

Appendix 2
Institutions, Legislations and Policies

APPENDIX 2

INSTITUTIONS, LEGISLATIONS AND POLICIES

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APPENDIX 2

INSTITUTIONS, LEGISLATIONS AND POLICIES

CHAPTER 1 INTRODUCTION

This section of the interim report covers policies, legislations, and institutions in the management of forestlands and watersheds in the Upper Magat and Cagayan River basins. To understand the milieu within which the M/P Study is operating information/data on policies, laws, rules and regulations on jurisdiction and occupancy over forestlands and watershed areas were studied with respect to issues and concerns affecting implementation of watershed management activities. The issues include jurisdiction of forestlands and watershed, jurisdiction over forest products, land uses, occupancy and use of forestlands and the tenure instruments authorizing such occupancy and uses, government agencies and their functions relative to forestlands and watersheds, how they are organized to implement programs and projects, manpower complement and competencies and budgetary allocations for forest and watershed protection and management.

CHAPTER 2 COLLECTION OF DATA/INFORMATION, SURVEYS AND INVESTIGATIONS

2.1 Policies, Laws, Rules and Regulations

Policies, laws, rules and regulations including pertinent provisions of the Constitutions relative to forestlands and watershed management were collected and studied. Examples of land uses, occupancies, tenure and tenure instruments such as protected areas, ancestral domain claims, mining applications and permits, resettlement areas, proclamations for special uses such as for construction of irrigation and hydroelectric dams were gathered and studied. Watershed areas devolved to local government units (LGUs) and those co-managed by national government agencies and LGUs were likewise studied.

Policies and jurisdiction over forest products, rules and regulations on harvesting and transport permits on logs and non-timber forest products were also studied.

2.2 Organization and Functions of Responsible Agencies

Information and data on the organization and functions of agencies and offices responsible for the administration and management of forest and watershed resources particularly the DENR were gathered. Organizational charts of these agencies were also collected. The organization of LGUs responsible for forestry and environmental management in the provinces were also obtained.

2.3 Systems and Procedures for Project Implementation

The systems and procedures for project implementation were gathered. Wherever available forms used in these processes were also obtained. The process of technology acquisition and transfer was also analyzed, so was the monitoring and evaluation system for CBFM projects.

2.4 Budget Process and Budgetary Allocations

Information on the budget cycle and budgetary allocation of DENR at the national as well as at the regional, PENRO, CENRO and CENRO Unit levels were also gathered to determine whether there is sufficient budgetary support for the projects. Comparison of the budget of the Forest Management Sector and the other sectors were also made. Personnel complement of DENR offices at the regional, PENRO, CENRO and Unit levels were also obtained, so were those at the LGUs, including those of special and foreign funded projects. Competencies of personnel at the Unit level were also obtained and analyzed.

CHAPTER 3 METHODOLOGY EMPLOYED

Information and data on policies and legislations were obtained through review of recent legislations on forestland and watershed management as well as implementing rules and regulations of these laws. Various DENR Administrative Orders (DAOs), Memorandum Circulars, Memoranda, Executive Orders (EOs), Presidential Decrees (PDs), Letters of Instructions (LOIs), Memoranda of Agreement (MOA) between national government agencies and/or Local Government Units (LGUs) were also studied. To understand better how these laws, rules and regulations were being implemented in the field and to clarify issues and concerns relative to the management of the watersheds and forestlands, interviews with responsible DENR and LGU officers were conducted.

A survey was undertaken with PENRO and CENRO CBFM Unit Chiefs to determine the manpower complement of these units in undertaking regular projects, procedure for responding to the needs of people's organizations, skills that are present in responding to PO requirements and additional skills required, present resources and additional resources required to effectively and efficiently implement projects were also obtained. An analysis was also conducted on the level of competencies of personnel assigned to various regular CBFM projects. Likewise, an analysis was also conducted on the level of funds allocated to Forest Protection and CBFM Units at the CENRO level.

To validate information obtained from interviews, field visits to farms, plantations, watershed areas, and development projects of government agencies were conducted. Managers and responsible persons of these projects were interviewed and issues discussed.

CHAPTER 4 PRESENT CONDITIONS

4.1 Definition of Watershed

Presidential Decree No. 705¹ defines **watershed** as land drained by a stream or fixed body of water and its tributaries having a common outlet for surface run-off. As a topographic and hydrologic unit, DENR Administrative Order (DAO) No. 99-01² defines watershed as an area of land from which rainwater can drain, as surface run-off, via a specific stream or river system to a common outlet point that may be a dam, irrigation system or municipal/urban water supply take off point or where the stream or river discharges into larger river, lake or sea.

PD 705 introduces the element of criticality of a watershed. When the drainage area of a river system supports existing and proposed infrastructures such as hydroelectric dam, irrigation system, water system and the area needs immediate protection and rehabilitation then the watershed is a critical watershed. The crucial elements in the definitions are: a) the presence of infrastructures dependent on the watershed and b) the watershed needs immediate rehabilitation and immediate protection. These two elements must be present to qualify a watershed as a critical watershed. However, in the common usage of the term if a watershed supports infrastructures regardless of whether it needs immediate rehabilitation and protection or not it is a critical watershed. This stems from the need to protect the watershed in order that the utilization and life span of the infrastructures are not jeopardized by any activity in the watershed area.

Watershed Management is defined as 1) the process of guiding and organizing the use of land and other resources found therein to provide desired goods and services without adversely affecting soil and water resources; 2) the application of business methods and technical principles to the manipulation and control of watershed resources to achieve desired results such as maximum supply of usable water, minimization of soil erosion and accumulation silt and the reduction of the occurrence of floods and droughts³.

4.2 Jurisdiction Over Watersheds Areas

The Constitution (1987)⁴ provides that all lands of the public domain, waters, minerals, coal, petroleum and all sources of potential energy, fisheries, forests, timbers, wildlife, flora and fauna, and other natural resources belong to the State (**Table 4.2.1**). PD 705 lodges the overall jurisdiction and authority over forestlands, grazing lands and forest reservations including watershed reservations presently administered by other government agencies to the Bureau of Forest Development (now the Forest Management Bureau). EO 192⁵ placed primary responsibility for the conservation, management,

¹ Presidential Decree No. 705. 1975. Forestry Reform Code of the Philippines. As amended by PD Nos. 865, 1775, 1559; by EO Nos. 273 and 277 Series of 1987.

² DENR Administrative Order No. 99-01, Adopting the Watershed and Ecosystems Planning Framework. January 11, 1999. The definition of watershed in DAO No. 99-10 is similar to the definition found in "Guidelines for Watershed Management and Development in the Philippines", Book Series No. 166-1999. DOST, DENR, DA and UP at Los Banos.

³ *Op cit.* Guidelines for Watershed Management and Development in the Philippines

⁴ The 1987 Philippine Constitution, Section 2, Article XII.

⁵ Executive Order 192 Providing for the Reorganization of the Department of Environment, Energy and Natural Resources, Renaming it as the Department of Environment and Natural Resources, and for other Purposes. June 10, 1987

development and proper utilization of natural resources including watersheds to the DENR. With the conversion of FMB from a line bureau to a staff bureau the regulatory functions of the BFD were transferred to the DENR regional and field offices.

4.2.1 Jurisdiction of Watershed Areas through Legislation

(a) National Integrated Protected Area System (RA 7586, 1992) - The National Integrated Protected Area System (NIPAS) otherwise known as the NIPAS Act sets the framework for the establishment of protected areas. It provides that all areas “proclaimed, designated, or set aside, pursuant to law, presidential proclamation or executive orders as national parks, game refuge, bird and wildlife sanctuaries, wilderness area, strict nature reserve, watershed, mangrove reserve, fish sanctuary, natural and historical landmarks, protected and managed landscape and seascape as well as identified virgin forests before June 1992 are initial components of the NIPAS⁶. Later components may be established.

The NIPAS is placed under the administration and control of the DENR. A Protected Area and Wildlife Division at the Regional Office coordinates and monitors the activities related to protected area management and wildlife resources conservation within the region⁷. A Protected Area and Wildlife Section at the PENRO coordinates and monitors the protected areas at the provincial level. The Protected Areas Superintendent (PASu) is the Chief Operating Officer at the site. He has both administrative and regulatory functions relating to the specific protected area he/she is supervising⁸.

The Bangan Hills that is located in barangay Magsaysay in Bayombong, Nueva Vizcaya has portion of its area proclaimed as Bangan Hill National Park under the category of Protected Landscape by virtue of RA No. 7954 on 29 March 1995. The park consists of about 12.8 hectares. A PASu has been designated for the area and the PAMB is in the process of being organized.

Proclamation No. 289⁹ established the Casecnan River Watershed Forest Reserve as a Protected Landscape. It covers approximately 85,219 ha in the municipalities of Dupax del Norte, Dupax del Sur in Nueva Vizcaya and in the municipalities of Maddela and Dipaculao in Quirino and Aurora provinces, respectively. The establishment of the protected area is without prejudice to the rights of indigenous peoples as provided for in RA 8371. There are other proclaimed NIPAS areas in the Study Area (**Figure 4.7.1, Vol. I Mai Text**)

(b) Indigenous Peoples’ Rights Act (RA 8371, 1997) – RA 8371 recognizes the rights of indigenous peoples⁷ to own, manage, develop and conserve their ancestral domains and all natural resources found therein¹⁰. They have the rights of self-governance and

⁶ NIPAS Act (RA 7586) An Act Providing for the Establishment and Management of National Integrated Protected Areas System, Defining its Scope and Coverage, and for Other Purposes. June 1, 1992

⁷ DAO No. 25 Series of 1992. National Protected Areas System (NIPAS) Implementing Rules and Regulations, Section 36, Chapter VI. June 29, 1992.

⁸ *Op cit.* DAO 25 Series of 1992. Section 38, Chapter VI.

⁹ Proclamation No. 289 Declaring the Casecnan River Watershed Forest Reserve Situated in the Municipalities of Dupax del Norte, Dupax del Sur, Province of Nueva Vizcaya, Municipalities of Madella and Dipaculao, Provinces of Quirino and Aurora, Respectively, Island of Luzon, as a Protected Area Pursuant to Republic Act 7586 (NIPAS Act of 1992) and shall be Known as Casecnan Protected Landscape. 23 April 2000.

¹⁰ RA No. 8371 A Act to Recognize, Protect and Promote the Rights of Indigenous Cultural Communities/ Indigenous Peoples,

self-determination over the use, management and conservation of their domains. The jurisdiction over the management of watersheds and protected areas covered by a CADC, according to EO 192¹¹, PD 705 and RA 7586 is now transferred to the ICCs/IPs by virtue of RA 8371.

The DENR has turned-over to the National Commission on Indigenous Peoples (NCIP) 13 CADC areas found in Region 2 with an area of about 362,221 hectares (**Figure 4.7.3, Vol. I Main Text**). Nine of these are found in three provinces in the Study Area with an aggregate area of about 281,356 hectares (**Table 4.2.2**). There are two CADC areas in the municipalities of Kiangan and Tinoc, Ifugao with a total area of 48,206 hectares.

(c) Philippine Mining Act (RA 7942, 1995) – The Law provides that subject to existing rights, reservations and prior agreements, all mineral resources in public and private lands, including timber and forestlands may be opened to mineral agreements and financial and technical assistance agreements (FTAA). It also defines areas excluded from mining agreements such as military and government reservations, areas covered by small mining claims, old growth or virgin forests, all areas prohibited under the NIPAS Act and areas under RA 8371.

Table 4.2.3 is a list of different mining interests in the Study Area consisting of exploration permits, exploration permit applications (EPA), Mineral Production Sharing Agreements (MPSA) and FTAA. The estimated area of mining interests in Nueva Vizcaya and Quirino is 375,045 ha. **Figure 4.7.4, Vol. I Main Text** shows the location of mining interests in the Study Area.

4.2.2 Jurisdiction through Proclamations

PD 705 empowers the President to proclaim portions of the public domain for special purposes. Proclamations of watersheds for special uses such as for hydropower generation and/or irrigation purposes have been made. In a number of cases the jurisdiction over the watershed is transferred from DENR to the agency managing the infrastructure. Letter of Instruction No. 1002¹² dated 20 March 1980 granted the National Irrigation Administration (NIA) authority to manage, protect, develop and rehabilitate certain portions of the Pantabangan watershed reservation. However, Executive Order No. 281¹³ dated 16 November 1995 which gave authority to NIA to construct, develop, operate and maintain the Casesnan Multipurpose Irrigation and Power Project (CMIPP) located within the Casesnan River Watershed Forest Reserve (CRWFR) in Nueva Vizcaya and the Pantabangan-Carranglan Watershed in Nueva Ecija retains the authority of DENR over the CRWFR and portions of the Pantabangan-Carranglan Watershed. The

Creating a National Commission on Indigenous Peoples, Establishing Implementing Mechanisms, appropriating Funds, therefore, and for other Purposes. Section 7, Chapter III.

¹¹ EO No. 192 Providing for the Reorganization of the Department of Environment, Energy and Natural Resources, Renaming it as the Department of Environment and Natural Resources, and for other Purposes June 10, 1987.

¹² LOI No. 1002 (March 20, 1980) as cited by EO 281 Granting the NIA the Authority to Construct, Develop, Operate and Maintain the Casesnan Multipurpose Irrigation and Power Project Located within the Casesnan River Watershed Forest Reserve in the Province of Nueva Vizcaya. 16 November 1995.

¹³ EO 281 Granting the NIA the Authority to Construct, Develop, Operate and Maintain the Casesnan Multipurpose Irrigation and Power Project Located within the Casesnan River Watershed Forest Reserve in the Province of Nueva Vizcaya. 16 November 1995.

CRWFR is included as part of the NIPAS area proclaimed as Protected Landscape under Proclamation No. 289.

Several watersheds are being managed by other government agencies (OGAs) such as NIA, the Philippine National Oil Corporation and the National Power Corporation¹⁴. There are about 714,604 ha of watersheds managed by these agencies. **Table 4.2.4** shows the corporations managing certain watersheds.

In all the watershed areas where the management has been transferred to other agencies DENR retains supervision over the areas.

4.2.3 Jurisdiction through Devolution

The Local Government Code (RA 7160, 1991)¹⁵ provides that LGUs shall exercise powers and discharge functions and responsibilities as are necessary, appropriate, or incidental to efficient and effective provision of the basic services and facilities to their constituents. On the basis of the above provision DENR through DAO No. 30 Series of 1992 devolved to LGUs the management, protection, rehabilitation and maintenance of communal forests and community watershed areas that are sources of local water supply.

On 9 November 1992 DENR through its Region 2 Office and the Provincial Government of Nueva Vizcaya entered into a MOA on Devolution. DENR devolved functions, programs, projects, services and personnel. Among the areas devolved is the Barobbob Watershed located in Masoc, Bayombong, Nueva Vizcaya covering an area of 439 hectares.

4.3 Land Uses and Occupancy and Tenure Instruments in Watershed Areas

The laws reviewed (**Table 4.2.1**) specified land uses that are allowed in watershed areas. Thus the NIPAS Law allows the establishment of protected areas. Similarly, the Philippine Mining Act provides for the granting of mineral agreements in certain areas not prohibited by specific laws or not subject to prior rights and agreements. The IPRA Law (RA 8371) recognizes the establishment of ancestral domains and the titling of the same.

The Philippine Mining Act of 1995 provides for the issuance of three types of mineral agreements. These are the Mineral Production Sharing Agreement (MPSA), where the contractor provides all the financing, technology, management and personnel, the Co-Production Agreement (CPA) where government provides inputs to mining other than ownership of the resources, and the Joint Venture Agreement where the government forms a joint venture company with the contractor and both have equity shares. The Financial and Technical Assistance Agreement (FTAA) is for large mining operations, often with foreign funding.

In addition to the above laws, a number of DENR issuances mostly Administrative Orders allow various land uses and occupancy in watersheds areas. It also grants tenure

¹⁴ Formulation of a Watershed Management Strategy and Investment Program, Review of Policy and Legal Framework Working Paper No. 3. DANIDA-DENR, July 1998

¹⁵ Local Government Code, RA 7160, 1991

rights over these areas. DAO 96-29¹⁶, which implements EO 263, provides for the adoption of the Community-based Forest Management Program (CBFMP) as the strategy for sustainable development of the forestlands. It grants tenure to qualified communities through the Community-based Forest Management Agreement (CBFMA). It also consolidates all tenure instruments under the CBFMA. However, the Certificate of Stewardship (CS) is still issued to individual farmers/families managing farms inside CBFMA areas (DAO No. 98-45)¹⁷. Within the purview of the CBFMA, agro-forestry, forest plantations, silvi-pasture, fisheries production and crop production are allowed in watershed areas. **Table 4.3.1** is a list of CS within CBFM areas.

DAO No. 98-41¹⁸ allows the establishment of CBFM projects within watershed reservations. DAO No. 2000-44¹⁹ provides specific guidelines for the establishment and management of community-based projects within protected areas.

Other land uses that are allowed within watersheds include integrated forestland management (IFMA) for corporate forest plantation development (DAO No. 99-53)²⁰, socialized industrial forest management (SIFMA) for small-scale commercial plantation development (DAO No. 96-24)²¹, and the forestland grazing management (DAO 99-36)²² promoting the development, improvement and sustainable use of grazing land within watershed areas. There are 95 approved SIFMA areas within the Study Area in Isabela and 23 in Quirino.

Eco-tourism is also allowed in watershed areas. The municipal government of Sta. Fe, Nueva Vizcaya entered into a MOA on 22 September 1997, with DENR for the establishment of the Sta. Fe Forest Park for nature-based tourism covering about 1,000 ha from the 11,664 ha Consuelo Reforestation Project in Sta. Fe.

For each type of occupancy there is a corresponding tenure instrument (**Table 4.3.2**). The table also shows the legal basis for occupancy, areas available, qualified participants or beneficiaries, description of tenure and the main strategy for implementing the program or project.

The Provincial Government of Nueva Vizcaya and the DENR through the PENRO are co-signatories to a number of tenure instruments awarded under the Lower Magat Forest Management Project, a co-managed project by DENR and the Provincial Government. Farmer-beneficiaries are awarded the Agro-forestry Land Management Agreement (ALMA), the Tree Farm Lease Management Agreement (TFLMA), or the Community Agro-forestry Land Management Agreement (CALMA) for participating communities

¹⁶ DAO No. 96-29 Rules and Regulations for the Implementation of Executive Order 263, Otherwise Known as the Community-Based Forest Management Strategy (CBFMS)

¹⁷ DAO No. 98-45 Guidelines Governing the Issuance and Transfer of Certificate of Stewardships (CS) within CBFM Areas, June 24, 1998.

¹⁸ DAO No. 98-41 Guidelines on the Establishment and Management of Community-Based Forest Management (CBFM) Projects within Watershed Reservations, June 24, 1998.

¹⁹ DAO No. 2000-44 Amending Certain Provisions of DAO 96-29 and Providing Specific Guidelines for the Establishment and Management of Community-Based Projects within Protected Areas, June 6, 2000.

²⁰ DAO No. 99-53 Regulations Governing the Integrated Forest Management Program (IFMP), December 23, 1999.

²¹ DAO No. 96-24 Rules and Regulations Governing the Socialized Industrial Forest Management Program, August 29, 1996.

²² DAO No. 99-36 Revised Rules and Regulations Governing the Administration, Management, Development and Disposition of Forestlands Used for Grazing Purposes, as amended by DAO No. 2000-23, March 3, 2000.

(Table 4.3.2). Under the Tree for Legacy Program of the province, a Certificate of Tree Ownership (CTO) is awarded to those who plant trees in areas where harvesting is allowed while the Certificate of Usufruct (CU) is awarded to those who plant fruit trees in areas where harvesting is not allowed. These tenure instruments are submitted to DENR for the issuance of regular tenure instruments.

The Barobbob Watershed Management Project is a provincial government project on a devolved watershed. The Provincial Government awards Land Management Agreement (LMA) to farmer-beneficiaries.

The duration of tenure in all of these agreements is 25 years renewable for another 25 years except those with specific agreements that prescribes other periods of tenure such as those covered by MOAs.

4.4 Jurisdiction over Forest Products

PD 705 (Section 5) vested the then BFD jurisdiction and authority over all forestland, grazing land, and all forest reservations including watershed reservation administered by other government agencies. It was also responsible for the regulation and supervision of licenses, harvesting and use of forest products and the implementation of multiple-use and sustain-yield management of forestlands. This is further strengthened in Section 20 of the Code that states no person may utilize, exploit, occupy, possess or conduct any activity within any forest and grazing lands or install wood processing plants unless authorized to do so under a license agreement, lease, or permit.

With the transformation of BFD into the line bureau FMB by virtue of EO No. 192, the regulatory authority of BFD was transferred to the regional and field units of DENR. The authority over the collection and disposition of forest products is not relinquished by DENR even in forest areas managed by other agencies and organizations. While NIA has been granted authority to construct, develop, operate and maintain infrastructures in the CMIPP, all cases of clearing, timber cutting and related activities shall be coordinated and approved by the DENR.

The main product of watershed areas is water. However, this is often not under the purview of DENR's authority to supervise and control its use because other government agencies such as the National Water Resources Board (NWRB) have been provided the authority for distributing and taxing its use.

4.4.1 License for Timber Production

The Timber License Agreement (TLA) used to be the license to harvest timber in the natural forest. The new instrument is through the Integrated Forest Management Agreement (IFMA). It is a production sharing agreement with tenure of 25 years renewable for another 25 years. However, TLAs that have not yet expired or terminated are allowed to continue operation or convert to IFMA. The last TLA license to expire will be in 2011. As of Year 2000 there were only 3 active TLAs in the 4 provinces covered by the Study Area and all were found in Isabela²³. The only TLA found in the

²³ The Philippine Forestry Statistics, FMB, DENR, 1999

Study Area was suspended. The maximum area that can be awarded to an IFMA is 40,000 hectares.

For small-scale operations, the Socialized Industrial Forest Management Agreement (SIFMA) is the tenure instrument awarded (**Table 4.3.2**). SIFMA can have a maximum of 500 ha for associations and cooperatives, while families can have an area of up to 10 hectares. The SIFMA is also a production-sharing agreement.

The CBFMA is another type of production sharing agreement that allows holders to harvest timber from the natural forest. The Resource Use Permit (RUP) is the instrument through which a CBFMA holder can access natural timber with the affirmation of DENR²⁴.

4.4.2 Access to Non-timber Forest Products

In 1999, 195 rattan-cutting permits were allowed to operate in the country covering a total area of 1.57 million ha and with a total allowable cut of 150.49 million lineal meters (lm)²⁵. Of these two each were in Isabela and Nueva Vizcaya and one from Quirino. There were actually 4 rattan permittees in Nueva Vizcaya but only two were granted permits to operate that year. There was no rattan-cutting permit issued in Ifugao. The total allowable cut of the 5 permits was 3.95 million lineal meters.

CBFMA holders are also qualified to extract non-timber forest products within their area. Indigenous cultural communities and POs are now given the priority to extract non-timber forest products within their areas whenever existing cutting permits terminate or expire.

4.4.3 Production of Forest Products

Production of timber and non-timber forest products over the last 5 years is shown in **Table 4.4.1**. Only Isabela had been harvesting timber although this was only about 2% of the national production. It is expected that there will be no reported log production in 2001 because of the cancellation or suspension of cutting permits.

Lumber production has also been confined to Isabela and it is likely to decrease because of the cancellation or suspension of timber licensees.

There is no reported log production of Gmelina (*Gmelina arborea*) in the Study Area although several cutting permits were granted to ISF farmers in Nueva Vizcaya alone in 2000 amounting to more than 220 m³ (**Table 4.4.2**). There are 31 furniture shops in Bambang, Solano and Bayombong, Nueva Vizcaya alone. Furniture made of Gmelina is commonly used in restaurants, homes and offices in the Bayombong and Solano area.

Production of non-timber forest products (NTFP) is also shown in **Table 4.4.3**. Rattan (split and unsplit), bamboo and almaciga resin were the only reported NTFP produced in

²⁴ DENR AO No. 2000-29 Guidelines Regulating the Harvesting and Utilization of Forest Products within Community-Based Forest Management Areas, March 14, 2000.

²⁵ The Philippine Forestry Statistics, DENR-FMB, 1999

the Study Area in 1999. Isabela and Nueva Vizcaya are the main producers of unsplit rattan. For the Year 2000 rattan was the only reported non-timber forest product produced. Rattan and bamboo would provide the raw material base for potential livelihood projects such as furniture and handicraft production in rural communities.

4.5 Organization and Responsibility

This section reviews the structure and functions of government agencies mandated to administer and manage watershed areas and resources.

4.5.1 Department of Environment and Natural Resources

DENR is the primary government agency responsible for the conservation, management, development and proper use of the country's environment and natural resources. It regulates the utilization of these resources to ensure equitable sharing of the benefits derived there from.

The functions of DENR relevant to the Master Plan Study are shown in **Table 4.5.1**. These concern the formulation and implementation of policies, plans, programs, rules and regulations pertaining to the exploration, development, conservation, protection, extraction, disposition and use of natural resources.

A Department Secretary heads DENR. It consists of the department proper (central office), staff offices, staff bureaus and the regional, provincial, and community environment natural resources offices. Offices at the department proper and the sector bureaus assist the Secretary.

DENR has Environment and Natural Resources Regional Offices in the 15 administrative regions and Provincial Environment and Natural Resources Offices (PENRO) in every province. Each province has one or more Community Environment and Natural Resources Offices (CENRO). **Figure 4.5.1** shows the organization and structure of DENR.

4.5.2 Organization and Functions of Regional Offices

DENR AO No. 99-52²⁶ revised the organizational structure of DENR as promulgated in EO 192. **Figure 4.5.2** shows the revised organizational chart of DENR Region 2. The regional office is divided into 4 services namely: Operations, Technical Services, Legal Services and Public Affairs, and Administrative Services. The services are in turn divided into divisions. Of particular importance to the Study are the Operations and Technical Services.

The relevant functions of the Regional Offices as defined by EO 192 and DAO No. 1 Series of 1987²⁷ are shown in **Table 4.5.1**. They revolve on the implementation of pertinent laws, rules, regulations, plans and programs for the promotion of sustainability

²⁶ DAO No. 99-52 Prescribing a Detailed Definition of Functions for the Realigned Regional Divisions, December 15, 1999

²⁷ DAO No. 1 S1988 Implementing Guidelines for the Reorganization of the Department of Environment and Natural Resources Pursuant to Executive Order No. 192

and productivity of natural resources, social equity in resource utilization and environmental protection and monitoring and evaluation of programs/projects.

4.5.3 Organization and Functions of the PENRO and CENRO

EO 192, DAO No. 1 Series of 1988 and DAO No. 99-52 do not define the manner in which the PENRO and CENRO are organized. However, current organization of these offices in Region 2 follows the structure of the Regional Office (**Figure 4.5.3**). However, the CENRO Technical Services has only two units, the Lands Management Unit and the Forest Resources Conservation Unit (**Figure 4.5.4**).

The PENRO and the CENRO absorbed functions of the defunct District Offices of the abolished bureaus according to Section 21 of EO 192, including those of the Forestry Districts of the BFD. These absorbed functions, however, were not specified. DAO No. 1 Series of 1988 defined the functions of the PENRO and the CENRO (**Table 4.5.1**).

4.5.4 Organization and Functions of Staff Bureaus

There are three staff bureaus of DENR that are relevant to the Master Plan Study. These are the Forest Management Bureau (FMB), the Protected Areas and Wildlife Bureau (PAWB) and the Ecosystems Research and Development Bureau (ERDB). The functions of these bureaus are shown in **Table 4.5.1**.

The FMB and PAWB recommend policies, programs and projects for the effective implementation of their respective programs. FMB is charged with supervising the implementation of the CBFM Program and the monitoring and evaluation of forest management programs including watershed management and soil conservation. The main function of the PAWB is establishment of the IPAS.

The ERDB is tasked with the formulation and recommendation of an integrated research program relating to Philippine ecosystems and natural resources and the generation of technologies relevant to the sustainable uses of Philippines ecosystems and natural resources.

