

CATANDUANES WATERSHED FOREST RESERVE 5-YEAR ADAPTIVE MANAGEMENT PLAN (2011 – 2015)

I. INTRODUCTION

The island province of Catanduanes lies in the eastern frontier of the country that is virtually isolated in the Pacific Coast. Though pretty much within the typhoon belt, it is blessed with significant landforms and rich forests thus, Catanduanes is considered the “last frontier” of Bicol Region in terms of forest cover. With a rugged and mountainous topography which becomes more pronounced toward the central core, broken down by a narrow strip of valley floors in the midsection and small patches of plains along its coastal areas where most settlements are located.

These forests however, like all other forest and areas in the country were not spared from exploitation in the past. Logging concessions that operated in the province in the late sixties (60’s) have caused the rapid decline in the province’ old growth forests from 24,500 hectares in 1969 to only 5,900 hectares left in 1984.

The decreasing forest cover has continued despite the logging ban that was imposed by the national government in the province’ forest lands in 1973, which was exacerbated by unsustainable upland farming practices and other land uses. Thus, resulting to low soil productivity, soil erosion, loss of biodiversity and impaired hydrology, which when allowed to continue, would threaten the province’ supply of water and pose serious repercussions to lowland ecosystem and to the people’s well-being. These forest areas are the main source of all types of water supply in the province for domestic, irrigation, industrial, hydro-electric power generation, recreation and others.

In the light of this situation, the Philippine Government has set aside large portion of the Province’ forest areas into Watershed Reservation in June 23, 1987 through Presidential Proclamation No. 123. The Catanduanes Watershed Forest Reserve (CWFR) has a total area of 26,010 hectares covering the municipalities of Baras, Bato, Caramoran, Gigmoto, San Miguel, San Andres, Virac, and Viga.

Pursuant to the provisions of the NIPAS Act (RA 7586) of 1992, DAO No. 25, S-1992 and DAO No. 2008-26 (the Revised Implementing Rules and Regulations), the CWFR became its initial component and the Interim Protected Area Management Board was organized in 1996.

This significant development for the national concern over environmental protection and biodiversity conservation has opened the gate to explore the opportunities and challenges of managing, protecting and conserving the remaining forest cover and the biological resources in the watershed for the use and enjoyment of the future generations.

II. RATIONALE OF THE MANAGEMENT PLAN

The Rapid Resource Assessment (RRA) which was conducted in the province in 1997 reveals that the Catanduanes Watershed Forest Reserve, being the major source of water in the province is also characterized by a diverse ecosystems. CWFR is home to important wildlife species of which some are considered unique to the province but are nearing extinction. Some species of reptiles, birds and amphibians are still abundant in the area. Their natural habitat is characterized by natural features and also have recreation and ecotourism potentials. These qualities of the watershed made somewhat difficult to manage but should be preserved by employing immediate protection and conservation measures.

The considerable area of old growth forest that is located in the upper most portion of the watershed was validated to be still intact and in good condition. This was made possible through coordination and latest interview with key stakeholders such as the Barangay LGUs, people's organizations and the local community that are dependent in its resources.

The Provincial Government also taps the optimum utilization of water that emanates from the watershed to augment the prevailing power crisis in the province by employing additional hydro-electric power sources. Sunwest Water and Electricity Corporation (SUWECO) is among the pioneers in this endeavor. At present, the company is on the stage of developing three (3) mini- hydro plants/projects located in Brgys. Solong, San Miguel with a total budget of P404 million, Paraiso, San Miguel with a total budget of P459.7 million and in Obi, Caramoran with a corresponding budget of P242 million. With the huge amount of investment, these three (3) mini- hydro power plants are expected to generate a combined electricity of 6.4 megawatts (MW) which is enough to reduce the present electricity rates. This is aside from the existing hydro electric power plant being operated by the NAPOCOR in Balongbong, Bato, Catanduanes.

However, various threats and pressures that were listed in the 1997 Protected Area Suitability Assessment (PASA) report still exist. The continuing increase of the local population puts pressure in the uplands to satisfy the increasing demand for settlements, food production and agricultural developments for livelihood activities. Hence, the demand for forest resources had also substantially increased. Illegal cutting of trees for commercial and domestic purposes; and also wildlife collection or hunting and utilization of minor forest products by the upland communities for survival and sustenance is quite alarming. These are impending threats to the future supply of water in the province and the biodiversity that abound in its forests. While, it is also worth mentioning the impact of climate change which may adversely affect species' populations, water supply and food security in the province..

Management practices, conservation and protection measures, developmental projects and other social services that are supposed to address the above condition are very limited. Various government and non-government organizations that depend on

watershed resources which include the LGUs have their own management and developmental options that are usually uncoordinated with one another. And though the Protected Area Management Board (PAMB) conducts regular meetings to tackle all issues that are happening within the watershed, the DENR still carries the bigger responsibility of governing and protecting the watershed.

There is a need therefore to synchronize and integrate all these efforts, and that cooperation and partnership among all stakeholders should be forged so as to achieve the common goal of attaining the productive and sustainable management of the watershed.

The preparation of this Management Plan for the watershed is very timely though already long over-due. This will serve as a blue print of the deliberate courses of actions that will be undertaken for the next five (5) years so as to usher the CWFR into an ideal devised scenario for the benefit and enjoyment of the present and future generations.

III. SITE DESCRIPTION

A. Location and Area

The island Province of Catanduanes is located in the Pacific Coast, southeast of the main island of Luzon. It lies between 13.35 and 14.1 degrees north Latitude and extends from 124.0 to 124.5 degrees east Longitude. The island is bounded on the west by the Maqueda Channel, on the south by Lagonoy Gulf, and on the north and east by the Philippine Sea.

The Catanduanes Watershed Forest Reserve lies between 124.05 and 124.21 degrees east Longitude and 13.35 to 13.51 degrees north Latitude and covers the forested areas including some alienable and disposable lands of the municipalities of Virac, San Miguel, Bato, Baras, Gigmoto, Viga, Caramoran and San Andres. It includes the old growth forests located at 13°45' to 13°55' North Latitude and 124°10' to 124°20' East Longitude.

It has a total area of 26,010 hectares representing 17.20% of the province' total land area.

B. Climate

Catanduanes climate falls under the Type II of the "Coronas Classification" for climatic zones, best described as having no distinct dry season with a very pronounced rainfall, usually from November to January when storms are more frequent and low pressure systems are active.

However, in the last decade (1999-2008) drier months or less rainfall were observed generally from the months of May to August except in some unusual typhoon occurrences like the super typhoon "Dindo" that struck the province in May 2004; "Reming" in 2006 and "Ondoy" in 2009 which brought a considerable amount of

precipitation. Longer dry periods were also observed from the early months of 2002 and 2003 due to the El Niño phenomenon that prevailed during that period.

C. Rainfall

The average rainfall during the last decade was about 3,294.74 mm which was observed to be high starting from the months of October which is the onset of the northeast monsoon and ease up in February.

Majority of the average annual rainfall in the province is due to the occurrence of tropical cyclones; while the rest is attributed to the combined effects of the southeast and northeast monsoons, the Inter-Tropical Convergence Zones, the shorelines easterly waves and other rainfall causing weather patterns.

D. Temperature

The extremes of temperature occur between the 2nd and 3rd quarters of every year brought about by the combined effects of the longer daylights, a more focused sun and high humidity. The coldest mean temperature for the 10-year period occurred in February 1999 with a reading of 22.6 degrees Celsius. The highest mean temperature recorded for the same period was 30.2 degrees Celsius which occurred in January 2004.

E. Wind Velocity/Direction

The normal wind speed in the province is from 2 to 3 mps with a prevailing annual surface airflow towards the northeast/east direction that occurs from October to February and reverse to southwest/west direction from the months of June to October. September is the transition month with an average of 1.7 mps during the last decade.

F. Humidity

The average annual relative humidity for the period 1999 to 2008 is about 85.46 percent. The highest observed relative humidity of 91 percent occurred in January 1999, with the lowest at 76 percent occurring in December 2001.

G. Weather Disturbances/Cyclones

The province' location within the "typhoon belt" make it one of the provinces in the country that is frequently battered by strong typhoons and other tropical storms and/or depressions. It is also because of its location that it has been called as the "Land of the Howling Winds", a major drawback in its economic development.

For the last decade, after the onslaught of super typhoon Loleng in 1998, no equally strong typhoon occurred in the province, but it was not spared from being hit by super typhoons like typhoon "Harurot" in 2003 with a maximum sustained wind of 190

kph followed by “Dindo” in 2004 with a maximum wind speed of 180-205 kph and “Reming” in 2006 with a maximum wind of 195-278 kph.

H. Topography

Catanduanes’ terrain is mostly rugged and mountainous with 57 percent of the total area in the slope category of 18 percent slope and above. The lowlands occupy roughly 11 percent of the total land area, 47 percent are hilly and about 42 percent mountainous.

Mt. Boctot, with a peak of 803 meters above sea level is the premier range and shows much influence over its immediate environs including the municipalities of Virac and San Miguel in terms of prime source of potable water.

Other prominent mountain forms include the ranges of Obi in Caramoran, Cagmasoso in San Andres and the summit areas in Viga and Gigmoto.

Three major rivers serve as the principal drain off channels of the island. One of which is Bato River, which is considered as the longest and biggest river, followed by Pajo River in Virac and the Mayngaway River in San Andres.

