because of the high mountain ranges.

Temperatures range from 16 to 20°C, with the hottest months from March to July and the coldest from December to February. In January and February, the highest elevations are normally covered with frost while the water bodies develop ice mantles during extremely low temperatures.

Relative humidity ranges from 80% from December to February to a high of 96% during the months of August and July.

Table 1. Mean Temperature, Humidity and Rainfall in Benguet Province, 1988-1999.

Months	Rainfall (mm)	Temperature (°C)	Humidity (%)
January	9.4	18.1	84.74
February	24.9	18.6	84.81
March	73.5	19.8	85.61
April	258.3	19.8	84.44
May	287.6	20.5	88.38
June	426.3	20.4	89.07
July	846.0	19.8	91.11
August	604.5	19.5	91.79
September	681.2	19.5	89.57
October	595.6	19.6	89.16
November	92.8	19.0	86.28
December	21.0	18.2	83.90
TOTAL/AVE.	3921.2	19.4	87.4

1.3.4 Hydrology

Several tributaries originating from Mt. Pulag flow into two major river systems: the Agno in the west and the Catnaan in the east (Figure 4: Drainage map). Other tributaries in the southern part of the park join other streams and rivers flowing to Bambang River in Nueva Viscaya. The Agno River originates from the Buguias municipality, then flows toward the south to feed the Ambuklao Hydroelectric Power Plant in Bokod and the Binga Hydroelectric Power Plant in Itogon. It exits at the southern part of Benguet and joins the sea at the Lingayen Gulf in Pangasinan. The Catnaan River serves as the depository of all major headwaters from the northeast part of the park including Tinoc in Ifugao, Tawangan and Lusod, both in Kabayan and from the southeast barangays covering portions of Balete in Kayapa. The river flows east to join the Ifugao River which in turn feeds its waters into the Magat Hydroelectric Power in Isabela.

As a watershed, Mt. Pulag provides the water necessities of many stakeholders for domestic and industrial use, irrigation, hydroelectric power production, and aquaculture.

1.4 Biology

1.4.1 Biogeography

The Philippines is divided into 15 biogeographical units based on the floristic, faunistic and geological composition of geographical areas in the country. Mt. Pulag belongs to the Cordillera Biogeographic Zone located in Northern Luzon (Figure 5: Biogeographic Zones). It is generally a long and rugged mountain chain stretching across the central part of Northern Luzon and Nueva Vizcaya and is characterized by flora and fauna adapted to high altitudes.

1.4.2 Land Cover

Mt. Pulag is one of the eighteen sites identified as ecosystems and habitats containing high plant diversity in the country (NBSAP, 1997). The three prominent vegetation zones are: the pine forest, the mossy forest and the grassland summit. The Benguet pine (*Pinus kesiya*) forest occupies the lower slopes of the mountain up to about 2,300m, with a percentage cover of 18%. Higher up the elevation is the mossy forest, which is dominated by tree species from the families *Fagaceae*, *Podocarpaceae*, *Lauraceae* and *Euphorbiaceae*. The mossy forests cover almost half of the entire protected area. Right above the mossy forest is the dwarf bamboo-covered grassland summit, which has gently rolling hills and slopes. The grassland that covers the summit is around 800 hectares or 7% of the total land area while the cultivated/residential area covers 25% (Table 2; Figure 6: JAFTA Land Cover map).

Table 2. Land cover and corresponding area within the park.

Land Cover	Area	
	Hectares	%
Pine Forest	2,047	17.72
Openland/ Grassland	804	6.96
Residential/Cultivated	2,877	24.91
Mossy Forest	5,822	50.41
TOTAL	11,550	100.00

Source: Integrated Protected Area Plan (IPAP), DENR, 1994

1.4.3 Flora and Fauna

The flora of Mt. Pulag has affinities with those of temperate continental Asia, Australasia and, to some extent Peninsular Malaysia. The study conducted by Merrill and Merritt in 1910 lists a total of 528 species, with the following breakdown: 57 bryophytes, 91 fern species, 3 gymnosperms and 377 flowering plants (Table 3). A total of 224 species has been identified as endemic to the area. This indicates that 42% or almost half of the plants is endemic to Mt. Pulag. These figures being out of date should be cited with caution because of several taxonomic changes in the past years, but the data is still used to indicate the high level of endemism in the flora of the area.

Table 3. Summary of the Mt. Pulag flora based on the study of Merrill and Meritt (1910)

Order	No. of families	No. of Genera	No. of Species	Endemic Species	
				No.	%
Bryophyta	3	43	57	19	33.3
Pteridophyta	7	41	91	30	30.8
Gymnospermae	2	3	3	1	33.3
Angiospermae	82	270	377	174	46.7
TOTAL	94	357	528	224	42.4

Studies on the fauna of Mt. Pulag have been focused mostly on birds. A total of 76 bird species was recorded in Mt. Pulag National Park (Jensen et al 1994). This figure includes 14 migratory visitors and one or two introduced species. Of the recorded bird species, 30 are endemic to the Philippines and nine (9) are endemic to Luzon. Fourteen species have a global distribution of less than 50,000 km² (restricted-range species). Mt. Pulag is host to twenty-four percent (24%) of the total resident breeding bird species in the Luzon Island and thirty-two percent (32%) of the total Philippine endemics. Eight species of birds are listed as threatened and are facing threats due to habitat loss (Table 4).

Table 4. Threatened Bird Species in Mt. Pulag National Park

Species	Common Name	Local Name	Status
<i>Ptilinopus marchei</i>	Flame-breasted Fruit Dove	Balog	Vulnerable
<i>Prioniturus montanus</i>	Luzon racquet-tailed parrot	Ulih	Vulnerable
<i>Otus longicornis</i>	Luzon scoops-owl	Ahop	Vulnerable
<i>Bubo philippinensis</i>	Philippine eagle-owl	Ahop	Endangered
<i>Pitta kochi</i>	Whiskered pitta	Kong-kong	Vulnerable
<i>Rhyacornis bicolor</i>	Philippine water redstart	King-king	Endangered
<i>Rhinomyias insignis</i>	White-browed jungle-flycatcher	-	Endangered
<i>Stachyris whiteheadi</i>	Chestnut-faced babbler	-	Near-threatened

Source: WCSP (1997), ICBP (1988)

No formal studies have been made on the other animal taxa in the park. However, based on interviews of the local community members and the actual observation of protected area staff, a total of 17 species of mammals have been identified as resident species.

Table 5. Mammalian Fauna observed within the Mt. Pulag National Park

Species	Common Name	Local Name
Family Muridae		
<i>Chrotomys whiteheadi</i> **	Luzon Montane Striped Shrew Rat	Buwet
<i>Crateromys schandenbergi</i> **	Bushy-tailed Cloud Rat	Buwet
<i>Phloemys pallidus</i> **	Northern Luzon Giant Cloud Rat	Otot
<i>Mus musculus</i>	House mouse	Tumbuan
<i>Bullimus luzonicus</i> **	Large Luzon Forest Rat	Wigit
<i>Rattus everetti</i>	Common Philippine Forest rat	Otot
<i>Rattus sp.</i>	Common Rat	-
Family Soricidae		
<i>Crocidura grayi</i> *	Luzon White-toothed Shrew	-
<i>Suncus murinus</i>	Asian house Shrew	Hiba
Family Pteropodidae		
<i>Pteropus vampyrus</i>	Large flying fox	-
<i>Aceredon jubatus</i> *	Golden-crowned Flying Fox	-
Family Rhinolopidae		
<i>Rhinolopus arcuatus</i>	Philippine Brown Horse-shoe Bat	-
Family Vespertilionidae		
<i>Pipistrelle sp.</i>	Arcuate Horse-shoe Bat	-
Family Suidae		
<i>Sus philippinensis</i> *	Philippine Warty Pig	Ulha
Family Cervidae		
<i>Cervus marrianus</i>	Philippine Brown Deer	Makwa
Family Cercopithecidae		
<i>Macaca fascicularis</i> *	Long-tailed Macaque	
Family Viverridae		
<i>Paradoxurus hermaphroditus</i>	Common Palm-civet cat	Am-keh

*Philippine endemic

** Luzon Endemic

1.5 Human Geography

1.5.1 Ethno-linguistic groups

Almost all of the communities residing within the park are members of the indigenous peoples groups, namely: Kalanguya, Ibaloi, Kankanaey, and Karao. The study conducted by IWM-DFI in 1993 shows that among the ethno-linguistic groups residing within the park, the Kalanguya is the most dominant with 77%. They inhabit the inner portions and the upper slopes particularly in barangays Ballay, Lusod, Tawangan, Upper Bashoy, Upper Eddet of Kabayan; Impugong and Eheb of Tinoc and Balete of Kayapa. The Ibaloi who are settled in the lower slopes along the western portions of the park account for 20%. The rest or 3% is a mix of the Kankanaey, Karao and other ethno-linguistic groups. The Kankanaey inhabit the northwestern portion specifically in barangays Amlimay and Catlubong of Buguias while the Karao are settled in barangays Ekip and Karao, Bokod.

The Ibaloi and Kalanguya inhabit Kabayan Municipality. The 1992 NSO reports that the Ibaloi comprised approximately 60% of the total population of Kabayan and are distributed in Adaoay, Anchokey, Bashoy, Batan, Duacan, Eddet, Gusaran, Kabayan Barrio, Pacso and Poblacion. The Kalanguya, at almost 31%, are predominant in Ballay, Lusod and Tawangan.

1.5.2 Demography

The 1995 survey of the National Statistics Office (NSO) shows that the total population of the 13 barangays comprising the park is 12,613 and consists of 2,243 households with an average of 5.62 individuals per household. Population density or the number of individuals per hectare within the park shows that barangays Amlimay and Catlubong of Buguias and barangays Duacan and Poblacion have the highest with 1.1 individuals. The lowest are in Balete with 0.1, followed by Tawangan and Ekip with 0.2 individuals.

Table 6. Population and population density of barangays comprising the park

Municipality	Barangays	1995 census			Land area hectares (NIPAP GIS)	Population density (indv/ha.)
		Total Population	Total No. of Households	Average no. per h.h.		
Kabayan	Ballay	1,648	278	5.93	1,879.29	0.9
	Bashoy	1,056	185	5.71	1,556.18	0.7
	Duacan	539	107	5.04	512.38	1.1
	Eddet	519	105	4.94	1,139.50	0.5
	Lusod	881	149	5.91	3,204.10	0.3
	Poblacion	1,251	234	5.35	1,096.21	1.1
	Tawangan	565	91	6.21	3,195.45	0.2
Buguias	Amlimay	1,858	340	5.46	1,703.34	1.1
	Catlubong	1,600	284	5.63	1,450.83	1.1
Bokod	Ekip	784	135	5.81	3,619.18	0.2
Kayapa	Balete	702	131	5.36	9,173.96	0.1
Tinoc	Impugong	843	138	6.11	1,916.23	0.4
	Eheb	367	66	5.56	810.94	0.5
Total		12,613	2,619	5.71	31,257.59	0.6

Sources: NSO, 1995, Population Census, Report no. 1, CAR Region and Region II

In the same year, the Protected Areas and Wildlife Bureau (PAWB) conducted an initial survey on the Protected Area Occupants in barangays Ballay, Tawangan, Lusod, Ekip, Eddet and Bashoy. The result showed a total of 1036 individuals from 203 households. The survey also revealed that 48 households comprising 238 individuals living outside the park are cultivating an aggregate total of 70.96 hectares of farms within the park. The total area occupied based on the survey totals 572.5255 hectares or 5% of the total protected area.

Table 7. Result of the partial survey and registration of the PA Occupants of Mt. Pulag National Park (PAWB, 1995)

Municipality	Barangay	No. of Households	No. of individuals	Total Farmlot	Total House lot	Total area occupied
Kabayan	Tawangan	88	520	261.90	43.0350	306.9050
	Ballay	12	69	20.75	0.8515	21.6015
	Lusod	51	207	78.85	3.5870	82.4370
	Ekip	6	40	7.60	0.3700	7.9700
	Eddet	20	76	35.68	3.3550	39.0350
	Bashoy	26	124	37.15	6.4670	43.6170
	TOTAL		203	1036	441.93	57.6655

The Rapid Rural Appraisal (RRA) of NIPAP in 1997 shows that the growth rate is higher in barangays located on the periphery of the park than those barangays with bigger areas located within the park. Amlimay in Buguias has the highest average growth rate of 7.39% followed by Impugong in Tinoc with a growth rate of 5.18%. The average growth rate of the rest of the barangays ranges from 0.23% to 2.93%.

Table 8. Annual average growth rates in the barangays in Mt. Pulag

Municipality	Barangay	Total Population 1980 POPCEN	Total Population 1990 POPCEN	Total Population 1995 POPCEN	Annual average growth rate 1980-1990	Annual average growth rate 1990-1995
Kabayan	Eddet	400	445	519	1.07%	2.93%
	Ballay	951	1,435	1,648	4.20%	2.63%
	Bashoy	705	931	1,056	2.82%	2.39%
	Lusod	1,006	815	881	-2.08%	1.47%
	Duacan	539	528	539	-0.21%	0.39%
	Tawangan	437	558	565	2.47%	0.23%
	Poblacion	1,706	1,326	1,251	-2.49%	-1.09%
Buguias	Catlubong	713	1,094	1,600	4.37%	7.39%
	Amlimay	1,208	1,706	1,858	3.51%	1.61%
Bokod	Ekip	496	720	784	3.80%	1.61%
Kayapa	Balete	948	1,060	702	1.12%	-7.44%
Tinoc	Impugong	No data	644	843	No data	5.18%
	Eheb	No data	328	367	No data	2.13%
Total		9,109	11,590	12,613	4.14%	1.70%

Source: NSO, POPCEN 1980, 1990 and 1995 – Elaboration by NIPAP, RRA

Based on the information extracted from the 3-Dimensional Map of Mt. Pulag National Park completed in April 1999, households within the park are concentrated in the Kabayan barangays of Tawangan; Eddet (Sitios Abucot and Karaguayan); Bashoy (Sitios Babadak and Nanchupit) (Figure 7: Household Distribution Map).