4.5.5 Organization and Functions of the Mines and Geosciences Bureau

The functions of the Mines and Geo-sciences Bureau (MGB) are reviewed because mineral mining operations almost always are located in forestlands and therefore are potential areas of conflict particularly if the area where they are situated happens to be a protected area. EO 192 created the MGB out of the Bureau of Mines and Geo-sciences (BMG), the Mineral Reservations Board and the Gold Mining Industry Development Board.

The passage of the Philippine Mining Act of 1995 transformed MGB from staff to line bureau. As such it was mandated to establish regional offices. The functions of the MGB ascribed to it by RA 7942 area also shown in **Table 4.5.1**.

4.5.6 Local Government Units

To carryout the environment and natural resources functions of a province is the Environment and Natural Resources Office. Isabela, Nueva Vizcaya and Quirino have established such offices with Quirino calling its office Provincial Natural Resources and Environment Office (PNREO). Ifugao has a Provincial Agricultural, Environment and Natural Resources Office (PAENRO).

Provincial ENRO – The functions of the provincial ENRO of Nueva Vizcaya are shown in **Table 4.5.1**. Its organizational chart is shown as **Figure 4.5.5**. The ENRO has two operating divisions, the Environment and Mineral Resources Management Division and the Forest Conservation and Development Division. Two sections implement forest management and environmental programs namely the Watershed Management and the Community-based Forest Management/Integrated Social Forestry Management Section. There are 45 personnel, 31 are regular while 14 are contractual employees.

4.6 Organization for Project Implementation

4.6.1 Regular DENR-Funded Projects

Only DENR projects that have bearing on the occupancy and use of land and resources within the Master Plan Study Area were reviewed.

DENR-funded program/projects are often launched through a department administrative order. To wit are the programs reviewed in **Table 4.6.1**. The roles, responsibilities and organizational structure of field offices from the Regional Office down to PENRO and CENRO are spelled out in the table including participating staff bureaus and offices at the central office.

Most of the time, the CENRO has direct responsibility for implementation of programs and projects. The effectiveness of implementation often rests on sufficiency of funds, and the quantity and the quality of personnel available to implement the project. The fund allocation of projects at the PENRO and CENRO levels is discussed under **Annual Budgets and Budgeting Procedures**. The existing personnel in Region 2 and the three provinces, (Isabela, Nueva Vizcaya and Quirino) under its jurisdiction that are included in the Study Area, including Ifugao, are shown in **Table 4.6.2**. The distribution of personnel according to sector for Nueva Vizcaya and Quirino is shown in **Table 4.6.3**. In all instances the FMS sector at the PENRO and CENRO has the largest number of personnel among the sectors, reaching as high as 84 percent.

What is important, however, is the actual number of personnel assigned to implement a specific project. An examination is made of the actual number of personnel implementing CBFM projects in Isabela, Nueva Vizcaya, Quirino and Ifugao (**Table 4.6.4**). The number of supervised projects indicated in the table does not include those that have funding other than from regular DENR appropriations. The PENRO in Nueva Vizcaya (formerly CENRO Bayombong) has only one CBFM personnel but supervises 6 regular projects. CENRO Dupax del Norte has one CBFM personnel but supervises 5 projects. CENROs Lamut and Alfonso Lista have each one CBFM

personnel who is supervising 3 projects. Some personnel of CBFM and other units in the FMS have been assigned to foreign funded projects.

To cope with the volume of work, CBFM Unit heads arrange with other units the temporary assignment of other FMS staff whenever there is a need such as in survey of area applied for by a community for possible CBFM project or inventory of resources. FMS personnel include Tree Markers, Forest Rangers, Nursery Farm Foreman and Laborers. Tree Markers and Forest Rangers may be deployed for CBFM/watershed management functions but they would need orientation and training.

Whenever there are foreign funded CBFM projects in the province the CENROs would request for assistance from these projects. The GTZ funded RP-German CFP project in Quirino has been providing assistance to CBFM Units in the conduct training, livelihood development, preparation of CRMF, AWP or RUP. Where there are no such foreign assisted projects and the number of CBFM projects is far more than the number of personnel in the CBFM Unit at the CENRO, some of the projects are not given the attention and assistance they need.

4.6.2 Foreign Assisted Programs/Projects (FAPs)

These programs or projects have foreign funding either in whole or in part. They may be national in scope such as the Forestry Sector Project funded by the Asian Development Bank (ADB) and the Japan Bank for International Cooperation (JBIC) or limited to one site or one province such as the RP- German Community Forestry Project in Quirino otherwise known as the CFP-Q

In the case of the Forestry Sector Project, a national office, the National Forestation Development Office (NFDO) was established to coordinate and supervise its implementation. The regional offices are still responsible for on-site implementation but the NFDO is providing staff and logistical support in terms of technical assistance to regional personnel as well as the beneficiaries of the program. To strengthen further the assistance to project implementation for the JBIC component of the FSP in terms of comprehensive site development, financial management, agro-forestry and upland farming practices, and other training, NFDO established at the field level the Subproject Site Management Office (SUSIMO)²⁸. There are 3 such projects in the Master Plan Study area, one in Dumayop, Nueva Vizcaya and two (Lamut and Mayuyao) in Ifugao.

Table 4.6.5 shows how the SUSIMO is organized. A Subproject Management Officer (SMO) heads the Office as shown in **Figure 4.6.1**. Three Units help implement its functions, namely: Community Organizing and Strengthening Unit (COSU); Site Development & Management Unit (SDMU); and Validation and Billing Unit (VBU). An Administrative Support Unit assists the SMO in administering the Office. Personnel from DENR are seconded full-time to the Office. Where needed additional personnel are contracted.

²⁸ DAO No. 2000-65 Guidelines Governing the Creation of Subproject Site Management Office and its Institutionalization in the Forestry Sector Project Implementation

A feature of SUSIMO is the assignment of counterparts to the SMO and unit heads from the PO. This affords closer coordination between the Office and the PO making it easier to train and transfer technologies and teachings to the PO.

The SMO reports directly to the CENRO.

The German Government has been supporting forestry projects in the country since 1988. The first phase of the Community Forestry Project-Quirino with a clear community forestry focus commenced in 1994 and ended in 1997. The project was extended from 1997 to 2001 and further extended to 2003. The project is funded by the *Deutsche Gesellschaft fuer Technishche Zusammenarbeit* (GTZ) and the *Kreditanstalt fuer Weideraufbau* (KfW) with contributions from the Philippine Government through DENR and the Provincial Government of Quirino. DENR and the Province of Quirino seconded personnel to the project.

The project has six (6) result areas with corresponding indicators. The overall indicator is that by 2001 project communities continue to apply land-use and resource-use plans and, at the same time, reduce dependence on external support.

The organizational chart of the project is shown in **Table 4.6.2**. The policy making body is the Provincial Steering Committee (PSC) chaired by the Governor and co-chaired by the RED of the National Economic and Development Authority (NEDA). The DENR RED is the vice-chairman. Members of the PSC include the municipal mayors, representatives from the Provincial Board, NGOs, CENROs, the PENRO, PNREO, the DILG, Project Manager, Asst. Project Manager and the GTZ Team Leader CFP-Q.

There are 5 operational units corresponding to the areas targeted for development in the communities, a GIS unit and administrative staff. The Project has a full staff of 71. The Project Manager is from DENR with 31 others on contractual basis. The PLGU provided 39 staff for the project. The program is currently working with 19 communities. The large number of project staff ensures that the development needs of the communities can be well addressed.

The Debt-for Nature Swap Initiative Program is a debt-conversion program between the Federal Republic of Germany (FRG) through the *Kreditanstalt fur Wiederaufbau (KfW)* and the Government of the Philippines (GOP). It follows the program concept of the CBFMP but focused on biodiversity conservation. The FRG provides the funds while the GOP provides the needed personnel. Pursuant to this the DENR seconded 18 regular employees from Quirino Province.

The four major components of the project include: support to community organization focusing on organization development and strengthening; participatory land use planning; forest management and biodiversity conservation; and sustainable agro-forestry/agriculture which is designed to counteract degradation of the farm lands by applying soil and water conservation measures at the farmer's field. The Debt-for-Nature Swap Initiative Program (DFNSIP) is currently working with 10 communities.

4.6.3 Co-Managed Projects

DENR and the Nueva Vizcaya entered into a partnership through a Memorandum of Agreement (MOA) to manage a portion of the Lower Magat Forest Reserve. The goal is to develop and mobilize a sustainable LGU and DENR-driven support services to protect, develop and manage the watershed by promoting and encouraging environmentally sound forestland and nature-based enterprises. The strategy is to implement community-based forest management approaches with strong private sector participation.

The implementation of the project is through a Steering Committee chaired by the Governor of Nueva Vizcaya and co-chaired by the RED of DENR. A Lower Magat Forest Management Office (LMFMO) located in the watershed (**Table 4.6.6**) was also established. DENR and Nueva Vizcaya contributed 3 and 4 personnel to the management office, respectively. The municipalities of Diadi and Bagabag where the project is located each contributed one personnel to the project office. The Project Manager comes from DENR while the Project Coordinator comes from the provincial ENRO. The provincial government provides the operating budget for the project.

To implement the functions of the LMFMO three Task Forces were created each with two personnel. These Task Forces conduct the field activities such as assisting participants prepare required documents for tenure approval, prepare management plans, assist in the implementation of the plan, resolve boundary conflicts if any and monitor the progress of management plan implementation.

4.6.4 LGU Management of a Watershed

The Barobbob Watershed Resource Management Project is located in the 439 ha Barobbob watershed in Masoc, Bayombong, Nueva Vizcaya. It provides potable water to about 2,000 households in the municipalities of Bayombong and Solano. It also irrigates about 400 hectares of rice fields. Prior to the project there were 134 squatter families and settlers in the watershed conducting subsistence agriculture and illegal logging. Past provincial governments started ejecting the people but the degradation of the watershed continued. In 1992, through the petition of the provincial government DENR included the Barobbob watershed when it devolved ISF projects to the province²⁹.

After the transfer of full management of the Barobbob watershed, the provincial government consensus building, community mapping, and careful planning for the area with full participation of the people were conducted. The people organized themselves into the Barobbob Watershed Occupants Association (BWOA). Nueva Vizcaya entered into a management agreement with BWOA. The province awards tenure through a Land Management Agreement (LMA) issued to individual occupants who are members of BWOA. The duration is 25 years renewable for another 25 years.

²⁹ MOA between DENR and the Provincial Government of Nueva Vizcaya which among other things transferred specific personnel, programs, projects and services including established small watersheds in municipalities. 9 September 1992. Also: Letter of DENR RED Leonardo A. Paat to the Provincial Governor of Nueva Vizcaya informing the latter of the transfer of the Masoc (Barobbob) Watershed supporting the water system of Bayombong and Solano pursuant to the MOA between DENR and the Provincial Government of Nueva Vizcaya date 9 September 1992.

The provincial ENRO is responsible for the day-to-day activities in the watershed through a composite Management Team. It is made up of a forester who assist the farmers in implementing forestry activities in their farms such as tree planting and agro-forestry, an agriculturist to administer to the needs of the farmers in crop production, a veterinarian to take care of the requirements of farmers in animal production, and a representative of the Provincial Cooperative Affairs Office (PCAO) who assist farmers with their business activities. The management team actually is performing extension activities. They visit the farms as often as the need arises. The Provincial Planning and Development Office is responsible for monitoring the project. The results have been no incidence of fires for the last 3 years, and evidence of natural regeneration in the area.

4.6.5 Management of Watersheds by Other Government Agencies

Other national government agencies (OGAs) have often been assigned management of portions of watersheds. Generally, the management of the watershed is a joint responsibility of the OGA and DENR. In the Master Plan Study area, EO No. 281³⁰ granted the National Irrigation Administration (NIA) the authority to construct, develop, operate and maintain the Casecnan Multipurpose Irrigation and Power Project (CMIPP) within the Casecnan River Watershed Forest Reserve (CRWFR) located in Dupax del Sur and in Alfonso Castaneda in Nueva Vizcaya and the Pantabangan-Carranglan Watershed (PCW) in Nueva Ecija. However, DENR retains jurisdiction over CRWFR. NIA retains rights to Pantabangan-Carranglan Watershed granted to it by LOI 1002.

The total area of the CMIPP is 90,900 ha, 57,900 ha of which are in the CRWFR. This area is covered by CADCs. It is also part of the NIPAS area created by Proclamation No. 289 dated April 23, 2000 establishing the Casecnan Protected Landscape.

NIA and DENR entered into an agreement through a MOA³¹ executed on November 20, 1995. The MOA specified the roles and responsibilities of the NIA and the DENR. Since DENR retained jurisdiction over the area, management functions are its responsibility. However, collaborative efforts are provided for in the MOA. DENR is mandated to formulate and implement a comprehensive management and development plan with the assistance of NIA. Thus far no management plan has been prepared. NIA and DENR are, however, preparing a plan to reforest 2,000 ha over 10 years in the upper CRWFR and 20,000 ha over 10 years in the lower CRWFR.

4.7 Monitoring and Evaluation System

4.7.1 Standard Operating Procedures (SOP) for Performance Monitoring

The Planning and Policy Service Office of DENR uses a standard operating procedure (SOP) for performance monitoring prescribed under DAO 33³² Series of 1992 and

³⁰ OE 281 Granting the National Irrigation Administration Authority to Construct, Develop, Operate and Maintain the Casecnan Multipurpose Irrigation and Power Project located within the Casecnan River Watershed Forest Reserve in the Province of Nueva Vizcaya and the Pantabangan-Carranglan Watershed in the Province of Nueva Ecija in Consonance with the Authority of the Department of Environment and Natural Resources over the Watersheds, under Proclamation No. 136 and Proclamation No. 561 as Amended, November 16, 1995

³¹ MOA between DENR and NIA for the implementation of EO No. 281, executed on November 20, 1995.

³² DAO No. 33 S1992 Manual for Performance Monitoring of DENR Programs and Projects. July 13, 1992

amended by DAO 99-38³³. It covers all activities of various units and bureaus of the department.

Operating units report every month the outputs of all programs/projects including those funded from sources other than DENR appropriations. Reported accomplishments are validated. The details of the monitoring system are shown in **Table 4.7.1**.

Table 4.7.2, called Form 03, is used for reporting accomplishments by operating units under the SOP for performance monitoring. It indicates the project, the functions/activities undertaken, performance indicators, units of measure, fund source, targets, and accomplishments. Narrative report of accomplishment accompanies the table of accomplishment. **Table 4.7.2** shows the target (1) of the CBFM Unit on the Conversion of Other Tenure Instruments Issued into CBFMA. The report shows that this was accomplished during the month being reported on. The performance of the unit is then captured and reported under the SOP for performance monitoring system of DENR.

4.7.2 Foreign Assisted Projects

The Foreign Assisted and Special Projects Office (FASPO) uses the Results Monitoring and Evaluation System for foreign assisted projects (FAPs). Resolution No. 14 Series of 1999 of the National Economic and Development Authority (NEDA) mandated the system. The conceptual framework of the system is shown in **Figure 4.7.1**. The monitoring sub-system ascertains physical and financial accomplishments and the timeliness of inputs and outputs. The evaluation sub-system ascertains performance, efficiency and effectiveness.

4.7.3 Monitoring and Evaluation of Foreign Funded Projects, the JBIC Case

The Japan Bank for International Cooperation (JBIC), a component of the Forestry Sector Project (FSP) adopted its own monitoring system (MC No. 2001-04)³⁴. The physical accomplishments of the PO, and the socio-economic and environmental impacts of the project are monitored and evaluated. The important details of the system are shown in **Table 4.7.1**.

4.7.4 Monitoring and Evaluation of Co-Managed Project

Monitoring and evaluation of the Lower Magat Forest Management Project is at two levels. One level is monitoring the performance of farmers relative to their development plans and the other level is monitoring the LMFMP. An interagency Task Force on Monitoring was created by the Provincial Environment and Natural Resources Committee (PENRC) under the Provincial Development Council headed by a member of the Committee.

³³ DAO No. 99-38 Revision of the Standard Operating Procedure (SOP) for Performance Monitoring Prescribed Under DAO No. 33 Series of 1992.

³⁴ DENR MC No. 2001-4 Revised Guidelines on the Conduct of Monitoring and Evaluation of the Forestry Sector Project, January 10, 2001

The LMFMO does the actual field monitoring of the farmer's accomplishment measured according to the approved development plan. Reports on the accomplishments of individual farmers form part of the reports of the LMFMO to the Monitoring Task Force.

The Project itself is monitored on the basis of its management and development plan. The LMFMO reports on its accomplishments during the quarterly meeting of the PENRC or during special meetings of the Committee.

4.7.5 Monitoring and Evaluation of an LGU Managed Project

Likewise, the Barobbob Watershed Management Project is monitored at the farmer's and at the project levels. The Provincial Planning and Development Office (PPDO) monitors the project. An inter-office team led by the Provincial ENRO conducts monitoring and evaluation of the farmer's performance. Periodic visits to the farms by a composite team of agriculture technician for crops, veterinarian to check on the animals, foresters for forestry activities and the Provincial Cooperative Affairs Office (PCAO) on business operations also serves as monitoring activity on the performance of the farmers. Reports are submitted to the Chief of ENRO and to the PPDO. Feedback is provided the farmers.

With respect to the performance of the project, the ENRO provides report of its performance relative to an approved management plan and approved targets for the period being reported on. One of the critical matters being monitored is the sale of rights by farmers to non-qualified (non-members of BWOA) buyers. The report goes to the PPDO and to the Governor.

4.7.6 Monitoring of Watershed Management Projects by FMB

The unit of FMB directly responsible for monitoring, assessment and evaluation of watershed management projects is the Watershed Management Section of the Reforestation Division. Reports of projects on watershed management projects implemented by the regional offices are submitted to DENR central office and are furnished FMB.

The Reforestation Division included in its Work and Financial Plan for Year 2001 the assessment 5 projects with a corresponding budget of ₱50,000 for travel purposes.

4.8 Annual Budgets and Budgeting Procedures

4.8.1 Budgeting Procedures at the National Level

The budget process of DENR is prescribed in DAO 98-18³⁵. It starts with the call for the submission of budget proposals from the Department of Budget and Management (DBM) around November every year or about 14 months before the start of the plan period. The DBM indicates the budget ceiling for each of the departments and national offices. The various central, staff bureaus and regional offices of the department are instructed to prepare their work targets and budget estimates taking into consideration

³⁵ DAO 98-18 Prescribing the standard operating procedures in the preparation of the agency/region/bureau office work and financial plan. April 20, 1998

their specific goals and plans. Regional development strategies including physical framework and resource use plans are considered in the preparation of targets and budgets. These are presented to the Regional Development Council for endorsement to the DENR Central Office around the second week of March of the ensuing year. The Policy and Planning Service Office (PPSO) and the Budget Division of the Finance Management Service of DENR review the budgetary proposal and work targets of the various offices from the third to fourth week of March.

The work targets and budget proposals are consolidated and presented to DENR top management within the first week of April and then submitted to DBM about the middle of April. Technical budget hearing at the DBM takes place around the first week of May. Revision of the targets and budget proposal if needed is done after the technical hearing.

The budget proposal is then submitted to Congress around the third week of August. Members of Congress (House of Representatives) are briefed on the work targets and budget proposals for their districts. The budget is then presented to the House Committee on Appropriations or its subcommittees, generally chaired by the Chair of the Committee on Environment and Natural Resources about the third week of September. Similar presentation is made at the Senate Committee on Appropriations or its subcommittees. In plenary session, the House of Representatives deliberate on the proposed appropriations of the various departments and offices. This is repeated in the Senate. A bilateral committee of the House and the Senate finalize the budget and send it to the Office of the President for approval.

The budget is normally approved before Congress adjourns before the end of the year. When Congress fails to pass the budget for the following year, the budget of the previous year is used as in the case for Year 2001.

The approved agency budget contained in the General Appropriations Act for the Budget Year becomes the basis for reprogramming or revising the agency targets for the year. Work and financial plans based on the approved budget are prepared, reviewed and consolidated for submission to DBM. The approved work and financial plans serve as the regional operations plan.

The planning and budgeting procedures of DENR are shown in **Figure 4.8.1**.

4.8.2 Budgeting Procedures at the Bureau and Regional Level

The procedure at the bureau and the regional level is very similar to the national level. The bureaus and regions are given their budgetary ceilings. The staff bureau directs the submission of budget proposals from its units indicating the ceiling for the entire bureau. The various units of the bureau submit their proposals based on proposed targets of programs and projects of the unit. The Budget and the Planning Offices consolidate the proposals for deliberation of the bureau during which a final budget proposal is agreed upon. This proposal is then submitted to the department.

At the regional level, the field units (PENROs and CENROs) are instructed to prepare activities and targets for budget proposals based on the identified programs and projects by the department. A regional planning workshop participated in by the Planning and Budget Officers is conducted where the ceiling for the region is announced including the

ceiling for each of the PENROs. Based on the previously identified targets and activities the Planning and Budget Officers of PENROs and CENROs finalize their budget proposals. These are consolidated at the PENRO level and submitted to the Regional Office for deliberation. A regional budget proposal is agreed upon and submitted to the Planning Office of the DENR through the Regional Development Council.

4.8.3 Budget of DENR for Forestry Purposes

The budget of DENR for the last 5 years (1997-2001) is shown in **Table 4.8.1**. Although the budget for the Forest Management Sector (FMS) has been decreasing slightly since 1997 the allocation has been consistently more than 30% of DENR's appropriation. This shows the importance of FMS in the DENR's priority of activities.

4.8.4 Budget of Regional Offices for Forestry Purposes

Table 4.8.2 shows the budgetary allocation of Region 2 over the last 5 years. The distribution of the allocation for the different sectors is also indicated. Based on the maintenance and operating expenses (MOE), which are the amounts used to undertake specific activities, FMS consistently has the highest allocation. Over the last 5 years its share in the total MOE of the region averaged 40 %. During 2001 its share is almost 50 %.

Within FMS, forest protection activities enjoy the highest share of the MOE, averaging about 30% during the last 5 years. However, in 2001 its share is only 22.8 %. Soil conservation and watershed management comes next followed by CBFMP (**Table 4.8.3**).

4.8.5 Budgets of PENROs and CENROs

The level of funding of the 4 provinces encompassed by the Study Area is shown in **Table 4.8.4**. It can be observed that FMS has the highest allocation among the sectors. The MOE for FMS of the 4 provinces was disaggregated according to expense classes (**Table 4.8.5**). The allocations for travel (02) and supplies and materials (07) are measures of how well the field officers can carry out their activities and accomplish their targets. The CBFM Unit of CENRO Dupax del Norte has a travel allocation of ₱29,000 for FY 2001 for the supervision of 5 regular CBFM Projects within its jurisdiction. However, the CBFM Units of CENROs Aglipay and Nagtipunan in Quirino have travel allocation for the year of only ₱3,000 each. Aglipay supervises 4 regular CBFM Projects while Nagtipunan supervises only one. The allocation can support only 10 travel days for the whole year. Given the amounts indicated in the budget allocation for these expense class for CBFMP it can be deduced that field officers have to augment their allocation through better linkages with funding sources such as the better-FAPs or with LGUs.

CHAPTER 5 FINDINGS, ISSUES, PROBLEMS AND CONSTRAINTS

5.1 Overlapping Land Uses

The Casecnan Protected Landscape created by Proclamation No. 289 covers an area of about 85,219 ha in Nueva Vizcaya, Quirino and Aurora provinces. Covering the same area are CADCs of about 233,148 ha. On top of these are mining interests of about 375,045 ha, also covering the same areas. These overlapping uses should be resolved by agencies involved namely the PAWB for protected areas, the NCIP for indigenous cultural communities, and the MGB for mines including LGUs which have jurisdiction over these areas.

Settlement Areas – On 11 September 1975 Proclamation No. 1498¹ reserved 40,000 ha of the public domain located in the municipalities of Dupax, Nueva Vizcaya and Maddela, Quirino, known as the Conwap Valley, as resettlement area for occupants of the Ambuklao-Binga Watershed Reservations and landless residents of Nueva Vizcaya and Quirino who may wish to settle in the area. The Department of Agrarian Reform (DAR) was mandated to administer the area including its disposition to recipients and beneficiaries. The BFD was instructed to classify the said parcel of land into alienable and disposable (A & D) and thereafter turn it over to DAR for disposition.

According to the Provincial Agrarian Reform Officer (PARO)², the area was subjected to land classification. Of the 40,000 ha only about 6,500 ha were classified as A & D. However, DAR issued Certificates of Land Ownership Award (CLOA), which is a land title, covering 20,000 hectares. This means that land titles have been awarded within forestlands or lands that have not been classified as A & D. Furthermore, the PARO claims that almost all the 40,000 ha are occupied. The other issue is whether the areas already covered with CLOA are within the Casecnan Protected Landscape. These certainly require resolution between DAR and DENR and the affected stakeholders.

Strategic Agricultural and Fishery Development Zones – The Agriculture and Fisheries Modernization Act (RA 8435, 1997)³ require LGUs to identify Strategic Agriculture and Fishery Development Zones (SAFDZ). The SAFDZ is an area identified for production, agro-processing and marketing activities. These production activities include crop, livestock, fishery and combination of crop/livestock or crop/fishery activities.

Each municipality of Nueva Vizcaya has prepared their SAFDZ. Their *Sangunian Bayan* or Municipal Councils have adopted these SAFDZ through resolutions. The GIS Unit of the Provincial Planning and Development Office (PPDO)⁴ of Nueva Vizcaya plotted the SAFDZ areas of the municipalities on a map. The results indicated that 211,140 ha of the

¹ Presidential Proclamation No. 1498 Reserving for Settlement Purposes under the Administration and Disposition of the Department of Agrarian Reform Certain Parcels of Land of the Public Domain Situated in the Municipalities of Dupax, Province of Nueva Vizcaya and Madella, Province of Quirino, Island of Luzon, Philippines. 11 September 1975.

² Mr. Rogelio P. Follante, Provincial Agrarian Reform Officer, Bayombong, Nueva Vizcaya.

³ RA 8435 An Act Prescribing Urgent Related Measures to Modernize the Agriculture and Fisheries Sectors of the Country in Order to Enhance their Profitability, and Prepare Said Sectors for the Challenges of Globalization Through an Adequate, Focused and Rational Delivery of Necessary Support Services, Appropriating Funds Therefor and for other Purposes. December 22, 1997.

⁴ Engr. Ed Sabado, PPDO Officer in Charge of the GIS Unit, Prov. Government of Nueva Vizcaya, personal communication.

identified SAFDZ are inside forestlands and 19,159 ha are inside proclaimed NIPAS areas (**Table 5.1.1**).

This obvious conflict of land use requires resolution from the municipalities and the DENR.

5.2 Unstable Program/Project Policies

A number of CBFM POs were able to obtain permits to harvest trees from the natural forest that were felled down by typhoons or by other causes. **Table 5.2.1** shows four CBFM projects that were issued RUPs in Quirino indicating the area of harvestable timber. For 2001 one of the CBFMA, the Ilongot Livelihood Association, Inc. (ILAI) has a manifested volume of timber of 146.73 cubic meters.

On September 22, 1998 the DENR Secretary issued Memorandum on the “Conduct of Comprehensive Assessment and Evaluation of all People Oriented Forestry Projects Granted Cutting Permits”⁵. The Memorandum suspended the processing and issuance of cutting permits brought about by reports that the permit to cut was abused by some POs. The effect had been the suspension of harvesting in CBFM projects. A number of POs have obtained loans to buy equipment to process the logs and the suspension of their permits left them unable to meet their loan obligations. The privilege to harvest fallen or dead trees was later reinstated but that was after the damage to economic activities of the POs was done (DAO 2000-29)⁶. However, on September 8, 2001 the RUPs of CBFMAs were again suspended in the Province of Quirino because of alleged poaching in government plantations. The alleged poaching certainly needs investigation to determine if there is truth to it and punish the erring CBFMAs. Suspending RUPs including those of POs who did not violate their permits stifles the entrepreneurial spirit of the POs, which is being encouraged and built up under the CBFM program. It also erodes confidence of the POs on the government and lessens its credibility.