I. Soils and Geology

The soils data in Catanduanes includes important minerals such as coal, copper, gold and phosphate. Limestone and silica are abundant. Other minerals include manganese, black sand, marble and clay. The Catanduanes Watershed Forest reserve contains most of these minerals. Its surface soil cover maybe described as a thick layer A horizon and moderately thin layer B horizon with varying color from blackish to brownish and brownish to yellow brown, respectively. In the innermost of the forested area, the soil is clay loam with thick humus content.

Generally, the island of Catanduanes is bounded by a vast formation of sandstone lithogy in the northeastern part up to Gigmoto area, having a series of igneous rock in the southern portion and a fairly homogenous, thick metamorphosed sedimentary rock at the central portion pointing toward Panay Island. The southeastern part are mainly disturbed by intrusive diorites with a capping of limestone formation towards the southern tip.

J. Hydrology

The Province’ water resources, both ground and surface waters are abundant to meet various demands on water supply for agricultural, industrial (i.e., hydroelectric power generation) and domestic uses.

Inland waters consist of an intricate network of rivers, streams and creeks which serves as the natural drainage. The province has twenty-two (22) river basins with a total drainage area of 1,485 square kilometers. Of this, four (4) are considered principal

waterways: Bato River, Pajo River, Viga River and Manuria River. The CWFR covers the three (3) major rivers of the province.

Bato River which gently slopes from the foothills and flattens as it approaches the coastline of Cabugao Bay has the largest catchment area. Next to it in terms of area is the Pajo River which flows from a steep gradient at its origin from an elevation of 500 meters above sea level and gradually changes to gentler slopes near the Virac area.

Catanduanes has 148 spring sources. The municipalities of San Miguel, Baras and Viga were reported to have more of these springs. Seventy-five percent (75%) of these spring sources emanates from sedimentary rocks while twenty-five percent (25%) were developed on igneous rocks.

Sixty (60) waterfalls were recorded recently as found within and adjacent to the Catanduanes Watershed Forest Reserve.

K. Vegetative Cover and Land Use

Forest lands of Catanduanes cover an approximate area of 69,770 hectares or 46 percent of its total land area. Of this, 69,684 hectares are classified as forest lands while 86 hectares are still considered unclassified forest lands. A report of the Philippine-German Forest Resources Inventory (FRI) conducted in 1984 shows that forest area of the province constitutes about 49 percent or 74,561 hectares of its total area. Of these, 8 percent or 5,876 hectares are Dipterocarp old growth forest, 28 percent or 21,274 hectares are Dipterocarp, second growth/ residual forest, 3 percent or 2,026 hectares are sub-marginal forests, 37 percent or 23,300 hectares are brush land areas, and 30 percent or 22,085 hectares are under other land uses.

The CWFR covers a total land area of 26,010 hectares. Of this figure, 3,094.15 hectares (11.90%) are within classified A & D lands while 22,915.85 hectares (88.10%) area within classified forest lands/timberland of which only about 3,200 hectares (14%) are covered by Old Growth Forest (OGF) and the rest (86%) or 19,715.85 hectares are within covered by residual/other forest growths or other uses. Please refer to Annex 3.

As of Calendar Year 2000, the Provincial Government recorded a Provincial Government of Catanduanes recorded a Provincial Land Use of 53,387 hectares (35.32%) cultivated land (i.e., rice land, coconut land, abaca land and other agricultural crops); 2,614 hectares (1.73%) are residual, solar and commercial; 2,360 hectares (1.56%) are swamp/nipa/fishpond/marshland; 21,344 hectares (14.12%) thickets/pasture/cogonal; 69,684 hectares (46.10%) are timber or forestall; and 1,761 hectares (1.16%) are public land and other. Please refer to Annex 3.

L. Flora and Fauna

The residual and old growth forest of Catanduanes exhibit an impressive wealth of important species of flora and fauna and is considered one of the most diverse in biodiversity.

This information is based from the result of the Rapid Resources Inventory that was conducted by the DENR in 1997 within the Catanduanes Watershed Forest Reserve which reveals that some Philippine birds, mammals and reptiles which are declared rare, endangered and unique species are found in these forests.

It is also a well-known fact that some important wildlife species that are endemic to southern Luzon are found in the province' forests such as the Butaan or the Gray's Monitor Lizard and the Southern Luzon Cloud rat. Civet cats, Philippine macaques and many species of birds like the Luzon bleeding heart pigeons, Tarictic hornbills, blue-crowned racket-tails, and important raptors still abound in the island including certain avian subspecies endemic to the province.

IV. SOCIO-ECONOMIC INFORMATION

A. Demography

Records show that in the census period 1995-2000, Catanduanes exhibited an annual growth rate of 1.033 percent. As of May 1, 2000, the province has a total population of 215,356 with 41,019 total households and an average household size of 5.25. It also reflects a population density of 144.3 persons per sq. km. and sex ratio of 103.5 (number of males for every 100 females). And Census as of August 1, 2007 showed a total population of 232,757 for the province.

Of the eight (8) municipalities which have jurisdiction over the CWFR, specifically barangays dependent on the watershed resources exhibit a total population of 36,506 with a total of 6,848 households. This represents 16.9% of the province' total population and with a comparatively higher growth rate. And as of 2007, the total population became 30,571.

Protected area occupants include only those residing in built-in barangays situated in the forestland such as Brgy. Progreso in San Miguel and portion of Brgy. P. Vera (Summit) in Viga with a total population of around 1,337.

B. Income and Expenditures

The NSO recorded average annual family income in the province as of 2000, was P105,645.00 with an average per capita income of 28,129.00. Families in upland communities have lower annual income by around 50 percent and below.

The annual average family expenditures in the province was recorded at P95,966.00 and per capita expenditures of P26,424.00.

Most upland farmers within the watershed reserve resort to abaca as their main crop over other income generating crops like copra and tiger grass. The fluctuating price of abaca fiber in the market largely influenced their annual income.

Of the total number of households in the province, 71.10 percent are engaged in agricultural and fishing activities while about 23.90 percent derived from non-agricultural activities.

C. Poverty Level

Statistics show that in 2003, the poverty thresholds (pesos per annum per individual) in the province of Catanduanes was P12,892 and with a poverty incidence of 31.8 percent of families. And using the 2000 NSO data, the province being in the 3rd income class, show that 94.29 percent of the households have an access to potable water being served by water districts.

D. Education

Participation rate in elementary and secondary schools was reported to be 96.86 and 89.50 percent, respectively.

V. KEY MANAGEMENT ISSUES

A. Biodiversity Conservation Issue

1. Wildlife Exploitation

Rapid Resource Assessment within the proposed protected area reveals the presence of important wildlife species which are considered unique but are now endangered, threatened and nearing to extinction. It was observed that some species which are considered endangered in some areas in Bicol can be considered as abundant in the area like birds but are now the subject of illegal hunting, collection and trading of some residents for daily subsistence. It was also observed in the floral inventory that while some important species of trees are still present in the area like Narra and Molave, substantial quantity were already lost due to timber poaching. These findings command that biodiversity conservation and protection should be considered as major concerns in the management of this area.

2. Habitat Destruction

Occurrence of strong typhoons/natural calamities almost every year greatly affect the natural habitat of wildlife. In 1995, 1998 and 2006, typhoons “Rosings”, “Loleng” and “Meleño”, respectively, hardly hit the island’ forests that resulted to higher mortality and displacement of birds, reptiles, mammals and amphibians.

3. Infrastructure Projects

Among these are the construction of the circumferential road that traversed the watershed, telecommunication facilities, electric lines and power plants, mining access roads and public buildings like school.

B. Environmental Consideration Issue

1. Timber Poaching

Illegal cutting of commercially viable trees like Narra, Molave and Dipterocarps (for housing projects and furniture business) within the critical slopes in the watershed area caused erosion and landslides. These occurrences tend to lessen the soil fertility not only within the forested area but also to the nearby agricultural areas. It also affects some river systems since considerable eroded volume of soil caused siltation in some areas. Water quality is also affected and therefore threatened to dwindle.

2. Kaingin Making and Agricultural Activities (Abaca Farming)

Upland dwellers are solely dependent upon forest resources for livelihood. Aside from abaca, there are no other means of livelihoods in the upland areas. They are not aware of the sustainable means of utilizing forest resources. Government programs such as the provision of agricultural technologies (i.e., SALT) for upland farming are not realized in most of the upland communities due to lack of financial support needed by the upland farmers for the adoption of such technologies. Upland farmers and the poorest of the poor, hence they don’t have the financial means..

3. Illegal Fishing along Rivers and Creeks

Illegal and destructive fishing activities in the form of improvised battery operated gadgets, use of cyanide or pesticide that are poisoning the river and creeks and other forms of non- traditional fishing destroy the natural production cycle of fresh fishes and shrimps throughout the year.

4. Mining

Due to the reported presence of significant amount of coal reserves and other important minerals, illegal mining becomes a hot issue inside and outside the watershed area. In 2005, the Department of Energy (DOE) has reportedly issued a Coal Operating Contract (COC) to the Monte Oro Resources and Energy, Incorporated (MOREI) believed to be owned by rich financier from Manila to conduct exploration/production activities covering 7,000 hectares of Catanduanes of which 500 hectares are inside the watershed area. In 2008, the DOE again issued a Small Scale Mining Permit to certain Policarpio Torres to conduct actual coal production in the municipality of Panganiban which was violently opposed by the concerned LGUs, Church Organization and civic groups for lack of consultation or public hearing to view the sentiments of the general stakeholders.