1.5.3 Religious Institutions

At least seven religious groups are found within the Park. Roman Catholics have the most number, followed by the Baptists. *Espiritistas* are found mostly in the Kalanguya-dominated barangays of Lusod, Tawangan, Ballay and Bashoy.

Table 9. Religious Institutions located in Mt. Pulag National Park

Municipality	Barangay	Roman Catholic	Baptist	UCCP	Jehovah's Witnesses	Union Espiritistas	Wesleyan	Anglican	Others
Kabayan	Ballay	X	-	-	X	X	X	-	-
	Bashoy	X	X	-	-	X	-	-	-
	Duacan	-	-	-	-	-	-	-	-
	Eddet								
	Lusod	-	-	-	-	X	-	-	-
	Poblacion	X	X	X	-	-	-	-	-
	Tawangan	-	-	-	-	X	X	X	-
Bokod	Ekip	X	X	-	-	-	-	-	X
Buguias	Amlimay	X	-	-	X	-	X	-	-
	Catlubong	X	-	-	X	-	-	-	X
Kayapa	Balete	X	-	-	-	-	-	-	X
Tinoc	Impugong	-	-	-	-	-	-	-	-
	Eheb	-	-	-	-	-	-	-	-

1.5.4 Education and Health Services

Nine out of the thirteen barangays within the protected area have elementary schools. The Kamora National High School located in Poblacion is the only high school serving Kabayan. Catlubong in Buguias is the other barangay within the protected area that has its own high school and is the only barangay with an institution offering tertiary level education.

Several health care facilities located within or close to the park provide services to the park occupants and adjacent communities. The Dennis Molintas Municipal Hospital in Bokod serves both Bokod and Kabayan. The Kabayan Municipal Health Office (MHO) located in Poblacion also provides medical services to the different communities of the municipality. The Department of Health-Cordillera Regional Office and the Benguet Integrated Provincial Health Office co-ordinate with the MHO in channeling health programs to the community. One doctor, three nurses, 14 midwives and one sanitary inspector staff the Municipal Health Center at the Poblacion. The midwives are distributed among the different barangay health centers of Kabayan. In addition to the MHO doctor and the nurses who conduct yearly medical missions to the remote barangays, non-government and government medical missions occasionally visit selected barangays. These include medical missions from the Office for Northern Cultural Communities (ONCC), Medical Outreach Missions Foundation Inc. (MOMFI), and the Mobile Nursing Clinic of the Saint Louis University.

Table 10. Education and Health facilities within or close to Mt. Pulag.

Municipality	Barangay	Elementary School	High School	College	Rural Health Unit	Brgy. Health Centre
Kabayan	Ballay	X	-	-	-	X
	Bashoy	X	-	-	-	X
	Duacan	-	-	-	-	X
	Eddet	X	-	-	-	X
	Lusod	X	-	-	-	X
	Poblacion	X	X	-	X	-
	Tawangan	X	-	-	-	X
Bokod	Ekip	-	-	-	X	-
Buguias	Amlimay	X	-	-	X	-
	Catlubong		X	X	X	X
Kayapa	Balete	X	-	-	X	-
Tinoc	Impugong	-	-	-	-	X
	Eheb	X	-	-	-	-

Source: MPDO, 1996, 97, 98 LGU Questionnaire, various municipalities

1.5.5 Local Economy

The municipalities of Kabayan, Buguias and Bokod, all in Benguet province are considered fifth-class according to their income classes (Benguet Master Plan 1996-2000. vo.1, 1996). Their annual average income in 1990-1992 ranged from 2,058,962 to 3, 379,048.

Agriculture is a major source of livelihood and its development is strongly influenced by accessibility. The Catnaan River valley (eastern flank of Mt. Pulag) which lacks roads is characterized by subsistence rainfed farming of root crops and irrigated small-scale rice production. In contrast, the production systems in the Agno River valley, which has a provincial road, are intensive and market-oriented.

There are four farming systems in the area: permanent rain-fed farming, permanent rice-based irrigated farming, irrigated vegetable farming and shifting cultivation. Rootcrops are the most widely grown seasonal crop followed by cereals and vegetables (1991 Census of Agriculture).

Table 11. Seasonal crops grown in the six municipalities encompassing portions of MPNP

Crops	Bokod		Buguias		Kabayan		Kayapa		Tinoc		All municipalities	
	ha	%	ha	%	ha	%	Ha	%	ha	%	ha	% on Total
Rootcrops (excluding Irish potato)	290	28.8	1,151	30.7	659	45.3	1,065	29.1	446	41.2	3,611	33.0
Cereals (rice and corn)	484	48.1	37	1.0	528	36.3	1,833	50.1	333	30.7	3,215	29.3
Vegetables	43	4.3	1,260	33.6	139	9.6	57	1.6	6	0.6	1,597	14.6
Irish potato	0	0.0	1,145	30.5	76	5.2	9	0.2	1	0.1	1,231	11.2
Grain legumes	187	18.6	151	4.0	52	3.6	504	13.8	253	23.4	1,147	10.5
Other annual crops	2	0.2	5	0.1	1	0.1	194	5.3	44	4.1	246	2.2
Total area (ha)	1,006	100.0	3,749	100.0	1,455	100.0	3,662	100.0	1,083	100.0	10,955	100.0

Source: 1991 Census of Agriculture, Benguet, Nueva Viscaya and Ifugao (Final Report), NSO 1995, Vol. 2.

Buguias has the most intensive vegetable production, devoting a consistent portion of land to growing Irish potatoes and carrots. Kayapa has the largest percentage of arable land devoted to traditional rootcrops.

In Kabayan, crops commonly grown include rice, cabbage, white potato, carrot, Baguio beans, tomato, lettuce and sweet potato. There is no available data on the distribution of vegetables grown for each barangay. But field observations indicate that traditional root crops are grown mainly in the eastern portions of the park and vegetable crops, on the western side.

Livestock and poultry are also common sources of income and food among the residents. The most common sources of stocks both inside and outside of the park are either from sharing, buying, and donation or from a dispersal project.

1.5.6 Land Tenure

The data on tenurial holdings in the Park is presented in Table 12. Kabayan has the highest percentage (85.84%) of "owned" farm holding, followed by Buguias (79.60%), then Bokod (66.84%). A few numbers of farms is tenanted or leased. Bokod and Tinoc have no leased farms while Kabayan has no tenanted farms. Kayapa has the biggest number of tenanted farms. The farm-to-hectare ratio is highest in Bokod (1.26 farm/ha) and Tinoc (1.2 farm/ha). The least is in Buguias (0.67 farms/ha) and Kayapa (0.78 farm/ha).

Table 12. Tenure of farm holding in Mt. Pulag National Park

Tenure of Holding	Kabayan	%	Bokod	%	Buguias	%	Kayapa	%	Tinoc	%	Total	% of Total
Owned	1449	85.84	1159	66.84	2302	79.60	2143	59.05	844	71.59	8,875	67.32
Tenanted	0	0.00	3	0.17	33	1.14	82	2.26	4	0.34	122	0.93
Leased	8	0.47	0	0.00	45	1.56	8	0.22	0	0.00	61	0.46
Rent-Free	8	0.47	25	1.44	79	2.73	32	0.88	5	0.42	226	1.71
Other Forms	223	13.21	547	31.55	433	14.97	1364	37.59	326	27.65	3,899	29.58
All Forms	1688	100	1734	100	2892	100	3629	100	1179	100	13,183	100
Farm to Hectare Ratio	0.82		1.26		0.67		0.78		1.2			

Source: 1991 Census of Agriculture, (Benguet, Nueva Vizcaya and Ifugao), Final Reports, NSO, Vol. 2, 1995.

There are three overlapping tenurial instruments covering portions within the park. From 1991 to 1992, the DENR issued five Certificates of Ancestral Land Claims (CALC) covering an aggregate area of 5,343 hectares in barangays Ekip, Bokod and Lusod and Tawangan in Kabayan (Figure 8: CALC Map).

Table 13. Certificate of Ancestral Land Claims (CALCs) issued by DENR

CALC serial no.	Cadastral Survey no.	Beneficiary	Location	Date of issuance	No. of claimants	Total area (ha)
BN-0001	Swo-CAR-005	Karao tribe	Ekip, Bokod Municipality	April 23, 1991	97	66.5550
BN-0002	SWO-CAR-006	Karao tribe	Ekip, Bokod Municipality	April 23, 1991	14	9.1546
BN-0004	Swo-131107-000069	Kalanguya tribe	Lusod, Kabayan Municipality	March 19 1992	158	3,026.3762
BN-0005	Swo-131107-000069	Kalanguya tribe	Tawangan Kabayan Municipality	April 14 1992	109	2,239.0730
BN-0007		Kalanguya tribe	Kabayan, Benguet	December 29, 1992	6	2.3390
TOTAL						5,343.498

Source: DENR-LMS and CENRO, Baguio City and Community members in Tawangan

In 1994, the same areas granted with CALCs in barangay Lusod and Tawangan were issued Certificates of Land Ownership Award (CLOA) by the Department of Agrarian Reforms (DAR). These areas cover a total land area of 3,100.6011 hectares.

Table 14. Land area covered by Certificate of Land Ownership Award (CLOA)

Barangay	Area (hectares)
Lusod	2,077.9573
Tawangan	1,022.6438
TOTAL	3,100.6011

Source: Kabayan Municipal Development Plan, 1999

The CLOAs issued in Brgy. Tawangan are all located within the park while those in Brgy. Lusod cover 969.8199 hectares (from the 2,077.9573 hectares) of the protected area.

Table 15. CLOAs issued in Barangay Tawangan and Lusod within the PA

Barangay	CLOA serial number	CLOA Title No.	Area (hectares)
TAWANGAN	00033704	OCT-CLOA 231	502.6891
	00033698	OCT-CLOA 232	10.1660
	00033700	OCT-CLOA 233	41.0000
	00033696	OCT-CLOA 324	257.6300
	00033697	OCT-CLOA 235	147.1276
	00002356	OCT-CLOA 236	64.0805
	SUB-TOTAL		

Barangay	CLOA serial No.	CLOA Title No.	Area (hectares)
LUSOD	00033709	OCT-CLOA 242	381.6157
	00002355	OCT-CLOA 241	336.1957
	00033708	OCT-CLOA 240	88.3671
	00002354	OCT-CLOA 239	64.1941
	00002353	OCT-CLOA 238	17.0799
	00033707	OCT-CLOA 237	1.2518
	00002890	OCT-CLOA 426	81.1156
	SUB-TOTAL		969.8199
TOTAL AREA		1992.5131	

From 1996 to 1998, DENR issued four Certificates of Ancestral Domain Claims (CADC) covering areas in Tinoc, Kabayan, Buguias, and Bokod (Figure 9: CADC Map). The CADC in Kabayan overlaps with that of Tinoc and all the areas covered by the CALC and CLOA. Likewise, portions of areas covered by the CADCs in Buguias and Bokod and which also coincide with the boundaries of the park, overlap with the CADC of Tinoc.

Table 16. Certificate of Ancestral Domain Claims awarded

Municipality	CADC No.	Date issued	Indigenous Group	Area (hectares)
Tinoc	CAR-CADC-036	04- Mar-96	Kalanguya	27,787
Kabayan	CAR-CADC-037	04-Mar-96	Kalanguya, Ibaloi, & Kankanaey	27,252
Buguias	CAR-CADC-072	24-Dec-96	Kankanaey & Kalanguya	18,185
Bokod	CAR-CADC-150	03-Jun-98	Ibaloi, Karao & Kalanguya	42,946

Source: DENR-ADMO

1.5.7 Non-government and Peoples' Organizations (NGOs / POs)

Several non-government organizations (NGOs) were identified to have worked or are working in the area. These include the Igorota Foundation, Igorot Tribal Assistance Group (ITAG), Jaime V. Ongpin Foundation Inc. (JVOFI), Kalahan Educational Foundation (KEF) and Philippine Association for Intercultural Development (PAFID).

Table 17. NGOs operating or have operated within the Mt. Pulag National Park

NGO	Project Area	Type of Project/Program
Igorota Foundation.		The Foundation deals mainly with women issues. They were involved in the campaign aimed at delineating Ancestral Domains and Ancestral Lands
ITAG	Mt. Pulag	Participated in the preparation of the first Mt. Pulag Management Plan (1991).
JVOFI	Kabayan	In 1992, operated a credit scheme in Babadak; currently co-financing the realization of tramlines.
US Peace Corps Volunteers	Kabayan and Bontoc	Environmental education
PAFID	Kabayan	Processing of applications on Ancestral Domains and Ancestral Lands and preparation of management plans
KEF	Tawangan, Kabayan	Environmental education, participatory planning

Most of these NGOs have worked or are working in collaboration with government agencies. For instance, Igorota Foundation and ITAG have worked with DENR-EMPAS for the Debt-For-Nature Swap Program. The Peace Corps volunteers are presently helping the PASu office with their environmental education program. JVOFI has been working with the DA, while KEF works with the DAR. The involvement of Igorota Foundation, ITAG and KEF in Mt. Pulag has been only for short periods. PAFID, meanwhile, has recently collaborated with the LGU of Kabayan, mainly for Ancestral Domain issues. Locally gathered information indicates that none of the NGOs has worked with the communities around and within Mt. Pulag on a full-time or long-term basis.

On the other hand, a total of 41 People's Organizations, out of the 57 present in the municipality of Kabayan, are focusing their activities on community organization and development within the protected area.