5.3 Requirements for Permit to Harvest and Transport Plantation Grown Species

CSC-holders of ISF projects have been encouraged to organize themselves and join the CBFM Program. Many did (**Table 5.3.1**). Since the start of the ISF program in 1980 (LOI 1260, 1980)⁷ many farmers have been harvesting their plantations (**Table 5.3.2**), albeit in small quantities.

To harvest trees from their plantations CSC-holders are required to obtain a cutting permit from the CENRO. Another requirement is a certification from the Barangay Chairman that the trees are within the barangay and from the CBFM PO President that the trees are indeed within the CSC area of the farmer requesting the harvesting permit. This procedure entails time and expense from the farmer. Again this stifles the entrepreneurial initiatives of the farmers.

⁵ Memorandum on “Conduct of Comprehensive Assessment and Evaluation of all People Oriented Forestry Projects Granted Cutting Permits. September 22, 1998.

⁶ DAO No. 2000-29 Guidelines regulating the harvesting and utilization of forest products within Community-Based Forest Management Areas

⁷ LOI 1260 Integrated Social Forestry Program, 1980

PD 705⁸ gives the DENR sole authority to issue permits or licenses for the collection, gathering and harvesting of forest products. This authority was not devolved to the LGUs when ISF projects were devolved. Farmers are complaining about the permit requirement by DENR because such permit is required even for the harvesting of only one tree for the use of the farmer⁹.

The permit to harvest covers also planted trees in private lands. The government has been encouraging people to plant trees both, for the economic gain of the planter and for the environmental benefits trees provide. This is particularly true in the Tree for Legacy Program of Region 2 and in the ISF/CBFM programs. However, when the trees are ready for harvest the owners are required to go through the tedious and often expensive (for the farmer) process of obtaining a permit especially for planters far from the DENR Office. This is a disincentive to obtain a permit. This is also a disincentive to further plant trees and worst, it engenders loss of faith in the programs of government.

One option to encourage people to plant trees, whether in government lands under various programs or in private lands is to remove the onerous requirement of a permit to harvest and transport the logs. This restores confidence in the government in general and the DENR in particular because the policy of promoting tree planting would then be supported by its policy of removing barrier to the movement of products of the tree planting program. When people realize the economic gain that they can get from tree planting there may not even be a need for government to push such a program. People will do it because it is economically beneficial to them.

5.4 Lack of Cost Sharing Policies on Watersheds Management

The specific purpose of protecting watersheds is to safeguard its capacity to produce water, prevent soil erosion and the accumulation of silt in water bodies. Watersheds particularly those that have been proclaimed as reservations or components of protected areas are withdrawn from utilization or from activities such as intensive agriculture, timber harvesting or mining that jeopardize their water-producing capacities. In the process, forest occupants of such watersheds are restricted, often deprived, from undertaking economic activities in the watershed. In fact they are required to adopt soil and water conservation measures that entail additional expense.

These measures, while necessary, often benefit more the stakeholders downstream such as farmers of irrigated fields or users of domestic water or the users of electricity in the case of hydroelectric dams. The users of water downstream do not compensate the watershed occupants for lost economic opportunities.

The Barobbob watershed in Masoc, Bayombong is supplying water to the municipalities of Bayombong and Solano serving about 2,000 households. The occupants of the Barobbob watershed are adopting measures in their land use activities to reduce soil erosion and conserve water. As an incentive for the Barobbob watershed occupants to continue to adopt such measures, a system of compensating them should be instituted. A

⁸ PD 705 Forestry Reform Code of the Philippines. 1975. As amended by PD Nos. 865,1775, 1559 and by EO Nos. 273 and 277 Series of 1987.

⁹ CENRO CBFM Unit Chief Narciso C. Dalloran, Bayombong, Nueva Vizcaya; personal communication

possible option would be to tax the water and the funds plowed back to the community in the form of social services.

5.5 Insufficient Manpower Complement at the CENRO CBFM Units

The level of the organization that was examined in the Study is at the implementation level, meaning the CENRO and its units. In particular the CBFM Unit was studied in terms of its capability to implement the regular projects. As discussed in the Section on **Organization for Project Implementation** there are CBFM Units at the CENRO level where the only personnel is the Unit Chief and he supervises from 3 to six regular CBFM projects.

The CBFMP is the strategic national program envisioned to place about 9 million hectares¹⁰ of the forestland under management of organized communities by Year 2010. That is 60% of the total forestland of the country. By sheer magnitude or scale of area coverage it is significant to the national economy. The estimated number of beneficiaries is close to 20 million. That is more than a quarter of the entire population of the country. Their location is very strategic since they occupy areas that have tremendous impacts on downstream economies. Any activity that they do in the area is bound to significantly affect economic activities in the lowlands. It has all the reasons why it should get vigorous support from national government.

Observations however, are to the contrary. There are insufficient personnel assigned to implement the regular CBFM projects in the Study area. Confronted with the question of how the CBFM Unit Chiefs cope with the situation, the unanimous answer has been to request assistance from other units of the CENRO. For instance, if there are requests for timber inventory of an area applied for CBFM, assistance from the Forest Protection Unit is requested and Forest Guards or Tree Markers are temporarily assigned to the Unit. This ad-hoc basis of assigning personnel to CBFM on a need basis does not build the technological base for CBFMP management at the CENRO level.

Results of a survey conducted of CBFM Unit Chiefs at the PENRO and CENRO level in the 4 provinces covered by the Study Areas (**Table 5.5.1**) shows unanimity in stating that one of the constraints to meeting the needs of POs and therefore a constraint in attaining the objectives of the CBFM program is limited manpower.

The adequacy of personnel in managing forest resources also is a problem in the other forestry sectors. This is particularly true in forest protection. The province of Nueva Vizcaya has a total forestland (production and protection forest) of 335,547 hectares. The responsibility of protecting this area rests on 75 personnel assigned to the Forest Protection Units at the PENRO (32 personnel), CENRO Aritao (25 personnel) and CENRO Dupax del Norte (18 personnel). Each Forest Protection personnel (Forest Ranger, Scaler, Tree Marker)¹¹ are responsible for protecting an average of about 4,500

¹⁰ Moving the CBFM into the 21st Century. DENR Strategic Plan, p18. cited by: Review of Policy and Legal Framework, Task 3. Final Report. Formulation of Watershed Management Strategy and Investment Programme. Ministry of Foreign Affairs, DANIDA. GOP, DENR-FMB. September 1998.

¹¹ Since the suspension/cancellation of TLAs in the province Scalers and Tree Markers have been assigned in forest protection functions, among other activities.

ha of forestland. **Table 5.5.2** shows the average area that Forest Protection personnel in the other provinces are responsible for.

5.6 Manpower Competencies

The implementation of a CBFM project requires multi-disciplinary approach. It is for this reason that during the early years of CBFMP, NGO assistance was contracted to assist in various stages of the CBFM particularly in community organizing. There are also activities that require technical expertise such as the whole spectrum of plantation development from seed and seedling production all the way up to out-planting, plantation maintenance and protection. There is also the need for inventory and surveying-mapping expertise for completing the requirements for CBFMA application. It also encompasses the conduct of economic activities such as crop production or the raising of livestock, establishment of agro-forestry farms and others.

The management of CBFM projects therefore requires expertise from forestry, agriculture, animal science, cooperatives, the social sciences and others. It is difficult to get a person who possesses all these qualifications. In fact it is not expected that such a person be employed in the CBFM Unit. What is expected is that the CBFM Unit should have the resourcefulness and capacity to access needed expertise whenever required. The Unit Chief should have basic training in extension or community development. When asked what added skills would allow the CENRO CBFM Units to respond to the needs of the project better, none saw the need for extension or community development skills (**Table 5.5.1**).

Table 5.6.1 shows the work experience and training of personnel assigned as Project Management Officer (PMO) of CBFM project in the 4 provinces covered by the Study area. Their positions range from Scaler, Forest Ranger, Forester, to Community Development Officer (CDO). About 56% of those surveyed have had training on community organizing, 50% had training on the preparation of CRMF, AWP and RUP. None had any training in extension or community development. Another study conducted (See Section 6.14) found that officers assigned to the CBFM program do not have adequate educational background.

5.7 Insufficient Funds

The same survey conducted (**Table 5.5.1**) showed that CBFM Unit Chiefs were unanimous in declaring that there are just not enough funds to implement the projects in their jurisdictions effectively and efficiently. At least one said that the funds, meager as they are, do not even arrive on time. **Table 4.8.5** shows that the travel allowance of CENRO Aglipay and Nagtipunan for 2001 is only ₱3,000 each. CENRO Aglipay has 4 regular projects to supervise while CENRO Nagtipunan has one reported regular CBFM project. The travel allowance of ₱3,000 a year allocates only ₱750 for each of the projects in CENRO Aglipay.

Commission on Audit regulation states that an officer is entitled to travel allowance only if the travel is 50 km or beyond his/her official station. Some of the project sites are within 50 km but because of the inaccessibility of CBFM projects it was agreed that PMOs are entitled to ₱100 allowance per day of travel even within 50 km from their

official stations. Even with only ₱100 per day, the travel allowance is only for 7 and-a-half days, in the case of CBFM Unit in Aglipay. Certainly, it is no incentive for the PMOs to travel to their project sites.

The Forest Protection Unit of PENRO Nueva Vizcaya, CENRO Aritao and CENRO Dupax del Norte have travel allowances of ₱72,000, ₱58,000 and ₱61,000, respectively for 2001. For PENRO Nueva Vizcaya, each Forest Protection personnel have an average annual travel allowance of ₱2,250; ₱2,320 each for CENRO Aritao; and ₱3,388 each for CENRO Dupax del Norte. The travel allowance for Forest Protection personnel for CENRO Dupax del Norte allows only about 34 days of travel, hardly sufficient for full protection of the forestlands within their territory. The travel allowances of Forest Protection personnel in the other provinces are shown in **Table 5.5.1**.

5.8 Lack of Mobility

Most of the CBFM project sites are located in difficult terrain and pose problems of accessibility. Mobility is therefore a requisite to better management of the projects. Sixty-six percent of the surveyed CBFM Unit Chiefs indicated the necessity for service vehicles (**Table 5.5.1**). A most suitable vehicle would be a motorcycle because it would allow access to even the remotest sites with only trails leading to them.

5.9 Weak Linkage in Technology Transfer

The development aspects in the implementation of CBFM projects require an inflow of technologies particularly in plantation development, agro-forestry, watershed management, forest management, and in livelihood and enterprise development. The acquisition, packaging, transfer and monitoring of technologies is crucial to the success of any CBFM project.

The same survey conducted (**Table 5.5.1**) tried to elicit information on how technology needs of the POs are determined, who is responsible for technology acquisition and transfer, how it is transferred and monitored and what the issues are with respect to technology acquisition and transfer.

It is apparent that technology needs are determined/learned through observations by PMOs, and from actual requests by farmers. Half of the CBFM Unit Chiefs agree that technology acquisition and transfer is a responsibility of their Unit while the rest think that it is the PENRO's or the Regional Office's responsibility. They are almost unanimous in saying that technology is acquired and transferred through workshops, seminars and training and not seeking out the technology from its source and demonstrating the technology to the user. This is reflective of the system at DENR where new technologies are disseminated by holding seminars and training such as the clonal propagation of dipterocarp and bamboo species. However, most of the technologies needed by the POs are not new technologies and are not the subject of seminars and workshops. The technologies have to be sourced out actively by the PMOs or the CBFM Unit Chiefs. There appears to be a loose link between technology generators, technology brokers and technology users. The CBFM Unit in this case is a broker.

The Ecosystems Research and Development Bureau (ERDB) is the main research arm of DENR. Its main area of research is in what is termed forest production as opposed to forest products utilization. Its research function is very well defined. However, its function in the transfer of technology is less defined. While one of its staff functions is stated as “assesses and translates all recommendable findings into understandable language and presentation and disseminates these findings to end users and clientele”, ERDB is not organized to conduct field level technology transfer. It has a Technology Development Division but it conducts only technology verification and technology documentation and packaging¹². There is no unit in ERDB that actively seeks out the technology requirements of various programs, organize teams and actively transfer the needed technologies to the direct-users.

The technology needs of POs are not limited to forestry or watershed management. They need technologies in agriculture, fisheries, animal science, and others that cannot be provided by DENR. Linkage with other government agencies such as nearby state colleges and universities, the Department of Science and Technology (DOST) and the Department of Trade and Industry (DTI), which have provincial offices, need to be established and/or strengthened.

5.10 Weak Monitoring and Evaluation System

DENR has a system of monitoring and evaluation¹³ of physical performance of projects. A monthly report is submitted by implementing units to higher echelon of government. A form is filled up accompanied by a narrative report. In the case of CBFM projects the standard monitoring system is followed. There is no regular feedback provided to the implementing units. Feedback is normally given if there are backlogs in targets. Since this is merely a performance monitoring system it does not monitor the socio-economic and environmental impacts of the project. The benefit monitoring normally comes towards the end of the project. In the case of CBFMP, the program is expected to continue indefinitely.

Monitoring and evaluation are strong tools for effective management of projects. While the process exists with respect to the CBFM program it needs strengthening particularly the feedback mechanism. There is also need include indicators of management performance.

A database has also been established at the CBFM Unit for all projects being supervised including special and foreign funded projects. Also this needs examination and support to further strengthen acquisition of data, processing, storage and retrieval.

5.11 Limited Options in Watershed Management

The inadequate personnel and funds of DENR to support forest protection activities require other options for effective and sustainable mechanism.

¹² Ecosystems Research and Development Bureau (ERDB) Information Brochure. College, Laguna, Philippines.

¹³ DAO 99-38 Revision of the Standard Operating Procedure (SOP) for Performance Monitoring Prescribed Under DAO No. 33 Series of 1992

One option that exists in Nueva Vizcaya is the devolution of portions of the forestland. For 2001 Nueva Vizcaya appropriated ₱320,000 for MOE for the Barobbob Watershed Management project. This breaks down to about ₱728.90/ha compared to ₱1.26/ha that DENR appropriated for forest protection in Nueva Vizcaya for 2001 (**Table 5.5.2**). The results have been no incidence of fires for the last three years and evidence of natural regeneration in the area.

One other option is co-management of watersheds by DENR and LGUs. The 24,000 ha Lower Magat Forest Management Project (LMFMP) is one example. The provincial government of Nueva Vizcaya, the municipalities of Bagabag and Diadi and DENR seconded personnel to the project. In addition, Nueva Vizcaya is providing ₱400,000 a year for the implementation of the project.

The *Muyong* system in Ifugao is an indigenous forest management system that has evolved over many generations. Its objectives are to produce timber and non-timber forest products and the protection of small watershed catchment areas for irrigation of rice paddies particularly rice terraces. It has contributed significantly to forest development and conservation in the area. The system should be supported and emulated elsewhere since it has potential for sustainable management of forestlands and watershed resources.

The management of the Upper Magat and Cagayan River Basins should incorporate these initiatives wherever conditions for their successful implementation in terms of the willingness and ability of the local government units to accept and manage portions of the forestland and the acceptance of the responsibilities of land management by LGUs and occupants of the forestland exist.

CHAPTER 6 WATERSHED MANAGEMENT PLANS

6.1 Institutional Strengthening Plans

6.1.1 Introduction

Institutions are the mechanism by which government responds to demands from the public. They are the means by which policies are translated into programs and implemented to respond to public demands. Aside from being efficient, effective and operate economically, institutions should be also be appropriate and responsive. An appropriate institution is an organization that has been structured and staffed in a manner where logistics and expertise match the issues and problems that must be addressed. Responsiveness means that the organization can develops plans and programs and deliver services that are needed and demanded by the public. It also means that it can adopt, and adapt to changes so it can respond to demands within the shortest possible time. The combination of efficiency, effectiveness, responsiveness and appropriateness constitute the *capability* of an organization to perform¹.

Taking cue from the definition of institution above, institutional strengthening is defined here as building the capability of an organization so that it can respond to the demands of its publics effectively, efficiently, and appropriately in the shortest possible time through plans and programs addressing those needs and demands. It further means developing the organization so that it becomes part and parcel of the forces that can introduce positive social changes through interaction with the wide area of social norms, rules and regulations.

6.1.2 Framework for Institutional Strengthening

In watershed management in the Study Area there are a number of organizations both government and private that are trying to address the demands of the people in general and other specific stakeholders in particular. Some of these organizations are made up of different layers, which have presence in the Study Area. These include the DENR in Region 2 and its provincial (PENRO) and community (CENRO) offices; the various levels of local government units such as the provincial, municipal and barangay level; OGAs such as DA, DTI, DAR, DOST, NCIP, etc.; Government Controlled Corporations (NIA, NAPOCOR), NGOs, industry groups, people's organizations (POs), etc. While it would be ideal to be able to strengthen all the various organizations and associations involved/concerned with watershed management, limited resources does not allow simultaneous development from the Project. Only a number of such organizations that are directly involved in watershed management activities such as policy formulation, planning and direct project implementation are considered in this particular institutional strengthening plan. These are the DENR offices at the Regional, PENROs and CENROs, and the Provincial ENROs.

While the broad spectrum of institutional strengthening is also ideal, again the limitation of resources circumscribe the kind of strengthening that is contemplated to be

¹ Audit on Institutional Framework. Formulation of a Watershed Management Strategy and Investment Programme. Ministry of Foreign Affairs, DANIDA, FMB and DENR. February 1998.

undertaken. Strengthening also is defined here, viz-a-viz capability building, as providing the logistical and physical resources to organizations so that they can respond to demands of the stakeholders *more* effectively, efficiently and appropriately in the shortest possible time. Strengthening here, therefore, means supplementing or providing needed personnel, equipment/facilities, and budget.

6.1.3 Needs Assessment

DAO No. 99-52² revised the organizational structure of DENR as promulgated in EO 192³. CENROs in each of the provinces were reduced to only two. Thus in Nueva Vizcaya the CENRO at Bayombong was abolished and the only CENROs left are the ones in Dupax del Norte and in Aritao. The abolished CENRO in Bayombong was merged with the PENRO. However, the jurisdictional area of former CENRO Bayombong was not distributed to the remaining two CENROs. The PENRO supervises the activities of the two CENROs while continuing the CENRO functions of the defunct CENRO Bayombong. In reality, therefore, there are three CENROs. The same holds true for PENRO Quirino. In the case of Ifugao, CENRO Lamut was retained.

An assessment was made of the physical requirements at the Regional, and at PENRO and CENRO levels of the 4 provinces in the Study Area of DENR and the Provincial ENROs. The assessment included the present and additional manpower requirement for forest protection, community-based forest management, protected areas and wildlife management, watershed management at the PENRO and CENRO Units. At the Regional level, requirements for environmental and resources research including technology transfer as well as on reforestation were also assessed. The requirements of the Watershed Management Section of the Reforestation Division as well as the requirements of the CBFM Division of the FMB were also assessed.

The intention of the survey was to obtain the perspective of the Regional Office, the PENRO and the CENRO as well as the Unit level at the CENRO. However, in most instances, the responses of PENROs and CENROs to the survey questionnaires were apparently done by their units such that there was no distinction between responses at these two levels. What are then used in the report are the responses of the Units in the PENRO and Units in the CENRO.

The results of the assessment are shown in **Tables 6.1.1 to 6.1.6**. **Tables 6.1.7 to 6.1.10** are summaries for requirements for additional manpower, vehicles and equipment and supplemental budget. The Head of Offices such as the RED, the PENRO and the CENRO had separate requirements, which they expressed and these are reflected on **Table 6.1.10**. The requirements of the CBFM Division of FMB and the Watershed Management Section of the Reforestation Division of FMB are likewise shown in **Table 6.1.10**.

(1) Watershed Management – The Watershed Management Unit at the CENRO is responsible for watershed management planning and the conduct of soil and water conservation measures in areas that are not within the jurisdiction of POs as in CBFM

² DAO 99-52. Prescribing a Detailed Definition of Functions for the Realigned Regional Divisions, December 15, 1999.

³ EO 192. Providing for the Reorganization of the Department of Environment, Energy and Natural Resources, Renaming it as Department of Environment and Natural Resources, and for other Purposes, June 10, 1987.

projects. It also monitors the implementation of prescribed watershed management activities of leases such as in IFMA, SIFMA, and other forest users. The results of the survey on the needs and requirements of the Watershed Management Units with respect to additional personnel, equipment and budget are shown in **Table 6.1.2**.

Watershed Management Division at the Regional Office – The perception of the WMD of the ideal number of personnel at the Division is 9, or up by 2 from the current 7 (**Table 6.1.1**). There was no suggestion on the ideal number of personnel of the PENRO WM Unit and at the CENRO WM Unit. The suggested additional 2 personnel at the Regional WMD are civil engineers.

There are no vehicles at the disposal of the WMD. It is suggested that 3 motorcycles and 1 pick-up be provided for the WMD. The suggested ideal travel allowance (TA) for the Division per person per year is ₱30,000. It is also suggested that the Division should have yearly allocation of ₱350,000 for supplies and materials (S&M) and ₱250,000 for fuel, oil, etc (FOe).

The Division does not have any equipment. Identified equipment needs include GIS system, camera, photocopier, drawing instruments, and slide projectors.

Manpower Requirements of the WMU at the PENRO and CENRO Units – From the available responses the WMUs at the PENRO and CENRO Units, the number of existing watershed management projects ranges from 1 to 5 with CENRO Lamut having the highest number of projects. The area of the projects ranges from 830 ha to a maximum of 22,500 ha. PENRO Nueva Vizcaya (former CENRO Bayombong) has the largest area of project. With respect to the number of personnel, it ranges from 1 to 4 and the indicated ideal manpower complement of the Unit runs from 2 to 7 with an average of 4 officers. The proposed additional manpower includes Forestry I, Forester II, Forest Ranger, Agricultural Engineer, Encoders, Community Development Assistants (CDA).

Vehicle and other Equipment Needs of WMU at the PENRO and CENRO – Only PENRO Quirino (former CENRO Diffun), Nagtipunan and Cauayan have vehicles at their disposal. Cauayan has a motorcycle while the other two units have each a pick-up. The indicated vehicle needs of the Units include motorcycles (2-5 units), pick-up (1 unit each), 6-wheeler truck (Lamut), and weapons carrier (Cauayan). The other needed pieces of equipment are binocular, computer sets, GPS, camera, printer, photocopier and surveying instruments.

Additional Budgetary Requirements of the WMU at the PENRO and CENRO – The available funds for travel of personnel at the WMUs runs from ₱1,000 to ₱28,980 per person per year with an average of ₱12,370. The indicated ideal allocation per person per year ranges from ₱2,000 to ₱75,000. For S&M the average allocation is ₱11,373. There was no indication of ideal allocation per person per year. For fuel, oil and other expenses, the indicated ideal allocation per person per year is ₱16,096 which is much higher than the average allocation of ₱6,500 for the entire Unit.

(2) CBFM – CBFM advances the in-depth participation of individuals and communities occupying areas in the forest zones in forest and watershed management. Community organizations or POs are given the privilege and the authority to manage segments of the forestlands for their use and in return are expected to improve

management of the forest areas. The direct implementers of CBFM are the CENRO CBFM Units and the front person in this instance is the Project Management Officer (PMO). The identified needs and requirements with respect to additional personnel, equipment and budget of CBFM Units at the PENRO and CENRO are shown in **Table 6.1.3**. There is no CBFM Unit at the PENRO Ifugao. **Table 6.1.1** shows the needs and requirements of the CBFM Unit at the Regional Office.

CBFM Unit at the Regional Office – There are 16 personnel at the CBFM Unit Regional Office. There was no suggested ideal number of personnel at that office although there was a suggestion for additional personnel that includes 2 Forester I, 1 Forest Ranger, 1 CDO II, 1 Sociologist, and 1 Geodetic Engineer.

There are no vehicles at the disposal of the CBFM Unit at the Regional Office. The perceived needs for vehicles include 2 motorcycles, and 1 pickup. Other equipment needs include computers, LCD, video and zoom cameras, and photocopier. The perceived ideal allocation for TA is ₱30,000 per person per year, while the ideal allocation for S&M for the whole Unit for a year is ₱250,000. For FOe, the ideal is ₱150,000 per year.

Personnel at the CBFM Unit at the PENRO and CENRO – The number of CBFM projects ranges from 1 (Cauayan) to 8 (PENRO Nueva Vizcaya, the former CENRO Bayombong). The area covered by one Unit ranges from 1,140 ha to 10,608 ha. The number of personnel at the CBFM Unit at the PENRO and CENRO ranges from 2 to 11. The suggested ideal level of personnel at the CBFM Unit is 2 to 12 with an average of 6. It should be noted that in some of the CENROs there are CBFM projects without an assigned PMO. The suggested average number of additional personnel at the CBFM Unit ranges from 1 to 3 Forester I, 1 Forester II, 1-4 Forest Rangers. Other suggested additional personnel include clerks, computer operators, and surveyors.

Vehicles and other Equipment Needs of CBFM Units – The only type of vehicle at the disposal of some of the CBFM Units is motorcycle. However, 5 CBFM Units do not have any vehicle at all at their disposal. The identified vehicle needs of the CBFM Units include motorcycles and pick-ups. The number of needed motorcycles runs from a minimum of 3 to a maximum of 8 units per CBFM Unit, the average is 5. All the CBFM Units proposed to have one unit of pick-up each. The other suggested type of vehicle is the Asian Utility Vehicle (AUV).

The additional pieces of equipment identified as needed at the CBFM Units include binoculars, surveying instruments, computer sets, GPS, cellular phones, camera, overhead projectors, LCD projectors, fax machines, photocopying machines, drawing instruments, air conditioning units, typewriter (electric), hand held radios with base. Computers are the most commonly identified additional equipment. All Units identified it as necessary.

Additional Budget for CBFM Implementation at the PENRO and CENRO – **Table 6.1.3** shows the current level of travel allowance (TA), budget for supplies and materials (S&M) and for fuel, oil and other expenditures (FOe) for Units at the PENRO and CENROs. The TA of CBFM Units at the PENRO and CENRO ranges from ₱3,000 to ₱100,000 a year. The average ratio of TA to CBFM personnel involved in direct supervision and management ranges from ₱750 to ₱28,000 with an average of ₱6,071

per person per year. Clearly this is not sufficient to support the conduct of CBFM project implementation considering the number of regular CBFM projects being managed by the Units. The suggested ideal level of TA at the CBFM Unit at the PENRO and CENRO ranges from ₱1,500 to ₱75,600 per person per year with an average of ₱25,960. With respect to budget for FOe, the suggested ideal ratio per personnel per year is ₱18,229. No ideal ratio for S&M was suggested.

(3) Forest Protection – The protection and monitoring of activities within the great expanse of forests in the community rests with the Forest Protection Unit at the PENRO and CENRO. It is responsible for keeping the forest from destruction through forest fires, (incidental or intentional in cause), keeping away the timber and forest products poachers and other illegal forest users. The forest rangers and others assigned to the Unit are expected to conduct periodic patrol of their areas of jurisdiction, often too broad to be able to effectively monitor and protect. The results of the survey of forest protection needs are shown in **Table 6.1.4**.

Forest Protection Division at the Regional Office – There are only 2 existing personnel at the FPD at the Regional Office (**Table 6.1.1**). It is suggested by that office that the ideal number of personnel should be 15. Similarly, it was suggested that at the FPU at the PENRO and the CENRO the ideal number of personnel is 15 and 25 respectively. To bring the level of personnel at the FPD, Regional Office, 10 Forester I and 5 Forester II personnel should be added (*this would make 17 instead of 15*). Computer operator is identified as needed.

There is no available vehicle for use by the FPD. It is therefore, suggested by that Division that 5 motorcycles be provided plus 2 pickups. With respect to other equipment the Division has 2 binoculars. The identified needs to additional equipment include 1 set of computer, 5 cellphones and 5 handheld radios. With respect to TA, the Division was allocated ₱54,000 in 2001 but it is perceived that what the unit should ideally have is ₱520,000. For S&M the Division was allocated ₱79,000 but it is suggested that it should have ₱450,000 a year. Similarly for FOe, the perceived ideal allocation should be ₱175,000, which is much higher than the 2001 allocation of ₱58,000.