With the construction of the circumferential road and construction of houses by migrants, unregulated sand and gravel extraction was also observed along rivers and creeks which are not designated or identified as appropriate areas for mining.

5. Pollution

Increasing population in the uplands due to migration exposes the watershed area particularly river water pollution. This is being brought by improper sanitation and solid wastes disposal from households or communities that are usually established near rivers and creeks.

C. Socio -Economic Issue

1. Migration

Poverty drove the poorest of the poor to migrate in the uplands and practice the shifting cultivations

Increasing population and built- up communities are now evident in the uplands. Most of the households are engaged in abaca farming, upland agro-forestry activities and some are illegally collecting/pouching timber, wildlife species and other minor forest products for their livelihood.

2. Malnutrition

Forest denudation brought about by shifting cultivation results to loss of soil productivity, loss of income and consequently to poor malnutrition and poor health.

3. Illiteracy

Loss of income and poverty discouraged parents from sending their children to school.

4. Poverty

In the face of poverty and increasing unemployment rate, the forests become the “shock absorber” of the poor and the unemployed because they provide a lucrative source of income and livelihood opportunities.

D. Protected Area Boundary Issue

Due to recent environmental problems being experienced by the Province such as flashfloods, landslides, water shortage, drought and dwindling wildlife resources, the proclaimed Watershed Forest Reserve has been extended up to the northern portion of the island province. The proposed boundaries of the protected area now covers almost 68 percent of the forestlands. This expansion aims to secure the needed water supply for domestic, agricultural and industrial uses. The proposed Catanduanes Natural Park within which the CWFR is located, once proclaimed as such need to be delineated in the ground.

E. Law Enforcement Issue

1. Peace and Order - The presence of NPAs in the hinterland prevents law enforcers (DENR-PNP operations from patrolling in the uplands.
2. Lack of enough Manpower - To patrol over the 69,684 hectares of forest lands with only 16 FRs/TMs assigned on a ration of 1:4,355.25 hectares. Aside from their usual functions, they are also assigned as UDP site coordinators, etc.
3. Lack of Political Will among LGU Officials – In strictly enforcing the law for fear of not being voted comes election time.
4. Lack of Coordination among Stakeholders - Measures to improve the law enforcement activities were tried through deputizing some concerned officials as Forest Officers and through close coordination with the PNP and LGUs. However, it seems that law enforcement on Forest and Environmental laws still needs coordination and active participation of other concerned sectors of the society.
5. Difficulty of Terrains and Mobility – The rugged topography and inaccessibility of upland areas makes it difficult to mobilize law enforcers.
6. Lack of Awareness on Environmental Laws – There is a need to strengthen IEC campaign to create awareness on environmental laws and this entails funding support from the government.

7. Inappropriate Policies and Regulations on the Use of Resources – i.e., land for the landless program of Ramon Magsaysay hastened land conversion.

VI. MANAGEMENT GOALS AND OBJECTIVES

The result of interviews, site observations and MEA-METT by the DENR team to the CWFR PAMB and stakeholders in March – April 2011 reveal issues and concerns (classified as high, medium, low threats) that are to be addressed by this plan. Among the most common observations are generally listed as follows:

1. Illegal cutting of trees.
2. Uncontrolled kaingin by upland communities in forest lands (abaca farming and other agricultural crops).
3. Unregulated collection of wildlife resources
4. Occurrence of natural calamities such as typhoons, droughts, landslides and erosion.
5. Illegal mining and fishing activities.
6. Pollution due to increasing population.
7. Protected area boundary issue.
8. Peace and order.
9. Political issues in law enforcement and resource use.
10. Lack of coordination among stakeholders.
11. Lack of awareness on Environmental Laws.
12. Impaired Hydrology due to climate change and anthropogenic activities.
13. Increased fragmentation within the PA.
14. Dams, hydrological modification and water management/use.
15. Habitat shifting and alteration.
16. Loss of support to communities and projects due to changes in political leadership.

GOALS

This Plan aims to the following:

- a. To protect, conserve and manage the CWFR thru the Protected Area Management Board;
- b. To restore the denuded ecosystems of the Protected Area for the mitigation of impacts of climate change and watershed resources' sustainability;
- c. To synchronize efforts of various government and non-government organizations and other stakeholders in the protection and conservation of CWFR resources.
- d. To guide the Protected Area Management Board in identifying appropriate projects and programs for the CWFR;

OBJECTIVES

- a. To strengthen and provide technical training to the Protected Area Management Board in the management and conservation of Protected Area;
- b. To introduce rehabilitation/restoration projects in the denuded areas of the protected area;
- c. To zonify/delineate the protected area into appropriate management zones;
- d. To review existing programs and projects that are appropriate to the management zones of the CWFR;
- e. To conduct intensive and massive Information Education Campaign pertaining to biodiversity conservation and sustainable development/utilization in the surrounding communities of the Protected Area;
- f. To conduct research and development activities in each zone of the Protected Area;
- g. To conduct inventory of the resources found inside the CWFR;
- h. To coordinate and involve LGUs and other line agencies concerned in the conduct of activities within the CWFR;
- i. To promote natural wonders within the CWFR as ideal eco-tourism sites.

VII. MANAGEMENT STRATEGIES/INTERVENTIONS

The preparation of this Adaptive Protected Area Management Plan for the Catanduanes Watershed Forest Reserve (CWFR) is being done in compliance with the Regional Special Order No. 2011-78 dated March 16, 2011. This is pursuant to the DENR Administrative Order No. 2008-26 Series of 2008 (Revised IRR for NIPAS Act).

In 1997, an Initial Protected Area Plan has been prepared for the CWFR, together with its extension areas, being proposed for proclamation as the Catanduanes Natural Park. Hence, the IPAP is one of the sources of data. Other sources of data and inputs are those gathered from interviews conducted to the stakeholders and on-site observations made by the Protected Area Office staff and field personnel, and those coming from the PAMB through the Management Effectiveness Assessment (MEA/METT) conducted in March 22, 2011 with site validation, and from concerned LGUs, OGAs and NGAs in the province of Catanduanes.

Since the ultimate goal of this Plan is the conservation and enhancement of the watershed resources within the CWFR so as to protect the environment and provide raw materials for the good of the local community, as well as to enhance the management efficiency of the members of PAMB, the following management strategies/interventions will be instituted:

A. RESOURCE ASSESSMENT PROGRAM

Rationale:

This program envisions to provide information on the present status of watershed resources, such as its wild flora and fauna, water sources, existing land-use and the

cultural features of the communities residing inside and around the boundary of the CWFR. Through this program, the carrying capacity, suitability and limitation of use of such resources could be determined; and in turn, can be made as basis in deciding on what development programs and management strategies/interventions will be executed for the protection and conservation of watershed resources.

Objectives:

The resource assessment program for the Catanduanes Watershed Forest Reserve (CWFR) aims to:

1. conduct an inventory of the resources found inside the CWFR;
2. conduct social awareness survey;
3. conduct policy studies;
4. conduct socio-environmental impact studies;
5. conduct biodiversity studies;
6. conduct research on cultural practices;
7. conduct research on appropriate technology development; and
8. conduct research on livelihood projects.

Strategies:

1. Coordination and involvement of LGUs and other line agencies in the conduct of the activities/research studies;
2. Creation of an Inter-Agency Regional Technical Working Group with local level counterpart, for the Technology Research and Development and Technology Adoption Assessment;
3. Attract/Mobilize NGOs and POs in the restoration and development efforts through the establishment of plantations of preferred/recommended species, such as dipterocarps, anahaw, bamboo and pili in allowable areas; and
4. Promote and develop more high impact livelihood projects by encouraging NGOs to come up with viable and watershed-friendly livelihood proposals.

B. HABITAT REHABILITATION PROGRAM

Rationale:

The Dipterocarp forests in Catanduanes had been the subject of exploitation in the past decades. Based from the 1988 RP-German Forest Resources Inventory Project Report, out of the province' original 53,000 hectares old-growth (virgin) Dipterocarp forests, only 24,500 hectares left in 1969; and out of this 24,500 hectares left in 1969, less than ¼ (5,900 hectares) virgin forests were left in 1984, corresponding to a yearly exploitation of 1,240 hectares. This high conversion rate is largely due to the logging

operations of the three (3) timber concessionaires, such as the Catanduanes Mahogany, Inc., Super Veneer, Inc., and Aldymac, Inc. which exported logs to Japan, Taiwan and Hongkong. The logging operations of these concessionaires were terminated when a “Logging Ban” was implemented thru Presidential Proclamation issued in October 1973. Consequently, concession workers from Albay and Camarines Sur had settled down in the logged-over areas including those families living in nearby barangays for livelihood opportunities until several communities were established therein. These forest occupants have had illegally cut timber for house construction/selling to market and they practiced the slash-and-burn type of agriculture.

Results of the 1989 Inventory of Forest Occupants (IFO) in Catanduanes show that the number of household members enumerated (upland population) was 3,405 occupying a total of 13,627 hectares. As of 1993, a total of 1,107 Certificate of Stewardship Contracts (CSCs) were issued to qualified family heads. These CSCs cover an aggregate area of 2,302 hectares. This area only represents about 17% of the total areas (13,627 hectares) being occupied by upland dwellers.