Table 18. People's Organizations (POs) operating within Mt. Pulag National Park

Name of People's Organization	Location	No. of members	Main activities	Status	Remarks
Abucot Farmers Association Inc.	Eddet, Kabayan	23	Revolving Fund in Kind	inactive	Registered
Abucot Women's Club	Eddet, Kabayan	25	Rice Trading	inactive	Not regist.
Abucot-Abala Irrigation Association	Eddet, Kabayan	70	Irrigation maintenance	inactive	Registered
Adapang Irrigators Association Inc.	Poblacion, Kabayan	45	Irrigation maintenance	active	Not regist.
BALENA Farmers Association Inc	Bashoy, Kabayan	42	Revolving Fund in Kind	active	Registered
Ballay Farmers Association Inc	Ballay, Kabayan	65	Revolving Fund in Kind	active	Registered
Ballay Women's Club	Ballay, Kabayan	30	Rice	active	Not regist.
Bashoy Farmers Association Inc.	Bashoy, Kabayan	52	Revolving Fund in Kind	active	Registered
Bashoy Women's Club	Bashoy, Kabayan	42	Rice Trading	active	Not regist.
Bectey Irrigators Association Inc	Duacan, Kabayan	65	Irrigation maintenance	inactive	Registered
Besocol Women's Club	Ballay, Kabayan	30	Rice Trading	active	Registered
Bucasan Farmers Association Inc	Ballay, Kabayan	27	Revolving Fund in Kind	inactive	Not regist.
Cot-Cot 4H Club	Poblacion, Kabayan	18	Revolving Fund in Kind	inactive	Not regist.
Duacan Farmers Association Inc	Duacan, Kabayan	65	Revolving Fund in Kind	inactive	Registered
Duacan Women's Club	Duacan, Kabayan	35	Rice Trading	active	Not regist.
Dutab Fed'n of Farmers Association	Poblacion, Kabayan	20	Revolving Fund in Kind	inactive	Registered
Eddet Farmers Association Inc.	Eddet, Kabayan	60	Revolving Fund in Kind	inactive	Registered
Eddet MPCl	Eddet, Kabayan	112	Consumers and Credit	active	Registered
Eddet Women's Club	Eddet, Kabayan	40	Rice Trading	inactive	Not regist.
Kabayan B. Farmers Association Inc.	Kabayan Barrio	59	Revolving Fund in Kind	inactive	Registered
Kabayan Bo. Irrigators Association	Kabayan Barrio	55	Irrigation maintenance	active	Registered
Kabayan Bo. Women's Club	Kabayan Barrio	55	Rice Trading	inactive	Not regist.
Kabayan Fed'n of Womens Club	Poblacion, Kabayan	18	Rice Trading	inactive	Registered
Kabayan MPCl	Poblacion, Kabayan	1118	Credit, Savings & Consumer	active	Registered
Kabayan Swine raisers Association	Poblacion, Kabayan	35	Swine raising	inactive	Not registered
Kabayan Women's Dev't Association	Poblacion, Kabayan	65	Loam weaving	inactive	Registered
Lusod Agrarian Reform MPCl	Lusod, Kabayan	65	Income Generating Project	active	Registered
Lusod Farmers Association, Inc.	Lusod, Kabayan	60	Income Generating Project	inactive	Not regist.
Lusod Women's Club	Lusod, Kabayan	20	Loam weaving	active	Not regist.
Mogao Farmers Association Inc	Ballay, Kabayan	30	Revolving Fund in Kind	active	Registered
Poblacion Farmers Association	Poblacion, Kabayan	60	Revolving Fund in Kind	inactive	Registered
Poblacion Women's Club	Poblacion, Kabayan	75	Rice Trading	inactive	Not regist.
Tabayo Farmers Association	Ballay, Kabayan	N.a	Lending Capital for Agricultural	No data	No data

Name of People's Organization	Location	No. of members	Main activities	Status	Remarks
			Production		
Tawangan Agrarian Reform Community Multi-Purpose Coop	Tawangan, Kabayan	67	Consumer's Co-operative Lending	active	Registered
Tawangan Farmer Association	Tawangan, Kabayan	56	Garden Pea Seed Production	active	Not regist.
Tawangan Integrated Forestry and Conservation Organization (TIFCO)	Tawangan, Kabayan	15	Roadside Tree Planting Nursery Establishment	inactive	No data
Tawangan MPCI	Tawangan, Kabayan	65	Consumers	active	Registered
Tawangan Women's Club	Tawangan, Kabayan	35	Loam weaving	active	Not regist.
Tinudan Farmers Association Inc.	Poblacion, Kabayan	25	Revolving Fund in Kind	inactive	Registered

Source: NIPAP-RRA, 1997

1.5.8 Government Organizations

Different Government Offices (GOs) are currently operating within or near the Mt. Pulag National Park (Table 19).

Table 19. Programs implemented by GOs

GO	Project Area	Type of Project/Program
DAR	Tawangan and Lusod	Infrastructure development, training, CO and CD
NIA	Tawangan	PhP 2 M irrigation project; access to credit facilities
NIA	Lusod	PhP 13.2 M irrigation project
DOH-RHU	All barangays	Maternal and child care, BHW formation, health education, provision of potable water and provision of latrines, medical missions.
NEDA	All barangays	Working in collaboration with DAR in developing a Physical Framework Plan for Benguet Province.
DSWD	All barangays	Day Care Services, Livelihood, Responsible Parenthood, Nutrition, Skills Training and Assistance to Individuals in Crisis Situation
DTI	All barangays	Skills Training, Formation of Women's Organisations and Capital Assistance
DENR	All barangays	Watershed Rehabilitation, Reforestation, Community Organising and IEC

Source: NIPAP-RRA, 1997

The Department of Agriculture (DA) is currently implementing three special foreign-assisted projects within the park and adjacent areas. These are the Central Cordillera Agricultural Programme, the Economic Self-Reliance Programme-Caraballo and Southern Cordillera Agricultural Development, and the Cordillera Highland Agricultural Resource Management Programme.

Central Cordillera Agricultural Programme (CECAP) Phase 2 – CECAP was established in 1988 as the first joint development partnership between the Philippine Government and the European Union using the micro-project approach. Phase 1, which started operations in 1989, laid the groundwork for sustainable development in the Central Cordillera thru the implementation of 2,800 micro-projects on agriculture, watershed protection, infrastructure and community development and some 1,200 training courses. Project implementation lasted

for seven years with its completion in July 1996. The second phase which formally started in August 1996 with a duration of seven years, will end in July 2003. The overall objective of the second phase is to promote a self-sustaining improvement of the living conditions in Central Cordillera. Specifically, the Programme aims to increase incomes and to strengthen resource management capabilities. The total budget of the Programme amounts to 27.5 Million ECU: 23 Million-ECU Grant from the European Commission and a counterpart of 4.3 Million ECU from the Government of the Philippines (GoP).

Economic Self-Reliance Programme–Caraballo and Southern Cordillera Agricultural Development (ERP-CASCADE) - This Project seeks to continue the gains achieved under the Earthquake Rehabilitation Programme – Agriculture Component (ERP-AC) which helped the affected upland communities in six (6) municipalities of the provinces of Benguet and Nueva Vizcaya in the Southern Cordillera recover from the effects of the 1990 earthquake. Its overall objective was to help the indigenous rural people in promoting agro-based local economy to have better income and standard of living, and provide opportunities for them to remain settled and develop where they are presently living with their families. The project will be implemented over a seven-year period, 1997 to 2004, with a total budget of 22.5 Million ECU: 13. M is a grant from the European Commission, 4.0 M from the National Government, 3.5 from the Local Government and 1.5 M from the beneficiary communities.

Cordillera Highland Agricultural Resource Management (CHARM) Project – CHARM is the renamed second phase of the Highland Agricultural Development Project (HADP) which was terminated on December 1994. It is a seven-year project with a total estimated cost of \$41.4 Million sourced out from loans from the Asian Development Bank (ADB) and the International Fund for Agricultural Development (IFAD). The Philippine government provides a counterpart of at least 28% of the total budget while the target beneficiaries provide a contribution of at least 6% of the total project cost. The primary objective of the project is to reduce poverty in the Cordillera Administrative Region (CAR) by increasing the disposable incomes of smallholder farm families in the target areas. The project aims to reduce the number of families living below the poverty line by increasing average family incomes. It shall also focus on promoting sustainable resource management practices, protecting the environment and mitigating adverse development impacts, strengthening existing institutions, involving beneficiaries in project planning and implementation activities, and improving beneficiary access to formal and non-formal credit schemes.

1.6 Protected Area as an Institution

1.6.1 Institutional Control

The Protected Area Superintendent (PASu) for the past year has been reporting directly to the office of the Regional Executive Director. Towards the middle of this year, the management of the area and the Protected Area Office has become the responsibility of the Protected Areas and Wildlife Division (PAWD) of the DENR-Cordillera Administrative Region (CAR) (Figure 10: Organizational Structure of PAO as June 30, 2000). The PASu is in charge of the day-to-day operations of the park and overseen by the Protected Area Management Board (PAMB). The PAMB members were selected only last year after the five-year appointment of the first set of interim PAMB members expired last April 1999. Twenty-one PAMB members have been officially appointed by the DENR Secretary on March 23, 2000; 12 additional applications are being processed.

The PASu is responsible for the Protected Area Office (PAO) and the Park staff (Figure 11: Functional Relationship of PASUs with other DENR Offices). There are 19 full time park personnel, 14 have contracts with NIPAP up to June 30, 2000 and the remaining 5 are DENR detailed. The PAO staff is composed of the following:

**Table 20. Mt Pulag Protected Area Office Personnel
(as of June 30, 2000)**

Personnel	No. of Positions
Protected Area Superintendent (PASu)	1
Assistant Protected Area Superintendent (APASu)	1
Assistant for Field Operations	1
Administrative Officer	1
Clerk	2
Rural Development Officer	1
Information Officer	1
Park Rangers	9
Driver	1
Utility (1)	

1.6.2 Infrastructure

The Protected Area Staff for the past three years have been holding office at the structure constructed by the Benguet Mining Corporation (BMC) in Ambangeg, Brgy. Daclan, Bokod. The building is also used as a staff house and guesthouse. The DENR has been given free use of the building by the BMC whose timber lease agreement expires in 2003. This year, NIPAP has constructed a Visitors' Center and alternate PA Office on a lot donated by the Benguet School of Arts and Trade (BSAT) also in Ambangeg. The new office is now operational.

A Ranger's Station constructed by the Debt-for-Nature Swap Programme (DNSP) in Babadak is now used as a residential guardhouse and the official jump-off point for hikers going to the summit of Mt. Pulag. Adjacent to the ranger's station is the CENRO building made of concrete. The building was constructed as a staff house for the CENRO staff. It is currently used as a guesthouse as well as staff house of the protected area office staff.

The DNSP has also constructed four waiting sheds along the trail from Babadak going to the Mt. Pulag summit and the trail going to Lusod. These sheds are used as resting areas for hikers and residents. (Figure 12: Physical and Administrative Structures).

1.6.3 Current Programs

Activities of the Protected Area staff have been focused under three major operational priorities, namely:

- 1 **Resource Management Priorities** – law enforcement, affairs of community relations and project facility maintenance.
- 2 **Visitors' Management** – visitors' facility maintenance and information
- 3 **Program and PAMB Affairs** – coordination and correspondence

2 ANALYSIS

2.1 Evaluation

The proclamation of Mt. Pulag National Park without prior consultation with the people had created conflicts and misconceptions regarding park management. Local communities have shown a negative attitude towards management activities because their livelihood is affected by the rules and regulations being implemented by the past management regime. Most communities have thus disregarded the rules and regulations. The increasing population in the area is also causing a massive destruction of the forest because of the increasing demands for materials for house construction, firewood, and food.

Human activities have also increased the incidence of forest fires in the area. This is subsequently destroying the natural environmental balance as the valuable forestlands are being converted into undesirable grassland areas not suitable habitat for extant wildlife fauna.

The water level of the inland reservoirs has decreased due to the unregulated effects of human activity particularly intensive agriculture. The increasing volume of water required by the surrounding barangays continues to destroy the watersheds.

The ancestral lands issue has subsequently raised the possible re-delineation of the park boundaries. This will exclude areas extensively used as vegetable gardens by the park occupants. Changes in the delineation will include the mossy forest north and southeast of the park and the mountain forest in the east. (This was suggested by Jensen et al.)

The Protected Area Suitability Assessment (PASA) and the Initial Protected Area Plan (IPAP) recommended that the Mt. Pulag National Park be renamed and classified under NIPAS as a Natural Park. After a series of consultations and the conduct of several public hearings, the category to be used in the protected area still remains unresolved. For this management plan, the protected area is referred to as the Mt. Pulag National Park. Several names and categories have been suggested, one of which is the category of Natural Biotic Area.

2.1.1 Mission

The mission draws from the outcome of consultations and public hearings from the communities that comprised the Protected Area. The following summarized the commonalities of the various stakeholders regarding Mt Pulag:

“To strive for a community based protected area based on indigenous knowledge systems that sustain and conserve the cultural and biological diversity of Mt Pulag.”

2.1.2 Threats

The following are the identified immediate threats to the protected area:

- Expansion and encroachment of agricultural farms
- Detrimental influence of the economy of supply and demand particularly on the diverse indigenous resource management practices
- Timber poaching and wildlife hunting
- Unregulated tourism
- Infrastructure Development
- Overlapping of land tenure instruments and ownership claims
- Bio-prospecting activities

2.1.3 Constraints

- **Biophysical and Legal Constraints**

Conflicts on political boundaries among the various political units in major parts of Mt. Pulag National Park are unresolved. At present, the municipality of Kabayan occupies more than 85% of the total area of the protected area (PA). However, the municipality of Tinoc in Ifugao is asserting its claim to approximately half of the PA, encompassing the eastern part that includes parts or whole of several barangays of Kabayan. In addition, Kayapa of Nueva Viscaya has claims to areas that are overlapping in the southeastern part of the PA occupied by Kabayan, Bokod and Tinoc.

Aside from conflicting political boundaries, overlapping of tenurial instruments in some portions of the PA is also a key issue (Figure 13: Overlapping CALCs and CADCs.). From 1992 to 1998, three overlapping tenurial instruments, Certificate of Ancestral Land Claims (CALC), Certificate of Ancestral Domain Claim (CADC) and Certificate of Land Ownership Award (CLOA) issued by the DENR (CALC and CADC) and the DAR (CLOA) cover areas located within the PA. Each instrument has a management plan with most activities overlapping because of non-coordination between the concerned agencies.