Area and Manpower under the Forest Protection Units at the PENRO and CENRO – The area of jurisdiction of FPUs at the PENRO and CENRO ranges from a minimum of 18,876 ha to a maximum of 305,720 ha or an average of 130,000 ha (**Table 6.1.4**). The area actually protected by the Units has an average of 77,989 ha. The average number of personnel assigned to protect these areas is 20 or an average of almost 4,000 ha. With respect to the ideal ratio of area to personnel, the proposed ratio is 500 ha minimum to a maximum of 3,000 ha. The actual ratio of area to FPO ranges from 500 ha for Cauayan, Isabela to 9,110 ha in Aglipay, Quirino.

On the basis of the perceived ideal ratio of area to be protected and FPO, additional personnel were suggested for positions of Forester I or II, and Forest Rangers. The suggestions for additional FPO ranged from 1 to 5 with an average of 3 FPO in the Forester I position and from 1 to 77 Forest Rangers with an average of 25. There were other suggested positions such as computer operators, clerks and utility personnel whose duties are not directly concerned with forest protection.

Vehicles for Forest Protection Activities at the PENRO and CENRO – Isabela, Dupax and Aritao are the only Units, which have vehicles at their disposal. All the rest has none. It is therefore expected that the different FPU would suggest provision of vehicles to improve their mobility to conduct forest protection activities. Motorcycle is a common requirement and the request runs from 1 cycle to 10 for a Unit. The average is 4. Pick-up is also a popular request with each Unit requesting 1 each except for Dupax and Aritao, which request for 2 units each. The other vehicles requested included a stake truck and truck with boom.

Additional Budget for the Forest Protection Units at the PENRO and CENRO – The survey on the budget situation at the FPU of the CENROs was zeroed in on Travel Allowance (TA), Supplies and Materials (S&M) and budget for Fuel, Oil and others (FOe). These budget items determine the implementation of forest protection activities of the FPOs. Without TA, S&M and FOe the FPO cannot conduct patrol and other forest protection activities such as survey of disputed areas or boundaries, respond to incidence of fire, etc. For TA the reported minimum ratio is ₱150/FPO per year (Cauayan) and the highest is ₱6,428 (Aglipay). The suggested ideal TA per person per year is from ₱10,000 to ₱75,600 with an average of ₱31,960.

As far as S&M is concerned the suggested ideal ratio per FPO per year is about ₱5,000 while the suggested ideal budget for FOe is ₱13,563/FPO per year.

Additional Equipment Needed at the Forest Protection Units at the PENRO and CENRO – There are no pieces of equipment available at the FPU for forest protection operations. There is a wide range of equipment perceived needed by FPUs in their forest protection activities. These perceived needed equipment includes binoculars, fire fighting equipment, surveying instruments, computers, GPS, cellular phones, camera, VHS hand held radios and base, drawing instruments and other instruments not directly needed for forest protection purposes.

(4) Protected Areas and Wildlife Management – Protected areas are portions of the forestlands designated as such for the purpose of preserving and protecting unique features in the area such as biodiversity or landscapes. The Protected Areas and Wildlife Unit of the CENRO is the mandated to supervise and manage protected areas with the assistance of the PAMB. The requirements and needs with respect to additional personnel, equipment and additional budget of the PAW Sector of the CENRO, PENRO (where it exists) and the Regional Office are shown in **Table 6.1.5** and **Table 6.1.1**, respectively.

Protected Areas and Wildlife Management Division, Regional Office – There are currently 9 personnel of the Division, and it is perceived that it should ideally have 18 (**Table 6.1.1**). It is felt that at the PAWS Unit at the PENRO there should be 4 personnel and an equal number at the CENRO Unit. To raise the level of personnel to 18 the addition personnel include 2 Sr. Ecosystems Management Specialist (EMS), 1 EMS II, 1 EMS I, 1 biologist, 1 botanist and 3 clerks.

The Division has a pickup at its disposal but it feels that it should be replaced with another pickup. With respect to other equipment, their needs include computer set, TV set, surveying instruments, cellular phones, cameras, spotting field scopes, LCD, air conditioner and a photocopier.

The suggested ideal TA for personnel in the Division is ₱60,000 per person per year, and ₱166,000 allocation for the whole Division for FOe for a year. There is no suggested S&M budget for the Division.

Area Managed by Protected Area and Wildlife Unit at the PENRO and CENRO Units – The PENRO at Ifugao does not have a PAWS Unit, however, the two CENROs have PAWS Unit. In all the other three PENROs there is a PAWS Unit. It should be remembered, however, that the PAWS Unit in Nueva Vizcaya and in Quirino have their own area of jurisdiction in addition to undertaking supervisory functions to the PAWS Unit in the CENROs.

The areas under the jurisdiction of the PAWS Units are the proclaimed protected areas. The areas under the different PAWS Units range from a minimum of 101 ha (in CENRO Aglipay) ha to a maximum of 97,997 ha (in PENRO Nueva Vizcaya) as shown in **Table 6.1.5**.

Personnel Needs of the PAWS Units - The number of personnel in the PAWS Units ranges from one (CENRO Aglipay) to 11 (in PENRO Nueva Vizcaya).

In addition to the personnel of the PAWS Unit, in all cases the protected areas are included in the area protected by the Forest Protection Unit of the PENRO or CENRO. It is claimed that additional personnel are needed at the PAWS Unit, ranging from 1 to 15. The identified personnel needs include Forester I, Forest Rangers, Park Officers, Park Rangers, PASu and Environment Management Specialist (EMS), PA Guards, PAWS Protection Officers and PAWS Team Leader.

Equipment Needs of the PAWS Units – There are no indicated equipment needs but it is perceived that these Units would have as much use for vehicles and equipment for data and information management such as computers. In their line of work they would also need binoculars and cameras.

Additional Budgetary Requirements of the PAWS Units – It is indicated that the ideal ratio of TA for each personnel per year ranges from ₱1,000 to ₱60,000 and for S&M it ranges from ₱378 to ₱60,000. For fuel, oil and other similar expenses the indicated ideal ratio is ₱56 to ₱36,000 per person per year. The low indicated ideal ratio could have been the actual amount that is allocated to the Unit in 2001.

(5) Regional Environmental Resources and Research Division/Technology Transfer - Each region in DENR has an Environmental Resources and Research Division, under which is a Technology Transfer Unit. The Division is under Technical Services. The function of the ERRD is the conduct of field research and field validation of research results from the ERDB and other relevant research organizations. The technology transfer assesses the technology requirement of field units, acquire these either from within DENR or from elsewhere and to transfer these technologies.

There are no corresponding units for the ERRD and TTU in the PENRO and CENRO.

Manpower Requirements at the ERRD and TTU – There are 31 personnel at the ERRD while the TTU has 10 personnel. The indicated ideal number of personnel at the ERRD is 35 or an additional of 4 while the TTU professes that the ideal personnel complement

of the unit is 16 or an addition 6. The manpower needs of the ERRD are Research Assistants while the needs of the TTU include Development or Mass Communication Specialists, Layout Artists, IT officers and Computer operators.

Vehicle and other Equipment Needs at the ERRD and TTU – The two offices do not have any vehicles at their disposal. They indicated the need for motorcycles, and pick-ups. The other equipment needs include sets of computer, video and cameras, LCD, scanners, binding machines, fax machines, TV sets, photocopiers, slide projectors color printers and a standby generator.

Additional Budgetary Requirements of the ERRD and TTU – For travel allowance of its personnel annually the indicated ideal level is ₱40,000 to ERRD and ₱55,200 for TTU. For S&M the units need annually ₱250,000 and ₱500,000 each, respectively; and for FOe the indicated annual needs are ₱120,000 and ₱166,000, respectively. The current allocation for S&M for ERRD is ₱143,000 and ₱38,000 for TTU.

(6) Regional Plantation Development and Management Unit – The Plantation Development and Management Section supervises and provides technical assistance in regional plantation development and in reforestation activities. The Unit that closely corresponds to the PDMS is the Soil Conservation and Watershed Management Unit of the PENRO. Its present strength and needs were likewise identified and shown in **Table 6.1.1**.

The Section has 8 personnel but sees no need for additional technical personnel. It has no vehicle at its disposal and identified the need for two motorcycles and one pick-up. Additional equipment needs include computers, scanners, video camera, still camera with zoom capability, hand held radio, GPS and air conditioners. The Unit proposes that its personnel should have a travel allowance of ₱60,000 each per year, ₱400,000 per year for supplies and materials and ₱132,000 a year for fuel, oil and other expenses.

(7) Provincial Environment and Natural Resources Office – The Provincial ENROs were established in the provinces to plan and implement environment and natural resources management programs of the province. The four provinces within the Study Area have their version of the ENRO. In Nueva Vizcaya and Isabela they have Provincial ENROs, in Quirino is it Provincial Natural Resources and Environment Office (NREO) and in Ifugao it is Provincial Agricultural, Environment and Natural Resources Office (PAENRO). Needless to say, the emphasis of the PAENRO in Ifugao is on food production and less on natural resources and environment. The requirements and needs of the Provincial ENROs/NREO/AENRO with respect to additional personnel, equipment and budget are shown in **Table 6.1.6**.

Personnel - Only three Provincial ENROs responded to the survey. The suggested ideal number of personnel at the ENRO ranges from 28 to 35. The deficiency in the number of personnel is 11 and 12 while the average of the indicated ideal number of personnel is 32.

Vehicles and Additional Equipment – Only NREO Quirino has vehicles (2 pick-ups) while there is none in Ifugao. Nueva Vizcaya indicated that a dump truck, a stake truck, an AUV and another vehicle are at their disposal. The indicated additional vehicles needed are motorcycles (4-6 units), and pick-ups (1-3 units). Quirino NREO suggested

that they need a couple of horses for patrol work and Ifugao AENRO indicated the need for a dump truck.

Other equipment needs of the Provincial ENROs include surveying instruments, computer sets and GPS.

Additional Budgetary Requirements – The TA of the Provincial ENROs for 2001 ranges from ₱51,000 to ₱134,000. The indicated ideal ratio of TA at the ENRO ranges from ₱120,000 to ₱204,000 per year. For supplies and materials the indicated level of current allocation runs from ₱55,000 to ₱87,000 a year. The ideal level according the ENROs is from ₱100,000 to ₱150,000. On the budget for fuel, oil, etc. the range of current allocation is from ₱9,500 to ₱180,000 while the suggested ideal level is around ₱250,000 to ₱255,000 a year.

(8) Identified Needs of Heads of Offices – Independent of the needs of various Division or Sections or Units at the Regional Office, PENRO and CENRO, the needs of the Regional Executive Director, PENROs and CENROs were also identified. In all instances the expressed needs are vehicles, computers and other information technology equipment including laptops, cameras (digital, video and still cameras), multi-media and/or opaque projectors, scanners, photocopiers, GPS, GIS equipment, mini dump truck, boom truck, hand held radios, cellular phones and a host of other pieces of equipment. **Table 6.1.6** shows the list of identified equipment needs of the above offices.

(9) Identified Needs of the CBFM Division and Watershed Management Section of FMB – These two offices of FMB provide vital functions by way of policy recommendations and monitoring and evaluation of programs and projects in watershed areas. It cannot be over-emphasized that policy pronouncements by DENR on watershed management and community-based forest management greatly affect how programs are implemented and how these programs affect socio-economy of forest communities. It is therefore important that they too be strengthened in the capacity to respond to the needs of programs and projects in the field.

The identified needs of the two offices revolved around improving the data acquisition and analysis for the formulation of policies for recommendation to the FMB Director and ultimately to the DENR Secretary. CBFM Division is requesting 3 sets of computers for database, ZIP drive, a CD writer and an LCD. A consultant to train personnel on MIS is also requested. The WMS of FMB is requesting a similar set of equipment for establishing database for policy formulation and monitoring.

6.1.4 Technology Acquisition and Transfer

The management of watersheds, which includes their protection and use by various stakeholders such as CBFM POs, biodiversity enthusiasts, users of forest products, water users, etc. requires the application of existing and new technologies. POs would need new or improved soil and water conservation techniques in crop cultivation and agro-forestry, or the establishment of livelihood/enterprises, or new approaches to biodiversity conservation or watershed management. There is no defined procedure for technology acquisition and transfer (TAT) particularly in the provinces covered by the Study. The roles and functions of various stakeholders are not defined nor delineated. The

procedures for TAT should be established. The Project will endeavor to establish the procedures.

The process of TAT involves three groups, namely the technology users, technology generators and the technology brokers.

The following are the identified technology users, generators and brokers and their roles in technology acquisition and transfer.

- a. Technology Users (e.g. CBFM POs; DENR field officers; individual/household participant in watershed management activities but not a member of a PO; etc.)

Roles:

- i. Assist in the identification of technology needs;
- ii. Participate in the training on identified technology;
- iii. Implement the technology in the field; and
- iv. Participate in the monitoring and evaluation of the technology.

- b. Technology Generators/Sources (e.g. ERDB, SCUs, ERDS, NGOs, DTI, DOST, TLRC, etc.)

Roles:

- i. Undertake relevant researches and generate technologies;
- ii. Conduct training on the technologies generated; and
- iii. Transfer generated technologies to appropriate users.

- c. Technology Brokers (PMOs, CENRO/PENRO and Regional Units, Prov. ENROs, NGOs, Industry Associations, etc.)

Roles:

- i. Assist technology users identify their technology needs;
- ii. Search and identify technology sources;
- iii. Arrange for the acquisition of technologies, i.e. source out resources for the acquisition of the technologies; and
- iv. Arrange and coordinate the transfer of technologies.

Procedure for Technology Acquisition and Transfer – The following is the suggested procedure for technology acquisition and transfer. For illustrative purposes, the CBFMA POs are taken as examples. However, the procedure can be applied to the acquisition and transfer of biodiversity conservation technology or similar technologies.

1. **Technology Needs Assessment** - A technology needs assessment is conducted in the CBFMA PO with the assistance of the PMO and/or the CENRO CBFM Unit Chief. The help of NGOs or other organizations such as local State Colleges or Universities may be sought. The technologies are prioritized according the needs for a specific activity. For enterprise establishment and/or development, the particular enterprise is identified. It should be borne in mind that there could be several technologies existing from which the particular need of the user could be satisfied.

2. **Search for Source of Technology** – The PMO/CENRO CBFM Unit Chief will search for the specific technology from among potential sources such as the state colleges and universities, local offices of national government agencies such as the DTI, DOST, TLRC, etc. Where the resources are available the search can be through the *internet*. Technology generators/sources have their own websites, which users can access. *The technology could also be found in other farmers' fields.*

If the technology cannot be sourced locally the need is brought to the attention of the various links along the TAT's chain; to the CBFM Unit at the PENRO, then to the CBFM Unit at the Regional Office, which would search for the technology at their levels. Requests could also be made for local offices of national government agencies to search for the technology in their home offices. At the Regional Office the Technology Transfer Unit (TTU) should be responsible for sourcing the technology at the regional level and outside of the region if this does not exist at the region.

CENRO/PENRO CBFM Units and TTU of the Regional Office should maintain a database on technologies that are needed by POs and other stakeholders.

3. **Acquisition of the Technology** – When the appropriate technology has been found arrangement should be made for its acquisition. Acquisition of certain technologies may entail some costs. Technologies from private sources may entail higher cost than from public sources.
4. **Transfer of the Technology** – Transfer of technology may entail training of the users on the technology, demonstrations, or could be through visits to technology installations nearby or visits to other farmers' fields in nearby barangay, municipality or province. The technology transfer may be done by the technology generators or by trainers. The arrangements for the technology transfer could be done by the TTU, the PENRO/CENRO CBFM Unit. Arrangements entail identification who will do the actual transfer, the schedule and venue of transfer and the participants. Again, technology transfer incurs costs.

The Technology Acquisition and Transfer Chain at DENR – At best, the technology transfer chain at the field can be described as weak. The key personnel in the transfer chain are aware of their roles but they are weighed down by lack of facilities and logistics. There are insufficient or no budget, nor the mobility, to undertake technology needs assessment, very limited budget to acquire and transfer technologies, no facilities for electronic search for technology and no budget to set-up a technology management and information system (TMIS). The procedures are not also clear. There is therefore a need to establish clear procedures for TAT and the need to strengthen the players in the TAT chain.

The Role of ERDB in Technology Acquisition and Transfer – The Ecosystems Research and Development Bureau (ERDB) is the research arm of the DENR in addition to the ERRD at the Regional Offices. It conducts a wide range of research on forest production to answer the technological demands of DENR field officers, the private forestry industry sector, private forestry developers, POs and other technology users.

ERDB, however, does not have the mandate to transfer directly its technologies to end-users, except to those who seek the technology and go to ERDB for that purpose. For

this reason, ERDB is not structured to undertake direct technology transfer to the field. It was envisioned that the regional offices of DENR would undertake this task. However, ERDB should be active in identifying technology requirements of DENR field offices as well as the clientele of DENR especially the upland occupants and POs. The advantage is that ERDB knows what technologies it possesses and can easily respond to the needs of the users. In this instance, ERDB should be allowed by DENR to reorganize itself so that it can take an active role in technology identification and transfer.

The Project should assist ERDB restructure itself to be able to respond to technology needs in the field. It should also have a strong MIS to be able to discharge this function.

6.1.5 Establishment of Watershed Management Council

Watersheds covering areas beyond the jurisdiction of one administrative region or even one province need coordinative efforts between regions or between provinces. There are two large watersheds in the Study Area, the Upper Magat Watershed and the Cagayan River watershed. In the case of Magat Watershed two regions are involved, CAR and Region 2, and three provinces. For the Cagayan River there are three provinces involved, Quirino, Nueva Vizcaya and Isabela. There is also the aspect of several agencies and organizations involved in the management of portions of the watershed such as DENR, LGUs, power generating agencies such as NAPOCOR, NIA, OGAs like PAWB and NCIP. The varying goals and objectives of these organizations with respect to the use of the watershed should be coordinated so that they would not be working at cross-purposes with each other with the upland communities caught in the middle. A coordinating body is often necessary to bring into stream all the efforts within the watershed.

The idea of Watershed Management Councils (WMC) goes back to 1992 when former President Corazon Aquino issued Memorandum Order No. 421 on March 2, 1992 creating the Lake Lanao Watershed Protection and Development Council and for Other Purposes⁴. This was brought about by a power crisis in Mindanao apparently due to decreasing volume of water in Lake Lanao. Among the functions of the WMC were:

1. Establishment of a watershed data bank;
2. Conduct of watershed studies
3. Preparation of policy recommendations for submission to the President.

Other WMCs have since then established for both large and small watersheds. The Bukidnon Watershed Protection and Development Council was formed on March 22, 1995 for the management of the Upper Pulangi River Watershed, the Muleta River Watershed, the Tagoloan River Watershed, the Maridugo River Watershed, Davao/Salug River Watershed and the Agusan River Watershed. Because of the large area involved straddling several administrative regions and provinces LGUs and NGOs were represented in the Council. The duties of the Council were:

1. Formulate policies and guidelines on watershed boundary and land uses, conservation, protection, utilization, development and rehabilitation;

⁴ As cited in: Audit on Institutional Framework. Formulation of a Watershed Management Strategy and Investment Programme. Ministry of Foreign Affairs, DANIDA, DENR and FMB.

2. Enhance community-based resource management programmes with emphasis on socio-economic watershed biodiversity, through promotion and maintenance of sustainable land use systems;
3. Establish watershed data bank management system; and
4. Prepare and implement programmes/projects relative to a Framework Plan.

Similar Councils can be established, one for the Magat River Watershed and the other for the Cagayan River Watershed. The functions of the WMC could be:

1. Formulate policies and guidelines in the management of the watershed;
2. Coordinate the planning and implementation of projects within the watershed;
3. Monitor the implementation of various projects within the watershed area of jurisdiction of the WMC; and
4. Provide assistance on the socio-economic activities of upland communities.

The probable members of the Council include the DENR REDs (if two administrative regions are encompassed by the watershed), Governors of provinces within the watershed, municipal mayors or even barangay chairmen, PENROs and CENROs, government corporations operating infrastructures in the area such as the NIA and/or NAPOCOR, other government agencies such as NCIP, DA, and DAR, representatives of communities, NGOs, religious groups, etc. The RED or the Governor of the province, which has the largest area within the watershed, could be the Chair of the WMC, or it could be rotated between DENR and the Governors.

The financial requirements of the WMC could be the responsibility, in this instance, of NAPOCOR and/or NIA, which are operating the hydroelectric power plants. A portion of the trust fund from the sale of electricity, as provided for in DOE EM No. 94-1, could be used to finance the activities of the WMC.

6.1.6 Summary of Institutional Strengthening Plan

The Institutional Strengthening Plan for Watershed Management of the Upper Magat and Cagayan River Basin consists of strengthening the capability of organizations involved in watershed and forestland management in the Study Area. Such strengthening encompasses improving the manpower complement of organizations to exercise protection and management functions; improving the ability to respond to management needs and implement management programs by improving mobility of personnel and with the proper equipment needed for such response, and providing the needed financial and budgetary support for such response. The response time and the quality of response depend to a large extent of the clarity of policy and procedures. The policy aspect is taken care of in another section of the Plan. With respect to procedures, what is being planned here is laying out the protocol to acquisition and transfer of technologies need by various stakeholders from various levels of offices of DENR and the Provincial Government to POs in the forestlands. The procedures for establishment of livelihood and enterprises are likewise dealt within the relevant section of this Plan.

The following are suggested for institutional strengthening in the proposed Watershed Management Implementation Plan:

1. Manpower complement where it is very necessary to do so;
2. Provision of needed vehicles to improve ability to respond to the requirements of watershed management;
3. Provision of needed equipment for implementation of field projects;
4. Provision of needed equipment for database and information management necessary for planning, monitoring and evaluation and technology acquisition and transfer;
5. Provision of supplemental budget for field units so that they can respond effectively to the needs of clientele; and
6. Establishment of a protocol for technology acquisition and transfer;
7. Establishment of two Watershed Management Councils within the Study Area, one for Upper Magat Watershed and the other for Cagayan River Watershed

6.2 Capacity Building Plan

6.2.1 Introduction

Capacity building involves the totality of enhancing the capability of personnel and units to respond to the needs of clientele. This includes manpower development, provision of mobility and other types of equipment and the financial resources and other essential elements that will allow offices/units to deliver services. The other components of capacity building have been addressed in the Section on Institutional Strengthening. Capacity building is defined here as providing the necessary knowledge, skills and attitude to the different stakeholders in the sustainable management and development of the watershed resources in the Study Area. The stakeholders may be grouped under the following:

1. The program/project planners and managers;
2. The program/project implementers composed generally of field personnel who work directly with the beneficiaries or targets of the program/projects; and
3. The program/project direct beneficiaries (POs, lease holders, associations, etc.).

Program/Project Planners and Managers – As far as DENR is concerned these include the CENRO, PENRO and Regional Staff who provide guidance in planning and direction for program implementation. Where the program/project is implemented by organizations other than DENR such as Provincial ENRO or other government agencies, the Planning Staff and Supervisors belong to this group. This group also conducts monitoring and evaluation of the programs/projects.

Program Implementers – These are made up the group that directly implement the program/project. At the DENR these are the field units at the CENRO. They work directly with the program/project beneficiaries. In the Case of the CBFM program it is the CBFM Unit at the CENRO, which is responsible for implementing the CBFM program. The Provincial ENRO belongs to this group.

Program/Project Beneficiaries – To this group belong the targets of the program/project. The community PO is the target beneficiary of the CBFM program. In the other programs the beneficiaries would be the leaseholders such as the SIFMA leaseholder or the IFMA leaseholder.

6.2.2 Strategy for Capacity Building

The success of a program/project requires the acquisition by the different groups of stakeholders the knowledge, the skills and the right attitude for program implementation. The main strategy for capacity building is through formal or informal training. Formal training provides in-depth knowledge of the various elements upon which a particular program is based. It can also provide the right values and attitude required for program implementation. However, formal training takes a long time and the number of field personnel who can avail of the training is limited.

Informal training provides the needed skills required for program implementation. It is shorter than formal training and therefore has the ability to create a critical mass of practitioners needed in implementing a program. In-depth knowledge, attitude and commitment to the program can be acquired during the implementation of the program. Visits to farmers' fields are an effective training approach, to other farmers and government personnel alike. For long-term programs such as the CBFM it is best to utilize the two methods of providing knowledge, skills and attitude to practitioners.

Capability Assessment of DENR Local Officials, LGU-ENROs and Personnel – An in-depth assessment of the capability of DENR officials at the regional offices, the PENROs and CENROs as well as the LGU-ENROs was conducted and reported in the Progress Report. The Study looked at the educational background of DENR officials, and training previously undertaken. The Study also conducted self-evaluation by the respondents on their competence and performance. Training needs were assessed.

A complementary survey of the training needs of DENR officials of the different technical divisions and units at the Regional Office that deal with forestlands and watershed management, and those Units at the PENRO and CENRO was conducted. The respondents at the Regional Office were simply asked what training they think the officers need in Soil and Water Conservation and Watershed Management, Forest Protection, Community-based Forest Management, Protected Areas and Wildlife Management, Environmental Resources Research and Development, Technology Transfer and Plantation Development and Management. Likewise, officials at the different Units at the PENRO and CENRO were asked what training they would need to improve their performance in the implementation of projects in their particular area of responsibility.

6.2.3 Results of the Training Needs Survey in Previous Studies

A training needs assessment was reported in 1999 on field officials implementing the CBFM program. It was conducted nation-wide by the Natural Resources Management Program of the DENR⁵. The DENR-CBFM respondents felt that they already have

⁵ Training Needs of the DENR-CBFM Program. Natural Resources Management Program. DAI/IRGLtd. February 10, 1999.

sufficient knowledge in the technical forestry aspects of the program since the educational background of the implementers was in forestry and related fields. However, there was a felt need to train the practitioners more in social aspects of the program such as in community organizing, skills development in the areas of promoting the CBFM and skills in facilitating meetings and consultations. This finding was confirmed by the in-depth survey conducted by Study Team.

The implementers also felt that they needed a general orientation on CBFM policies and they would like the Planning Staff to undergo orientation training so that they would be more supportive of the program by allocating more resources and in performance evaluation. It was also recognized that local government executives such as barangay officials, municipal mayors and council members as well as the governors and provincial administrators and provincial planning and development officials need the orientation training. Other identified training needs included strategies for assisting POs access capital, management of livelihood projects and in marketing.

The top 10 priority trainings identified by the survey in 1999 are the following:

1. CRMF/AWP/RUP preparation
2. CO and community development
3. Forest land use planning
4. Enterprise development
5. CBFM orientation/reorientation
6. Financial management
7. Feasibility study
8. Monitoring and evaluation
9. Community profiling, and
10. Community mapping.

The study also conducted training needs of POs. The training needs were grouped into three areas, namely: a) general orientation; b) technical areas; and c) social-organizational areas. The first area would contain such fields as ecology and sustainable development principles, people-centered development, community organizations and social dynamics, and sustainable watershed management planning. Under the technical area would be included such topics as forest resources inventory and assessment, land use and resource management planning, agro-forestry, plantation development, soil and water conservation measures, timber and non-timber products harvesting, fire prevention and control and integrated pest management. The social-organizational area of training include team and group building, problem identification and priority setting, leadership training, planning and decision making, monitoring, documentation, conflict management, linkage formation with the private sector and paralegal training.

6.2.4 Results of Supplemental Survey on Training Needs of DENR Field Personnel and Provincial ENROs

The survey was conducted on personnel of the different Units of the Forest Management Sector at the Regional, PENRO, CENRO and Provincial ENROs. The results are presented in **Tables 6.2.1 to 6.2.6**. The tables present the training needs for Watershed Management Units, CBFM Units, Forest Protection Units, PA Units and the Provincial ENROs. Also included in the survey were the ERRD and TTU, and the PDMS of the Regional Office. There were at least 82 specific areas of training that were identified and these are listed in **Table 6.2.7**. The identified training areas are segregated tentatively into 3 categories, namely a) general orientation, b) technical, and c) project management. There are, however, areas that could be grouped into more than one category depending upon how the course content is planned and developed.