Likewise in 1993, the old-growth forests (OGF) containing approximately 23,030 hectares, and its (OGF) buffer zone (BZ) having an area of 1,168 hectares within the municipalities of Panganiban, Viga, Caramoran, Baras, Virac, San Miguel and San Andres were demarcated on the ground by the NAMRIA. This remaining old-growth dipterocarp forests in Catanduanes is being considered as the “last frontier” of Bicol region in terms of closed forest cover and biodiversity. As such, this old-growth (virgin) forest must be preserved and protected. Likewise, open/denuded areas within the CWFR must be restored/rehabilitated in order to maintain and enhance soil productivity, vegetative cover, biodiversity and downstream water availability.

Objectives:

1. To rehabilitate denuded portions of the watershed;
2. To introduce restoration projects in identified sites; and
3. To restore identified wildlife habitat.

Strategies:

1. Pursue the implementation of watershed rehabilitation projects, such as the introduction of vegetative measures in hilly and eroded areas; and the construction of structural measures like gabions and check dams along banks of creeks/rivers in order to prevent soil erosion, floods and sedimentation from occurring.
2. Continue the reforestation of open/grassland and denuded areas within the watershed thru “contract reforestation” in order to accelerate the restoration of the lost vegetation for climate stabilization, water sustainability, enhanced soil productivity and biodiversity.

3. Strengthen the implementation of Community-Based Forest Management (CBFM) Projects for poverty alleviation in the uplands through the provision alternative profitable livelihood projects so as to minimize forest destruction.
4. Implementation of Assisted Natural Regeneration (ANR) Projects in residual forests for habitat rehabilitation.

C. RESOURCES PROTECTION PROGRAM

Rationale:

Most of the old-growth (virgin) forests are found within the CWFR. These are particularly located in the municipalities of Baras, Caramoran, San Andres, San Miguel, Viga and Virac. Mineral resources can also be found in the area such as gold and base metal deposits in Kaglatawan, Capiian and Maiting river in San Miguel; Tilod in Baras; Dugui-Too in Virac, Guiamong in Caramoran and Ananong in Viga. Coal as a source of energy can be found in the Hitoma - Manambrag area in San Andres, and in Caramoran and Panganiban area where the “Monte Oro Resources Energy Inc. (MOREI)” was granted by the Department of Energy to conduct exploration/production activities permit covering 7,000 hectares to which permit is being denounced by the people of Catanduanes.

The CWFR, is a rich repository of flora and fauna and mineral resources. It is therefore imperatively necessary that such old-growth forests and mineral resources be preserved and protected from exploitation.

Objectives:

1. To conduct an in-depth study on the nature or causative factors of resource depletion in the area;
2. To formulate a comprehensive and appropriate resource protection program; and
3. To create a Multi-Sectoral Forest Protection Committee or Resource Management Council at the Barangay level.

Strategies:

1. Undertake resource depletion study through biodiversity inventory and ocular survey;
2. Formulate plan and strategies for a comprehensive and appropriate resource protection program through the identification of hotspots and critical areas and indicating thereof in the control map;
3. Intensify information, education and communication (IEC) activities through radio programming and the conduct of barangay and municipal meetings/dialogues with stakeholders;

4. Organize an overall resource management committee under the PAMB and barangay level and deputize them as Environment Officers;
5. Mobilize deputized environment officers through the conduct of trainings and actual field exercises/orientation on natural resources protection;
6. Divide by sector the entire area covered by the CWFR based on the number of deputized forest officers and deputy forest officer adjacent to the sector shall be assigned to conduct regular patrolling over the designated area; and
7. Overall Protection Committee to supervise and conduct random inspection of group activities and submit regular report to PAMB.

D. ECO-TOURISM PROGRAM

Rationale:

The island province of Catanduanes is endowed with numerous potential tourism areas such as the long stretches of white sandy beaches, waterfalls, caves, coral reefs, virgin forests, and man-made tourist spots. However, it has been observed that foreign tourists who came to Catanduanes prefer seaside resorts as their destination. There is a need, therefore, to promote the natural wonders within the CWFR as potential tourist spots by developing and carrying out an eco-tourism program for these natural wonders.

Objectives:

1. To promote the natural wonders within the CWFR as ideal eco-tourism area;
2. To project CWFR where tourists can enjoy distinct natural wonders and cultural attractions;
3. To provide a mechanism whereby people can deeply appreciate and understand the natural environment during IEC campaign;
4. To involve tourists and the various publics in environmental restoration and enhancement activities;
5. To provide profitable livelihood opportunities for the rural poor; and
6. To sustain the development and protection of natural resources.

Strategies:

1. Creation of the Multi-Sectoral Ecotourism Council for the CWFR;
2. Establishment of a tourism networking system through the PAMB;
3. Promotion of CWFR as tourist attraction for nature and environmental tourists through all forms of publication;

4. Establishment of nature tourist facilities within the CWFR such as, nature trails, bird watching areas, natural parks;
5. Creation and Establishment of PA souvenirs

E. INTERPRETATION PROGRAM

Rationale:

This program which aims to provide guidance to all tourists coming to the CWFR is supportive to all other program components of the plan, hence, a vital tool in achieving a successful protected area management.

Objectives:

1. To guide and warn visitors of the proper information regarding the “Dos” and “Don’ts” within the protected area.
2. To establish a Protected Area warning and information system within the protected area.

Strategies:

1. Establishment of an Information center at the entrance of the Park.
2. Conduct of briefing and orientation to visitors.
3. Provision of Maps of the protected area depicting the different tourist attractions and management zones.
4. Installation of warning signs in critical areas and in danger zones.
5. Labeling of species of the trees, including unique and endemic wildlife species indicating its local name, common name, scientific name and family name.
6. Hiring of locally-based personnel to act as tourist guides.
7. Orienting tourist guides regarding proper ethics in tour guiding specially the proper handling of foreign visitors.

F. MANAGEMENT ZONING

Rationale:

Republic Act. No. 7586, otherwise known as the “National Integrated Protected Area System (NIPAS) Act of 1992” mandates the delineation of management zones within the Protected Area in order to provided flexibility in the management of the area. Data gathered from the recently concluded interviews and on-site observations conducted purposely for this Plan and those from records on file and from municipal/provincial planning and development office, other government agencies concerned and NGOs were all considered in the delineation of the management zones.

Objectives:

1. To identify appropriate management zones based on the existing land use of the area; presence of occupants and settlements, unique physical characteristics, and facilities which area considered of national interest.
2. To identify programs/activities for implementation in each management zones;
3. To prescribed the strategies by which these programs/activities can be carried out specifically in each management zones.

PROPOSED MANAGEMENT ZONES OF THE PROTECTED AREA:

1. *Strict Protection Zone* – These are areas within the CWFR that are high of biodiversity value which shall be closed to all human activities except for scientific studies. The old-growth dipterocarp forests are within this zones.
2. *Multiple-Use Zone* – These are areas where settlement, traditional and/or sustainable land use, including agriculture, agroforestry, extraction activities and other income generating/livelihood activities, may be allowed to the extent prescribed in the management plan. Land tenure may be granted to tenured residents/migrants. Within this zone are ISF and CBFM existing projects, including the CY 2009 UDP projects on upland reforestation, agroforestry and assisted natural regeneration.

In DAO No. 2008-26or the Revised Implementing Rules and Regulation of NIPAS Act, Multiple- Use Zone already covers all other types of management zones as previously identified based on different land uses inside each protected area. These are Sustainable Use Zone, Special Use Zone, Recreational Zone and Restoration Zone.

3. *Buffer Zone* – These are areas outside the boundary of the proclaimed CWFR but adjoining it that are established by law (Sec. 8, RA 7586) and under the control of the DENR through the PAMB. These are effectively multiple-use zones that are to be

managed to provide a social fence to prevent encroachment into the PA by outsiders. Land tenure may be granted to occupants who qualify as *tenured migrants*. When already established, Buffer zones should be treated as an integral part of the PA in management planning.

PROGRAMS/ACTIVITIES/STRATEGIES PER MANAGEMENT ZONES

| MANAGEMENT ZONES | PROGRAMS/ACTIVITIES | STRATEGIES |
|---|---|---|
| 1. Strict Protection Zones | 1. Delineation of the Boundary | 1. Surveying and monumenting |
| | 2. Resources Inventory | 1. Tapping the services of botanist/biologists conducted a detailed resource inventory and to identify breeding and nesting sites. |
| | 3. Research and Development Program | 1. Conducting specific research studies of wildlife |
| | 4. Protection Program | 1. Hiring and assignment of PA personnel for daily monitoring and maintenance |
| 2. Multiple Use Zone (also includes restoration, sustainable, recreational, special use zones and other portions of the area that will be identified later as suited for other uses) | 1. Boundary Delineation | 1. Surveying and Mapping |
| | 2. Community organizing | 1. Organize upland farmers/settler into People's Organization 2. Conducting trainings and technology transfer on alternative livelihood profitable projects 3. Intensifying awareness campaign |
| | 4. Protection Program | 1. Hiring and assigning PA personnel for daily monitoring and maintenance. |
| | 4. Resources Management and Development | |
| 3. Buffer Zones | 1. Boundary Delineation | 1. Surveying and monumenting |
| | 2. Community Organizing | 1. Organizing upland farmers/dwellers living within and adjacent to the delineated buffer zone into People's Organization. 2. Conducting trainings and technology transfer on profitable alternative livelihood projects. 3. Providing financial assistance for identified alternative livelihood projects. |
| | 3. Protection Program | 1. Intensifying IEC campaign 2. Monitoring and evaluation of |

| | | |
|--|---|--|
| | | community projects/ activities 3. Hiring and assigning PA personnel for monitoring and maintenance. |
| | 4. Resources Management and Development | |

G. CLIMATE CHANGE MITIGATION PROGRAM

Rationale:

It is already widely recognized that climate change is happening and the island province of Catanduanes with its location and in the Pacific coast and rough topography, would be very vulnerable to major climate-related hazards. Climate change would bring severe and/or more intense tropical cyclones, floods, landslides and droughts which would largely affect productivity in the uplands/watersheds aside from its catastrophic consequences to life and properties downstream. Water supply and food security would be at risk because of the abnormal changes in precipitation patterns that cause decline in crop yields and loss in biodiversity.