A third issue is that the PA boundaries as mandated under Presidential Proclamation 75 carry a negative view among the people living around and inside the PA. They look at the boundaries as a barrier to their progress or a hindrance to their economic activities. This issue cropped up when the proclamation was issued without the knowledge of the people. Moreover, the delineation of boundaries did not take place on ground. As a consequence, problem on law enforcement, SRPAO and other NIPAS activities are affected particularly in Ekip, in Bokod, Benguet and Impugong and Eheb, in Tinoc, Ifugao.

- **Cultural Management**

The Kalanguya, Ibaloi, Kankanaey, Karao and other ethno-linguistic groups reside within the PA. The Kalanguya comprises 77% of the park population and the Ibaloi approximately 60% of the municipality of Kabayan which in turn has administrative jurisdiction over 85% of the total area of the PA.

The overlapping ancestral land and domain claims and management plans, particularly between the Kalanguya and Ibaloi groups, is seriously complicating the matter of administrative jurisdiction and tenurial rights.

Also, traditional tenurial practices and land ownership concepts among ethno-linguistic groups vary. This in turns makes on-ground boundary delineation very difficult.

Nuances of cultural practices and tradition have also been observed to run counter to current regulations and systems. Examples are: the practice of *tong-tong* as the traditional way of consulting, as opposed to Parliamentary procedures in PAMB meetings, or in resolving conflicts, and the traditional land-use practices.

The cultural histories of the groups also need to be addressed. The current lack of an avenue to preserve the archeological and anthropological importance of the indigenous groups' heritage in relation to Mt Pulag will surely contribute to the deterioration their rich cultural heritage. This in turn could erode what tradition has taught them about sustaining ecological balance while engaging in livelihood and economic opportunities, for one, and most important, the cultural identities that define their needs and aspirations as a people.

- **Forestry**

The forest cover of the PA has declined steadily during the last four decades due to the logging operation that started in 1957 and the conversion of forests into agricultural land. The Benguet Corporation Bobok Timber Project is the sole commercial logging company that operated inside the park with a license to operate until year 2003. With the proclamation of Mt. Pulag as National Park in 1987, all logging operations have since then stopped. Local people depend on forest resources for subsistence. They harvest and gather timber and non-timber forest products for food, construction materials, fuelwood, furniture, fence, and medicines.

Fire plays a major role in the ecological changes of the Cordilleras due to extended dry periods and the critical characteristics of the mossy and pine forests. Fire is known to be a major destroyer of pine forests and, to some extent, of the mossy forests which are now confined in steep elevations.

Fires of natural origin and from man-induced activities such as slash-and-burn farming have created extensive areas of grassland or “parang” vegetation. Seasonal fires may enlarge these areas and also prevent the re-growth of forest vegetation. An example is the grassland summit that is gradually enlarging due to fires induced by human activities.

- **Socio-economic and Socio-political threats and constraints**

Expansion and encroachment of agricultural farms

Human encroachment into the PA for agricultural purposes occurs at altitudes reaching 2,500 m. Forest clearing occurs in upper mossy forest with the aim of establishing terraces for vegetable growing. Some cleared areas were abandoned due to lack of water for irrigation purposes. Establishment of vegetable gardens appears to be intimately related to the availability of irrigation facilities. An intricate network of temporary and permanent privately owned polyethylene pipelines (diameter ½” –3/4”) has been installed from the water source leading to gardens, some as far as four kilometers away, in the fringes and outside the PA.

The growth of the vegetable industry has lured many local people to expand their “uma” (upland farm or kaingin). Even the mossy forest which is an important vegetation cover has not been spared of this clearing for farms. This has resulted in a large loss of forest cover and the resultant loss of wildlife habitat, reduction of water and watershed degradation.

The clearing of the forest has been exacerbated by the use of mechanized means particularly the bulldozers. This has been observed in the Buguias and Tinoc sides, both of which are accessible by roads.

Table 21. Mt Pulag National Park Land Cover

Land Cover	JAFTA (1995)		3D Model (1999)	
	has.	%	has.	%
Mossy Forest	6053	51.7	5016	42.9
Pine Forest / Residual Forest	3553	30.4	2438	20.8
Grassland	1088	9.3	1373	11.7
Agricultural Area (Rice land, Vegetable Gardens and Kaingin Areas, Reproduction Forest)	1001	8.6	2603	22.3
Landslides	0	0	83	.7
Reforestation Area	0	0	182	1.6
TOTAL	11695	100	11695	100

- **Unsustainable farming practices**

With the desire to increase farm produce and income, communities inside the PA engage in unsound farm practices like the use of pesticides, application of inorganic fertilizer, mono-cropping practices and other unsustainable farming techniques.

Kaingin-making is reported in isolated areas on the eastern side of the park (Lusod), where production is focused on staple root crops like sweet potatoes (kamote), taro (gabi) and potatoes due to the absence of markets for vegetables.

- **Illegal timber poaching and wildlife hunting**

The absence of concrete policies in the utilization of resources in the PA aside from the absolute prohibition as mandated by existing forestry laws makes the resources vulnerable to illegal activities. Traditionally, the IPs use the various resources in the PA including plants and wildlife either as food, medicine, wood for building houses, etc.

Local residents also engage in seasonal hunting. They hunt wild pig "*olha*", deer "*makhua*", cloud rat "*buwal*", civet cat "*mutif*", wild chicken, and wild dog "*amkih*" for food and additional income. They also trap birds mostly migratory, from September to February with the use of pressure lamps and nets.

- **Unsustainable tourism**

Mt Pulag is endowed with many potential sites for tourism. The PAMB has enacted some policies and regulations to sustain the tourism industry in the area. These policies however, have to be supported with researches so that tourism could be sustained without sacrificing or damaging the biodiversity of the area. Relevant topics should include researches on carrying capacity, and the impact of tourism on the various ecosystems in the area.

- **Bio-prospecting activities**

Mt Pulag is highly diverse in vegetation and wildlife. The potentials of these resources for commercialization and exploitation make the area vulnerable for bio-prospecting activities. Several laws have been enacted to restrain these activities, but the PAO cannot single-handedly enforce these rules without community cooperation and support.

- **Land Use**

Next to the forest, the agricultural areas have the widest area in terms of land use inside the park. Agricultural or cultivated areas are scattered around the park and even near the highest peak itself. However, commercially-operated cultivated lands are concentrated on the southern and northern portion of the park.

This is due to the presence of roads that facilitate the transport of products to the market, further enticing people to open more lands for cultivation. Majority of the "commercial" lands utilized for agriculture are devoted to the upland vegetables while small plots are planted with subsistence crops like sweet potatoes, other root crops and occasionally, rice.

Most of the settlement areas are clearly defined especially in the Tawangan and Lusod areas. However, in the Babadak and Ballay areas which are considered the "newer" settlements, abodes are markedly spaced wider.

Due to the problem of accessibility to the nearest towns of Kabayan and Bokod, the people living in the remote places of Lusod and Tawangan have been clamoring for the construction of roads. At present, negotiation is on going for the road improvement from Ballay to Tawangan and the construction of farm to market road that connects Tawangan and Lusod. This project is under the Agrarian Reform Infrastructure Support Project II of DAR, which aims to help develop selected communities by providing farm-to-market roads.

2.2 Institutional Concerns

2.2.1 Institutional Control

Although they have conflicting views regarding the policies and programs to be initiated in the park, the PAMB members agree on the need to initiate measures to protect Mt. Pulag. However, because of their failure to come up with concrete policies to address present issues, the Board has requested the PAO to stop all existing activities. Because of this, the PA's deteriorating condition could worsen.

2.2.2 Organizational Management

While a reasonable number of Park Rangers are employed and provided with logistics (vehicle, radio, etc.), this does not guarantee the complete protection of the PA from the forces of threats. The PAO has started introducing the concept of community-based protected area management systems where responsibilities for the sustainable management of the PA are progressively infused into the communities' systems of resource management and implementation. Being a long-term goal however, it may not be achieved before the project ends and would have to be sustained by the PAMB and the skeletal protected area staff.

2.2.3 Personnel

The bulk of the PAO personnel who hold vital positions in project activities have contractual appointments. After the project ends, only DENR-detailed personnel (PASu, Assistant PASu, Administrative Staff, and 2 Park Rangers) will be left to continue the management of the Park.

2.2.4 Funding and Budgetary Control

When the project ends in September 2000, the funds allocated for the protection of the PA would be exhausted. How to sustain the on-going activities is still uncertain. The Integrated Protected Area Fund (IPAF) has been established, but only relies from the entrance fees. The PAMB has not enacted any policy on how the IPAF will be utilized for PA operations.

2.3 Strategic Options

Strategic options have been identified, each with a clear goal to pursue the mission. These programs form the framework for the prescriptions that follow:

- 1 **Ecosystems Management-** to protect, sustain, and nurture the ecological integrity and functions of the protected area (PA) in harmony with the indigenous beliefs and practices of the people living within and around the PA.
- 2 **Protection and Law Enforcement-** to protect the natural resources and biodiversity of the PA with full cooperation of the stakeholders.
- 3 **Research and Monitoring-** to continue research and monitoring activities to be used in reviewing and updating PA management
- 4 **Stakeholders Awareness-** to educate, inform and make aware all stakeholders of their responsibility for protection and sustenance of the park's ecosystem.
- 5 **Community Relations-** to bring communities together using community-based management strategies based on indigenous knowledge
- 6 **Tourism and Visitor Management-** to institute tourism and visitor management that highlights the biological and cultural significance of Mt. Pulag.
- 7 **Institutional Control, Organizational Management and Administration-** to institute a community-based protected area management system.
- 8 **Regional Integration-** to work as partners with regional and provincial institutions in ensuring the protection and management of the PA.
- 9 **Financial Sustainability-** to achieve a self-reliant PA where the operations therein can be sustained by the funds generated.

3 PRESCRIPTION

3.1 PROGRAM I ECOSYSTEM MANAGEMENT

PROGRAM GOAL: *To protect, sustain, and nurture the ecological integrity and functions of the Protected Area (PA) in harmony with the indigenous beliefs and practices of the people living within and around the PA*

PROGRAM OBJECTIVE I.1 Establish management zones

The whole protected area covering approximately 11,550 hectares based on the Presidential Proclamation 75 will be divided into zones with corresponding management schemes. The zoning system which describes the management intent for the different areas of the park is one way of ensuring the protection of the park's resources while allowing compatible land-use opportunities.

Specific Objective I.1.1 To identify the location and extent of each management zone

Action: Identify the management zones

The proposed management zones are presented in Table 22. The whole area shall be classified into management zones that are based from both the traditional zoning systems and the management zones prescribed under NIPAS (Figure 14: Proposed Management Zones). The location and extent of each zone shall be identified, agreed upon, recorded and marked on the ground.

Action: Conduct consultations with the concerned communities

Communities shall be consulted to validate the existing information, draw up additional data regarding the traditional zones and come up with prescribed uses for each zone. These activities shall be explained to the communities during consultations. The expected result is the consensus of the various communities regarding the specific uses and protection measures of each management zone.

Action: Ensure that the local government units (LGUs) and agencies concerned adopt the policies on the management zoning system

The 14 barangays comprising the PA shall agree on the management zones. Their agreement shall be reflected in resolutions or ordinances. Barangay and municipal development plans shall conform to the prescribed uses and management of the different zones.

Table 22. Mt Pulag National Park Proposed Management Zones

Management Zones	Traditional Equivalent	NIPAS definitions	Characteristics	Indicative Location
Strict Protection Zone/ Cultural zones	<i>Pehyew</i>	Closed to human activity except for scientific studies and/or ceremonial or religious use by indigenous communities	Mossy forests, sacred areas (burial caves), grassland summit	Runs transversely through the central part of the PA
Sustainable Zone	Higiban	Collection and utilization of natural resources using traditional sustainable methods not in conflict with biodiversity conservation, research, and recreation with limited use; no clearing, settlement, commercial utilization and other activities detrimental to biodiversity conservation.	Pine forests, mossy forests, grasslands	Part of Eddet, Ekip, Lusod, Tawangan, Eheb, Impugong
	Dayahan			
	Dowengan			
	Pangayuan			
Multiple-use Zone	Haad	Areas of settlement, traditional and/or sustainable land use including agriculture, agroforestry, extraction activities and other income generating or livelihood activities	Settlement areas, vegetable area, riceland, pasture land, fallow areas	Part of Ballay, Amlimay, Catlubong, Tawangan, Lusod, Balete, Babadak (Upper Eddet), Bashoy
	Inum-an			
	Kinaba			
	Baeng			
Restoration Zone		Restore natural habitat and to rezone to a strict protection	Degraded areas (mossy/pine forests)	Part of Ballay, Poblacion, Lusod
Recreational Zone		Sustainable ecotourism, recreational, conservation education or public awareness	Summit grassland, inland lakes (?)	To be identified
Administrative Zone			Ranger station (RS), guard houses, guard posts, towers, etc.	RS (Babadak), Proposed guards houses and posts are located in strategic locations inside the PA

Specific Objective I.1.2 To identify the buffer zones

A problem with buffer zone establishment is that the areas surrounding Mt Pulag have been proclaimed as part of the Upper Agno Watershed Resource Reserve (Presidential Proclamation 268). The PAMBs of these two protected areas (PAs) shall reconcile the management uses of their boundaries and identify potential buffer areas that will be consistent and complementary to the management objectives of both PAs.

Action: Conduct consultations with the communities, LGUs and line agencies (DENR, NPC)

Action: Propose a complementary management zone on the boundaries of the two Pas

Action: Forge Memorandum of Agreement (MOA) to stipulate the management concerns on the buffer zones

Specific Objective I.1.3 To delineate and demarcate management and buffer zones

Action: Get PAMB approval of the management zones and buffer zones

Action: Delineate management zones and buffer zones with the concerned communities

Action: Demarcate PA boundary after congressional enactment

PROGRAM OBJECTIVE I.2 **Ensure sustainable resource utilization based on indigenous systems of management**

Specific Objective I.2.1 To generate information regarding trends in the use of resources or status of selected resources

Action: Refer to the results of research and monitoring

Trends in the use and status of resources can be obtained from the results of proposed researches and studies. The various resources in the PA should be properly identified, particularly those that have economic and cultural importance, are endemic to the area and are with conservation status. Vital information should comprise the uses, distribution, abundance, status, breeding periods/flowering and fruiting seasons and the different resource management practices being observed by the communities.