The training areas identified by respondents for specific sectors are the following:

I. Watershed Management

- a. Watershed management and soil conservation
- b. Plantation technology
- c. Basic watershed management
- d. Structural and basic soil stabilization technology

II. Community-based forest management

- a. Upland farming systems
- b. Livelihood and enterprise development
- c. Community organizing
- d. Techniques on participation
- e. Organization building framework for the uplands
- f. Applicable agro-forestry technologies
- g. Community mapping
- h. Financial management and bookkeeping
- i. Capability enhancement on reforestation
- j. Livestock production
- k. Linkaging and networking

III. Forest Protection

- a. Paralegal training
- b. Forest fire prevention and control
- c. Paramilitary training
- d. Forest surveying
- e. Training on preparation of complaint and documents relative to filing of cases in court
- f. Community organizing
- g. Training on investigation of forest violations
- h. Orientation seminar on forestry laws, rules and regulations

IV. Protected Areas and Wildlife Management

- a. PAWS profiling and ecological development training
- b. Cave assessment
- c. Wildlife management

- d. Community organizing
- e. Biodiversity monitoring system
- f. Information on biological and genetic resources
- g. Park management system
- h. Orientation on protected areas laws and regulations
- i. Maintenance and protection of PA
- j. Advance learning on wildlife identification and management
- k. Flora and fauna identification
- l. Ornithology
- m. Spelunking and orni-tourism management
- n. Aerial wildlife management

There were other areas of training identified but are general in nature and could not fall into any of the above 4 classifications. Some of these areas are administrative or could fall under program management. Some of them are quite important in project management and project managers from all of the 4 sectors would gain in attending these courses.

- a. Fiscal and budget management
- b. Information technology
- c. GPS training
- d. Customer service enhancement
- e. Officers' duties and responsibilities
- f. Human resources and responsibilities
- g. Value formation
- h. Organization building framework for the upland (a repeat of what is under CBFM)
- i. Leadership training
- j. Monitoring and evaluation
- k. Knowledge, skills and attitude
- l. Computer operation
- m. Basic photography (also needed under wildlife management)
- n. IEC
- o. Training on Power point presentation
- p. GIS technology
- q. Management and personnel supervision
- r. Statistical analysis
- s. Waste management and disposal
- t. Administration

6.2.5 Knowledge, Skills and Attitude of Program/Project Managers and Officers

Probably the most sensitive positions in the implementation of programs and projects are the Program and Project Managers and Project Management Officers. They are the closest to the participants/beneficiaries in projects that involve directly the community. They provide the direction in implementing the project and, assess the needs and requirements of beneficiaries. They are the officers to whom the beneficiaries divulge their needs and problems. Often they are looked at as capable of providing all the needs of the community relative to the project and often beyond the project.

It is common knowledge that the demands for technology and expertise in a given project are enormous. It is also common knowledge that no single individual or even a group of individuals would have all the expertise needed by the project or the participants. Training the PM and PMO and implementers on the technical and even the socio-organizational aspects of projects does not mean that they would provide all the technical assistance that the project requires. What the training does is to orient the PM/PMO and implementers on specific aspects of the project. But more importantly it gives them an insight of the needs of the participants. The most important skill that the PM/PMO and implementers should possess in project management is the ability to source out the technology, expertise, market, capital, infrastructure, training and other requirements through linkages with OGAs, LGUs, NGOs, private sector, financial institutions, etc. This is an attitude and a frame of mind that PM/PMOs should possess.

The skill to source out resources should therefore be honed among the PM/PMOs through training and eventually through practice. This is a skill in *extension*. Unfortunately, no one identified training in extension as needed.

6.2.6 Training of Field Personnel

As stated earlier the training contemplated in this Section is for the DENR field personnel of Region 2, the PENRO, CENRO and Provincial ENRO staff, project implementers and project managers. A tentative training program will be prepared on the third phase of the Study, which will be validated with the intended participants. The training program will consist of the a) some of the technical areas identified by each of the sectors, b) general orientation courses, and c) training courses for PM/PMOs and project implementers. The general topics under these categories are those that are cited above in Section 6.2.4. The frequency of training, the targeted number of participants, schedule of training, potential training-provider and other details of the training program are shown in the investment estimates. Where the trainings are beneficial to project beneficiaries they will be included as participants in the training. Where LGU officials would gain in participating in any of the courses, especially in changing their attitude and perception towards the projects, they will be included in the training.

The capacity building plan will consist of formal and informal training. Formal training will involve sending DENR and Provincial ENRO personnel particularly those in program/project management and implementation. The formal training will be at the Masteral level and will be done locally in the Philippines.

Informal training will consist of short-term training courses, either in the confines of classrooms or on-site. More likely it will be a combination of the two. Field visits to farmers' fields will be a strategy in the informal training program. Technical skills are also acquired through visits of projects in the neighboring countries particularly the ASEAN countries and in Japan. This would also be a strategy that will be adopted in capacitating program implementers.

Training services will be sourced out from experienced training organizations from the academe and from the private sector. There are state colleges and universities within the Study Area and in neighboring provinces who have the expertise and experience in conducting the identified training.

6.3 Livelihood Enhancement and Enterprise Development Plan

6.3.1 Introduction

The Strategic Action Plan of the DENR in “Moving CBFM into the 21st Century” is to champion the cause of forest-dependent communities in their quest for improve well-being⁶. DENR also believes in the axiom that “putting people first so that sustainable forestry will follow”. It is only in providing for the basic social needs of forest-dependent communities in terms of food, shelter, clothing, education, health and peaceful and secure environment first will they begin to appreciate the importance of forest and forest resources. One of the key principles underlying CBFM is “livelihood and local management of natural resources”. Because their subsistence and livelihood depends on forest resources and they are the closest group of people to the forest they are the most logical and appropriate hands-on managers of the forest resources⁷.

A major task of CBFM or other types of community-based approach to forest management is taking care of the basic needs of the community. Since government or other support organization do not have sufficient resources nor is it sustainable to provide indefinitely these basic needs to the forest-dependent communities, the community itself should be given the necessary support mechanisms to generate its own resources to provide these basic needs and services. One sustainable mechanism is to assist the community to generate its resources through the establishment of viable and profitable enterprises in harmony with sustainable forest management.

Livelihood and Enterprise Development Activities in the Study Area – There are a number of on-going community-based development projects in the Study Area within the uplands in the lowlands. An inventory of this development projects cannot now be made. It would suffice to mention what are some of the activities regarding enterprise development being undertaken.

The Caraballo and Southern Cordillera Agricultural Development Program (CASCADE) operates in three provinces, namely Nueva Vizcaya, Nueva Ecija and Benguet. It is a 7-year project, which started in August 1997 and supported by the European Union. It’s aim is to help mainly the indigenous people from poverty through sustainable upland development⁸.

Among its five major component is micro-enterprise development and rural finance. The micro-enterprise development component aims to create employment for farming households particularly the housewives and out-of-school youths. The component consists of vocational training, entrepreneurship training, and product development.

The approach adopted by CASCADE is to analyze existing enterprises or livelihood activities within the municipality to determine whether these could be enhanced through further training of the entrepreneurs, better processing of the product, better product design and linking the entrepreneurs with the market. Among the enterprises that the Program has assisted concern banana chips production, pineapple products, furniture,

⁶ DENR Memorandum Circular No. 97-13. Adopting the DENR Strategic Action Plan for Community-Based Forest Management (CBFM)

⁷ *Op cit*

⁸ Source: CASCADE Office in Solano, Nueva Vizcaya.

fossilized flowers, ginger tea production, mango fruit products, handicrafts, loom woven products, etc. The Program drew assistance from the Department of Social Welfare and Development (DSWD), Department of Trade and Industry (DTI), Department of Science and Technology (DOST), the Design Center of the Philippines (DCP) and the Cottage Industry Training Center (CITC).

The rural finance component includes savings and loans group development, micro-finance development scheme, and cooperative support program.

NVSIT-DOST Food Processing Center – This project is a joint effort of the Nueva Vizcaya State Institute of Technology (NVSIT) and Region 2 Office of the Department of Science and Technology (DOST). The Center aims to provide additional or alternative source of income to housewives and out-of-school youth by training them in the processing of excess agricultural products into preserves or dried products. The training is free is conducted at the Center. The trainees can either bring their own materials or these are provided by the Center. Trainees have already produced commercial products such as banana chips, dried mango, fruit preserves of various kinds.

Furniture and Handicraft Program of DOST – DOST has a nation-wide furniture and handicrafts program. The program provides technical assistance to furniture and handicrafts producers as well as the limited loans for the purchase of equipment such as lumber dryers and finishing booths. Region 2 is covered by the program and there are furniture and handicrafts manufacturers who are availing the services of the program in Nueva Vizcaya and Quirino provinces.

DTI Provincial Office in Nueva Vizcaya has a list of furniture, handicrafts and gifts and toys manufacturers and food processors (**Table 6.3.1**).

6.3.2 Framework for Community-Based Enterprise Development

Rural enterprise development as a vehicle for countryside economic development was given focus by RA 6810 otherwise known as “Kalakalan 20”⁹. Aware of the potency of viable small enterprises in generating economic activities in the rural areas such as generation of employment and increasing the buying capacity of people in the rural areas, Kalakalan 20 provided incentives for micro and small enterprises at the barangay level. The same economic impacts could also be achieved with viable and sustainable enterprises in the CBFM areas.

A simplified framework for community-based enterprise development considers four basic elements namely: a) conducive policy environment; b) strong and responsive People’s Organization; c) proper selection of viable enterprises; and d) strong support system¹⁰.

Conducive Policy Environment - The policies of government defines the rules of the game. They are the defining elements in the success or failure of rural or community-based enterprises. In this particular instance, the policies of DENR relative to the use of resources in the CBFM areas are crucial to the success of enterprises that may be

⁹ RA 6810. Magna Carta for Countryside Development and Barangay Business Enterprise. 1989.

¹⁰ DAI-NRMP. A Framework for Enterprise Development in Community-Based Forest Management. 1997.

established in the community by the POs. The traditional regulatory and restrictive policies needed to maintain order in the past may have become constraints in the new initiatives and approaches of forest management such as in community-based enterprise development. Kalakalan 20 declares it a policy of the State “that the growth of countryside business enterprises shall be achieved through absence of bureaucratic restrictions and granting of incentives and other benefits”.

DENR’s Action Plan (MC 97-13) recognizes the need for a paradigm shift, away from the “traditional regulatory oriented forestland management towards a developmental, people- and service-oriented one”. The shift creates new roles for and transformation of DENR, that of a facilitator and an extension specialist capable of providing technical assistance in the development process.

An avowed principle under the Strategic Plan is the creation of enabling environment in which forest-based communities are empowered to institute sustainable management systems. It also calls for the deregulation and resource allocation reforms to better support the emergence, stability, and growth of forest-based and livelihood-focused enterprises of forestland occupants. This calls for the review and modification if not outright repeal of restrictive requirements for advance collection of forest charges and permits in the access of forest resources and delivery to market as well as numerous complicated technical plans accompanying some of these permits.

Strong and Responsive People’s Organization – The success of the CBFM rests on how well organized and prepared the POs are in conducting and undertaking activities in the community not only in the physical development of the forest resources such as in plantation development or agro-forestry but also how well the business aspects of the CBFM are carried out. The POs should have a strong foundation not only for short-term objectives such as in getting the organization registered with the Securities and Exchange Commission (SEC) or with the Cooperatives Development Authority (CDA) or in obtaining a CBFMA. It should be strongly organized to pursue the twin objectives of providing economic and social benefits to the members while undertaking sustainably managing the forest resources.

One crucial factor that affects the strength of the PO is how clearly defined the rights and responsibilities of its members and leaders are as defined in its Constitution and By-Laws. Furthermore, those rights and responsibilities should be very well understood and accepted by all members. Other indicators of strong organization includes clearly defined system and procedure for assigning responsibilities and sharing of benefits, transparent system of transactions with clear accountabilities and sanctions, recognition of individual rights and responsibilities within collective rights and responsibilities of the organization, a system for conflict resolution honored by all, system for decision-making, agreements on entry to and exit from the PO, a system of records management, and most important, active participation of the general membership in the activities of the organization.

Proper Selection of Viable Community-based Enterprises – To be viable, the enterprise should have the elements for success. For this reason, care and attention should be given to the proper selection of the enterprise that the community will engage in. To start with, an examination of the existing enterprises in the community should be undertaken to determine if they are financially viable and to learn from their experiences.

In any event, the following criteria should help in identifying potentially viable enterprises.

- a) *Demand for a particular product or commodity* – The demand for a particular product should be examined thoroughly. It may be seasonal or continuous. Quality standards of the product may determine accessibility of the demand to a community-based production system. It also could define the type of production system to be established should it be decided to capture a share of that demand. It may be necessary for the community to link with industry organizations at the start to get a foothold of the market of whatever product that the community decides to manufacture.
- b) *Raw material availability* – The availability of the raw materials for the manufacture of a certain product or the source of a particular commodity would help determine the sustainability of the enterprise. It is important to study whether the raw materials are of sufficient quantity whole year round or is seasonal and in what particular season it is available. Physical presence of the raw materials in the community in sufficient quantity does not mean it is available for use of the community. Therefore, it should be necessary to determine if there are constraints to accessing the raw materials in terms of policies or licensing requirements of responsible agencies.

It is also important to determine whether extraction of the raw materials is environment friendly or will it lead to environmental degradation or exhaustion of the raw materials. If the raw material is a plant product, is it naturally growing or is it planted. If planted, can it be grown the whole year round? Is the technology for growing it better and at lower cost available?

It is also important to determine if there are competing uses of the raw material. Bamboo has a number of uses. If utilized for furniture production or for handicrafts, how much competition for the raw materials is present relative to its use for construction in the community?

Some simple production processes also require inputs that are not available in the community such as chemicals for the production of say, handmade pulp or handmade paper. This may mean buying the raw materials in nearby towns or cities and would add to the cost of production or to the uncertainty of supply of needed raw materials. The use of imported inputs may put into question the competitiveness and therefore the viability of the enterprise.

- c) *Technology* – The technology required to produce the product should be studied thoroughly. It may require pieces of equipment that are too expensive to acquire initially. It may require inputs not available in the community such as electricity. The use of generator would overcome this constraint but it certainly will add to the cost of production. It may also be important to determine if the technology require specialized skills that may not be present in the community nor can present labor in the community be trained to possess the skills required. Acquiring the skills outside of the community may be too expensive.

Another issue on technology that must be looked into is intellectual property rights (IPR). Is the technology free or requires licensing? If from a government institutions, how high is the technology fee required? Licensing may be too costly to affect the viability of the enterprise.

The technology should be totally understood. The developers of the technology may have details not thoroughly explained that would affect the quality of the product or the process of manufacture is incomplete. It would be best to use a proven technology.

Finally, the technology must be suited to the physical capability of the workers and not for a particular gender; it should be gender sensitive.

- d) *Labor requirements of the enterprise* – It is expected that the enterprise generate employment in the community. It would be helpful if labor intensive. There may be excess labor in the community, but the question is whether they possess the needed skills required by the new enterprise. If skills development is required, is the labor present in the community trainable to the level required? What would be the cost of training?
- e) *Capital requirement* – Capital is not readily available in rural communities, much less in a forest community. If the capital requirements of the enterprise are too high it may be a deterrent in the establishment of the enterprise. Access to capital affects the selection of the enterprise.
- f) *Availability of site* – This is not so much of a problem in the community as there is sufficient space where the production system is located. What is important is the selection of the site. It should be accessible with respect to the raw material source, manpower, road system, wastes disposal if required, water and markets.
- g) *Availability of electricity, water and communication system* – Most production systems require power and water. It is therefore important to determine the requirements of production with respect to electricity and water. Not only of their availability but also their costs because they could materially increase the cost of production especially in areas where the cost of electricity is high. Communication system is also vital in the successful operation of an enterprise. It provides link with suppliers of inputs and markets for products.
- h) *Transport facilities* – Factory to market roads may affect the viability of the enterprise. If the products are bulky they may require motorized transport facilities. The cost of transportation may weigh heavily in the decision whether to engage in a certain business not. Some goods may be light or small but high in value and could be transported using animal drawn vehicles or on horseback.
- i) *Value-added to the product* – The enterprise must undertake at least one step of upgrading of the new material and thus add value to the product. The idea is for the community to obtain the highest benefits from the enterprise. This means that the raw material undergoes processing even if not the finished product to increase its value. Rattan poles collected from the forest should not be sold immediately but

must undergo primary processing such as scraping, drying, trimming and possibly grading to increase its value.

Strong Support System – As can be observed in the selection of viable community-based enterprise there are components that the community itself cannot provide. This includes infrastructures such as farm to market roads, utilities such as power and water supply that are vital in a production system. DENR itself cannot provide these facilities. It needs to link the community with the LGUs and other local groups and draw out support from them.

LGUs often could be a source of capital needed by the community to establish an enterprise or link the community to capital sources such as financial institutions. Local entrepreneurs could enter into joint ventures with the community to take advantage of business opportunities within the community. Local chapters of industry organizations such as the Philippine Chamber of Handicraft Industries or the Chamber of Furniture Industries of the Philippines can enter into a manufacturing complementation with the PO as a basis for establishing an enterprise. The community can produce semi-finished furniture parts or handicraft components, which can be supplied to individual furniture or handicraft manufacturers.

Government research institutions can provide technical assistance to community enterprises. Such technology interventions can reduce costs of production or improve the quality of products. PO capacitation particularly in business management is also required to improve the community's chances for success.

6.3.3 Strategy for Community-Based Enterprise Development

- a) *DENR-LGU-PO as partner* – Since the CBFM is under the auspices of DENR it should be a close collaborative partner of the POs in the establishment of the community-based enterprise. DENR can also assist in sourcing support to the POs from various sectors such as the LGUs, local industry organizations, local offices of national agencies such as the DTI, DOST, the financial institutions and other sources of credit, etc.
- b) *The CBFM as an Enterprise* – While the PO is organized to carry out the management functions needed in the sustainable management of the forest resources within the CBFM area the PO should view the CBFM as an enterprise. The PO should therefore be imbued with a business culture. In so doing it should conduct forest management as a business. It should plan and undertake various activities with the profit motive without forsaking the other objective, which is sustainable management of the forest resources. Community organizing, therefore, should have this as an objective, to teach the community to think and act like entrepreneurs.
- c) *Allow households or groups to establish enterprises within the umbrella of the PO* – Individual households or groups of households with entrepreneurial leanings should be encouraged to establish enterprises or undertake business ventures within the umbrella of the PO. Doing otherwise would stunt the entrepreneurial spirit of the members. However, clear guidelines for such ventures should be established within

the organization defining the role of the PO viz-a-viz those of the households or groups of households undertaking the business venture.

- d) *Enter into joint-venture with private sector* – While there may be a great desire within the community to establish business enterprises this could not probably be fulfilled because of the lack of capital or facilities necessary for undertaking it. There may be a necessity to enter into an agreement with the private sector for joint-venture activities or merely leasing certain portions of the CBFM area for the use of the private sector. The former would probably be more beneficial since it is expected that they would participate in conducting the businesses of the enterprise and thereby undergo what would practically be an on-the-job training of running a business. However, it entails sharing the risk should the enterprise proves to be a failure. Leasing out part of the CBFM area to plantation developers could provide employment to the members of the PO during plantation development and maintenance in addition to the PO receiving a certain percentage of the harvest.
- e) *Production complementation with the private sector* – As discussed above, the community can enter into an agreement with an firms in a given industry sector such as the furniture or the handicraft sectors for the manufacture of furniture or handicraft part. The production of the final product rests with the furniture or handicraft manufacturers but the production of the parts provides a business opportunity for the community. It also provides a learning process in the community in the manufacture of the complete product such as wood or rattan furniture or bamboo/rattan/vine baskets, which should be the ultimate aim of the community enterprise.
- f) *Implement the Community-based Enterprise Development through Existing Units* – The implementation of the enterprise development within the CBFM should be through existing units of DENR and the LGU and not create new organizations to implement it. In this instance it should be through the CBFM Unit at the CENRO in partnership with the Provincial ENRO. This is to develop the expertise within the organization. Setting up of new organization to implement the project would entail recruitment of new personnel who will leave DENR and the LGU ENRO after the termination of the project.

6.3.4 Guidelines in the Establishment of Community-Based Enterprises

The following are the suggested procedures in establishing business enterprises in the CBFM communities.

- a) Work closely with DENR in assisting POs establish community-based enterprises. Besides the help DENR can provide in sourcing out support to the POs it will also provide DENR particularly the CBFM Unit personnel with first hand experience in this endeavor.
- b) Examine the level of PO preparedness or capability in establishing and running a business enterprise. Since the success of the enterprise will ultimately depend on how well the enterprise is managed, it is useful, even necessary to determine the strengths and weaknesses of the PO and identify supplemental training needed relative to business management;

- c) Assist the PO obtain the needed supplemental training for organizational strengthening, either through DENR's assistance or through local NGOs;
- d) Examine existing livelihood and enterprises in the community. Identify which of them are succeeding and determine the factors of success. Determine also the reasons why the other endeavors are not succeeding. This is to learn from the success and mistakes of the existing enterprises;
- e) Assist the PO select a number of potentially viable enterprises using the criteria for enterprise selection indicated above;
- f) Assist the PO conduct a pre-feasibility study on the identified potential enterprises including a review of enhancing and constraining policies. Assist the PO remove or reduce impacts of constraining policies;
- g) Link the PO with the support systems identified above such as the LGUs and other local groups, DTI and industry associations and potential markets, market information sources, credit sources such as banks, the Technology and Livelihood Resource Center, technology and technical assistance providers, etc.;
- h) Assist the POs establish internal systems for managing the enterprise such as in: a) selection of the management team including workers/laborers; b) clear definition of tasks and responsibilities; c) setting of compensation level for management and labor; d) mechanism for establishing capital build-up if this is not present; e) benefit sharing mechanism; f) continuous system for training of PO membership.

6.3.5 Potential Community-Based Enterprises

The enterprises that the POs can engage in cannot be prescribed, it should not be prescribed. The POs can only be guided in selecting viable enterprises based on existing resources within the CBFM area and other factors that affect success of the venture. A profile of several business enterprises that have been found successful in other places and circumstances is provided and shown in **Attachment 6.3**. Below is a list of these potentially viable enterprises.

1. Handmade pulp manufacture
2. Handmade paper production
3. Bamboo furniture manufacture
4. Handicrafts from bamboo, rattan and vines
5. Production of fossilized leaves for handicrafts
6. Canton noodles with squash
7. Rice-mongo crunchies
8. Squash catsup
9. Banana sauce and banana chips
10. Instant kalamansi extract
11. Tomato catsup

12. Juice concentrate
13. Kalamansi powder
14. Sericulture
15. Rattan furniture manufacture.

6.4 Policy Initiatives

6.4.1 Introduction

A number of issues, concerns and constraints have been identified during the information and data-gathering phase of the Master Plan Study. These have been reported in the Progress Report. Among the issues, concerns and constraints in watershed management in the Study Area include:

- (1) Land use conflicts brought about by a number of legislations allocating *the same* portions of the forestland and watershed areas to specific purposes such as for protected landscapes, ancestral domain areas and mining areas. Proclamations of areas have also been made for uses that are not suitable for the intended purpose such as settlement areas in forestlands.
- (2) Unstable policies regarding the harvest of damaged and fallen trees in the natural forest by CBFM people's organizations. This policy was suspended for all CBFMA following allegations that some POs are abusing this privilege.
- (3) Securing *permit to harvest and to transport* plantation-grown species by farmers. This policy applies to trees planted forestlands as well in private lands. The permit is not readily obtainable from DENR CENRO because of the many requirements imposed on the tree owners. To farmers in the uplands this entails much expense in time and money.
- (4) Lack of pricing policy on water from watersheds. Water is not viewed as a product of the forest in the same way timber, rattan, bamboo, vines and other non-timber products are seen. In fact, no forest charges (tax on forest products) are being levied on water. Users of water such as in households and in irrigation pay only the cost of extraction and transmittal of the water without including the value of the water itself. The cost of maintaining the watersheds in order to have a steady supply of quality water is not being collected.

Policy initiatives, as discussed in this document, also include initiatives in better management of the forestlands and watersheds. These management initiatives cover the devolution of part of the forestlands and watersheds for management by LGUs, the co-management of watershed areas by DENR and LGUs, enhancement of traditional management of ancestral forests and forest development approaches through households, associations and cooperatives, NGOs and other government agencies.

6.4.2 Approaches to the Policy Initiatives

The issues, concerns and constraints to successful watershed management identified above have been discussed with concerned agencies such as the DENR, LGUs, NCIP, the Mines and Geo-sciences Bureau and other organizations. However, no definitive solutions have been agreed upon by concerned agencies. In fact, the solutions to some of these issues may lie in the passage of new legislations.

The approaches discussed in this document to overcome the constraints and provide solutions to the issues are largely tentative and will be modified or strengthened/enhanced after further discussions have been made with the concerned agencies during the next phase of the Master Plan Study.

(1) Land Use Conflicts – The major land use conflicts in the Study Area are the allocation of the same areas for specific but differing land uses. The Casecanan Protected Landscape located in Nueva Vizcaya and Quirino is also the subject of ancestral domain claims by the Bugkalots, indigenous peoples occupying the area. It is also the subject of mining claims. The protected landscape, which is part of the NIPAS, is under the jurisdiction of PAWB and the regional/field offices of DENR. Similarly, the mining interests in the area are under the MGB, which in turn is under DENR. However, ancestral domain claims of the Bugkalots, which are now covered with Certificates of Ancestral Domain Claims (CADC), issued by DENR, are under the National Commission on Indigenous Peoples (NCIP).

The three conflicting land uses are covered by existing legislations, the NIPAS law (RA 7586), the Mining Act (RA 7942) and the IPRA law (RA 8371). The latest of the three is the IPRA law, which was passed in 1997. There are vital interests at stake in this conflict: the preservation of biodiversity and unique landscape, the rights of the indigenous peoples in the area, and the investments and potential revenues derived from mining activities. The IPs in the CADC area, with the LGUs of Nueva Vizcaya and Quirino through the auspices of Conservation International has been conducting development planning for the area (November 8, 2001). Resolution of the issues has to be found.

Thorough discussions and negotiation is one avenue that could lead to a solution. The DENR through the PAWB has been preparing for discussions with the NCIP. This discussion has to be pursued by DENR and NCIP with the participation of MGB including stakeholders concerned, the IPs, the mining companies and general public.

The Master Plan Study will participate actively if not take the initiative in bringing together the various stakeholders in the discussions, public hearing, and negotiations for the solution of this land use conflict.

(2) Unstable Policies on Harvesting Fallen and Damaged Trees from the Natural Forest – The changing of policies, in this particular instance, the suspension of harvesting of damaged and fallen trees from the natural forest by CBFM POs who have affirmed Resource Use Permit (RUP) whenever there are complaints that the RUP is being abused, develops insecurity on the part of the POs. This generates the perception among the POs that they cannot plan their activities based on existing policies.

While admittedly there is a need to investigate alleged abuses of cutting permits by POs the suspension of RUPs should not be sweeping as to affect provinces or regions other than where the violation allegedly took place as what happened in September 1998 when the RUPs of POs were suspended nationwide because of alleged violation in one province. The approach should be as what took place recently in Quirino on September 8, 2001. With reports that some POs abused their RUPs, the RED suspended RUPs only in the province of Quirino while an investigation was conducted. Upon identification of the perpetrators the suspension was immediately lifted, which was within 2 weeks.

Suspension or the lifting of suspension of RUP is a prerogative of the RED. It is applied as the RED sees it fit to do so. There is no uniform way of applying this prerogative. The RED could have chosen to suspend RUPs for the entire region when in fact the alleged violation was only in the province of Quirino. REDs in a particular region change. There is no guarantee that the next RED, should there be any change in regional leadership will, exercise that prerogative judiciously.

The most logical approach to a more stable policy in this matter is to have a DENR-wide policy on suspension of this kind of permit. That suspension should only be in the province where an alleged abuse was committed and that the suspension should be lifted as soon as the perpetrators have been identified. It would also help if a Project Management Officer (PMO) is permanently assigned to a CBFM project.