The effects of climate change to flora and fauna would also be likely because the life cycles of many species are closely linked to climatic factors. A major change in climate could lead to extinction or changes in the distribution and abundance of the species' populations.

It is also worth to mention the long-term effect of sea-level rise which would encourage more migration and dependence of people to the uplands.

Hence it is imperative to adopt certain measures for adaptation, mitigation or coping with climate change in the province.

Objectives:

1. To reforest denuded parts of the watershed, especially along rivers and streams;
2. To rehabilitate degraded/eroded portions of the watershed and prevent any impending flashfloods due to sedimentation of streams and rivers that block waterways;
3. Strict enforcement of forestry and environmental laws;
4. To conduct a massive public information and awareness campaign to educate the public and watershed stakeholders on the climate change situation and its adverse effects;
5. To mobilize multi-sectoral actions on climate change and synchronize efforts of various agencies, organizations and other stakeholders.

Strategies:

1. Adopt the strategies listed in the Habitat Rehabilitation and Resources Protection Program of the Plan, which include ANR, planting of endemic tree species, slope stabilization and watershed rehabilitation..
2. Incorporate Information materials on Climate Change to the proposed PA's Information Centers.
3. Creation of Multi-sectoral Council on Climate Change at the Municipal and Provincial level.
4. Adopt relative mitigation measures and adaptation strategies required under existing laws and regulations on climate change in the country to include but not limited to the following:
 - a. Ecological Solid Waste Management
 - b. Zero Burning/Shifting cultivation policy
 - c. Clean-Up Drive in all management zones particularly rivers and creeks
 - d. Re-greening/rehabilitation measures using endemic plant species
5. Comprehensive/Pro-active IEC Program

VIII. FINANCIAL REQUIREMENT

The Plan requires an average Annual Budget of **Seven Hundred Forty Eight Thousand pesos (PhP 748,000.00)** or a total of **Three Million Seven Hundred Forty Two Thousand Pesos (PhP3,742,000.00)** for the 5- year operations including a Capital Outlay of **Three Million Pesos (PhP 3,000,000.00)**. Please refer to Annex No. 1 and Annex No. 2 for the detailed Work and Financial Plan (WFP) presentation.

IX. MONITORING AND EVALUATION

Monitoring and evaluation (M&E) is an essential component activities in the management of the Catanduanes Watershed Forest Reserve that has the primary purpose of ensuring the effective and efficient implementation of the various management strategies. This will serve as a feedback system that will provide the PAMB vital information to help them in the decision-making process and to be able to make appropriate adjustments towards the realization of the objectives.

M&E activity shall be conducted through the PAMB created Multi- Sectoral Committee which will be featured by active and voluntary participation of key stakeholders (e.g. LGUs, local communities, people's organizations and other government agencies).

The objective or design of the M&E system shall be determined based on the actual situation and state of PA resources. Would it be for project implementation or impact or benefits, M&E shall be feasible, purposive and cost-effective in nature.

ANNEXES

Annex 1. PROPOSED 5-YEAR WORK AND FINANCIAL PLAN (2011-2015)
In Thousand Pesos (Php'000)

| Expenses Account Code | Description | Target Period/Time | | | | | Total Cost (PhP) | Remarks |
|-----------------------|--|--------------------|---------------|---------------|---------------|---------------|------------------|---------|
| | | Year1 | Year 2 | Year 3 | Year 4 | Year 5 | | |
| 2 | Project Administration and Supervision | 20.40 | 20.40 | 20.40 | 20.40 | 20.40 | 102.00 | |
| 7 | Supplies and Materials | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 180.00 | |
| 14 | Water, Illumination and Power | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 90.00 | |
| 29 | Other Services Maintenance and Protection, | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 180.00 | |
| | Preparation of Building Design and Landscaping (Construction of Comfort Rooms) | 20.00 | 5.00 | 5.00 | 5.00 | 5.00 | 40.00 | |
| | PAMB Services | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 150.00 | |
| Capital Outlay | Building Construction | 1,000.00 | | | | | 1,000.00 | |
| | Reforestation Project | 600.00 | 200.00 | 800.00 | 200.00 | 200.00 | 2,000.00 | |
| TOTAL (PhP) | | 1,760.40 | 345.40 | 945.40 | 345.40 | 345.40 | 3,742.00 | |

Annex 2. WFP- BREAKDOWN OF EXPENSES

| Expenses Acct. Code | Maintenance and Other Operating Expenses (200) | Description | No. of Personnel/ Unit | Unit Cost/Mo. (PhP) | Cost/Year (PhP '000) | | | | | Total Cost (PhP '000) | |
|---------------------|--|--|------------------------|---------------------|----------------------|---------------|---------------|---------------|---------------|-----------------------|---------------|
| | | | | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | | |
| 2 | Travelling Expenses | PASu | 1 | 5,000.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 30.00 | |
| | | Asst. PASu | 1 | 4,500.00 | 5.40 | 5.40 | 5.40 | 5.40 | 5.40 | 27.00 | |
| | | Park Ranger | 3 | 4,500.00 | 4.80 | 4.80 | 4.80 | 4.80 | 4.80 | 24.00 | |
| | | EMS II | 1 | 3,500.00 | 4.20 | 4.20 | 4.20 | 4.20 | 4.20 | 21.00 | |
| | | Sub-total | 6 | 17,000.00 | 20.40 | 20.40 | 20.40 | 20.40 | 20.40 | 20.40 | 102.00 |
| 7 | Supplies and Materials | | var | 3,000.00 | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 180.00 | |
| | | Sub-total | | 3,000.00 | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 180.00 |
| 14 | Water, Illumination and Power | | var | 1,500.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 90.00 | |
| | | Sub-total | | 1,500.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 90.00 |
| 29 | Other Services | Allowance (PAMB Meeting) | 15 | 2,500.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 150.00 | |
| | | IEC | var | 666.67 | 20.00 | 5.00 | 5.00 | 5.00 | 5.00 | 40.00 | |
| | | Preparation of Building Design and Landscaping (including construction of CRs) | 1 | 3,000.00 | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 180.00 | |
| | | Payment of Laborers | | | | | | | | | |
| | | Sub-total | | 6,166.67 | 686.00 | 71.00 | 71.00 | 71.00 | 71.00 | 71.00 | 370.00 |
| | | TOTAL | | 27,666.67 | 160.48 | 145.40 | 145.40 | 145.40 | 145.40 | 742.00 | |

Annex 3. DIFFERENT LAND USES/CLASSIFICATION BY MUNICIPALITY WITHIN THE CWFR

| Municipality | A/D Lands (Ha.) | Timberland (Ha.) | | Total Area (ha.) |
|----------------------|-----------------|------------------|------------------|------------------|
| | | OGF | Other Uses | |
| Baras | 268.86 | - | 414.46 | 683.32 |
| Bato | 41.89 | - | 40.86 | 82.75 |
| Caramoran | - | 2,200.00 | 3,912.14 | 6,112.14 |
| Gigmoto | - | 1,000.00 | 2,109.83 | 3,109.83 |
| San Andres(Calolbon) | 161.58 | - | 1,905.26 | 2,066.84 |
| San Miguel | 2,304.86 | - | 5,744.46 | 8,049.42 |
| Viga | - | - | 418.46 | 418.46 |
| Virac | 316.86 | - | 5,170.38 | 5,487.24 |
| TOTAL | 3,094.15 | 3,200.00 | 19,715.85 | 26,010.00 |

Land Use by Municipality in Hectares
Catanduanes Province as of CY 2000

| Municipality | Total Land Area | Res./Solar/Commercial | Cultivated Land | Swamp/Nipa/Fishpond/Marshland | Thickets/Pasture, Cogonal | Timber or Forestal | Public Land & Others |
|------------------|-----------------|-----------------------|-----------------|-------------------------------|---------------------------|--------------------|----------------------|
| Provincial Total | 151,150 | 2,614 | 53,387.00 | 2,360 | 21,344.00 | 69,684.00 | 1,761.00 |
| Bagamanoc | 9,390 | 100 | 3,897.04 | 139.00 | 332.98 | 4,829.98 | 91.00 |
| Baras | 10,950 | 89 | 4,309.47 | 299.00 | 1,564.10 | 4,549.43 | 139.00 |
| Bato | 4,880 | 130 | 3,157.91 | 384.50 | 137.50 | 893.09 | 177.00 |
| Caramoran | 25,240 | 144 | 6,297.63 | 336.00 | 1,324.37 | 17,008.00 | 130.00 |
| Gigmoto | 18,700 | 61 | 2,937.18 | 34.00 | 6,414.94 | 9,002.88 | 250.00 |
| Pandan | 11,990 | 90 | 6,098.34 | 283.50 | 2,812.42 | 2,496.74 | 209.00 |
| Panganiban | 6,380 | 68 | 3,622.35 | 135.00 | 708.00 | 1,793.65 | 53.00 |
| San Andres | 20,260 | 612 | 7,327.70 | 249.00 | 4,658.00 | 7,247.42 | 165.00 |
| San Miguel | 12,510 | 95 | 4,737.70 | 80.00 | 156.30 | 7,377.00 | 64.00 |
| Viga | 15,110 | 191 | 4,540.68 | 351.00 | 3,139.51 | 6,784.81 | 103.00 |
| Virac | 15,740 | 1,034 | 6,461.00 | 69.00 | 95.00 | 7,701.00 | 380.00 |