Action: Consult the various communities

Consultations shall be carried out to gather information regarding indigenous resource use and management. It could be done through focus group discussions, periodic community visits, and other appraisal activities in the area.

Specific Objective I.2.2 Integrate indigenous knowledge of resource use into PA resource management

Action: Schedule season of hunting and harvesting of wildlife species

This action shall be governed by ordinances set by the concerned LGUs as well as a resolution enacted by the PAMB to schedule when hunting and gathering of specific wildlife will be allowed. This is to prevent negative impacts on wildlife species particularly during their reproduction periods (breeding and fruiting seasons). Results of research should be used to specifically identify species not allowed for utilization.

Action: Regulate the quantity of resources allowed for utilization

The quantity of resources allowed to be utilized shall be regulated to prevent their depletion. The PAO shall conduct a study to determine the threshold level of each species. The regulation shall also specify the tools and gears allowed for use and methods of utilization.

Specific Objective I.2.3 Enact indigenous policies in the utilization of wildlife species

Action: Persuade the barangay officials to adopt indigenous policies in the utilization and management of resources

This action aims to legitimize the indigenous rulings and combine them with the existing policies. An inventory of traditional laws concerning natural resources management and conservation shall be made and validated. It shall be referred back to the communities as basis for the formulation of ordinances that would regulate the uses and prescribed management of resources in the corresponding zones. Indigenous penal provisions shall also be integrated to strengthen law enforcement.

3.2 PROGRAM II PROTECTION AND LAW ENFORCEMENT

PROGRAM GOAL: *To protect the natural resources and biodiversity of the PA with the full cooperation of the stakeholders.*

PROGRAM OBJECTIVE II.1 Integrate fire protection and management strategies in the overall management of PA

Specific Objective II.1.1 To counter the occurrence of forest fires in the PA

Action: Undertake sustained Information, Education and Communication (IEC) campaigns on fire protection and management among concerned communities and PA visitors particularly during summer months

The bottom line is to prevent the occurrence of forest fire. Sustained education drives shall thus be conducted among the concerned communities and visitors. The campaign shall explain the adverse effects of forest fires on biodiversity (since by tradition, this practice is essential in traditional *kaingin* and pasture areas).

Action: Identify areas that are susceptible to forest fires (fire hazards)

This action involves the identification of “fire hazard” areas inside the PA. This will be based on access of human activity (trails, farms, residence, pasture areas, etc.) and the history of fire occurrences in the PA. These areas will be mapped out for ease of monitoring.

Action: Establish fire lines on “fire hazard areas”

The PA Rangers with the help of volunteer groups shall establish firebreaks or fire lines on areas susceptible to forest fires. Fire-tolerant species or evergreen trees shall be planted in rows around villages. Establishment of firebreaks shall be compulsory in all areas with *kaingin* or *uma* especially those areas near forested areas. Strips of grasses shall be slashed along trails, etc. Watch towers made of available materials in the area shall be put up at strategic locations within the PA.

Specific Objective II.1.2 To integrate fire protection and management in the training requirements of the Park rangers and volunteer groups

Action: Conduct training among PA personnel as well as organized volunteer groups on basic skills and knowledge on fire protection and management

Part of the regular training among Park Rangers and organized volunteer groups shall be the basic skills and knowledge on fire protection and management. Practicum exercises shall be conducted.

Action: Procure necessary logistics

The PAO shall allocate a portion of its budget for the procurement and maintenance of the most essential logistics for fire protection and management. Because of budget limitations, the PAO could source out equipment from other agencies.

PROGRAM OBJECTIVE II.2 Ensure compliance to PA policies and regulations

The establishment of standards of operation and maintenance is necessary for optimum resource use, protection of services, facilities and amenities. Through the park system, public understanding and willing compliance with park regulations and understanding of administration, management and maintenance programs and procedures shall be promoted. The management plan shall also provide for the establishment and maintenance of an ongoing dialogue with the indigenous populace, general public and associated interest groups on park related events, policies and programs. Enforcement services shall be contracted out where such capability exists locally and at reasonable costs.

Specific Objective II.2.1 To enforce PA regulation and policies

Action: Identify hotspot areas of illegal activities

Hotspot areas are portions of the PA where policies are being violated. These areas shall be drawn in maps for monitoring purposes and to facilitate patrolling.

Action: Sustain patrolling and monitoring of hotspots areas

Sustained patrolling and monitoring of hotspot areas would safeguard the PA from its perpetrators. Temporary guard posts shall be put up in these areas to accommodate longer stay. Check points shall also be established along major routes to monitor the entry and exit of people into the PA.

Action: Coordinate with the municipal PNP and civil authorities

Close ties with the police and civil authorities shall be established to ensure the enforcement of PA policies and regulations. Their assistance shall be sought when patrols will be conducted in hotspots. Cases of illegal activities in the PA shall be reported.

Specific Objective II.2.2 To maintain structures that help in the protection of the PA

Action: Maintain PA signages (directional signs, interpretative signs, orientation signs, campsite signs, and others)

Action: Maintain and rehabilitate trails

Existing trails shall be maintained regularly. However, these routes shall be closed when the area needs rehabilitation or when the area becomes unsafe and risky, among others. Public safety and/or interest shall also be prioritized in the development and operation of the park.

PROGRAM OBJECTIVE II.3 **To strengthen laws on PA management**

Specific Objective II.3.1 To enact policies in consonance with PA management objectives

Action: Review (codification) existing policies (EO 247, PD 705, CITES, IUCN, Mining Act, IPRA, DAO 48)

This action entails the appraisal of all existing policies pertaining to PA management. This enables the PAMB and PAO to find overlaps and identify gaps that need further attention. This would serve as basis for policy formulation.

Action: Integrate PA policies into policies of LGUs

Policies throughout the PA should be standardized (considering that the PA is within two regions, three provinces and five municipalities). Adoption of these policies through ordinances by the concerned LGUs would strengthen law enforcement.

3.3 PROGRAM III

RESEARCH AND MONITORING

PROGRAM GOAL: *To continue research and monitoring activities for the PAMB and the communities to be used in reviewing and updating PA management.*

PROGRAM OBJECTIVE III.1

Strengthen research activities in support of PA management

Specific Objective III.1.1 To formulate a framework that guides the implementation of research in the PA

Action: Conduct a stakeholders' workshop to identify areas of priority concern for research

This workshop shall serve as venue to identify the gaps for research concerning biodiversity conservation and related studies towards PA management. The perspective of the various stakeholders shall be solicited. Research undertakings shall support the other activities in PA management.

Action: Formulate policy for research

In addition to existing laws concerning the conduct of research in a Protected Area, the PAMB could further develop and formulate local policies that are distinctively applicable to the area (research procedures, agreements with research, etc.).

Action: Create a research sub-committee

A sub-committee for research in the PAMB shall be created to supervise the development of researches and other studies in the PA. This committee shall oversee the preparation, implementation and evaluation of research undertakings.

Specific Objective III.1.2 To conduct special studies that support the resource management of the PA

Action: Conduct a study on natural resource valuation

A special study shall be done to assess the value of the various resources of the PA which shall become a basis for fee setting.

Action: Research on the hydrological/watershed aspect of the PA

These researches intend to explore the potentials of the water resources of the PA. The research studies would establish baseline information and serve as basis for the extent of protection and nature of management. Among the essential topics related to the watershed would be the following:

- Water quality
- Water volume
- Identification of major tributaries/aquifers
- Extent of erosion/siltation
- Geo-hazard studies
- Watershed management

Action: Conduct biodiversity research

Biodiversity research shall be conducted to support the various activities related to ecosystem management, tourism and visitor management, protection and law enforcement, and community development. These researches include:

- Benchmark information on taxonomy and inventory
- Habitat requirements for species maintenance
- Role of indigenous knowledge in the selection and assessment of long-term sustainability of biodiversity
- Studies for both conservation and economic benefits
- Effect/Impact on the use of pesticides and inorganic chemicals on biodiversity
- Carrying capacity of tourist sites

Specific Objective III.1.3 To conduct researches that promote sustainable farming technologies and other sustainable livelihood opportunities

Action: Conduct agroforestry researches

Agroforestry is a recognized land-use system that addresses both ecological and economic problems specifically in upland areas. Agroforestry systems however, are site-specific. Agroforestry research would test the social acceptability, economic soundness and ecological effectiveness of agroforestry technologies being promoted in areas where these practices are allowed. This would involve participation from the communities.

Action: Document indigenous farming practices

The traditions and customs of the IPs concerning indigenous farming practices shall be recorded. The information shall be integrated in the development of contemporary farming

practices. As the documentation involves intensive work and expertise, an academe or research institution could be commissioned to undertake this particular research.

Action: Domesticate plant species with high importance and conservation value

Valuable species of wild plants (trees, shrubs, herbs, vines, others) shall be domesticated to reduce the dependence of the communities on these species in the wild. Part of this research would be the dissemination of information related to their propagation, silvicultural treatments, and other techniques related to reproduction.

PROGRAM OBJECTIVE III.2 Gain support of outside bodies in the conduct of research undertakings

Specific Objective III.2.1 To involve the academe and research institutions

Action: Encourage practicum, thesis and other research exercises relevant to biodiversity conservation

The conduct of practicum, thesis and research exercises by the academe and research institutions could be a significant stride in achieving the necessary information needed by the PAMB. The participation of the academe and research institutions could supplement the scarce resources and needed expertise in carrying out priority researches. The participation of these outside bodies however must be consistent with the PA policies and in compliance with the existing laws, particularly EO 247.

Specific Objective III.2.2 To establish binding instruments with the academe and research institutions

Action: Forge MOAs

Memoranda of Agreements shall be forged to define roles and responsibilities and extent of participation among the concerned institutions in the conduct of researches in the PA. It shall also stipulate the access of information. For the PAMB, research results are a key to policy formulation.

PROGRAM OBJECTIVE III.3 Improve the information available to decision makers

Specific Objective III.3.1 To build the monitoring system capacity of PA staff and communities

Action: Provide the PA staff and members of the local communities with the theoretical and practical knowledge and skills to effectively carry out monitoring activities

Action: Assist PA staff and members of the local communities in the identification and installation of monitoring sites

Specific Objective III.3.2 To institutionalize the biodiversity monitoring systems for the regular collection of data on natural resources and their utilization

This objective aims to sustain the initial efforts done on the Biodiversity Monitoring System (BMS). Monitoring shall be gradually devolved to the community, particularly the volunteer groups.

Action: Make a systematic record of the number of sightings of indicator species or of local resource use when conducting regular patrol duties

Action: Regularly document through pictures the changes in the vegetation and land use of the PA

Action: Regularly record the number of sightings of species or clues to resource users along a particular and permanent stretch of trails

Action: Conduct regular focus group discussions that would generate information on the trends or patterns of resource use

Specific Objective III.3.3 To develop a database of biodiversity information about the PA for management purposes

Action: Institute the Biodiversity Information and Management System

The Biodiversity Information and Management Systems or BIMS shall be installed at the PAO or at the PAWD where somebody would be assigned to work on the system. The BIMS is a database that monitors the conservation status of living species, wildlife habitats and individual protected area. It stores information and analyzes information to generate status assessments for any species, habitat or wildlife locality. It can store and retrieve diagrams, maps, photos or other scanned images. Through the BIMS, the PAMB and other concerned institutions could easily access information about the PA for planning purposes.

3.4 PROGRAM IV STAKEHOLDERS AWARENESS

PROGRAM GOAL: *To educate, inform and make aware all stakeholders of their responsibility for the protection and sustenance of the PA's ecosystem.*

PROGRAM OBJECTIVE IV.1 Develop an effective information system that caters to the information needs of all stakeholders

Specific Objective IV.1.1 To ensure periodic updating of PA management

Action: Update the PAMB, DENR, LGUs and other stakeholders through periodic reports and fact sheets

This action provides transparency of management and allows continuous flow of information to all stakeholders regarding the activities at the PA. The PAO shall submit periodic reports (monthly, quarterly and annual) regarding the progression of activities, issues and concerns and lessons learned.

Action: Establish environmental offices, charts, boards, bulletins in all concerned communities and LGUs

These venues shall facilitate the diffusion/dissemination of information to the communities and elicit corresponding feedback from the communities. Trained volunteers or personnel shall be employed to regularly update the information.

Action: Publish popular newsletters

Popular newsletters (comics, etc.) are easily understood by the community. Information Officers shall be responsible for the regular publication of these materials.

Action: Keep the various stakeholders informed through various mass media

The stakeholders and visitors to the park shall be regularly informed and updated about the management guidelines. Management information can be easily disseminated using the following tools:

- Leaflets, brochures, newsletters
- Signages inside and outside the PA
- Regular broadcasting (radio programs)
- Regular consultations with the concerned communities
- Photo documentation/slides production

Action: Stimulate better use and understanding of the Park

Interpretative programs shall be created to help the Park's users understand and enjoy the wealth of the cultural and natural features of the Park. The programs shall include information on natural and cultural aging processes, evolution of flora and fauna, settlement development patterns, micro-climatic and landscape features, indigenous knowledge of nature, among others. This information shall be particularly important to visitors who shall have access to guided tours, interpretive walks, evening camps, briefing and exhibit centers, and other appropriate venues.

Specific Objective IV.1.2 To make PA information available to a wider audience

Action: Establish a Mt. Pulag National Park (MPNP) Website

The DENR shall develop a website for Mt. Pulag to ensure that information reaches a bigger number of people. Regular allocation for maintenance should be included in the annual budget.

Action: Periodically release PA updates to research papers and other publications

Research results and findings shall be periodically released to research papers nationwide and abroad. This is to draw the attention of concerned institutions to support PA management activities.