(3) Permit to Harvest and Transport Plantation-Grown Timber – A major component of people-oriented forest management projects of DENR and also of LGUs in the raising of fast growing tree species such as Gmelina. Most people plant these types of trees because of expected income that they would get when the trees are harvested. In fact tree planting is an important component of the CBFM program of DENR. At least in Nueva Vizcaya and in Quirino there is the Tree for Legacy Program, again aimed at encouraging people to plant trees in government areas as well as in private/titled lands.

However, when the trees are ready for harvesting, DENR requires the owner to obtain a permit which entail several requirements such as verification and inventory of the trees to be cut, certification from Barangay Officials that indeed the trees belong to the person who is applying for a permit to harvest and transport and also from the PO President if the applicant is a member of a CBFMA PO. Often, the application takes days, something that the farmers could ill afford in addition to the expenses of going to the DENR CENRO office. The impact of this requirement is the loss of credibility of DENR and of government programs in general.

This requirement of getting a permit to harvest and transport plantation grown trees should be reviewed with the purpose of simplifying it and making it easier to comply with. While it is true that DENR would like to be assured that the trees to be cut are owned by the applicant making the latter expend time and money to secure the permit to say the least does not encourage people to plant trees nor does it promote government credibility. The least that could be done to this policy is to revise the procedure. If assurance is needed that the applicant is the legitimate owner of trees to be harvested, an alternative procedure would be to require the President of the PO to certify and for the PMO to issue the permit to harvest and transport. In this case, the farmer need not go to the CENRO office to obtain a permit.

(4) Lack of Pricing Policy on Water from Watersheds – Water is a very important resource and product of watersheds. However, as a product of forestlands/watersheds it is not within the authority of DENR to control and regulate. Such mandate of control, supervision and regulation of utilization, exploitation, development and protection of water resources is exercised by the National Water Resources Board (NWRB) under the Department of Public Work and Highways (DPWH)¹¹. Applications for water permits, including those from NIA and the Local Water Districts (LWD) have to be filed with the NWRB. However, NWRB does not set a price for water. What it does is to collect a fee for the permit given to an applicant to draw a specified quantity of water from a source.

A system for pricing raw water will be developed during the implementation phase of the Project including a mechanism for compensating LGUs for the water coming from watersheds within their jurisdiction. This way, the LGUs would have resources to implement programs to maintain the ability of watersheds to provide quality water at the desired quantity and time it is needed.

6.4.3 Watershed Management Initiatives

(1) Devolution of Management of Small Watersheds to LGUs – LGUs share in the responsibility for local development and resources management. This responsibility can only be fulfilled if they assume certain national functions that are devolved to them such as in the management of natural resources. Assuming these responsibilities make LGUs more responsive to the needs of their constituents and therefore become more capable of implementing projects through mobilization of local resources. Devolution also creates more opportunities for LGUs to make decisions and be more accountable to the people. It also provides opportunities for the people to participate in local governance.

Among the devolved functions to LGUs are the establishment, maintenance, and protection of small watersheds. One model of a devolved watershed is the Barobbob Watershed in Masoc, Bayombong, Nueva Vizcaya. It has an area of approximately 439 ha and is the source of potable water to about 2,000 households in the municipalities of Bayombong and Solano. Before the devolution the main livelihood source of almost 134 families in the watershed was kaingin-making. Forest fires were a constant occurrence. After the devolution the provincial government organized the families into the Barobbob Watershed Occupants Association (BWOA) and awarded them tenure to their occupied areas with duration of 25 years renewable for another 25 years. Technical assistance was also provided in their agricultural activities. The farmers can harvest agricultural and forest crops that they raise. In return they give up the use of fire as an instrument for land development and adopt soil and water conservation measures into their farming system as well as plant trees in portions of their areas. The result has been no forest fires for the last 3 years and the evidence of natural regeneration in the area.

The devolution of management of small watersheds to provincial government or even municipal and barangays will be pursued. However, selection of the municipality or barangay should be done carefully to determine those who have the temperament, the financial and personnel resources to undertake such management responsibility.

¹¹ Audit on Institutional Framework, Formulation of a Watershed Management Strategy and Investment Programme. Ministry of Foreign Affairs, DANIDA, the DENR and FMB. February 1998.

(2) Co-management of Watershed Resources – The LGUs should be viewed as partners in the management of forestland and watershed resources. This partnership scheme has been put into effect between the DENR and the Provincial Government of Nueva Vizcaya in the management of the 24,000 ha Lower Magat Forest Reserve. The goal is to protect, develop and manage the watershed by promoting and encouraging environmentally sound forestland and nature-based enterprises. The community-based approach to management of natural resources was adopted. In addition to a Steering Committee chaired by the Governor of Nueva Vizcaya, a Lower Magat Forest Management Office (LMFMO) was established and located within the watershed. DENR, the Provincial Government and the two municipalities, Diadi and Bagabag, seconded personnel to the LMFMO. The DENR representative is the Project Manager while the LGU representative is the Project Coordinator. The Provincial Government provides the operating budget. The Project awards tenure to participating households with duration of 25 years renewable for another 25 years. There are already 6 tenure instruments awarded.

The co-management mechanism is an approach to managing forestland and watersheds is an innovation that can create synergy. The Provincial Government is new in the management of natural resources and can learn from the DENR. Ultimately, it is foreseen that management of the watershed will be transferred to the Provincial Government when it has been shown that it is capable of doing so independently. DENR's role would then be laying down the policies for management and monitoring how these policies are being implemented by the LGUs in the management of natural resources. This approach to watershed management is worth replicating in other watersheds, not only in partnership with the Provincial Government but also with capable Municipal or Barangay Governments.

(3) Tree for Legacy Program – The Tree for Legacy Program is a program whereby farmers, households, school children, teachers, associations, government employees and the civil society at large can participate by planting trees in designated places in government land or in private lands. The tree owner is issued a Certificate of Ownership (CO) and such ownership is registered with the Register of Deeds. The tree-owner can harvest the tree and benefit from its sale or use. In places where tree cutting is not permitted such as in protected areas the tree owner is issued a Certificate of Usufruct (CU). It is likewise registered with the Register of Deeds. If the tree planted is a fruit tree but its location is within protected areas, the tree-owner can harvest the fruits and financially benefit from it.

This program provides an opportunity for private citizens to directly participate in improving the environment and have monetary benefits from it. School children are encourage to plant trees under the program as an investment to finance their education or as source of capital for business enterprise development in the future. At the moment, Nueva Vizcaya and Quirino have this program. This could be adopted in the Isabela and Ifugao as well. This will be pursued as a complementary project in the management of watersheds close to urban and settlement areas.

(4) Ancestral Woodlots or *Muyong* and Communal Forests or *Ala-a* – In Ifugao as elsewhere in the Cordillera Administrative Region (CAR) a traditional system of private woodlots, usually located in forestlands (and therefore government lands), are managed by clans. The private woodlot or *muyong* is usually established for the purpose of

producing timber and non-timber forest products and for the protection of small watershed catchment areas adjacent to rice terraces.

There are three types of woodlots, namely: 1) those handed down through generations; 2) those recently established out of fallowed swidden; and 3) those being established in the natural forest through a claim. A *muyong* can only be designated as such once it has been handed down to the next of kin, subject to the recognition of the community. A family may have one or more woodlots and these may or may not be adjacent.

The *muyong* owners practice weeding, tending, keeping the boundary clean and identifiable, protection of preferred tree species and the prevention of fires. Many owners also practice enrichment planting either using direct seeding or transplanting wildlings from the natural forest. A survey conducted by DENR in three municipalities in Ifugao indicated that there are about 2,294 woodlots covering about 2,000 ha.

Traditional communal forests (*ala-a*) are not as extensive as the *muyong* but are as important in the context of traditional management forest resources. *Ala-a* is located in lands that are not cultivated as swidden; too far from settlements to be covered by private claims; or those used as hunting grounds. *Ala-a* is used for gathering of fuelwood, construction materials, food, medicine and other products only for household use and not for commercial purposes. It is managed through a common consensus in the community that the resources are to be shared and that there should be no burning and villagers are prohibited from gathering more than what they need. Otherwise violators are ostracized or are fined. Forests that are sources of water for domestic supply and for irrigation purposes are protected and not subjected to utilization.

These systems of management of watersheds should be given legitimacy by government only to assure the *muyong* and *ala-a* owners of the intention of government in propagating these traditional practices. This will be pursued as major management options especially where the tradition is strong. Assistance will be provided by way of providing planting stock and technical assistance in proper silvicultural treatment of the forest. The planting and utilization of non-timber forest products will be encouraged because their harvest has low impact on the forest but can provide adequate income for the households.

(5) Provincial ENROs to Undertake PO Formation and Manage CBFM Projects

– The DENR suffers from insufficiency in personnel and budget. The result has been CBFM projects without assigned PMOs resulting in poor preparation of POs to undertake the management of the CBFM project. Some Provincial ENROs have already experiences in the management of people-oriented and community-based forest management project. To wit is the Barobbob Watershed Management Project and the Lower Magat Forest Management Project in Nueva Vizcaya. These two projects are bearing positive results. Where the Provincial ENRO has the capacity in terms of personnel and budgetary requirements, they should be co-opted by DENR to undertake the preparation of POs toward the establishment of CBFM projects. DENR would supervise the project and will issue the CBFMA or CS for claimed areas within the CBFM area, the affirmation of CRMF, AWP and RUP.

6.5 Cost Sharing Mechanisms in Watershed Management

Water is a valuable resource. However, it is not priced according to its true value. The price paid for water used by households and irrigation users correspond mostly to the cost of extracting and conducting the water to the end-user and does not reflect/include the value of the product (water) itself. Since it is undervalued the end result is the wasteful use of water. Undervaluing water removes the financial incentives that users might otherwise have to improve efficiency in the use of water.

There are costs associated with protecting and maintaining watersheds in conditions that would provide the maximum amount of water that could be produced from them. Mechanisms for equitable sharing the cost of watershed management will be developed/pursued in the Project.

6.5.1 Use of Incentives in Improved Watershed Management

Incentives are powerful tools in achieving objectives. In the case of watershed management various stakeholders particularly the forest-dwellers, the downstream beneficiaries may be influenced to change practices either in the use of the watershed areas or in the use of water resources by the application of appropriate incentives. Incentives may be direct, meaning compensation is given for a particular activity such as the payment for the adoption of soil and water conservation measures in the farmers' fields, or it may be a private incentive internal to the practitioner who adopts a technology upon the realization that in the long term it is for his benefit to do so¹².

Direct incentives do not instill in the practitioner the belief that watershed conservation is in his benefit. Instead, it encourages the belief that good watershed management is paid for by somebody else such as the government or by a project funded by foreign agencies. Furthermore, it decreases a sense of involvement in a vital activity since his services are paid for and is not out of a sense of duty for the greater good. When exploring therefore, incentives to promote the adoption of watershed management techniques by stakeholders it is important to identify private internal incentives that drive the participants to undertake certain practices not because of immediate benefits but rather those that promote long-term benefits. These include long term financial benefits as a result of the adopted technology and the social and cultural benefits that build self-esteem in the stakeholder.

Some of these private incentives have already been adopted in the CBFM program such as the awarding of tenure and secure land rights and granting of tax privileges for privately grown timber (no forest charges for plantation species). Some other incentives can be pursued such as improved technical assistance and support services, extension, training, and technology transfer; improved access to markets, and infrastructure support; credit access; and improved access to social services such as health, education, water, electricity and communication; and pricing policies that discourage wasteful use of water.

¹² The Philippines Strategy for Improved Watershed Resources Management. DANIDA, FMB and DENR. 1998.

6.5.2 Sharing of Watershed Management Cost by Domestic, Irrigation and Industrial Water Users

Where watersheds that supply domestic, irrigation and/or industrial water to downstream users are occupied or settled, invariably erosion from cultivated areas take place and the amount of sediment that is lodged in water bodies and in reservoir of dams depends upon the practices adopted by the farmers/watershed occupants. The adoption of soil and water conservation measures such as terracing, use of contour farming, use of hedgerows or the construction of small water impounding dams entails expenses on the part of the farmers. Besides, there are lost opportunities on the areas that are planted to hedgerows or where impounding dams are built, that could not now be used for crop production.

On the downstream side, the water users take it for granted that somebody else, most likely the government, should put in good condition and maintain the watersheds so that they continue to enjoy abundant water of high quality at the time they need it. They should be made aware that there are great costs involved by somebody else and not only the government but by upland occupants so that the supply of water continues. And for them to continue to enjoy the water, they should share in the cost of managing the watersheds.

Approaches will be developed so that the downstream beneficiaries would share in the cost of watershed management. In the case of the domestic and industrial water users a small fee could be added to the current price of water from the tap, which should go back to the upland occupants in the form of social services such as roads, education, health services, others and not as direct payment for adopting soil and water conservation measures. Water supply is essentially through Local Water Districts (LWD). There are instances where LWDs have imposed a minimal fee on the water and invested it in the uplands for in the form of social services.

The case of the irrigators is a little problematic since it has been shown that they have difficulty in paying even for the water that they use. A dialogue among the irrigators, NIA, LGUs, the upland occupants or their organizations and DENR will be conducted to attain a consensus on how the watershed occupants could be compensated for their expenses.

6.5.3 Sharing the Cost of Watershed Management by Operators of Hydroelectric and Power Dams

Republic Act No. 7638 created in 1994 the Department of Energy DOE. It also provided that DOE shall “devise ways and means of giving direct benefits to the province, city, or municipality, especially the community and people affected, and equitable preferential benefit to the region that hosts the energy resource and/or the energy generating facility”.

DOE Energy Regulations 1-94 allows DOE to impose a levy of ₱0.01 for every kilowatt-hour of sales of the energy generating facilities. The National Power Corporation (NPC or NAPOCOR) collects the levy and is held in trust at the DOE. The levy covers coal thermal power plants, mine-mouth coal plants, geothermal resource development projects and power plants, hydro resource development projects and power plants and oil-fired power plants. As of 1998, information was that there was an accumulated ₱700 million, nationwide, from the levy.

The trust fund may be used for the following:

1. Twenty-five (25%) percent of one centavo (₱0.025) per kilowatt-hour total sales shall be applied for missionary electrification of the official resettlement or relocation sites of the community and people affected and thereafter, of the relevant host LGU or host region in the following order of radiating benefit: host barangay, municipality or city, host province, and finally host region. The power producer shall also establish relevant training and skills development programs which may include skills in reforestation ...
2. Power producers shall set aside 25% of one centavo (₱0.025) per kilowatt-hour of total sales *to establish and maintain a development livelihood fund*. The fund may be applied in an equitable manner for the exclusive benefit of the community and people affected: barangay, municipality/city, province, region.
3. One-half of one centavo (₱0.050) per kilowatt-hour of total electricity sales shall be set aside for *reforestation, watershed management, health, and/or environment enhancement*.

There are two hydro-power-generating plants in the Study Area, the Magat Hydro-electric Power Plant in Magat dam and the Casecnan Multi-purpose Irrigation and Power Project in Casecnan River Watershed. Although technically the power-generating unit is in Pantabangan in Nueva Ecija, which is already outside the Study Area the water, which is used to augment the reservoir in Pantabangan comes from the Casecnan watershed and is only diverted through a tunnel into the Pantabangan reservoir. The trust fund collected under DOE Energy Regulations 1-94 presents an opportunity for the power producers to share in the cost of watershed management in the Upper Magat and the Cagayan River basins.

A mechanism will be developed to tap this source. It could be a Memorandum of Agreement (MOA) between the power producer and the community or barangay, the municipality, province and region the sharing mechanism. A dialogue among DENR, LGUs, the power producers and the stakeholders will be held to come to a consensus on how the trust funds can be accessed and used.

Anent to the above, the Provincial Government of Nueva Vizcaya has prepared a position paper for submission to the Steering Committee of the DOE and to the Joint Congressional Power Commission for consideration of Nueva Vizcaya as a Host LGU of energy-resources in order for it to be entitled to a higher share in the proceeds derived from the utilization and development of its resources¹³. This position papers stems from the fact that the power generating unit of the Pantabangan hydro-electric power plant is located in Nueva Ecija and not in Nueva Vizcaya although the water resources of Nueva Vizcaya have been tapped to augment the water in the Pantabangan dam.

No fire bonus – The suggested approach to sharing the cost of managing the watersheds is not to provide direct incentives. However, if there is a sustainable source direct incentive can often achieve desired results. A no fire bonus can be packaged as one of the approaches to compensating upland occupants for practicing sustainable

¹³ An Appeal: Nueva Vizcaya Must be a Host LGU. The Provincial Legal Officer and Staff, Nueva Vizcaya. November 8, 2001.

development in the watersheds. A community is compensated in terms of additional social services if in a year there is no incidence of forest fires in their area of responsibility. This approach could be included as one of the projects that the trust funds from the sales of electricity from the Magat hydroelectric power plant and the Casecan Multipurpose Irrigation and Power Plant. This approach will be pursued with the power generators during the implementation of the Project.

6.5.4 Mining Operations

Mining operations while not direct beneficiaries of watershed management are to the contrary causes of watershed destruction. This is more so in surface mining where accessing the mines entails the excavation of the surface of the forestland contrary to underground mining. It is only logical that mining operations should share in the cost of managing the watersheds particularly in the restoration of the watershed. While it is true that mining operators make environmental guarantee fund deposits to take care of any environmental impacts their operations might cause and to guarantee the restoration efforts of the mined areas, the upland occupants whose livelihoods that have been affected should be compensated in terms of improved social services.

Again representations will be made with the operators through the MGB, the LGUs for their participation in easing the impacts of their operations on the forest occupants.

Tables

Table 4.2.1(1) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (1/4)

	Constitution	PD 705	NIPAS Act (RA 7586)	IPRA Law (RA 8371)	CAR Law (RA 6657)
Policy	<p>1. Protect and advance the right to a balanced and healthful ecology in accord with the rhythm and harmony of nature</p> <p>2. Conservation and development of the country's patrimony</p>	<p>1. Protection, development and rehabilitation of forestlands to ensure continuity of productivity</p> <p>2. Multiple uses of forestlands oriented to development of the country, advance science and technology and the public welfare</p>	<p>1. Secure for present and future Filipinos perpetual existence of all native plants and animals through the establishment of a comprehensive system of integrated protected areas within the classification of national parks as provided by the Constitution</p>	<p>1. State recognizes and promotes the rights of ICCs/ Ips within the framework of national unity and development</p> <p>2. State shall protect the rights of ICCs/Ips to their ancestral domains to ensure their economic, social and cultural well being and recognize applicability of customary laws governing property rights</p>	<p>1. Utmost consideration for the welfare of the landless farmers and farm workers in the promotion of social justice</p> <p>2. More equitable distribution of and ownership of land with due regard to the rights of the land owners to just compensation</p>
Jurisdiction		Bureau of Forest Development (now FMB and DENR and its field offices)	DENR through the Protected Areas and Wildlife Bureau (PAWB), the DENR field offices	<p>1. National Commission on Indigenous Peoples (NCIP), NCIP Regional Offices</p> <p>2. Once an area is certified as within an ancestral domain NCIP Chairperson notifies any OGA claiming jurisdiction over area, such notification terminates legal basis for jurisdiction previously claimed</p> <p>3. NCIP have jurisdiction over all claims and disputes involving rights of ICCs/Ips</p>	Department of Agrarian Reform and its field offices

Table 4.2.1(2) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (2/4)

	Constitution	PD 705	NIPAS Act (RA 7586)	IPRA Law (RA 8371)	CAR Law (RA 6657)
Area coverage/ Components	All lands of the public domain, waters, mineral, coal, petroleum, and other mineral oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources belong by the State	1. All forestlands, grazing lands, and all forest reservations including watershed reservations presently administered by other government agencies	1. All areas proclaimed, designated or set aside as national parks, game refuges, bird and wildlife sanctuaries, wilderness areas, strict nature reserves, watersheds, mangrove reserves ... protected and managed landscape, virgin forests are designated as initial components of NIPAS 2. Buffer zone – Land tenure may be granted 3. Multiple use zone – Land tenure may be granted 4. Ancestral domain and other customary rights accorded to ICCs/lps	1. Ancestral domains and ancestral lands 2. Ancestral domains or portions thereof found necessary for critical watersheds, wildlife sanctuaries, wilderness, protected areas, forest cover, reforestation shall be maintained, managed and developed for such purposes	1. All public and private lands; 2. Alienable and disposable lands of public domain 3. All lands owned by government suitable for agriculture 4. All private lands suitable for agriculture regardless of crops raised 5. National parks, wildlife reserves, forest reserves, watersheds, sanctuaries are exempted from coverage 6. Ancestral domains/land are exempted from coverage
Land Classification	Four classifications: agricultural; forest or timber; mineral lands; and national parks	1. Forestlands and alienable and disposable lands (A & D) 2. No land of the public domain 18% in slope or over shall be classified as A & D nor 50% in slope or over as grazing land 3. Lands with 18% or over in slope that have been classified as A & D shall revert to forestland except when already titled, or approved application, or actually occupied for not less than 30 years 4. Areas below 18% in slope but needed for forestry purposes such as but not limited to national parks and proclaimed forest reserves, may not be classified as A & D land	1. Categories: strict nature reserves; natural parks; natural monuments; wildlife sanctuaries; protected landscape and seascapes; resource reserve; natural biotic areas; & others established by law 2. Zones: strict protection; sustainable use; restoration; habitat management; multiple use; buffer; cultural; recreational; special use; others		

Table 4.2.1(3) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (3/4)

	Constitution	PD 705	NIPAS Act (RA 7586)	IPRA Law (RA 8371)	CAR Law (RA 6657)
Utilization, exploitation, development	<p>1. State may directly undertake such activities or enter into co-production, joint venture or production sharing agreements;</p> <p>2. Allows small-scale utilization of natural resources by Filipino citizens</p>	<p>1. Mandates multiple-use forestry</p> <p>2. Critical watersheds, national parks and established experimental forests are closed to commercial logging or grazing</p> <p>3. Game refuge, bird sanctuaries, marine and seashore parks are closed to hunting or fishing or commercial use</p>	<p>1. Sustainable use zone – Collection and utilization of natural resources using traditional sustainable methods</p> <p>2. Multiple use zone – Agriculture, agro-forestry, extraction and other livelihood activities</p> <p>3. Buffer zone – Effectively multiple use zones</p>	<p>1. ICCs/Ips have the right to determine and decide priorities for development of their lands</p> <p>2. Have priority rights in harvesting, extraction, development and exploitation of any natural resources in their ancestral domain</p> <p>3. Can enter into contract with non-Ips to develop and utilize natural resources for 25 years renewable for another 25 years</p> <p>4. All agencies are enjoined not to issue permits without prior certification from NCIP that concerned area is not within ancestral domain</p> <p>5. Enjoined to preserve, restore and maintain ecological balance in ancestral domains</p> <p>6. ICCs/Ips shall prepare and adopt an Ancestral Domain Sustainable Development and Protection Plan (ADSDPP)</p>	
Tenure/ Instruments	Agreements shall not exceed 25 years renewable for another 25 years		*Although land tenure may be granted in the buffer zone and multiple use zones no duration was indicated	CADC/CALC and CADT/CALT	
Beneficiaries	All Filipino citizens			Indigenous cultural communities/indigenous peoples	Tiller of the land he does not own;

Table 4.2.1(4) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (4/4)

	Constitution	PD 705	NIPAS Act (RA 7586)	IPRA Law (RA 8371)	CAR Law (RA 6657)
Definition: 1. Watershed, 2. Watershed reservations, 3. Critical watershed		1. Watershed - Land area drained by a stream or fixed body of water and its tributaries having a common outlet for surface run-off 2. W. Reservation – Forestland established to protect or improve conditions of water yield or reduce sedimentation 3. Critical W. – Drainage area of a river system supporting existing and proposed hydroelectric power and irrigation works or existing water facilities needing immediate protection and rehabilitation			

Table 4.2.1(2) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (1/4)

	LGC (RA 7160), 1991	Mining Act (RA 7942), 1995	EO 263/DAO 96-29	DAO NO. 99-01	DOA 98-41
Policy	LGUs share with the national government the responsibility of managing and maintaining the ecological balance within their territorial jurisdiction, subject to the provisions of the Code and national policies	All mineral resources in public and private lands belong to the State. State is responsible for rational exploration, development, utilization and conservation of mineral resources to enhance national growth but effectively safeguarding the environment and protecting rights of affected communities	Community-based Forest Management (CBFM) shall be the national strategy to achieve sustainable forestry and social justice	Sustainable management of natural resources through the strategy for improved watershed resources management	Allow sustainable use in watershed reservation except those detrimental to the forest
Jurisdiction	Provincial and municipal governments	DENR, MGB and regional offices of the MGB	DENR and its field offices, FMB is the national coordinating office; CENRO shall be directly responsible for implementing CBFMP in coordination with LGUs, NGOs and other private entities	DENR and its field offices	

Table 4.2.1(2) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (2/4)

	LGC (RA 7160), 1991	Mining Act (RA 7942), 1995	EO 263/DAO 96-29	DAO NO. 99-01	DOA 98-41
Area coverage/ Components	<p>1. Areas devolved to LGUs such as ISF areas, completed family and community based contract reforestation projects, forestlands covered by FLMA, communal forest and community watershed</p> <p>2. Provincial government to enforce forestry laws, pollution control, small-scale mining, other laws on protection of environment</p> <p>3. Municipal government to implement community-based forestry projects, management and control of communal forests (<50 km²), establishment of tree parks, greenbelts and similar projects (CBFMP projects were devolved to province because municipalities cannot afford to continue projects).</p> <p>4. LGUs to adopt measures to safeguard and conserve forests, communal forests & watersheds, tree parks, greenbelts and similar development project.</p>	<p>1. Subject to any existing rights, reservations and prior agreements, all mineral resources in public and private lands, including timber or forestlands as defined by existing laws shall be open to mineral agreements or FTAA. Any conflict in this provision shall be heard and resolved by the panel of arbitrators</p> <p>2. Areas close to mining applications: military & other government reservations; near or under public or private buildings/infrastructures; areas covered by small-scale mining; old growth or virgin forests, and all areas expressly prohibited under NIPAS Law (RA 7586)</p> <p>3. No ancestral land shall be opened to mining operations without prior consent of ICCs/IPs.</p>	<p>1. All areas classified as forestlands including allowable zones within protected areas</p> <p>2. Certified ancestral domains or lands if concerned ICCs/IPs opt to participate</p>	All watersheds within the jurisdiction of DENR	Established watersheds provided it conforms with provisions of NIPAS Law

Table 4.2.1(2) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (3/4)

	LGC (RA 7160), 1991	Mining Act (RA 7942), 1995	EO 263/DAO 96-29	DAO NO. 99-01	DOA 98-41
Utilization, exploitation, development	Small-scale mining	<ol style="list-style-type: none"> 1. Contractor mandated to obtain an environmental clearance certificate. 2. Contractors/permittees shall technically and biologically rehabilitate excavated mined-out areas, tailings covered and disturbed areas to the condition of environmental safety. 3. A mine rehabilitation fund shall be deposited in a government bank for physical and social rehabilitation of areas and communities affected by mining activities 4. Failure to fulfill obligations mean immediate suspension or closure of mining activities 	<ol style="list-style-type: none"> 1. Participants can occupy, possess, utilize and develop the forestlands and its resources within the CBFMA area and claim ownership of introduced improvements 2. RUP allows Pos to utilizes forest resources specified in the permit. 3. PO's consent shall be secured by DENR prior to granting or renewal of licenses, permits, contracts or leases for extraction of natural resources within their area, provided that Pos share in the benefits 4. Pos may enter into contracts with private or government entities for development of CBFMA area 		
Tenure/ Instruments		<ol style="list-style-type: none"> 1. Exploration permit for 2 years subject to annual review, renewable 2. Mineral agreements are for 25 years renewable for another 25 years 	CBFMA, for 25 years renewable for another 25 years; CADC/T-CBFMA, 25 years renewable for another 25 years		CBFMA, 25 years renewable for another 25 years
Beneficiaries	Farmers/occupants of areas devolved to LGUs, downstream users of forests managed by LGUs	Mining agreement holder	Local communities and ICCs/ Ips if they opt to participate		Forest occupants within watershed reservations