Annex 4 **DEMOGRAPHIC INFORMATION**

Total Population and Number of Households in the 8 Municipalities and Barangays within the CWFR: 2000 and 2007

| Municipality and Barangay | As of August 1, 2007 | As of May 1, 2000 | |
|------------------------------|----------------------|-------------------|----------------------|
| | Total Population | Total Population | Number of Households |
| BARAS | | | |
| Agban | 829 | 810 | 147 |
| Benticayan | 732 | 717 | 131 |
| Macutal | 336 | 361 | 69 |
| Caragumihan | 287 | 360 | 69 |
| Genitligan | 869 | 806 | 150 |
| Moning | 405 | 367 | 67 |
| Nagbarorong | 419 | 411 | 66 |
| Tilod | 714 | 696 | 150 |
| BATO | | | |
| Cabugao | 2,888 | 2,476 | 494 |
| Sipi | 759 | 699 | 139 |
| CARAMORAN | | | |
| Bulalacao | 489 | 476 | 97 |
| Guiamlong | 531 | 520 | 95 |
| Inalmasinan | 682 | 698 | 134 |
| Milaviga | 1,601 | 1,467 | 246 |
| Obi | 1,106 | 980 | 185 |
| Salvacion | 565 | 553 | 95 |
| GIGMOTO | | | |
| San Pedro | 442 | 344 | 59 |
| Biong | 728 | 649 | 124 |
| Dororian | 1,169 | 1,171 | 226 |
| SAN ANDRES | | | |
| Carangag | 1,143 | 972 | 174 |
| Barihay | 267 | 261 | 53 |
| Lictin | 1,897 | 1,808 | 352 |
| Hilawan | 485 | 426 | 67 |
| Manambrag | 2,582 | 2,736 | 507 |
| San Jose | 372 | 495 | 97 |
| Rizal | 698 | 680 | 141 |
| Tibang | 476 | 432 | 66 |
| Timbaan | 1,350 | 1,139 | 224 |
| San Isidro | 598 | 466 | 93 |
| SAN MIGUEL | | | |
| JMA | 684 | 575 | 110 |
| Kilikilihan | 996 | 831 | 164 |
| Mabato | 853 | 772 | 155 |
| Pacogon | 363 | 297 | 51 |
| Paraiso | 900 | 855 | 147 |
| Progreso | 939 | 837 | 171 |
| San Marcos | 172 | 157 | 31 |
| Solong | 616 | 562 | 100 |
| Siay | 406 | 387 | 83 |

| | | | |
|-------------------|---------------|--------------|---------------|
| Tobrehon | 427 | 271 | 49 |
| VIGA | | | |
| Almojuela | 523 | 461 | 89 |
| Mabini | 297 | 333 | 49 |
| P. Vera | 1,156 | 842 | 163 |
| Sagrada | 659 | 538 | 110 |
| VIRAC | | | |
| Dugui-San Isidro | 292 | 310 | 49 |
| Dugui-San Vicente | 607 | 508 | 88 |
| Dugui-Too | 1,110 | 1,035 | 174 |
| Buyo | 1,283 | 1,188 | 216 |
| Hicming | 907 | 817 | 143 |
| Simamla | 717 | 720 | 144 |
| Sogud-Simamla | 245 | 234 | 44 |
| TOTAL | 39,571 | 6,848 | 36,506 |

Source: NSO, Virac, Catanduanes

Table showing the Family Income and Expenditure and Demography, Province of Catanduanes

| | |
|--|---------|
| FAMILY INCOME AND EXPENDITURE (at current prices) (Source: FIES 2000) | |
| Total number of families | 42,243 |
| Annual average family income (in Peso) | 105,645 |
| Annual average family expenditure (in Peso) | 95,966 |
| Annual average family saving (in Peso) | 9,679 |
| Average per capita income (in Peso) | 28,129 |
| Average capita expenditure (in Peso) | 26,424 |
| DEMOGRAPHY | |
| Total population | 215,356 |
| Male | 109,515 |
| Female | 105,841 |
| Household population | 215,151 |
| Number of households | 41,019 |
| Average household size | 5.25 |
| Annual growth rate (1995-2000) | 1.33 |
| Sex ratio (number of males for every 100 females) | 103.5 |

Source: QUICKSTAT on Catanduanes, a monthly update of NSO's most requested statistics (compiled by the Databank and Information Services Division, February 22, 2006)

Annex 5. Potential for Tourism and Recreational Services, Profile of Visitors, Activities Engaged within the PA.

| Municipality | Potential Area for Tourism/Recreational Sites | Visitors | Activities |
|---------------|--|-------------------|---|
| 1. Baras | Hinitligan Falls | Local and Foreign | Swimming, picnic |
| 2. Bato | Maribina Falls | Local and Foreign | Swimming, picnic |
| 3. Caramoran | Cabungahan, Tulahid and Binitayan Falls, Rivers and Streams | Local | Mountain climbing and outdoor recreation |
| 4. Gigmoto | Nahulugan Falls | Local | Swimming |
| 5. San Andres | Lambingan Falls and other falls, streams and rivers Luyang Cave | Local | Swimming, picnic, viewing |
| 6. San Miguel | Solong Falls and others, unique rock formation, Rivers, streams | Local and Foreign | Swimming, Kayaking, picnic, Excursion, viewing |
| 7. Viga | Zigzag roads, foggy mountains, forest cover | Local and Foreign | Viewing, Bird watching |
| 8. Virac | Mt. Boctot with a peak of 803 meters above sea level, lagoon | Local and Foreign | Mountain climbing, viewing, swimming, picnic, bird watching |

Annex 6. Development Programs, Projects, Activities

| Municipality | Development Projects |
|---------------|--|
| 1. Baras | ISF-Certificate of Stewardship Contract were awarded to farmers beneficiaries of Brgy. Genitligan, Upland Development Program/Project (UDP). |
| 2. Bato | Health Care and LGU developmental programs and projects; Hydropower Plant (NPC). |
| 3. Caramoran | Lasa/Sogbo Making sponsored by the DTI, ISF-Certificate of Stewardship Contract were awarded to farmers beneficiaries of Brgy. Tucao, Maysuram, Mabini, Sabloyon, Inalmasinan, Obi and Guiamlong. Road opening by SUWECO in Brgy. Obi for the proposed Mini-Hydro Power Plant in the area. |
| 4. Gigmoto | LGU Social and Developmental Programs/Services. |
| 5. San Andres | ISF-Certificate of Stewardship Contract were issued in San Isidro, Tibang and Barihay; LGU Social and Developmental Services; Reforestation Projects in Brgy. Rizal and Catagbacan. |
| 6. San Miguel | ISF/UDP-awarded to farmer beneficiaries in Brgy. Progreso; Radio, Communication and water system by ACF (NGO) in Brgys. Solong, Pagsangahan, San Marcos, JMA; Mini-hydro Power Plants by SUWECO in Brgys. Solong and Paraiso; Road opening by LGU at San Marcos. |
| 7. Viga | ISF/UDP- awarded to farmer beneficiaries in Brgy. P.Vera, Viga; LGU Social Services |
| 8. Virac | DENR-LGU Watershed Management Council in Brgy. Hicming; Reforestation Projects in Brgy. Simamla |

Republic of the Philippines
CATANDUANES WATERSHED FOREST RESERVE
PROTECTED AREA OFFICE
San Isidro Village, Virac, Catanduanes

CWFR- PAMB RESOLUTION No. 001- 2011

A RESOLUTION INDORSING THE PROPOSED 5-YEAR ADAPTIVE MANAGEMENT PLAN FOR THE CATANDUANES WATERSHED FOREST RESERVE (CWFR)

WHEREAS, the National Integrated Protected Areas System (NIPAS) Act of 1992, otherwise known as Republic Act No. 7586 and its Revised Implementing Rules and Regulations (DAO 2008- 26) provides for the preparation and implementation of appropriate management plan for every protected area;

WHEREAS, on May , 2011 the PAMB of Catanduanes Watershed Forest Reserve (CWFR) convened at exactly 9:30 AM at PENRO, SIV, Virac, Catanduanes to discuss the draft adaptive management plan for the protected area;

WHEREAS, the Presiding Officer- Hon. requested the PASu to present/discuss the said management plan including its Work and Financial Plan for possible approval and funding from the DENR;

WHEREAS, during the presentation, additional inputs/suggestions for improvement of the proposed Plan were unanimously considered/incorporated in the revised version for approval/indorsement to the DENR Regional Office;

WHEREAS, on motion made by Hon. Brgy. Captain Oscar F. Tan and was seconded by all members present, the Board has adopted and approved the proposed 5-year Adaptive Management Plan of the Catanduanes Watershed Forest Reserve (CWFR) covering the period from 2011- 2015 with the corresponding budget;

UNANIMOUSLY APPROVED this th day of May, 2011 at SIV, Virac, Catanduanes.