Action: Present PA undertakings in seminars and workshops

PROGRAM OBJECTIVE IV.2 **Introduce PA management concerns to other institutions**

Specific Objective IV.2.1 To integrate PA management and environmental education into the curriculum of schools within the PA

Action: Conduct school needs assessment (SNA)

This action would assess the particular needs of a school for the development and integration of environmental education and PA management into its existing curriculum. The SNA would give information on the level of awareness of the school, expertise of faculty, available resources (books, reference materials) and others.

Action: Formulate curriculum integrating PA management and environmental education

Upon mutual agreement between the PAMB/PAO with the concerned schools, a curriculum integrating PA management and environmental education shall be developed. Initially, PAO personnel could serve as transitory faculty until such time that the school could employ permanent and trained faculty. Reference materials from the PAO shall be reproduced to serve as resources for the students.

Action: Develop a monitoring and evaluation scheme/feedback mechanism

A feedback mechanism shall be developed to monitor the progress of the new curriculum. The mechanism shall capture the issues and concerns and corresponding actions undertaken.

Specific Objective IV.2.2 To strengthen ties with the religious organizations in the area

Action: Assist in the implementation of the churches' social action programs on environmental concerns

Assistance shall be in the form of technical expertise and support, information and updates of PA activities.

Action: Conduct a series of seminars and discussions

Seminars and discussions with the leaders of religious groups could help maintain good ties with them and the people they serve. These venues could clarify issues and identify possible collaborative works.

3.5 PROGRAM V COMMUNITY RELATIONS/DEVELOPMENT

PROGRAM GOAL: *To bring together communities within and around the Protected Area towards using community-based management strategies based on indigenous knowledge systems that sustain and protect the biodiversity and ecology of the PA.*

PROGRAM OBJECTIVE V.1 Reduce the further expansion of farms and exploitation of resources

Specific Objective V.1.1 To provide alternative livelihood to the communities heavily dependent on the resources

Action: Sustain existing micro-projects

The PAO shall sustain its support for existing micro-projects. Support could be in the form of technical assistance and training. This provision will be gradually withdrawn when the concerned interest groups have become self-reliant.

Action: Formulate criteria for priority setting of livelihood activities

The livelihood sub-committee shall develop criteria for setting up new livelihood micro-projects. This is to ensure a balance between generating livelihood and conserving biodiversity. Several options could be considered through the barangay development plans and the livelihood/income-generating activities or projects identified under DAO 99-49.

Action: Institute tour guiding as a livelihood option for the local residents

Local residents shall be organized into an association to undertake tour guiding. Qualified members shall be trained on the basic skills of tour guiding such as mountaineering, first-aid and emergency operation, and visitors' orientation. Trained members shall be accredited.

Action: Package marketing strategies

One of the supporting mechanisms in setting up livelihood activities is a ready market for the produce of the communities. Several NGOs could be tapped for this undertaking.

Specific Objective V.1.2 Implement community-based forest management (CBFM)

Executive Order 263 mandates the adoption of CBFM as the national strategy to ensure the sustainable development of the country's forestland resources. It integrates and unifies all people-oriented forestry activities of the Integrated Social Forestry Program, Community Forestry Program, Coastal Environment Program, and Recognition of Ancestral Domains. This program aims to promote sustainable management of forest resources, social justice, improved well-being of local communities, and a strong partnership among local communities and the Department of Environment and Natural Resources.

Action: Conduct consultations with the communities concerned

The CBFM concept shall be explained to the communities concerned. Resource persons from the CBFM Office shall be tapped to orient these communities on the details of the various requirements and processes involved in the application for CBFM. It is essential to know about the activities allowed and extent of resource utilization in these areas.

Action: Identify potential areas for CBFM within the PA

The application for CBFM shall be limited to the designated multiple-use zones. Within these zones, buffer areas shall be established to cushion the encroachment on the strict protection zones. (It is essentially applicable in Tawangan, Ballay and Babadak where multiple-use zones are located adjacent to strict protection areas).

Action: Assist communities in complying with the CBFM Program requirements

The PAO shall assist the communities in complying with the requirements in their application for CBFM. The PAO shall also facilitate the processes involved to hasten the completion of the various stages of CBFMP implementation. The details can be referred to in Appendix 4.2.16 (DAO 29-96 or the Implementing guidelines of CBFMP).

Action: Sign MOA between communities and PAMB on the management of CBFM areas

Communities awarded with CBFMs shall forge an agreement with the PAMB to lay down specific conditions in the management of these areas.

Specific Objective V.1.3 To promote agroforestry and sustainable upland farming techniques

Action: Encourage farmers to adopt agroforestry technologies

Findings of the researches and studies concerning agroforestry techniques (refer to the first Action under specific Objective III.1.3) shall be used to encourage farmers in adopting agroforestry technologies. The newly developed systems like the series of Sloping Agricultural Land Technologies and several soil and water conservation measures shall be integrated into the indigenous agroforestry systems to suit the local condition.

Action: Domesticate wild species of plants

Species for domestication should possess potential values (medicine, food, commercial, etc.). The findings of studies from the third Action under Specific Objective III.1.3 shall be disseminated to the communities to help them propagate, grow and mass-produce the species.

Action: Promote composting and Integrated Pest Management (IPM) techniques

Composting and using Integrated Pest Management techniques would minimize if not totally eliminate the use of inorganic fertilizers and chemicals in farm production. Proper training shall be given to the concerned communities to educate them and impart the necessary skills.

PROGRAM OBJECTIVE V.2 Uphold indigenous knowledge systems and cultural traditions that support PA management

Specific Objective V.2.1 To promote indigenous knowledge systems that ensure environment protection and conservation

Action: Promote Indigenous Knowledge Systems (IKS) that emerge from research concerning resource management. Refer to Actions under Specific Objective I.2.2 and Specific Objective III.1.2.

Action: Integrate traditional resource uses in the formulation of PA policies and regulation. Refer to first Action under Specific Objective I.2.3.

Specific Objective V.2.2 To sustain cultural traditions

Action: Employ *tong-tong* in PAMB meetings and other assemblies

The *tong-tong*¹ system shall be adopted in PAMB meetings. This is to elicit more active participation from the members especially those from the communities. Traditional consultations are more appropriate for indigenous peoples than are the Parliamentary procedures.

Action: Perform cañao during festivities

Action: Sustain *aduyon* or *ubbu* in carrying out community works

Aduyon or *ubbu* refers to the traditional means of collective or community work like in the building of houses, farm works, community affairs, etc. This traditional practice shall be revived and promoted.

Action: Set up an avenue to allow for the preservation and development of the archaeological and anthropological heritage of the ethno-linguistic groups in relation to Mt. Pulag

PROGRAM OBJECTIVE V.3 **Employ proper handling and disposal of wastes**

Specific Objective V.3.1 To educate communities on proper waste disposal

Action: Educate the various communities on waste segregation and management.

Communities shall be taught to sort out their refuse into biodegradable or non-biodegradable materials. They will be trained on compost pit making.

¹ Tong-tong is a traditional means for a community/council of elder assembly, meeting, and congregation to address community affairs like conflict management, resolutions, etc.

Action: Educate and train farmers on the proper use and disposal of chemical inputs from their agricultural activities

Farmers shall be taught and trained to properly dispose of their chemical refuse to avoid contaminating bodies of water and harming plants and animals or the communities therein. Safety measures in handling chemicals like spraying, use of protective gadgets and other safety measures shall be integrated in the training.

Action: Encourage farmers to use organic materials

Farmers shall be encouraged to use organic materials which are environmentally friendly and reasonably cheaper compared to inorganic chemicals. They will be trained to use their household refuse and agricultural waste in their compost pits. Indigenous knowledge of controlling pests and insects shall be promoted. Refer to third Action under Specific Objective V.1.3.

3.6 PROGRAM VI TOURISM AND VISITOR MANAGEMENT

PROGRAM GOAL: *To institute tourism and visitor management that highlight the biological and cultural significance of Mt Pulag.*

PROGRAM OBJECTIVE VI.1 Develop ecotourism as avenue for protection and conservation

Specific Objective VI.1.1 To control the entry of visitors

Action: To implement the Terms and Conditions specified in the visitors' permit

The visitors' permit bears the following terms and conditions:

1. Visitors' permit

- All visitors are required to secure a permit from the Mt Pulag National Park Protected Area Office at Ambangeg, Bokod, Benguet. Early coordination could also be made at the Protected Areas and Wildlife Division, DENR-CAR Regional Office and at the CENRO Baguio.
- The permittee shall submit a complete list of names of the members of the party visiting the PA, their proposed itineraries and duration of stay in the PA
- Prospective visitors are encouraged to register early.

2. Entry/Camping

- All luggage and items brought by the visitors shall be inspected by the Protected Area Superintendent (PASu) or his/her duly authorized representative.
- All visitors shall undergo an orientation/briefing at the visitors center/protected area office and CENRO offices before proceeding inside the PA.
- All visitors shall take only the authorized entrance and exit points as well as the designated trails.
- Visitors are not allowed to carry firearms, explosives and prohibited drugs inside the PA.
- Visitors are mandated to observe the sacredness of the PA; they should be sensitive enough to conform with the existing customs and traditions in the area.
- No permanent/temporary structures that will detract from or destroy the features of the PA shall be constructed during their stay in the PA.
- Building of fire for cooking/camping purposes shall be allowed only in the designated areas and should be put off properly after use. Visitors should bring their own fuel or firewood. Gathering of firewood inside the protected area is strictly prohibited.

3. Waste management and sanitation

- Visitors shall keep the PA clean and sanitary at all times. Properly dispose of garbage and other refuse. Visitors should carry out their own garbage whenever they leave the PA and dispose them in designated disposal areas.
- Visitors shall discharge their wastes in designated urinal and toilet areas to maintain sanitation in the PA

4. Entrance Fees/ Camping fees

- Visitors are required to pay the following recommended entrance and camping fees:

ENTRANCE

- Foreigners - US \$ 15.00/person or its peso equivalent
- Filipino nationals - ₱ 100.00/person

CAMPING

- Foreigners - ₱ 50.00/person
- Filipino nationals - ₱ 50.00/person

Note: Residents of the municipalities of Kabayan, Bokod, and Buguias, Benguet; Tinoc, Ifugao and Kayapa, Nueva Viscaya are exempted from paying entrance and camping fees upon presentation of any identifying documents to be validated by the PASu.

Senior citizens (above 60 years old) are also exempted from paying above fees.

5. Conduct of Research and documentaries in the PA

- All researchers and outside entities who want to conduct researches, and make documentaries and movies inside the PA shall seek permission from the PAMB before any undertaking as prescribed under E.O 247, DAO 96-20 or Implementing Rules and Regulations on the Prospecting of Biological and Genetic Resources
- Any information to be published or disseminated as a result of said researches, documentaries, movies, etc. must be reviewed and approved by the PAMB

6. Tour Guides

- Visitors are required to seek the assistance of legitimate and trained tour guides to ensure the proper observance and enforcement of PA policies.
- Tour guides shall be paid a standard fee. One tour guide for five visitors is the ideal ratio.
- Residents of the municipalities of Kabayan, Bokod, and Buguias, Benguet; Tinoc, Ifugao and Kayapa, Nueva Viscaya are exempted from employing tour guides but Park Rangers shall accompany them during their stay in the PA.

7. Transportation

- Vehicles allowed to ferry visitors inside the PA shall be accredited by the PASu.
- Vehicles applying for accreditation should meet the following requirements:
 - Registered vehicles with passenger insurance
 - Licensed drivers
 - At least vehicles with four-wheel drive capability

8. Others

- The Protected Area Office / DENR is not liable for any loss or damage of personal properties/belongings or injury or death due to accidents that may happen to any members of the group during their visit to the PA
- Violations of any of the above-mentioned terms and conditions will be sufficient grounds for the cancellation of this permit. The permittee/permittees shall be held liable for the penalties provided under existing laws (NIPAS Act/RA 7586; EO 247, PD 705 and other existing laws) and rules and regulations of the DENR/NIPAP.
- Visitors shall abide by the rules and regulations pursuant to Section 20 of the NIPAS Act/RA 7586 and Section 48 of DAO 25, series of 1992 regarding the prohibited acts inside protected areas.

Action: Set the carrying capacity of each tourist area

Based on researchers' recommendations/findings on third Action under Specific Objective III.1.2, the PAO shall strictly observe and monitor the carrying capacity of each tourist destination. Also, a specific guideline shall be developed regarding temporary closure of each tourist site for visitors. This case is applicable when the specific area needs rehabilitation or the condition of the PA is endangered.

Specific Objective V.1.2 To offer facilities that help in PA management

Action: Provide and maintain the necessary infrastructure and PA facilities

- Identify and develop camping areas/sites
- Provide trash bins and garbage containers in strategic locations
- Maintain designated trails and roads
- Build toilets and urinals
- Upgrade interpretative facilities
- Build lodging areas at the ranger station

Refer also to Specific Objective II.2.2.

Specific Objective V.1.3 Develop other potential tourism sites to reduce the pressure at the grassland summit

Action: Identify areas within the PA that are potential for tourism (land lakes, burial caves, waterfalls, etc).

Action: Conduct feasibility studies including carrying capacities

Action: Build low-impact infrastructures/facilities i.e. signages, trails, latrines, etc.

Specific Objective V.1.4 To provide comprehensive information about the PA to visitors

Action: Make information available to visitors through brochures, leaflets, maps

Action: Produce slides or video presentations

Action: Develop web sites

Refer back to first Action under Specific Objective IV.1.2 and last Action under Specific Objective IV.1.1.

Specific Objective V.1.5 Develop a visitor monitoring system

Action: Conduct periodic surveys for identified information needs

- Origin of visitors
- Visitor satisfaction
- Visitor motivation
- Attitudes about possible new facilities

Action: Establish a visitor suggestions/complaints system

3.7 PROGRAM VII INSTITUTIONAL CONTROL, ORGANIZATIONAL MANAGEMENT AND ADMINISTRATION

PROGRAM GOAL: *To institute a community-based protected area management system*

PROGRAM OBJECTIVE VII.1 To strengthen PA management and operations

Specific Objective VII.1.1 To empower the PAMB

Action: Ensure the created committees are operational

The PAMB has created 5 committees: livelihood (micro-projects), external affairs (networking, legal affairs), environment (research, land-use planning, land tenure), development (tourism and development projects) and education (IEC and training). Each committee shall prepare a committee plan based on their defined roles and responsibilities to guide them in their work. These plans shall be deliberated upon and approved by the board. Each chairperson shall report his/her committee's accomplishment every PAMB assembly.