Table 4.2.1(2) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (4/4)

	LGC (RA 7160), 1991	Mining Act (RA 7942), 1995	EO 263/DAO 96-29	DAO NO. 99-01	DOA 98-41
Definition: Watershed, Watershed reservations, Critical watershed		Critical Watershed refers to a drainage area of a river system, lake or reservoir supporting existing and proposed hydroelectric power, domestic water supply, geothermal power and irrigation works, which needs immediate rehabilitation and protection to minimize soil erosion and improve water yield and prevent possible flooding	Land drained by a stream or fixed body of water and its tributaries having a common outlet for surface run-off	As a topographic and hydrologic unit, watershed is an area of land from which rainwater can drain, as surface run-off, via a specific stream or river system to a common outlet point which may be a dam, irrigation system or municipal/urban water supply take off point or where the stream or river discharges into larger river, lake or sea	
Planning Framework				The watershed and ecosystems planning and management framework is adopted and all programs and projects including budgets are realigned in accordance with priority watersheds in the regions	

Table 4.2.1(3) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (1/3)

	DENR AO No. 2000-44 (CBFM in Protected Areas)	DAO No. 99-28/99-11 (CARP-CBFM)	DAO No. 96-24 (SIFMA)	DAO No. 99-53 (IFMA)	DAO 99-36 (FLGMA)
Policy	To allow sustainable use inside multiple-use and buffer zones, except any form of logging or timber cutting involving natural forest	Allocation of non-alienable lands suitable for agro-forestry through the implementation of Community Based Forest Management Program	To ensure equitable access and sharing of rights to natural resources development and utilization by providing opportunities to people to participate in forest plantation	Equitable distribution of opportunities, income and wealth, protection and advancement of the right of people to a balanced and healthful environment, promotion of industrialization and creation of employment	<ol style="list-style-type: none"> 1. Promote development, improvement and sustainable use of grazing land thru appropriate grazing management strategies and grassland improvement schemes 2. Promote ecologically sound, technically feasible, economically viable and socially acceptable technologies for sustainable development and management of grazing lands 3. Encourage private sector in the rehabilitation, improvement and sustainable use of grazing lands
Jurisdiction	DENR field offices, Protected Area Superintendent, approval of CBFMA by RED	DENR and regional offices, Special Concerns Office as National Action Office, and the CBFMO-FMB to monitor at national level for CBFM component	DENR and field offices	DENR and field offices	DENR and field offices

Table 4.2.1(3) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (2/3)

	DENR AO No. 2000-44 (CBFM in Protected Areas)	DAO No. 99-28/99-11 (CARP-CBFM)	DAO No. 96-24 (SIFMA)	DAO No. 99-53 (IFMA)	DAO 99-36 (FLGMA)
Area coverage/ Components	Subject to private rights, all areas designated as multiple-use and buffer zones of protected areas	<ol style="list-style-type: none"> Public A & D suitable for agriculture involving land transfer thru free patent, homestead and or sales patent Forestlands to qualified communities under CBFMP in accordance to DAO 96-29. 	<ol style="list-style-type: none"> All grasslands, brush lands and open & denuded forestlands & those within government reforestation projects not otherwise classified under NIPAS, nor subject to CADC/ CALC, or with pending application thereon, nor with vested rights, licenses, permits, agreements unless with prior express & written agreement by occupant Area granted is 1-10 ha for individual or family and >10 to 500 ha for associations or cooperatives 	<ol style="list-style-type: none"> Public domain under DENR such as cancelled FLGA or pasture permits, government reforestation projects, production residual natural forest, cancelled/expired TLAs (TLAs may be converted to IFMA) Not covered: NIPAS areas, CADC/CALC areas, areas with pending CADC/CALC applications Minimum area is 500 ha, maximum is 40,000 ha 	<ol style="list-style-type: none"> Forestlands sub-classified as grazing lands in contiguous area not less than 250 ha, at least 75% of area has slope <50%, dominant vegetation is grass, free from established private rights or claims, concessions or other permits, expired/cancelled TLAs suitable for grazing. Prohibited areas: Areas of active TLAs, protected areas, forestlands assigned to other agencies, CADC/CALC areas, areas with pending CADC/CALC applications Area limit: 50 – 500 ha for individuals; not more than 2,000 ha for corporations, associations or cooperative
Utilization, exploitation, development	<ol style="list-style-type: none"> POs may develop allocated areas within the multiple use and buffer zones and claim ownership of improvements All income and proceeds subject to sharing scheme agreed upon, part of which shall accrue to the Integrated Protected Area Fund 	Allows local communities management of and access to forest resources in accordance with provisions of DAO 96-29	<ol style="list-style-type: none"> All planted trees belong to SIFMA holder, has right to harvest, sell and utilize trees and crops except those retained for environmental protection; export logs, lumber and other forest products harvested from the SIFMA, exempted from forest charges, entitled to reasonable compensation in case of cancellation Government share in form of enhanced protection of the environment, accelerated re-vegetation of denuded areas 	<ol style="list-style-type: none"> All trees and crops planted belong to IFMA, such logs are exempt from forest charges; logs from planted trees or other products may be exported; logs from natural forest are non-exportable and subject to forest charges Profit sharing shall be negotiated taking into account cost factors 	<ol style="list-style-type: none"> A 25 year Management Plan and a 5-year operations plan shall be submitted by applicant Submission of an IEE and issuance of an ECC Profit sharing between Agreement holder and government Performance evaluation annually for 3 years and every 2 years thereafter
Tenure/ Instruments	CBFMA, 25 years renewable for another 25 years	CBFMA, 25 years renewable for another 25 years	SIFMA, 25 years renewable for another 25 years	IFMA, 25 years renewable for another 25 years	FLGMA, 25 years renewable for another 25 years

Table 4.2.1(3) Policies and Other Provisions of Some Pertinent Laws and Department Issuances on Watershed Management and CBFM Relevant to the Master Plan Study (3/3)

	DENR AO No. 2000-44 (CBFM in Protected Areas)	DAO No. 99-28/99-11 (CARP-CBFM)	DAO No. 96-24 (SIFMA)	DAO No. 99-53 (IFMA)	DAO 99-36 (FLGMA)
Beneficiaries	Qualified tenured migrant communities as defined under NIPAS Law who are organized	Communities who qualify also under DAO 96-29	Individuals, families who are Filipino citizens, legal age, preferably residents of the municipality, actual occupants of the area, government employees with permit from head of office, cooperatives and associations of Filipino citizens and residents of the province duly registered with SEC or CDA	Filipino citizen of legal age; or partnerships, cooperatives or corporation registered under Philippine laws	Filipino citizens, registered corporations, associations, or cooperatives with at least 60% of the capital owned by Filipino citizens

Laws, Rules and Regulations reviewed

1. The Philippine Constitution of 1987
2. Presidential Decree No. 705 otherwise known as the Forestry Reform Code, 1975
3. NIPAS Act, RA 7586. National Integrated Protected Area System, June 1, 1992
4. IPRA Law, RA 8371. Indigenous Peoples' Rights Act. 1997
5. Comprehensive Agrarian Reform Law, RA 6657, 1988
6. LGC, RA 7160. Local Government Code, 1991
7. Mining Act 7942. Philippine Mining Act. August 15, 1995
8. EO 293. Adopting Community-Based Forest Management as the National Strategy to Ensure the Sustainable Development of the Country's Forest Lands Resources and Providing Mechanisms for its Implementation, July 19, 1995
9. DAO No. 96-29 Rules and Regulations for the Implementation of EO No. 263, Otherwise Known as the Community-Based Forest Management Strategy (CBFMS)
10. DAO No. 99-01 Adoption of the Watershed and Ecosystems for Planning Framework, January 11, 1999
11. DAO No. 98-41 Guidelines on the Establishment and Management of Community-Based Forest Management (CBFM) Projects within Watershed Reservation, June 24, 1998
12. DAO No. 2000-44 Amending Certain Provisions of DAO 96-29 and Providing Specific Guidelines for the Establishment and Management of Community-based Projects Within Protected Areas, June 6, 2000
13. DAO No. 99-28 Amendment to Certain Provisions of DAO 12, Series of 1993 entitled "Revised Guidelines Regulating the Implementation and Management of DENR-CARP Activities", July 21, 1999
14. DAO No. 99-11 Amending DAO 98 Series of 1988 to Include CBFMP Under the Coverage of Program D of the Comprehensive Agrarian Reform Program (CARP) and the National Anti-Poverty Program, April 14, 1999
15. DAO No. 96-24 Rules and Regulations Governing the Socialized Industrial Forest Management Program, August 29, 1996
16. DAO No. 99-53 Rules Governing the Integrated Forest Management Program (IFMP), December 23, 1999
17. DAO No. 99-36 Revised Rules and Regulations Governing the Administration, Management, Development and Disposition of Forestlands Used for Grazing Purposes, August 10, 1999
18. DAO No. 99-36 Amending Certain Sections of DAO 99-36, March 03, 2000

Table 4.2.2 List of CADC Issued by DENR Region II and Ifugao and Turned Over to NCIP

CADC No.	Municipality	Province	Tribe	Date Issued	Area (ha)
R2CADC-002	Nagtipunan	Quirino	Bugkalot	14 Jun 94	108,360.00
R2CADC-020	Dupax del Norte	N. Vizcaya	Bugkalot	29 Jan 96	17,972.31
R2CADC-021	Kasibu	N. Vizcaya	Bugkalot	29 Jan 96	2,822.32
R2CADC-022	A. Castaneda	N. Vizcaya	Bugkalot	29 Jan 96	21,842.20
R2CADC-023	Dupax del Sur	N. Vizcaya	Bugkalot	29 Jan 96	31,112.96
R2CADC-053	Madella & Nagtipunan	Quirino	Agta	14 Jun 96	10,971.00
R2CADC-061	Palanan & San Mariano	Isabela	Agta	24 Sept96	28,376.00
R2CADC-118	Aritao & Sta Fe	N. Vizcaya	Kalanguya-Ikalahan	18 Mar 98	40,069.30
R2CADC-181	Maconacon	Isabela	Agta/ Dumagat	3 June 98	3,309.40
R2CADC-182	San Mariano	Isabela	Agta/ Dumagat	3 Jun 98	13,591.21
	Kiangan	Ifugao			20,419.00
	Tinoc	Ifugao			27,787.00

Source: FRDD, DENR Region II

Table 4.2.3 List of Mining Interests in the Study Area

Name of Company	Application Number	Date Filed	Area (ha)	Location	Mineral
A. FTAA					
1. Dalton Pacific Resources	R02-000006	Jan 27, '95	40,509	Conwap	Gold, copper
2. Dalton Pacific Resources	R02-000012	Jan 27, '95	36,064	Caraballo	Gold, copper
3. Socorro Mineral Exploration Corp	R02-000016	Oct 13, '95	47,606 ¹	Casiguran	Gold, copper
4. Arimco Mining Corp	R02-000001	Jan 20, '92	28,758	Malabing	Gold, copper
5. TVI-Miracle Mile Mining Corp	R02-000007	Jan 2, '94	86,634	N. Vizcaya	
6. Nelda Mineral Exploration Corp	R02-000015	Oct 13, '95	41,506	Dinajawan	
7. Batulao Mineral Corp	R02-000019	Jan 31, '96	4,940	Solano	
8. Eagle Cement Corp	R02-000020	Jan 31, '96	13,446		
9. Royal Cement & Mining Corp	R02-000021	Jan 31, '96	23,490	Echague	
B. MPSA					
1. Acacia Aqua-Culture Inhl. Inc	R02-000035	Dec 8, '94	7,904	Palasian	Limestone
2. Levitco Tuquero	R02-000056	Dec 11, '95	825	Caliat	Gold
3. Agos Mining Corp	R02-000079	Jan 8, '97	5,925	Solano	Gold, copper
4. Sagem Mining & Dev't Corp	R02-000082	Feb 26, '97	2,225	Monguia	Gold, copper
5. Deltec Corp	R02-000083	Apr 24, '97	8,327	Madella	Gold, copper
6. Golden Fields Mining & Realty Dev Corp	R02-000087	Jul 29, '97	6,432	Bantiwan	Limestone
7. Anton Natividad – Connaught	R02-0000__		741	Pao,	
8. Cabanglasan Mining Expl. Co.	R02-0000__		1,442	Kasibu	Gold, copper
9. Orophilippiine Ventures Inc.	R02-000015	Nov 6, '92	10,555	Cordon,	Gold
10. Vulcan Indus. & Mining Corp	R02-000021	May 13, '93	6,633	Diadi	
11. Anaconda Mining & Dev	R02-000049	Sept 1 '95	3,956		Gold, copper
12. Placer Mining & Indus. Corp	R02-000090	Sept 11 '97	1,319	Madella & Nagtipunan Madella	Gold, copper Gold, copper
C.EPA					
1. Sulong Mining & Dev Corp			864		
2. Occ. Pacific-Climax Mining			14,986		
3. Aberdeen Mining & Dev. Corp	R02-000001	Oct 5 '95	2,885	Aritao	Gold
4. Omni Mines Dev Corp	R02-000002	Oct 16 '95	15,652	Madella	Gold
5. Aurora Copper Gold Resources & Mgt Corp	R02-000003	Oct 26 '95	16,463	Echague	Gold
6. Maria Aurora Consolidated Mining Corp	R02-000004	Nov 13 '95	16,442	Madella	Gold
7. Diteki Mines Dev Corp	R02-000005	Nov 23 '95	16,451	Echague	Gold
8. Buena Suerte Mining Corp	R02-000006	Jan 26 '96	16,491	Kasibu	Gold
9. Marcopper Mining Corp	R02-000007	Jan 26 '96	5,029	NV & Qui	Gold
10. Dalton Pacific Resources Corp	R02-000008	Feb 26 '96	10,305	Kasibu	Gold, copper
11. Crimson Ridge-Climax Mining	R02-000010	Apr 18 '96	16,463	NVizcaya	Gold, copper
12. Red Gibber-Climax Mining	R02-000011	Apr 18 '96	16,556	NVizcaya	Gold, copper
13. Climax Australia-Phil, Inc. I	R02-000016	Sept 9 '96	9,384	NV & Qui	Gold, copper
14. Climax Arimco Mining Corp	R02-000017	Sept 11 '96	17,231	NV & Qui	Gold, copper
15. El Caras Mining Corp	R02-000023	Oct 4 '96		Diadi	Gold
16. Aurum Peak-Climax Mining Corp	R02-000026	Jan 7 '97	16,478	Aritao	Gold, copper
	R02-000028	Jan 7 '97	16,460		Gold, copper
17. Copper Fields Resource Corp	R02-000029	Jan 13, '97		NVizcaya	Gold, copper
18. Ancan Mgt Corp	R02-000031	Feb 20 '97	6,920	NVizcaya	Gold
19. St. Patrick Mining & Dev Corp	R02-000016	Sept 9 '96	16,841	Madella	Gold, copper
20. Climax Australia-Phil Inc. II	R02-000035	Apr 23, '97	7,288	NV & Qui	Gold
21. Chelsea Mining Corp	R02-000037	Apr 23, '97	13,619	Palanan	Gold, copper
22. Coolabah Mining Corp				Quirino	

¹A large part in Aurora Province
Source: DENR Region II

Table 4.2.4 List of Watersheds under the Jurisdiction of Other Government Agencies

National Irrigation Authority

1. Pantabangan Watershed Reservation
2. Magat Multipurpose Dam Projects

Philippine National Oil Company

1. Tongonan Geothermal Reservation
2. Palimpinon Geothermal Reservation
3. Bacon-Manito Geothermal Reservation

National Power Corporation

1. Ambuklao-Binga Watershed Forest Reserve
2. Lower Agno Watershed Reservation (part covered by the San Roque Multipurpose project)
3. Angat Watershed Reservation
4. Caliraya-Lumot Watershed Reservation
5. Makiling-Banahaw Geothermal Reservation
6. Buhi-Barit Watershed
7. Tiwi-Geothermal Reservation

Source: Formulation of a Watershed Management Strategy and Investment Program
Review of Policy and Legal Framework
July 1998
Working Paper No. 3
DANIDA-DENR

Table 4.3.1 List of some Certificate of Stewardship Contracts awarded inside CBFM areas

Name Peoples' Organization	Location	Number
1. Yaway Farmers Multipurpose Cooperative, Inc.	Yaway, Aritao, Nueva Vizcaya	58
2. Gadagad Vegetable and Fruit Tree Growers Association	Baliling, Sta. Fe, Nueva Vizcaya	34
3. Association of Upland Farmers of Singian, Nueva Vizcaya	Pogonsino, Bagabag, Nueva Vizcaya	21
4. Federation of Vista Hills Upland Farmers, Inc.	Buenavista, Bayombong, Nueva Vizcaya	177
5. Socio-economic and Environmental Development Group	Dagupan, Quezon, Nueva Vizcaya	25
6. Singian Agro-forest Association	Juao South, Bagabag, Nueva Vizcaya	62
7. Anak Intercultural Organization	Anak, Nagtipunan, Quirino	170
8. Villa Ventura Multipurpose Cooperative	Victoria, Aglipay, Quirino	170
9. Baguio Village Intercultural	Baguio Village, Diffun, Quirino	158
10. Rafael Palma Multipurpose Coop. Inc.	Rafael Palma, Diffun, Quirino	21
11. Gomez Farmers Multipurpose Coop. Inc.	Gomez, Cabarroguis, Quirino	211
12. Taleb Upland Farmers Multipurpose Coop. Inc.	Taleb, Dallao, Cordon, Isabela	72

Source: PENROs, DENR

Table 4.3.2 Summary of Occupancy and Tenure Instruments in Forestlands (1/2)

Tenure	Legal Basis	Available Areas	Description of Instrument	Qualified Participants	Implementing Agency/Office	Main Strategies
Community Based Forest Management Agreement (CBFMA)	EO 263 DAO 96-29 DAO 98-41 DAO 2000-44 MC 97-12 MC 98-08 MC 98-09	All forestlands including watersheds, multiple use and buffer zones within protected areas	Duration: 25 years renewable for another 25 years; Non-transferable, PO may enter into contract with third parties for development of area; Replaced the Community Certificate for Forest Stewardship (CCFS) under ISF, Community Forest Management Agreement (CFMA) and Forestland Management Agreement (FLMA)	Community or People's Organizations; Indigenous Peoples; Tenured migrants in (protected areas)	DENR (CENRO, PENRO, RED, CBFMO) with support from LGUs concerned	Community organizing, strengthening, LGU participation; community resource management planning; integration of all people-oriented programs; decentralization of decision making; deregulation of resource utilization
Certificate of Stewardship Contract	LOI 1260 DAO 91-04 DAO 96-29 DAO 98-45	Open and denuded forestland actually occupied or cultivated by forest occupants	Duration: 25 years renewable for another 25 years; max. area 5 ha per family. Can be sold, transferred, or conveyed. May be issued to actual occupants inside CBFM area upon recommendation of PO	Families actually occupying or cultivating forestlands	DENR/LGU ISF Projects were devolved to Provincial LGUs pursuant to DAO 30 S 1992. DENR still retains authority to issue CSC	Agro-forestry Community organizing (in some projects); Planting of trees in 20% of the ISF area, Technical assistance
Socialized Forest Management Agreement (SIFMA)	DAO 96-24	Denuded production forestlands identified and approved for SIFMA purposes	Duration: 25 years renewable for another 25 years; Areas for family=1-10 ha; for assoc/coop=10-500 ha. Can be sold, transferred or conveyed. Payment of application fees and annual rentals from sixth year	Family resident of municipality; association or cooperative whose members are resident of province where area is located	DENR (CENRO, PENRO, RED)	Encourage private investment in plantation development. Establishment of forest plantations 90% of area, 10% may be planted to agri-crops
Industrial Forest Management Agreement (IFMA)	DAO 99-53	Open and denuded forestlands and degraded residual forests; cancelled/expired FLGA, reforestation projects; cancelled or expired TLAs	Duration 25 years renewable for another 25 years. Can be sold, transferred or conveyed or exchanged subject to approval of DENR Secretary			

Table 4.3.2 Summary of Occupancy and Tenure Instruments in Forestlands (2/2)

Certificate of Ancestral Domain Title (CADT) and Certificate of Ancestral land Title (CALT)	RA 8371 NCIP AO No. 1 (1998) revoked DENR DAO 93-02	All lands belonging to indigenous peoples comprising lands, inland waters, coastal areas and natural resources therein	No duration: CADC/CALC issued by DENR will be converted to CADT/CALT	Indigenous peoples	NCIP	Recognition of ancestral lands or domains; formulation and implementation of Ancestral Domain Sustainable Development and Protection Plan; Indigenous Peoples Organization strengthening
Agro-forestry Land Management Agreement (ALMA); Tree Farm Lease Management Agreement (TFLMA), Community Agro-forestry Land Management Agreement (CALMA)	Memorandum of Agreement on the Lower Magat Forest Management Project between DENR and PLGU	Lower Magat watershed area within the municipalities of Diadi and Bagabag	Duration: 25 years renewable for another 25 years; tenure is subject to confirmation of DENR and the issuance of the regular tenure instruments of DENR	Residents of Diadi and Bagabag within the project area	DENR, RED, PENRO, CENRO, LGU, Prov.ENRO, LMFMO	Empower the residents of Lower Magat, development of a farm management plan, development of a comprehensive management plan for the project area by the LMFMO
Certificate of Tree Ownership (COT); Certificate of Usufruct (CU)	MOA between DENR R02 and Provincial Government of Nueva Vizcaya, Aug 7, 1999	Areas identified by DENR and the LGU in forstland; COT in areas where harvesting is permissible; also applicable in private lands; CU in protected areas	Duration: none specified COT or CU is accompanied by MOA signed by DENR LGU and participant. Duly registered with the Municipal Assessor's Office	Individual=max of 5 ha; associations and coops=5-10 ha; corporations=10 0 ha	DENR CENRO, PENRO, Provincial Government, Prov. ENRO	DENR-LGU Partnership; harvesting rights guaranteed; participation of all levels of local government

Table 4.4.1 Forest Products Production in Region II over the Last 5 years

	Round Logs, m³	Lumber m³	Rattan, unsplit (lm)	Rattan, split (kg)	Almaciga resins (kg)	Bamboo (pieces)
National						
2000	800,087	149,624	32,335,617	97,289	518,191	2,341,593
1999	730,170	288,317	15,551,924	47,799	297,830	1,038,710
1998	633,797	221,988	10,463,538	5,114	260,605	447,616
1997	555,917	350,634	19,519,185	1,906	310,474	198,607
1996	771,322	3,122,652	24,612,882	17,426	890,383	671,074
Region II						
2000	17,472	1,447	1,292,898			
1999	16,189	1,051	2,493,189	1,590	5,000	
1998	11,545	3,374	1,715,578		15,000	
1997	10,903	8,950	2,447,260		12,000	550
1996	8,602	2,072	4,281,842	15,000		
CAR						
2000						
1999			504,189			18,744
1998			64,470			4,325
1997						
1996	379					
Ifugao						
2000						
1999						365
1998						
1997						
1996						328
Isabela						
2000	17,282	1,429	43,000			
1999	16,007	1,051	241,790	1,590	5,000	
1998	11,545	3,374	792,600			
1997	4,528	8,950	2,065,760		12,000	550
1996	6,664	2,072	368,600	15,000		
N Vizcaya						
2000			125,800			
1999			87,000			
1998						
1997						
1996	50		187,000			
Quirino						
2000	190					
1999			183,850			
1998						
1997						
1996			615,343			

Source: The Philippine Forestry Statistics, FMB, DENR, 1999

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September 2, 2001

Table 4.4.2 List of CS Holders Given Harvesting Permits in Nueva Vizcaya

Name of CS-holder	CSC Number	Location	Harvesting Permit No.	Date Approved	Volume Approved M ³
1. Rodolfo Yoro	022411449	Calaocan, Quezon	025	June 5, 2000	6.18
2. Bobby Donato	022411447	Calaocan, Quezon	024	May 22, 2000	14.49
3. Genaro Omarito		Mandiangat, Quezon	019	March 6, 2000	1.27
4. Ruben Ducusin	022411262	Danubba, Quezon	021	June 13, 2000	8.40
5. Joaquin Cablinan	022414885	Ocapan, Villaverde	022	April 22, 2000	47.65
6. Rafael de la Cruz	02411006	Kinacao, Bagabag	026	July 14, 2000	21.35
7. Mariano Ancheto	02240611	-do-	013	June 19, 2000	9.52
8. Christina Marcos	11-2413199	-do-	023	May 4, 2000	6.13
9. Ernesto Divina	520585	Bintauan, Villaverde	028	October 2, 2000	20.34
10. Joseph Dulman, Jr.	022406929	Ampakleng, Diadi	029	October 17, 2000	64.99
11. Olpiano Reyes	022405188	-do-	030	Nov. 7, 2000	23.30
12. Severino Galasinao	022411937	-do-	031	Jan. 25, 2001	10.93
13. Marcela Valdez	022414979	-do-	032	March 13, 2001	24.26
14. Macario Carbonel	11-2413160	-do-	033	May 7, 2001	7.25
15. Julie Corpuz	022406923	-do-	034	June 13, 2001	47.30
16. Catalina Pascua	022414978	-do-	035	June 19, 2001	41.16
17. Fidel Duka	022411285	-do-	036	July 18, 2001	70.03
18. Editha Biag	11-2413269	-do-	037	July 18, 2001	15.73
19. Joseph Dalnuan, Jr	022414890	-do-	038	August 9, 2001	11.91
20. Joaquin Cablinan	022414885	Ocapan, Villaverde	039	Sept. 12, 2001	22.57

Source: PENRO, Nueva Vizcaya

Table 4.5.1 Relevant Functions of DENR and its Organic Offices and the Provincial Environment and Natural Resources Office (PENRO) (1/3)

Offices/Bureaus	Powers/Functions	Issuances
DENR	<ol style="list-style-type: none"> 1. Formulate, implement, and supervise the government’s policies, plans and programs pertaining to management, conservation, development, use and replenishment of natural resources 2. Promulgate rules and regulations in accordance with law governing exploration, development, conservation, extraction, disposition, use and other commercial activities causing the depletion and degradation of natural resources 3. Exercise supervision and control over forestlands, alienable and disposable lands, and mineral resources, and impose appropriate fees, charges, rentals and collect such revenues 4. Establish policies and implement programs for <ol style="list-style-type: none"> 4a. the preservation of cultural and natural heritage through wildlife conservation and segregation of national parks and other protected areas 4b. greater people participation and initiative in natural resources management 5. Promulgate rules and regulations necessary <ol style="list-style-type: none"> 5a. to harness forest resources in a sustainable manner to assist rural development, and support forest-based industries ... 5b. on the issuance of co-production, joint venture or production sharing agreements, licenses, permits, leases, concessions 5c. for the conservation of the country’s genetic resources and biological diversity and endangered habitat 	EO 192, 1987
Regional Offices	<ol style="list-style-type: none"> 1. Implement laws, policies, rules, regulations, plans, programs and projects to promote the sustainability and productivity of natural resources, social equity in natural resource utilization and environmental protection 2. Provide efficient and effective delivery of services 3. Recommend and upon approval implement programs and projects on forestry, minerals, and land management 4. Evolve regional budget 5. Supervise the processing of natural resources products and monitor the movement of said products 6. Conduct field research for appropriate technologies recommended for various projects <ol style="list-style-type: none"> 1. Supervise all activities of the PENRO in his jurisdiction 2. Monitor all foreign-assisted and special projects 	EO 192, 1987 DAO No. 1, Series of 1988
PENRO	<ol style="list-style-type: none"> 1. Absorb the functions of the District Offices of bureaus which are abolished <ol style="list-style-type: none"> 1. Plans, coordinates, controls and update plans for the protection of the environment, development and conservation of natural resources 2. Coordinate environmental and natural resources management activities in the province 3. Enforce environment and natural resources laws, rules and regulations 4. Investigate and recommend action to resolve claims and conflicts involving natural resources 5. Supervise activities of holders of permits, leases, and licenses 6. Evaluate performance of personnel in providing administrative and financial support to CENROs 	EO 192, 1987 DAO No. 1, Series of 1988
CENRO	<ol style="list-style-type: none"> 1. Absorb corresponding functions of District Offices of bureau which are abolished 	EO 192, 1987