Signed :

ARTURO S. SANCHEZ
Member

FRANCISCO B. CUISON
Member

WILLIAM Z. CRUZ
Member

ANTONIO M. MIJARES
Member

ROLANDO B. ARCILLA
Member

MAURO T. TINDUGAN, JR.
Member

EDWIN S. AGUILAR
Member

GIOVANNI A. BALMADRID
Member

ROBINSON G. VARGAS
Member

ARLENE A. PRIVALDOS
Member

ANACITO REY G. BESONIA
Member

MARC P. PERSEVERANDA
PASU/Head, Secretariat

JOSELIN MARCUS E. FRAGADA
Regional Executive Director/Chairman

MALACAÑANG
MANILA

BY THE PRESIDENT OF THE PHILIPPINES

PROCLAMATION NO. 123

**ESTABLISHING AS CATANDUANES WATERSHED FOREST RESERVE
CERTAIN PARCELS OF LAND OF THE PUBLIC DOMAIN
SITUATED IN THE MUNICIPALITIES OF VIRAC, BATO, SAN
MIGUEL, PANDAN, CALOLBON AND BARAS, PROVINCE OF
CATANDUANES**

Upon recommendation of the Secretary of Natural Resources and by virtue of the powers vested in by law, I, CORAZON C. AQUINO, President of the Philippines, do hereby withdraw from entry, sale, settlement, and set aside as watershed forest reserve for watershed protection and for other multi-forestry purposes, a parcel of land of the public domain situated in the municipalities of Virac, Bato, San Miguel, Pandan, Calolbon and Baras, Province of Catanduanes, shown and identified per BFD Map W.R.-57, and more particularly described as follows:

Beginning at a point marked "I" indicated on the map which is a point marked at the ground latitude 13°35'14" and longitude 124°13'58";

Thence N 63°30' W, 5,300 meters to corner 2; at the junction of Cauayan River and on creeks;

thence N 47°00' W, 2,300 meters to corner 3;
thence N 65°45' W, 1,400 meters to corner 4;
thence N 70°30' W, 2,900 meters to corner 5;
thence N 29°15' W, 2,150 meters to corner 6;
thence N 86°00' W, 2,000 meters to corner 7;
thence N 06°45' W, 2,175 meters to corner 8;
thence N 27°00' W, 1,300 meters to corner 9;
thence N 52°30' E, 2,500 meters to corner 10;
thence N 38°30' E, 1,850 meters to corner 11;
thence N 84°30' E, 1,225 metes to corner 12;
thence N 66°00' E, 3,150 meters to corner 13;
thence N 21°30' E, 5,000 meters to corner 14;
thence N 16°00' W, 2,100 meters to corner 15;
thence N 39°30' W, 2,250 meters to corner 16;
thence N 24°45' W, 2,000 meters to corner 17;
thence N 19°00' E, 2,225 meters to corner 18;

thence N 05°00' E, 3,700 meters to corner 19;
thence N 44°00' E, 2,700 meters to corner 20;
thence N 83°30' E, 1,525 meters to corner 21;
thence S 07°45' E, 2,650 meters to corner 22;
thence S 29°00' E, 2,550 meters to corner 23;
thence S 01°00' E, 2,075 meters to corner 24;
thence S 44°30' E, 2,300 meters to corner 25;
thence S 08°30' E, 650 meters to corner 26;
thence S 86°00' E, 725 meters to corner 27;
thence N 72°30' E, 2,150 meters to corner 28;
thence N 78°00' E, 2,300 meters to corner 29;
thence N 13°00' E, 3,600 meters to corner 30;
thence S 17°15' E, 1,875 meters to corner 31;
thence S 30°00' E, 2,050 meters to corner 32;
thence S 76°45' E, 3,500 meters to corner 33;
thence S 17°30' W, 3,375 meters to corner 34;
thence S 26°30' E, 2,750 meters to corner 35;
thence S 45°30' W, 3,450 meters to corner 36;
thence S 39°00' E, 1,425 meters to corner 37;
thence S 64°30' E, 1,800 meters to corner 38;
thence S 16°30' E, 2,200 meters to corner 39;
thence S 46°00' W, 2,100 meters to corner 40;
thence S 38°00' W, 1,250 meters to corner 41;
thence S 62°00' W, 2,200 meters to corner 42;
thence S 04°00' E, 2,400 meters to corner 43;
thence S 50°00' W, 2,650 meters to corner 44;
thence S 38°00' W, 575 meters to corner 45;
thence S 22°00' W, 425 meters to corner 46;

a point on junction of
Bato River and
Balumbong Creek;

Thence S 61°15' W, 7,750 meters to corner 1 the point of beginning containing an area of TWENTY SIX THOUSAND TEN (26,010) hectares, more or less, subject to private rights, if any there be, and to the condition that certified and declared alienable or disposable lands indicated on the map are excluded and may be, disposed of pursuant to the Public Land Act.

The administration, control and management of the reservation shall be under the Department of Natural Resources, thru the Bureau of Forest Development, and the cutting of trees therein is hereby prohibited.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the Republic of the Philippines to be affixed.

Done in the City of Manila, this 23rd day of June, in the year of Our Lord, nineteen hundred and eighty seven.

(SGD) CORAZON C. AQUINO

By the President:

(SGD) JOKER P. ARROYO
Executive Secretary

CERTIFIED COPY:

(SGD) MELQUIADES T. DELA CRUZ
President Staff Director
Malacañang Records Office

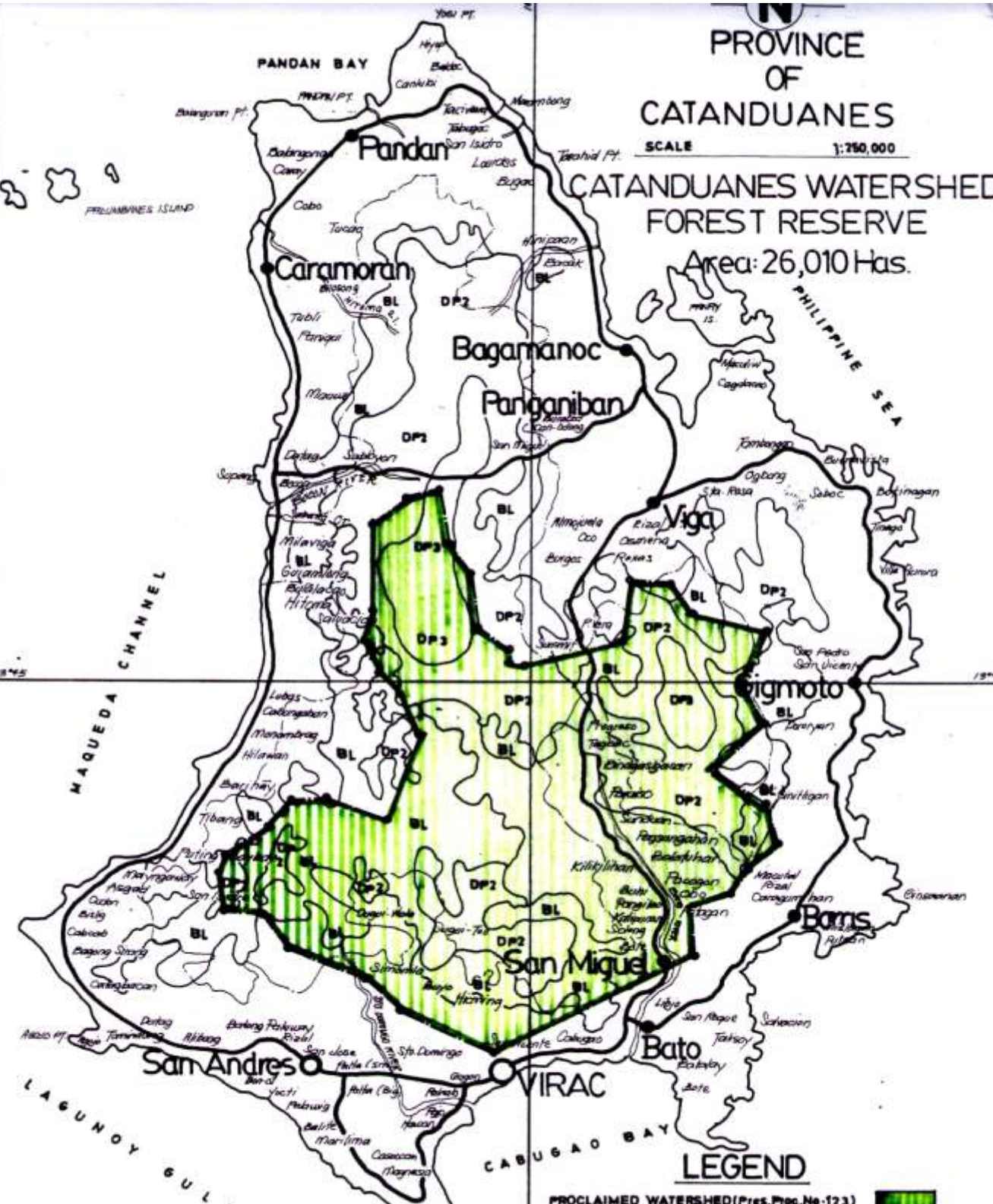
True copy from a duplicate true copy:

Records Officer
DENR-CENRO Virac, Catanduanes





PROVINCE OF CATANDUANES

SCALE 1:250,000

CATANDUANES WATERSHED FOREST RESERVE
Area: 26,010 Has.