Action: Provide incentives to PAMB members

PAMB members shall be provided with incentives like transportation, meal and accommodation allowances during meetings; health insurance; honorarium and other minimal benefits to motivate them in carrying out their functions. However, this would be subject to availability of funds.

Action: Continuously update all developments inside the PA

The Protected Area Office through the PASu shall regularly update the PAMB on the developments and progress in the PA. The PASu shall present accomplishment reports, submit quarterly and annual reports, performance evaluation of PA staff, and prepare annual plans during the start of the year.

Action: Undergo training relevant to PA management

PAMB members shall undergo a series of training on PA management which will include paralegal, fund sourcing and development, team building, conflict management and other relevant exercises.

Specific Objective VII.1.2 To improve performance of PAO staff

Action: Establish an organizational structure that facilitates the mobilization of staff

Action: Establish required staff positions

It is essential to employ the required staff to achieve smooth implementation of PA activities. These positions shall be based on the expertise and skills needs for PA operation. In the long run, some positions could be phased out or modified depending on the pace of implementation and needs of the PA.

Action: Define tasks and functions of all staff

The tasks, duties and responsibilities of each staff shall be defined to avoid overlapping of functions. These will be stated in their Terms of Reference (TOR). The TOR will then serve as the basis for performance evaluation.

Action: Provide relevant training and capability/team building

Training, skills enhancement and team building exercises shall be an integral part of the PA activities to maintain quality work among the PAO personnel. A Training Needs Assessment shall be undertaken to identify the training requirements as well as the resources needed.

Specific Objective VII.1.3 To provide the necessary logistics and facilities

Action: Maintain the available transport vehicles

Part of the budget shall be allotted for the maintenance of vehicles available at PAO. These vehicles are vital in mobilizing staff in their respective assignments.

Action: Upgrade office equipment

Action: Acquire horses

The horses shall be used in mobilizing staff to areas not accessible by motor vehicles specifically in Balete, Lusod and other remote parts of the PA.

Specific Objective VII.1.4 Construct offices and infrastructures

Action: Construct PA Office, staff house, research laboratory, patrol posts, residential guard houses and visitor center at strategic points within and around the PA

Action: Maintain the road leading to the ranger station

PROGRAM OBJECTIVE VII.2 **Involve the various stakeholders in the protection and enforcement of PA policies and regulations**

Specific Objective VII.2.1 To secure the maximum participation of the various stakeholders

Action: Organize, train, mobilize and deputize volunteer groups in each barangay

This involves the formation of volunteer groups in each barangay to complement the PAO staff in the implementation of various PA management activities. These volunteer groups shall be trained on various aspects of PA operation (IEC, law enforcement, conflict management, PA maintenance, community organizing and others.).

Action: Engage the Youth Conservation Clubs in environmental work

The Youth Conservation Clubs will involve secondary and college students in environmental works like waste management, tree planting, and nursery works. The PAO shall provide training, lectures / orientation, PA exposure and other technical support. A MOA shall be signed with the respective schools to stipulate the specific concerns of the parties involved.

Specific Objective VII.2.2 To strengthen the capability of the Park Rangers and organized groups in the protection and enforcement of PA regulations

Action: Provide continuous training and education on environmental issues, paralegal and ecotourism issues

Park Rangers and members of the organized volunteer groups shall be given the necessary training and education on PA management to ensure their effectiveness and efficiency in the implementation of PA activities. Assessment and evaluation on their training needs shall be a continuing activity.

Action: Conduct cross visits

Park rangers and volunteer groups shall be given cross-visit opportunities. These activities shall enable them to learn from the experiences and lessons of other Protected Areas and relate them to the interest of Pulag. This would be an incentive for the groups and an important investment for the long-term management of the PA.

Action: Conduct regular meetings and assemblies

Regular meetings for PAO staff including Park Rangers shall be held once a month. These meetings shall be the venue to update the PAO staff with the progress of activities, and clarify issues and projects for the succeeding activities. At the field level, Park Rangers shall facilitate the conduct of periodic planning and meetings with the volunteer groups. Feedback or lessons learned from these exercises can help to steer the PAMB in the formulation of policies and serve as guides in program management.

Specific Objective VII.2.3 To motivate and encourage the participation of park rangers and volunteer groups

Action: Provide them with uniforms and other equipment that enable them to function more efficiently and effectively

Park Rangers and volunteers shall be provided with uniforms and essential equipment and field supplies to make them more efficient and effective in their work. They will also be given medical insurance and social security.

Action: Organize environmental competition among the volunteer groups

The PAO shall develop environmental programs that the groups can participate in and to encourage competition among them. Each volunteer group shall develop and implement its own program in their respective barangays. The program shall promote PA management and protection and shall be consistent with the overall mission and policies. The PAMB in coordination with barangay and municipal officials shall develop the criteria to rate the performance of each volunteer group. Monitoring and evaluation shall be done periodically to document and record the progress. At the end of the competition (say a year or two years or whatever will be agreed upon), the ratings shall be tallied and the group garnering the highest rating shall be the winner. Prizes and recognition shall be awarded.

PROGRAM OBJECTIVE VII.3 To achieve the legal establishment of the Protected Area pursuant to the NIPAS Act

Several stages have already been accomplished or initiated for the establishment of Mt. Pulag as a Protected area. This plan seeks to achieve the remaining legal requirements prescribed under the NIPAS Act.

Specific Objective VII.3.1 To pursue Presidential Proclamation, Congressional Enactment and Demarcation

Action: Prepare all the legal documents needed for Presidential Proclamation.

The PAO shall seek the endorsement of the various stakeholders in the proclamation of Mt Pulag under NIPAS Act (Certification of Completed Staff Work). The PAMB shall agree on the category and name that best describes its biophysical and socio-cultural attributes as well as its mission and goals. Also, the PAO and the PAMB shall consult the communities regarding the new boundaries of the PA. While the presidential proclamation adheres to the technical description of Proclamation 75, the new boundaries shall be appended in the Congressional Enactment.

Action: Draft the PA Bill and facilitate its ratification in the Congress

The PAO shall draft a proposed Bill that legislates the policies, administration and management of the PA. The support of lawmakers (both at the Lower House and Senate) to sponsor the proposed Bill and assistance of other public officials to ensure the congressional enactment of the PA shall be sought.

Action: Demarcate the Protected Area

3.8 PROGRAM VIII REGIONAL INTEGRATION

PROGRAM GOAL: *To work as partners with regional, provincial and local institutions in ensuring the protection and management of the park as PA*

PROGRAM OBJECTIVE VIII.1 **Ensure that all PA policies and regulations are integrated into the policies of various stakeholders and administrative units**

Specific Objective VIII.1.1 To establish strong linkages with the various stakeholders in the protection of the PA

Action: Identify the legitimate stakeholders of the PA

A coordination workshop shall be undertaken to identify and recognize the legitimate stakeholders of the PA. Only the recognized stakeholders shall have representation in the PAMB.

Action: Leveling off of policies and regulations existing in the PA

The stakeholders shall be oriented and acquainted with the existing policies and regulations enacted in the PA. This is to ensure proper coordination and synchronization of programs and policies.

Action: Generate support through MOAs, ordinances or resolutions from among the various stakeholders

Policies shall be collectively put into operation throughout the PA. These policies must be standard for all political units and all concerned agencies and institutions. MOAs shall be forged by the various agencies while the different barangay LGUs shall legislate ordinances and resolutions.

Specific Objective VIII.2.1 To coordinate the development and implementation of plans in the PA

Action: Assist in the development of barangay plans

Available data and pertinent information regarding the PA shall be utilized to guide the barangay leaders in formulating their barangay development plans. They shall be introduced to and provided copies of PA policies and regulations. PAMB members representing the barangay and PAO staff shall facilitate the process and steer the leaders in developing plans that are supportive and consistent with the mission and goals of the PA.

Action: Coordinate with other developmental groups in the area to comply with the enacted policies and regulation of the PA

This action pertains to other agencies providing development support like infrastructure, livelihood and other assistance to the communities affected by the PA for them to abide by the policies and existing laws regarding Protected Areas. The PAMB shall ensure that these agencies abide with the PA policies and existing laws and be responsible in the examination, investigation and endorsement of these projects to concerned agencies prior to implementation.

Action: Prepare specific management guidelines and manuals for each major program to ensure consistency

Specific Objective VIII.3.1 To ensure that the Park's management plan is tied in with the overall regional land use plan to provide consistency and relevance with the economic and conservation objectives set forth in regional plans and programs

Mt. Pulag is only one element of a regional system. Opportunities offered in the Park shall be complementary to, rather than competitive, with the opportunities offered at other locations. Cooperation shall be ensured.

Action: Link the Park to adjacent areas through natural corridors.

Action: Integrate the Park system with the overall regional protected area concept to ensure a network system of regional biodiversity conservation and protected area linkage with existing and future conservation sites in the Cordillera.

Action: Strictly implement the Environment Impact Assessment (EIA) process

The EIA process shall be strictly implemented as a prerequisite for major development undertakings to ensure compatibility of proposed actions with the overall conservation objectives of the management plan. This shall ensure the ecological, social, and economic feasibility of any major development introduced in the Park.

3.9 PROGRAM IX

FINANCIAL SUSTAINABILITY

PROGRAM GOAL: *To achieve a self-reliant protected area where operations therein can be sustained by the funds generated.*

PROGRAM OBJECTIVE IX.1 Develop a scheme that sustains the operation of the PA

Specific Objective IX.1.1 Tap line agencies in the area to support PA management

Action: Lobby the DENR to provide enough personnel and sufficient funds to sustain PA operations

Exhaust all means to appeal to the DENR to sustain and increase its support for PA management. Deploying personnel and allocating ample funds and resources are vital to the operations of the PA. With meager funds, regular staff from the department could be detailed to assume different posts in running the field operations and administrative services.

Action: Induce the agencies working in the area to support the deployment of Park Rangers

The various agencies including the LGUs shall be solicited to support the deployment of additional personnel. The Green Fee being collected by Kabayan could be explored to supplement the wages/salaries of Rangers. In the absence of adequate funds, personnel from the various LGUs engaged in environmental work could be tapped and trained for PA protection. Community organizers, field technicians or field personnel of programs supported by other agencies in the PA could be tapped to help in PA protection and management.

Action: Coordinate the other programs and projects in the area to allocate their resources to priority concerns of the PA

Special Projects of the Department of Agriculture operating in the PA which include the CHARM, CASCADE, CECAP shall prioritize their fund allocation with the concerns of the PA. A coordination workshop shall be held to thresh out the areas for collaboration.

Action: Involve the National Power Corporation (NPC) in the deployment of Rangers specifically along entry points to the PA

Through a MOA, the Park Rangers employed by the National Power Corporation could extend their assignments even within the PA.

Action: Forge MOAs with the Private Sector (Philex Mining and Benguet Mining Corporation) to formalize their commitment resulting from the Phase-in/Phase-out Workshop

- Installation of Signboards (both)
- Provision of firefighting tools (Philex)
- Training on first aid (Philex)
- IEC (Benguet Mining Corp)

Refer further to the proceeding of the workshop - Appendix 5.8.2

Specific Objective IX.1.2 To source out funds/ resources from potential donors

Action: Collaborate with academic and research institutions in the implementation of priority researches for PA management

Action: Seek assistance from foreign donors involved in PA conservation, natural resources management, and other environment-related endeavors

Action: Tap local and national NGOs to provide technical and financial assistance to the PA

Specific Objective IX.1.3 To generate revenue from the potential users of PA services and resources

Action: Scale collection from PA revenue (entrance, camping, lodging, research, movie production and other fees)

This action allows the PAMB to set fees for specific uses of the PA. A study on the willingness-to-pay among the visitors would serve as guide for the PAMB in setting fees.

Action: Develop a mechanism to collect fees from the use of water resources

Water is one of the most valuable resources generated from the PA. However, rapid destruction of the watershed areas is currently observed. The PAMB can thus develop a mechanism to charge fees for all water users of the PA. However, this action should be administered through consultations with the stakeholders of the PA.

Action: Explore the possibility of availing the Livelihood Fund and Environmental Enhancement Fund of the NPC

It is mandated under the Rules and Regulation Implementing Section of RA 7638 otherwise known as Department of Energy Act of 1992 that NPC shall allot a certain amount from its electric sales to the Livelihood and Environmental Enhancement Fund (Refer to the proceedings of Phase In/Phase out workshop –Appendix 5.8.2). This fund is intended for its beneficiaries. The PAMB could explore this as a possible source of funds for livelihood programs. A MOA could be forged to stipulate specific conditions.

Action: Collect royalties and fees from bioprospecting activities (as prescribed by EO 247)

Concerned institutions and individuals allowed to conduct bioprospecting activities in the area shall be charged with fees as specified under existing laws. Field personnel as well as the communities shall intensify their vigilance towards bioprospectors to ensure the implementation of this policy.

Specific Objective IX.1.4 To develop a mechanism for the utilization of the Integrated Protected Area Fund

Action: Establish rules governing the administration and use of the funds

This action enables the PAMB to devise rules and a mechanism to effectively manage the use of funds and ensure that the expenditures will go to PA protection and management.

4 SCHEDULE – Proposed Implementation Workplan

The Five-year Workplan is based on the management prescriptions and shall serve as a guide for the Mt. Pulag National Park Protected Area Management Board (PAMB) in implementing the nine (9) management programs. The work plan is also intended to be used by the Protected Area Superintendent (PASu) in coming up with the annual work plan for the Mt. Pulag National Park Protected Area Office. The workplan details the strategies to be implemented per quarter for a period of five years and also provides the possible institutions/agencies that can be tapped to provide support, technical and financial, to specific activities.

Table 23. Proposed 5-Year Implementation Work Plan for Mt Pulag National Park

5 BUDGET

The Five-year Summary Budget shows the financial requirements in sustaining the daily management operations for the Mt. Pulag National Park. The budget is also structured to enable the PAMB and the PASu to implement particular programs specified in this plan that is presented in detail in the five-year work plan. The breakdown of the budget required in the continuous operation of the Protected Area Office in the management of Mt. Pulag National Park is contained in Appendix 5.8.1.

Table 24. 5-Year Budgetary Requirements for Mt Pulag National Park

INTERIM GLOSSARY

The following terms presented herein are found within the General Management Plan and are defined using legally acceptable definitions. For a full ecological glossary, see the Ecological Glossary for Protected Area Managers, attached as an appendix. (Note: underlined words within the text are also defined).

Agriculture - the practice of farming or cultivation of land

Agroforestry - a land-use management system that combines the production of agricultural crops, forest trees and/or livestock simultaneously or sequentially on the same unit of land for the purpose of creating employment opportunities for upland farm labor, producing raw materials for cottage industries, providing food and other products for home consumption and improving ecological conditions in the watersheds. It applies management practices that are compatible with the cultural practices of the local population - (Par. 1, Sec. 30, DAO 94- 48)

Alienable and Disposable (A&D) Lands - refer to those lands of the public domain which have been the subject of the present system of classification and declared as not needed for forest purposes - (Sec. 3 [c], PD 705, [Revised Forestry Code])

Ancestral Domain - refers to all areas generally belonging to ICCs/IPs comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs, by themselves or through their ancestors, communally or individually since time immemorial, continuously to the present except when interrupted by war, force majeure or displacement by force, deceit, stealth or as a consequence of government projects or any other voluntary dealings entered into by government and private individuals/corporations, and which are necessary to ensure their economic, social and cultural welfare. It shall include ancestral lands, forests, pasture, residential, agricultural, and other lands individually owned whether alienable and disposable (lands) or otherwise, hunting grounds, burial grounds, worship areas, bodies of water, mineral and other natural resources, and lands which may no longer be exclusively occupied by ICCs/IPs but from which they traditionally had access to for their subsistence and traditional activities, particularly the home ranges of ICCs/IPs who are still nomadic and/or shifting cultivators - (Sec.3 [a], Chapter II, RA 8371)

Ancestral Lands - refers to land occupied, possessed and utilized by individuals, families and clans who are members of the ICCs/IPs since time immemorial, by themselves or through their predecessors-in-interest, under claims of individual or traditional group ownership, continuously, to the present except when interrupted by war, force majeure or displacement by force, deceit, stealth, or as a consequence of government projects and other voluntary dealings entered into by government and private individuals/corporations, including, but not limited to, residential lots, rice terraces or paddies, private forests, swidden farms and tree lots - (Sec. 3 [b], Chapter II, RA 8371)

Biological diversity (Biodiversity) - the variety and variability among living organisms and the ecological complexes in which said organisms occur. It is usually considered at three levels namely: genetic diversity, species diversity and ecosystem diversity - (Sec. 2 [2.5] Joint DENR- DOT Memorandum Circular no. 98-02)

Biogeographical Regions - the division/ classification of the world in which we live into eight regions of distinct combinations of plants and animals across a gradation of climates. The Philippines lies within the Oriental Region of India and S.E. Asia.

Biota - all of the organisms, including animals, plants, fungi, and microorganisms, found in a given area

Buffer zone - are identified areas outside the boundaries of and immediately adjacent to designated protected areas pursuant to Section 8* that need special development control in order to avoid or minimize harm to the protected area - (Sec. 4 [c], RA 7586)

Certificate of Ancestral Domain Claims (CADC) - A certificate issued by DENR to an indigenous cultural community/indigenous people declaring, identifying and recognizing their claim to a particular traditional territory which they have possessed and occupied, communally or individually, in accordance with their customs and traditions since time immemorial - (Par.6, Sec.4, Art. I, DAO 96-29)

Community Based Forest Management Strategy - the national strategy to achieve sustainable forestry and social justice - (Sec. 1, Exec. Order no. 263)

- Organized efforts by the DENR to work with communities in and near public forestlands with the intent to protect, rehabilitate, manage, conserve, and utilize the resource - (Par. 10, Sec. 4, Art. I, DAO 96-29)

Conservation - the action of preservation and protection from loss or from being used up which can be done through the wise use of resources

Cultivation - the act of preparing land and growing crops by plowing, planting, and necessary care

Ecology - the study of the dynamic relationships of organisms with each other in the environment that they create

Ecosystem - a community of living things that interact with each other

Ecotourism - a low-impact, environmentally sound and community-participatory tourism activity in a given natural environment that enhances the conservation of bio-physical and cultural diversity, promotes environmental understanding and education, and yields socio-economic benefits to the concerned community - (Sec. 2 [2.1] Joint DENR- DOT Memorandum Circular no. 98-02)

Endangered species - species and subspecies of wildlife whose populations are in danger of extinction and whose survival is unlikely if the causal factors continue operating - (Sec. 1 [1.2], DAO 91- 48)

Endemic species - species whose natural occurrence is confined to a certain region.

* For each protected area, there shall be established peripheral buffer zones which necessary, in the same manner as Congress establishes the protected area, to protect the same from activities that will directly and indirectly harm it. Such buffer zones shall be included in the individual protected area management plan that shall be prepared for each protected area. That DENR shall exercise its authority over protected areas as provided in this Act on such area designated as buffer zones.

Environment - the sum of all external conditions and influences that affect the development and, ultimately, the survival of an organism or group of organisms - (Haribon, 1995)

Environmental Compliance Certificate (ECC) - refers to the document issued by the government agency concerned certifying that the project under consideration will not bring about an unacceptable environmental impact and that the proponent has complied with the requirements of the environmental impact statement system - (Sec. 3 [m], RA 7942)

Environmental Impact - the alteration, to any degree, of environmental conditions or the creation of a new set of environmental conditions, adverse or beneficial, to be induced or caused by a proposed project - (Sec. 62 [I], PD no.1152, [Philippine Environmental Code])

Environmental Impact Assessment - refers to the process of predicting the likely environmental consequences of implementing project activities - (Sec. 3 [d], Art. I DAO 92-21)

Environmental Impact Statement (EIS) - refers to the documentation of the environmental impact assessment (EIA) study on the project including a discussion of the direct and indirect consequences upon human welfare and ecological and environmental integrity - (Sec. 2 [b], DAO 91 – 28)

Environmental Impact Statement System (EISS) - refers to the entire process of organization, administration and procedure institutionalized for the purpose of assessing the significance of the effects of physical developments on the quality of the environment - (Sec. 3 [c], DAO 92- 21)

Extinction - the evolutionary termination of a species caused by the failure to reproduce and the death of all remaining members of the species

Exploitation - the abuse, mishandling and excessive utilization of natural resources by humans without concern for sustainability. Exploitation invariably results in environmental degradation

Forest - Either natural vegetation or plantations of forest crops such as trees, or both, occupying a definable, uninterrupted or contiguous area not less than one hectare in size with the tree crowns covering at least ten (10) percent of the area, exclusive of the associated seedlings, saplings, palms, bamboo and other undercover vegetation. A natural forest is a stand constituted by natural succession without human intervention which includes such stand types as dipterocarp, pine, mossy, beach and/or mangrove, and for purposes of these rules are classified according to: 1) primary use and management; and 2) growth formation. As to primary use and management, a forest shall be either a: 1) protection forest; or 2) production forest. As to growth formation, a natural forest is classified according to either 1) primary or old growth forest or 2) a residual or second growth forest which refers to natural forest which has been previously subjected to timber harvesting or extraction - (Par. 21, Sec. 4, DAO 96-29)

Growth Center - small towns or large villages that are likely to have the potential of becoming a nuclei for the future economic, social and political development of the surrounding areas. Thus, the impact of such growth must be taken into account during the process of protected area planning

Habitat - the specific surroundings within which an organism, species, or community lives. The surroundings include physical factors such as the temperature, moisture and light, as well as biological factors such as the presence of food or predator organisms

Indigenous Cultural Community/ Indigenous People (ICC/ IP) - refers to a group of people or homogenous societies identified by self-ascription and ascription by others, who have continuously lived as organized community on communally bounded and defined territory, and who have, under claims of ownership since time immemorial, occupied, possessed and utilized such territories, sharing common bonds of language, customs, traditions and other distinctive cultural traits, or who have, through resistance to political, social and cultural inroads of colonization, non-indigenous religions and cultures, became historically differentiated from the majority of Filipinos. ICCs/IPs shall likewise include peoples who are regarded as indigenous on account of their descent from the populations which inhabited the country, at the time of conquest or colonization, or at the time of inroads of non-indigenous religions and cultures, or the establishment of present state boundaries, who retain some or all of their own social, economic, cultural and political institutions, but who may have been displaced from their traditional domains or who may have resettled outside their ancestral domains - (Sec. 3 [h], Ch. II, RA 8371)

Indigenous species - organisms that originated or were produced naturally in a specific area

Initial Environmental Examination - refers to the document required of proponents describing the environmental impact of, and mitigation and enhancement measures for projects or undertakings located in an environmentally critical area as listed under Presidential Proclamation no. 2146, series of 1981, as well as other areas which the President may proclaim as environmentally critical in accordance with Section 4 of PD no. 1586 - (Sec. 5 [ar], DAO 96-40)

Kaingin - (also known as Slash- and- Burn/ Swidden Farming) method of agriculture in which trees and natural undergrowth are cut down and burned, leaving the soil bare before cultivation begins

Management Plans - serves as guide in formulating individual plans for each protected area. The management planning strategy shall, at the minimum, promote the adoption and implementation of innovative management techniques including, if necessary, the concept of zoning, buffer zone management for multiple use and protection, habitat conservation and rehabilitation, diversity management, community organizing, socio-economic and scientific researches, site-specific policy development, pest management, and fire control. The management planning strategy shall also provide guidelines for the protection of indigenous cultural communities, other tenured migrant communities and sites and for close coordination between and among local agencies of the Government as well as the private sector - (Sec. 9, RA 7586)

Management Zones - system of classifying the different regions of a protected area according to its biological and environmental characteristics and significance, in order to implement suitable administration and management strategies and to provide a clear guideline in determining the permissible acts that can be conducted in the said area

Natural Resources - materials supplied by nature that are necessary or useful for life. Minerals, timber, and water are examples of natural resources

National Integrated Protected Areas Systems (NIPAS) - is the classification and administration of all designated protected areas to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent possible - (Sec. 4 [a], RA 7586)

Organism - a life form

Primary/ Old- Growth/ Virgin Forests - forest largely undisturbed by human activities

Production Forests - areas with slopes from 0-50% developed to supply both timber and non-timber products such as bamboo, rattan, horticultural crops (e.g., fruits/nuts trees), gums and resins, spices, or a combination thereof (Par. 23, Sec. 2, Art. I, DAO 94-48)

Protected Area - refers to identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation - (Sec. 4 [b], RA 7586)

Protection Forest - all types of forest that, under existing laws and regulations, may not be utilized for timber production and which include old growth forest, mossy forest, sub-marginal forest, forest on slopes above fifty per cent (50%), forest at elevations of greater than 1,000 meters above sea level, all strips bordering river banks, mangrove areas along shorelines and other forest areas (Sec. 3 [3.9], Ch. I, DAO 93-60)

Public Domain/ Public Lands - all lands that were not acquired by private persons or corporations either by grant or by purchase. These may either be alienable and disposable lands or non- disposable public lands. 'All lands of the public domain are owned by the state' - (Sec. 2, Art. 12, 1987 Constitution)

Public Forest - the mass of lands of the public domain which has not been the subject of the present system of classification for the determination of which lands are needed for forest purposes and which are not - (Sec. 3 [a], PD 705)

Residual/ Second – Growth Forest - forest or stand of trees that has grown up naturally after removal of original stand by logging, fire, harvesting, insect attack or other causes

Selective logging - the systematic removal of the mature, over-mature and defective trees in such manner as to leave adequate number and volume of healthy residual trees of the desired species necessary to assure a future crop of timber, and forest cover for the protection and conservation of soil and water - (Sec. 3 [w], PD 705 [Revised Forestry Code])

Special Interest groups - any group or entity bound by a certain and specified interest, issue, and concern - (Sec. 2 [g], DAO 94-30)

Species - all the plant or animal individuals that can successfully interbreed and produce fertile offspring

Stakeholder - a person or entity who place importance on the survival of the protected area because of the direct or indirect benefits and advantages (economic, aesthetic, etc) which it provides

Sustainable development - as defined by the World Commission on Environment and Development, means meeting the needs and aspirations of the people without compromising the ability of future generations to meet theirs - (Par. 43, Sec. 4, DAO 96-29)

Tenure - guaranteed peaceful possession or use of specific land area and the resources found therein, covered by an agreement, contract or grant which cannot be altered without due process - (Par. 45, Sec. 4, DAO 96-29)

Tenured Migrants/ Communities - are communities within protected areas which have actually and continuously occupied such areas for five (5) years before the designation of the same as protected areas in accordance with this Act and are solely dependent therein for subsistence - (Sec. 4 [I], RA 7586)

Timber land - refers to that portion of the public domain, characterized by a predominant growth of trees or wood species, including nipa, mangrove and other swamps, which has been delimited, classified and declared as such; the phrase includes all lands of the public domain not otherwise classified as agricultural or alienable, industrial or commercial, residential, resettlement, mineral or grazing land – (Sec. 82 [a], Art XI, PD 389)

Tourism - the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes - (WTO)

Watershed - a land area drained by a stream or fixed body of water and its tributaries having a common outlet for surface run-off - (Sec. 3 [m], PD 705, [Revised Forestry Code])

Wildlife - animals and plants in their natural state; that is, they exist in their native habitat and are left alone by humans in order for them to live according to their biological and inherent ways of life and to survive using their basic skills and instincts

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