LEGEND

- PROCLAIMED WATERSHED (Pres. Procl. No. 123) 
- PROPOSED CATANDUANES NATURAL PARK 
- VEGETATIVE COVER
- OLD GROWTH DIPTEROCARP 
- RESIDUAL DIPTEROCARP 

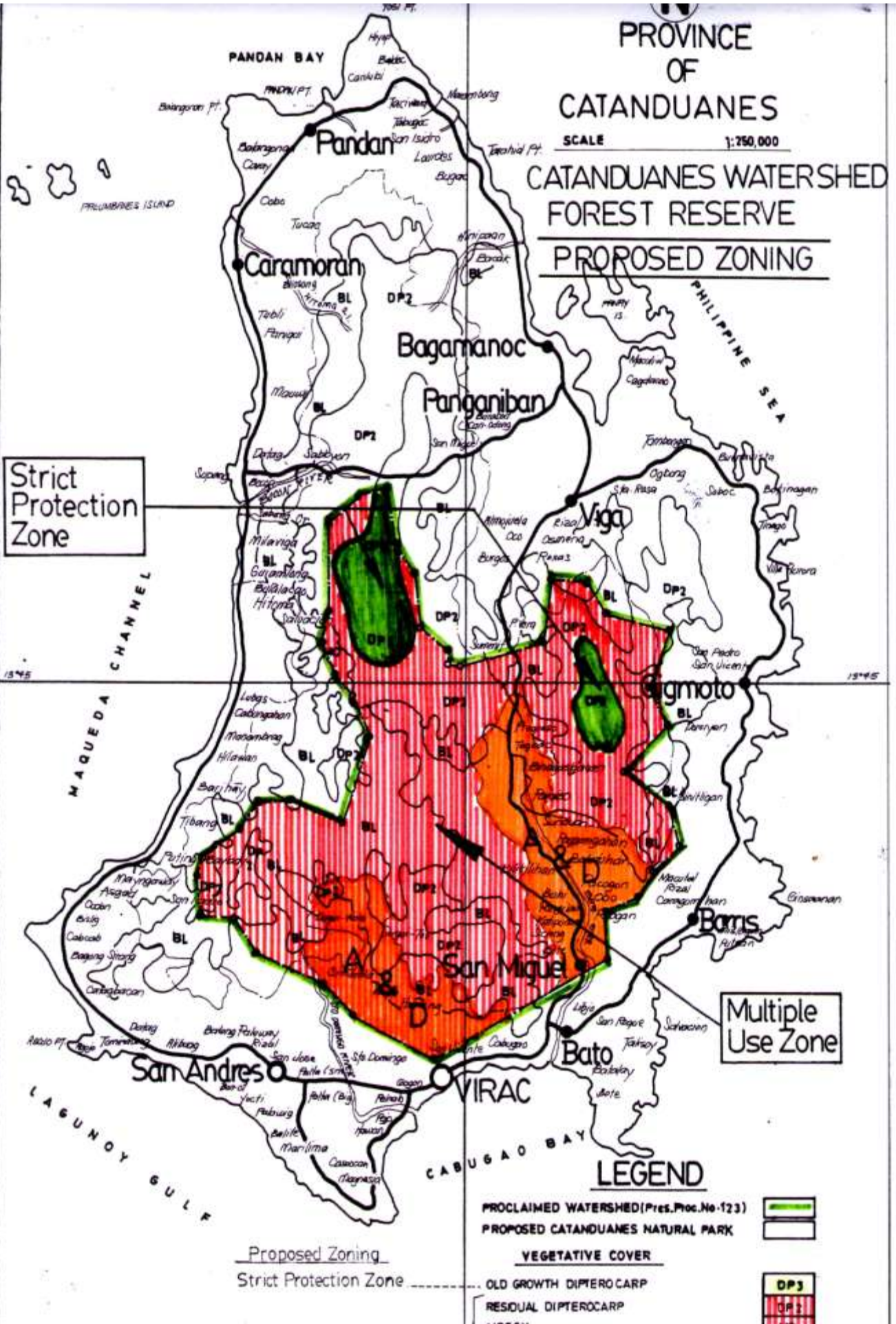
PROVINCE OF CATANDUANES

SCALE 1:250,000

CATANDUANES WATERSHED FOREST RESERVE PROPOSED ZONING

Strict Protection Zone

Multiple Use Zone



Proposed Zoning
 Strict Protection Zone

LEGEND

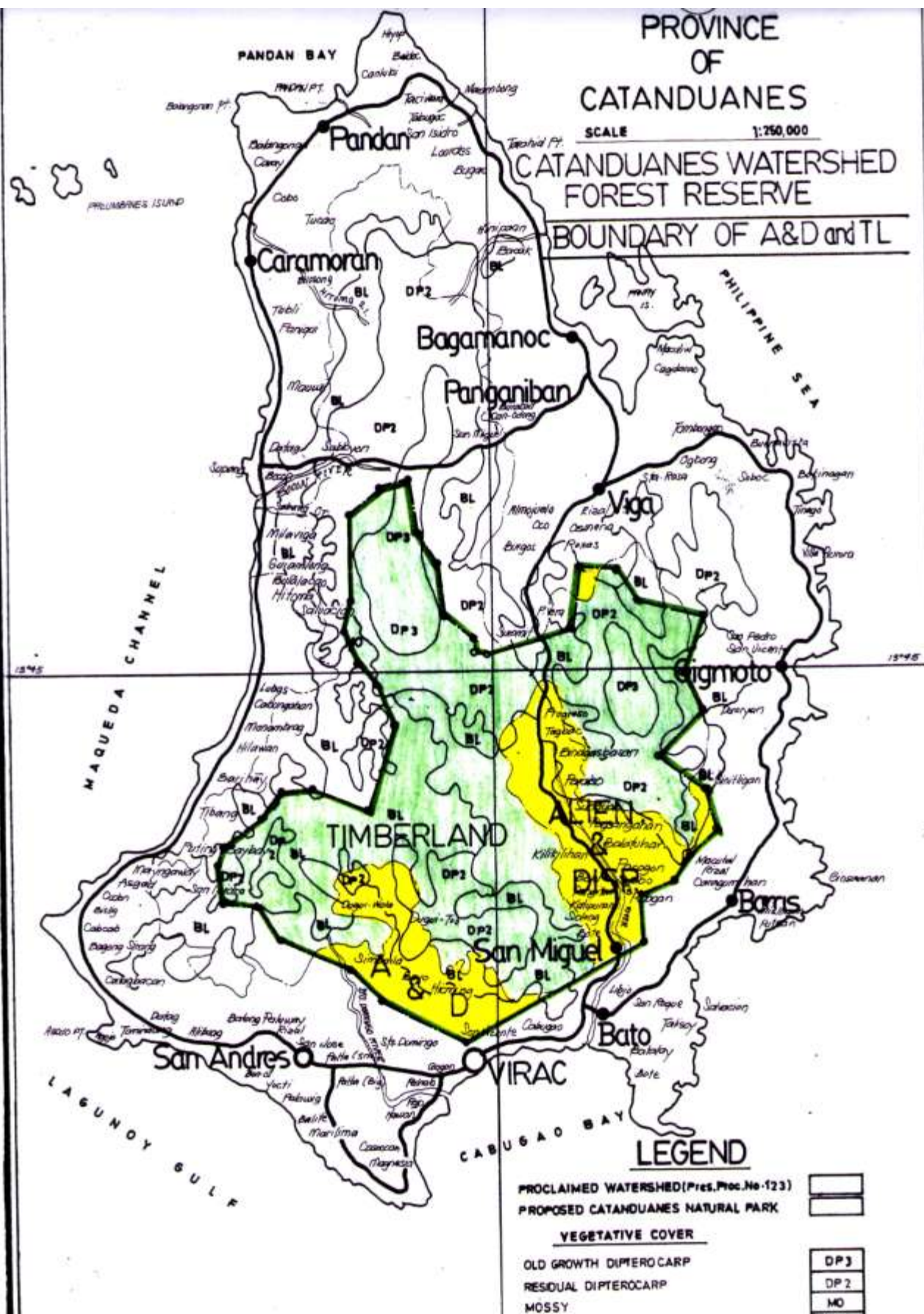
- PROCLAIMED WATERSHED (Pres. Dec. No. 123)
- PROPOSED CATANDUANES NATURAL PARK
- VEGETATIVE COVER**
 - OLD GROWTH DIPTEROCARP
 - RESIDUAL DIPTEROCARP

PROVINCE OF CATANDUANES

SCALE 1:250,000

CATANDUANES WATERSHED FOREST RESERVE

BOUNDARY OF A&D and TL



LEGEND

| | |
|---|-----------------------|
| PROCLAIMED WATERSHED (Pres. Dec. No. 123) | [Symbol: Dashed line] |
| PROPOSED CATANDUANES NATURAL PARK | [Symbol: Solid line] |
| VEGETATIVE COVER | |
| OLD GROWTH DIPTEROCARP | [Symbol: DP3] |
| RESIDUAL DIPTEROCARP | [Symbol: DP2] |
| MOSSY | [Symbol: MO] |