Table 4.5.1 Relevant Functions of DENR and its Organic Offices and the Provincial Environment and Natural Resources Office (PENRO) (2/3)

Offices/Bureaus	Powers/Functions	Issuances
	<ol style="list-style-type: none"> 1. Undertake and implement projects for the development and conservation of natural resources at the community level 2. Implement laws, rules and regulation for the protection of the environment and conservation of natural resources 3. Maintain up-to-date data on environmental and natural resources conditions 4. Conduct surveys of areas covered by applications for lease and permits 5. Collect and account fees 6. File in court criminal cases against violators of environment and natural resources laws 7. Initiate the settlement of conflicts between or among users of natural resources 	DAO 1, Series of 1988
Forest Management Bureau (FMB)	<ol style="list-style-type: none"> 1. Recommend policies and programs for the effective protection, development, occupancy, management and conservation of forestlands and watersheds including grazing and mangrove areas, reforestation and rehabilitation of critically denuded forest reservations ... 2. Advise regional offices in the implementation of above policies and/or programs 3. Develop plans, programs, operating standards and administrative measures to promote the Bureaus objectives and functions 4. Assist in the monitoring and evaluation of forestry and watershed development projects to ensure efficiency and effectiveness 5. Undertake studies on the economics of forestry and forest-based industries, including supply and demand trends on the local, national and international levels, identifying investment problems and opportunities 	EO 192, 1987; DAO 1, Series of 1988
Ecosystems Research and Development Bureau (ERDB)	<ol style="list-style-type: none"> 1. Formulate and recommend an integrated research program relating to Philippine ecosystems and natural resources such as minerals, lands, forests as holistic and inter-disciplinary fields of inquiry 2. Assist the Secretary in determining a system of priorities for the allocation of resources to various technological research programs of the department 3. Provide technical assistance in the implementation and monitoring of aforementioned research program 4. Generate technologies and provide scientific assistance in the research and development of technologies relevant to the sustainable uses of Philippine ecosystems and natural resources 5. Assist the Secretary in the evaluation of the effectiveness of the implementation of the integrated research program 	EO 192, 1987; DAO No. 1, Series of 1988
Protected Areas and Wildlife Bureau (PAWB)	<ol style="list-style-type: none"> 1. Formulate and recommend policies, guidelines, rules and regulations for the establishment and management of Integrated Protected Areas Systems (IPAS) such as national parks, wildlife sanctuaries and refuge, marine parks and biosphere reserves 2. Formulate and recommend policies, guidelines, rules and regulations for the preservation of biological diversity, genetic resources, the endangered Philippine flora and fauna 3. Prepare up-to-date listing of endangered Philippine flora and fauna and recommend a program of conservation and propagation of the same 4. Assist the Secretary in the monitoring and assessment of the management of the IPAS and provide technical assistance to the regional offices in the implementation of programs for these areas 	EO 192, 1987; DAO No. 1, Series of 1988

Table 4.5.1 Relevant Functions of DENR and its Organic Offices and the Provincial Environment and Natural Resources Office (PENRO) (3/3)

Offices/Bureaus	Powers/Functions	Issuances
Mines and Geosciences Bureau (MGB)	<ol style="list-style-type: none"> 1. Recommend policies, regulations and programs pertaining to mineral resources development and geology 2. Advise the Secretary on the granting of mining rights and contracts over areas containing metallic and non-metallic mineral resources 3. Assist in the monitoring and evaluation of the Bureau's programs and projects to ensure efficiency and effectiveness thereof 4. Develop and promulgate standards and operating procedures on mineral resources development and geology 5. Supervise and control development and packaging of nationally applicable technologies on geological survey, mineral resource assessment, mining and metallurgy, the provision of geological metallurgical, chemical and rock mechanics laboratory service 	EO 192, 1987; DAO No. 1, Series of 1988 and RA 7942
Local Government Unit (LGU) PENRO	<ol style="list-style-type: none"> 1. Transformation of forest-based communities to become self-reliant through a sustainable system of production geared towards ecological stability 2. Conservation, utilization and development of natural resources and the restoration/rehabilitation of denuded watershed and forest areas 3. Development enforcement of environmental laws, rules and regulations devolved to the province 	Prov. ENRO

Sources: Executive Order 192, 1987. Providing for the Reorganization of the Department of Environment, Energy and Natural Resources, Renaming it as the Department of Environment and Natural Resources, and for other purposes
DENR Administrative Order No. 1, Series of 1988. Implementing Guidelines for the Reorganization of the Department of Environment and Natural Resources Pursuant to Executive Order No. 192
DENR AO No. 99-51, 1999. Prescribing a Detailed Definition of Functions for the Realigned Regional Divisions
Provincial Environment and Natural Resources Office, Bayombong, Nueva Vizcaya

Table 4.6.1 Organization for Implementation of National Programs and Projects (1/3)

Program/Project	National Level	FMB/PAWB/OTHERS	RED	PENRO	CENRO
CBFMP (DAO 96-29); (MC 97-11)	Steering Committee 1. Provide overall guidance & direction 2. Review & approve action plan 3. Secure inter-agency support 4. Identify and source funds	FMB National Coordinating Office 1. Review all people oriented forestry and CBFM programs, identify issues learned 2. Draft policies, guidelines and procedures 3. Monitor implementation of national CBFM program of action 4. Prepare proposals for donor funding 5. Maintain MIS for program 6. Secretariat to Steering Committee	1. Responsible for effective implementation of program in the region 2. Organize an office under FMS to coordinate implementation at the region 3. Submit to Secretary thru the USec for Operations periodic reports on program implementation, copy furnish FMB and PAWB 4. Submit monitoring and evaluation reports, copy furnish FMB and PAWB 5. Organize a CBFM Team at the CENRO level to monitor, and support field implementation	1. Responsible for effective implementation of program in the province 2. Submit periodic reports on program implementation 3. Maintain a data base on the program at provincial level	1. Directly responsible for implementation of program in coordination with LGUs, OGAs, NGOs and private entities [<i>Responsible for all the implementation of the 4 stages of CBFM program</i>] 2. Head a CBFM Team to undertake, monitor and support field implementation Note: The CBFM Team is no longer functional 3. Submit periodic reports of program implementation to the PENRO for evaluation
DENR-CARP CBFM Program (DAO 99-28); (DAO 99-11)	Executive Committee 1. Assumes all functions as stipulated in DAO 12 S1993	DENR Special Concerns Office as National Action Officer 1. Assumes functions of the National Action Officer under DAO 12 S1993, the Head of the National Secretariat and the TWG under DAO 12 S1993 Sectoral Coordinators 7 Sectoral Coordinators, for lands, CBFMP, research, public information & education, HRMS, special concerns and finance National Secretariat 1. Maintain duties as indicated under DAO 12 S1993 CBFMO at FMB 1. Monitor the program	Regional Action Officer The ARED for Operations is the Regional Action Officer, Head of the Regional Secretariat and Chairman of the Regional Technical Committee; 1. Assumes tasks and functions indicated in DAO 12 S1993 Regional Coordinators The AREDs for Operations, Technical Services and Legal Services and Public Affairs are the Regional Coordinators 1. Supervise CARP implementation 2. Prepare budget proposals 3. Administer CARP funds 4. Assist Regional Action Officer Regional Technical Comm. Composed of Regional CARP Coordinators with ARED as Head 1. Recommend policies, rules, guidelines & regulations 2. Review regional budget proposals and operational plans	PENRO is Provincial Executive Officer Senior Land Management Officer (SLMO) is Provincial Action Officer	CENRO is Community Executive Officer Senior Land Management Officer (SLMO) is Community Action Officer

Table 4.6.1 Organization for Implementation of National Programs and Projects (2/3)

Program/Project	National Level	FMB/PAWB/OTHERS	RED	PENRO	CENRO
Socialized Industrial Forest Management Program (SIFMA, DAO 24, S1996)		FMB is National Coordinating Office 1. Develop, formulate and recommend policies, rules and regulations on program implementation 2. Review and evaluate potential SIFMA sites and submit to Secretary for approval 3. Evaluate program implementation, provide periodic reports to DENR Senior Management 4. Establish linkages 5. Keep files and updated information	1. Responsible for effective implementation of program 2. Approve SIFMA applications, issue cancellation and approve transfers for 10 to 500 ha. 3. FRDD shall act as regional repository of data and information 4. Submit periodic reports to Secretary thru FMB including monitoring & evaluation	1. Responsible for effective implementation in the province 2. Approve application, issue cancellations and approve transfers up to 10 ha 3. Evaluate periodic reports submitted by CENRO and forward findings and recommendations to RED 4. Maintain data base for SIFMA in the province	1. Directly responsible for implementing the program in its jurisdiction in coordination with government and non-government units 2. Site identification and process applications 3. Monitor and evaluate program implementation 4. Submit periodic reports to PENRO for evaluation
Integrated Forest Management Program (IFMP, DAO 99-53)		FMB is National Program Coordinating Office 1. Formulate policies, rules & regulations 2. Establish linkages with government & non-government agencies 3. Monitor program and assists Secretary supervise the program 4. Provide Secretary with periodic reports 5. Keep updated files of all IFMAs issued.	1. Assisted by ARED concerned is responsible for effective implementation of program 2. Keep records of IFMAs within its jurisdiction 3. Submit to Secretary thru FMB periodic reports on accomplishments, issues and problems with recommendations	1. Responsible for effective implementation of the program in the province 2. Maintain date base on all IFMAs in the province	1. Directly responsible for effective implementation of program in the community 2. Maintain data base of all IFMAs in its jurisdiction 3. Periodic monitoring and evaluation of IFMA holder's accomplishments for submission to DENR authority

Table 4.6.1 Organization for Implementation of National Programs and Projects (3/3)

Program/Project	National Level	FMB/PAWB/OTHERS	RED	PENRO	CENRO
Forestland Grazing Management Program (FLGMP, DAO 99-36)		<ol style="list-style-type: none"> 1. FMB formulates policies relative to grazing management 2. With ERDB and other units, check validity of assessment and classification of grazing areas 3. With ERDB and EMB draw guidelines in preparation of 25 year management plan and 5-year operating plan 	<ol style="list-style-type: none"> 1. Organize a team to assess grazing areas in the region 2. Chair committee to evaluate management plan and submit to Secretary its recommendations 3. Approve 5-year operational plan 4. Review grazing reports and submit recommendations to Secretary copy-furnish FMB 5. Issue interim grazing privilege 6. Form Special Response Committee to resolve boundary disputes 	<ol style="list-style-type: none"> 1. Member of management plan evaluation committee 2. Review and submit to RED recommendation on 5-year operational plan 3. Review grazing report and submit recommendations to RED 	<ol style="list-style-type: none"> 1. Member of management plan evaluation committee 2. Review and submit to PENRO recommendation on 5-year operational plan 3. Review grazing report and submit recommendations to PENRO

**Table 4.6.2 Existing Personnel of Region II Office, PENROs and CENROs
(including Ifugao)**

Office	No. of Regular Positions	No. of Filled Positions	Casuals and Contractuals	Total Personnel	Percentage of Total
Regional Office, RII	533	501	89	590	46.3
PENRO N. Vizcaya	21	20	0	20	
Aritao	59	55	4	59	
Bayombong	48	44	0	44	
Dupax del Norte	62	56	0	56	
Total				179	14.0
PENRO Isabela	29	25	3	28	
Cabagan	57	54	2	56	
Ilagan	96	87	2	89	
Cauayan	48	46	2	48	
San Isidro	69	68	2	70	
Palanan	48	44	2	46	
Roxas	25	25	2	27	
Total				364	28.6
PENRO Quirino	17	15	2	17	
Diffun	55	54	4	58	
Nagtipunan	75	67	0	67	
Total				142	11.1
Total for Region II				1,275	
PENRO Ifugao		26		26	
Lamut		54		54	
Alfonso Lista		49		49	
Total				129	

Source: ARED for Administration, RII (as of March 31, 2001)

Table 4.6.3 Distribution of DENR Personnel by Sector for Nueva Vizcaya and Quirino

Grade	GASS	STO	FMS	LMS	PAWS	ERDS	EMS	TOTAL	%
NVizcaya									
1-10	10	0	39	1	0	0	0	50	54.9
11-24	4	1	25	7	1	0	2	40	44.0
25 Up	1	0	0	0	0	0	0	1	1.1
Total	15	1	64	8	1	0	2	91	
%	16.5	1.1	70.3	8.8	1.1	0	2.2		
Aritao									
1-10	5	0	33	0	0	0	0	38	73.1
11-24	1	0	10	2	0	0	1	14	26.9
25 Up	0	0	0	0	0	0	0	0	0
Total	6	0	43	2	0	0	1	52	
%	11.6	0	82.7	3.8	0	0	1.9		
Dupax									
1-10	6	0	13		0	0	0	21	67.7
11-24	1	0	8	2	0	0	1	10	32.3
25 Up	0	0	0	0	0	0	0	0	
Total	7	0	21	2	0	0	1	31	
%	22.6	0	67.7	6.5	0	0	3.2		
Quirino¹									
1-10	5	0	2	0	0	0	0	7	41.2
11-24	3	0	4	1	0	0	1	9	52.9
25 Up	1	0	0	0	0	0	0	1	5.9
Total	9	0	6	1	0	0	1	17	
%	52.9	0	35.3	5.9	0	0	5.9		
Aglipay									
1-10	4	0	30	2	0	0	0	36	67.9
11-24	2	0	11	3	0	0	1	17	32.1
25 Up	0	0	0	0	0	0	0	0	
Total	6	0	41	5	0	0	1	53	
%	11.3	0	77.4	9.4	0	0	1.9		
Nagtipunan									
1-10	4	0	53	2	0	0	0	59	77.6
11-24	2	0	11	3	0	1	0	17	22.4
25 Up	0	0	0	0	0	0	0	0	
Total	6	0	64	5	0	1	0	76	
%	7.9	0	84.2	6.6	0	1.3	0		

¹ Manpower complement of Quirino as of November 7, 2000

Source: PENRO, Nueva Vizcaya and Quirino

Table 4.6.4 Number of Personnel in CBFM Units at the PENROs and CENROs in the Master Plan Study area

Offices	CBFM Unit	Projects Supervised ¹
PENRO N. Vizcaya	1 (Unit Chief)	6
CENRO Aritao	4 (Unit Chief & 3 PMOs)	4
CENRO Dupax d. N.	1 (Unit Chief)	5
PENRO Quirino	1 (Unit Chief)	3
CENRO Aglipay	3 (Unit Chief & 2 PMOs)	4
CENRO Nagtipunan	2 (Unit Chief & 1 PMO)	1
PENRO Isabela	4 (Unit Chief & 3 PMOs)	1
CENRO Cauayan	6 (Unit Chief, 2 PMOs, 2 technical & 1 non-technical personnel)	1 ³
CENRO San Isidro	4 (Unit Chief, 2 PMOs, 1 Desk Officer)	4 ²
PENRO Ifugao	0 ³	
CENRO Lamut	1 (Unit Chief)	3
CENRO A. Lista	1 (Unit Chief)	3

¹ Do not include CBFM projects with foreign funding

² CBFM projects within Master Plan Study area

³ Forest Management Specialist takes care of duties of CBFM Unit Chief

PMO = Project Management Officers

Source: PENROs / CENROs, DENR

Table 4.6.5 Organization for Project Implementation of the JBIC component of the Forestry Sector Project (the SUSIMO)

	Subproject Management Officer	Unit Heads	PO Counterpart Personnel	CENRO	PENRO	AREDO	Focal Person Regional Office	RED	NFDO
Functions	<ol style="list-style-type: none"> 1. Ensure effective implementation & management of subproject 2. Coordinate, supervise & monitor subproject activities 3. Provide technical assistance to PO 4. Validate PO accomplishment 5. Manage utilization of funds 6. Prepare and submit monthly accomplishment report 	<p>A. Community Organizing & Strengthening Unit (COSU) Assess training needs, establish linkages, resolve conflicts, provide technical assistance, conduct periodic assessment</p> <p>B. Site Dev. & Mgt. Unit (SDMU) Assist & supervise site development, preparation of CRMF, AWP, RUP, task plans; identify areas for development; prepare plans for plantation dev. & maintenance; resolution of conflicts; document plantation performance; lead in formulating training; others</p> <p>C. Validation and Billing Unit Train PO in financial mgt.; validate PO & AO accomplishments; assist prepare billing request; monitor subproject fund status, & utilization</p> <p>D. Administrative Support Services Assist SMO administer office; provide secretarial services; monitor use of funds; update and manage records</p>	<ol style="list-style-type: none"> 1. Lead in the implementation of subproject 2. Consult & request SUSIMO for technical assistance; participate in training; conduct guided seminar to disseminate knowledge learned 	<ol style="list-style-type: none"> 1. Recommend personnel for secondment 2. Provide admin. support 3. Ensure speedy processing of doc. 4. Evaluate and endorse docs. 5. Provide additional technical support 6. Conduct inspection of personnel and accomplishments 7. Compile & synthesize accomplishments reports 	<ol style="list-style-type: none"> 1. Recommend personnel for secondment 2. Provide admin. support to CENRO 3. Ensure speedy processing of documents 4. Conduct inspection of SUSIMO, PO and accomplishments 5. Compile and synthesize accomplishment reports 	<ol style="list-style-type: none"> 1. Coordinate with RED pertaining to subproject 2. Countersign documents 3. Prepare related reports 4. Set up records of subproject 5. Instruct FSP focal person to provide assistance to subproject 	<ol style="list-style-type: none"> 1. Review billings 2. Prepare vouchers and other documents for ARED signature 3. Monitor fund status & utilization 4. Assist ARED set-up records 5. Consolidate accomplishments & progress reports 6. Assist SUSIMO, AP, AO and PO in following up payments 	<ol style="list-style-type: none"> 1. Provide overall direction to SUSIMO 2. Recommend personnel to NFDO for secondment 3. Provide full support to lower level offices 4. Evaluate and select APs 5. Process billings 6. Evaluate and endorse docs 7. Conduct inspection of SUSIMO, POs and plantations 8. Compile and synthesize accomplishment reports 	<ol style="list-style-type: none"> 1. Formulate and facilitate approval of policies 2. Disseminate approved policies 3. Evaluate credentials of APs 4. Coordinate with RED, PENRO, CENRO, & SUSIMO 5. Train SUSIMO personnel 6. Consolidate reports 7. Conduct annual planning and programming of subprojects 8. Monitor status and utilization of funds 9. Document FSP's progress, accomplishment, research results and lessons learned

Source: DAO No. 2000-65 Guidelines Governing the Creation of Subproject Site Management Office and its Institutionalization in the Forestry Sector Project Implementation

Table 4.6.6 Organization for Implementation of the Lower Magat Forest Management Project

	Steering Committee	Lower Magat Forest Management Office (LMFMO)	Task Forces
Composition/ Personnel	<ol style="list-style-type: none"> 1. Nueva Vizcaya Governor, Chairman 2. DENR RED, Vice Chairman 3. N. V. Provincial ENRO 4. Mayors of Diadi & Bagabag 5. Rep, local Chamber of Commerce 6. Rep, coalition of NGOs 	<p>Project Manager Project Coordinator 2 each for 3 Task Forces 2 other personnel Total of 10 personnel <i>3 from PENRO</i> <i>4 from ENRO</i> <i>1 from Agriculture of province,</i> <i>1 each from Diadi and Bagabag</i></p>	<ol style="list-style-type: none"> 1. Community Organizing, Research & Extension (CORE) Task Force (2 personnel) 2. Conflict Management Task Force (2 persons) 3. Land Use Validation Task Force (2 persons)
Functions	<ol style="list-style-type: none"> 1. Formulate, modify, review policies 2. Review and approve investment proposals 3. Review and approve annual work plans and oversee implementation of Indicative Plan of participant 3. Review and sign sub-agreements or MOAs with participants 4. Review and sign joint venture contracts with investors 5. Recommend to Chair the appointment and termination of PM 	<ol style="list-style-type: none"> 1. Authority, responsibility & accountability of protecting area 2. Lead, direct, coordinate the planning, implementation and monitoring of work plans 3. Endorse to DENR thru SC issuance of tenure instruments 4. Train, deploy and support its staff in providing on-site assistance to communities 5. Ensure maximum participation of communities 6. Organize, train, deploy a team to monitor impacts 7. Enforce forestry laws 8. Prepare AWP, financial reports, budgets, etc. 9. Develop and implement financial mgt. System 10. Explore institutional arrangements with gov't & other organizations 	<p>1. CORE</p> <ol style="list-style-type: none"> 1.1 Awareness campaign 1.2 Consensus building, community mapping 1.3 Technical/managerial assistance 1.4 Monitor & evaluate farms based on management plan <p>2. Conflict Management</p> <ol style="list-style-type: none"> 2.1 Definition of issues, conflicting claims 2.2 Analysis of situation based on maps 2.3 Consultation with parties involved in conflict <p>3. Land Use Validation</p> <ol style="list-style-type: none"> 3.1 Conduct survey of area applied for 3.2 Determine land uses, production & protection zones 3. Recommend type of tenure instrument to be awarded to farmer

Source: Lower Magat Forest Management Project Office

Table 4.7.1 Monitoring and Evaluation Systems for Regular and Special Projects (1/3)

Offices/organizations Involved	DAO 99-38 SOP for Performance Monitoring	CBFMP (DAO 96-29)	DENR-CARP (DAO 99-28)	SIFMA (DAO 24 S1996)	FLGMA (DAO 99-36)	FSP (MC No. 2001-04)
People's Organization	Report monthly accomplishments to CENRO using Form O3			Member of team with LGU & CENRO with latter as team leader, regularly monitor and evaluate progress of SIFMA		1. Provides information to NGO conducting monitoring and evaluation 2. Helps assess results of evaluation, feedback NGO on results
LGU						1. Helps assess results of evaluation, feedback NGO on results
NGO				Member of team with NGO & CENRO with latter as team leader, regularly monitor and evaluate progress of SIFMA		1. Contract with Project to undertake physical validation of accomplishments, or the institutional and benefit monitoring 2. Physical validation is done 1 year after planting & at 6 months interval 3. Validation & final reports to be completed 4 months before completion of project 4. Presents results of monitoring and evaluation to PO, SUSIMO, CENRO, PENRO, Regional Office, & LGU
Operating/Implementing Unit; Project Managers	Measurement and report monthly actual performance, submit to CENRO prior to 25 th of month					
CENRO	Consolidate reports of field implementers and managers, submit to PENRO prior to 27 th day of month	Submit periodic report to PENRO for evaluation		1. Heads team with LGU & NGO monitor and evaluate progress of FLGMA 2. Submit periodic reports to PENRO for evaluation		1. Helps review evaluation, feedback NGO on results
PENRO	Prepares own report of accomplishment, submit to RED with the CENRO report prior to 30 th of month	Submit periodic reports and maintain database for all CBFMP projects in the province		1. Analyze and consolidate report and submit to RED with findings & recommendations 2. Maintain database for all SIFMAs within province		1. Helps review evaluation, feedback NGO on results

Table 4.7.1 Monitoring and Evaluation Systems for Regular and Special Projects (2/3)

Offices/organizations Involved	DAO 99-38 SOP for Performance Monitoring	CBFMP (DAO 96-29)	DENR-CARP (DAO 99-28)	SIFMA (DAO 24 S1996)	FLGMA (DAO 99-36)	FSP (MC No. 2001-04)
RED (Regional Coordinators for DENR-CARP)	Consolidates reports and submit to Planning and Policy Studies Office (PPSO), DENR not later than 10 th of following month. Also forms validation team for quarterly inspection and validation of accomplishments	1. Identify division as repository for data and information 2. Submit periodic report to Secretary thru Usec for Operations including monitoring & evaluation, copy furnished FMB & PAWB	1. Responsible for monitoring of all CARP related projects. 2. Submit on specified forms all data required to CBFMO-FMB. 3. Submit to RED physical accomplishment and fund utilization 4. Establish database, data coming from Provincial Coordinators 5. Regional Secretariat submits consolidated reports to the National Secretariat based on data submitted by PENROs 6. AREDs monitor Agrarian Reform Fund	1. Submit periodic report to Secretary through the FMB 2. FRDD is the repository of data and information of SIFMA in region	1. Create a team to conduct evaluation of FLGMA, yearly for new agreements and every 2 years thereafter 2. Furnish copy of evaluation report to Secretary through the FMB	1. Approves starts of validation of plantation; notifies NGO to adjust schedule if there is delay in plantation development 2. Helps review evaluation, feedback NGO on results
FMB	Sector Bureau and line Bureaus submit individual accomplishment reports to PPSO not later than 10 th of ensuing month	1. Prepare and monitor implementation of national CBFM program of action 2. Develop and maintain improved MIS on CBFMP	1. CBFMO-FMB monitors program at national level 2. Establish database from reports submitted by Regional CARP Coordinators 3. Consolidate sector reports and submit to National Secretariat	1. Prepare simplified format to be accomplished by CENRO 2. Register all SIFMAs issued 3. Prepare and submit regular consolidated report to Secretary	1. Analyze evaluation and report to Secretary results of analysis	
NFDO						1. Process and recommends approval of NGO contracts 2. Along with SUSIMO review evaluation results
PPSO	Consolidate and analyze reports, submit to Secretary not later than 15 th of following month, furnish sector and line bureaus copy of report. Coordinate validation of reports of accomplishments; validation done during 1 st quarter of the ensuing year					

Table 4.7.1 Monitoring and Evaluation Systems for Regular and Special Projects (3/3)

Offices/organizations Involved	DAO 99-38 SOP for Performance Monitoring	CBFMP (DAO 96-29)	DENR-CARP (DAO 99-28)	SIFMA (DAO 24 S1996)	FLGMA (DAO 99-36)	FSP (MC No. 2001-04)
Secretary	Creates validation team for annual general inspection. Membership comes from regions other than the one whose performance is validated					

Source: The indicated issuances of DENR

Table 4.7.2 DENR Form 03 for Monitoring of Physical Accomplishments

PHYSICAL ACCOMPLISHMENT REPORT
 DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
 FOR THE MONTH OF _____

REGION: 02
 UNIT: CBFM

PENRO: NUEVA VIZCAYA
 SECTOR: FRDS

CODE	FUNCTION/PROJECT/ACTIVITY	PERFORMANCE INDICATOR	UWM	FUND SOURCE	TARGET TO DATE	ACCOMPLISHMENT THIS MONTH	ACCOMPLISHMENT TO DATE
1	Setting up network information monitoring and decision support data base system	- system upgraded	No.	Regular	1	-	1
2	Conversion of other tenurial instruments issued into CBFM	- tenure instrument into CBFM	No.	-do-	1	1	2
3	Monitoring and evaluation of FSMS/CBFMS	- reports submitted	No.	-do-	1	-	1
4	Inventory of standing timber within CBFM areas	- volume inventoried	cu m	-do-	100	-	168
5	Preparation of CRMF/AWP/RUP	- CRMP/AWP/RUP reviewed: CRMF/AWP/RUP affirmed	no.	-do-	2	-	3
			no.	-do-	2	-	3
			no.	-do-	2	-	3
			no.	-do-	2	-	3

Prepared by: _____

Checked by: _____

Attested by _____

Source: PENRO Nueva Vizcaya, DENR.

Table 4.8.1 DENR Budget Profile (1997-2001) in P'000

	2001	2000	1999	1998	1997
DENR	4,545,422	4,545,422	4,272,802	4,707,834	4,761,084
General Administration and Support Services (GASS)	864,966	864,966	924,256	877,472	695,243
Support to Operations	432,950	432,950	381,459	457,910	411,950
1. <i>Forestry Sector</i>	1,504,805	1,504,805	1,467,692	1,610,430	2,025,587
2. <i>Lands Sector</i>	675,931	675,931	666,378	689,061	628,663
3. <i>Environment Sector</i>	1,750	1,750	168,601	141,975	305,403
4. <i>Research Sector</i>	229,271	229,271	228,192	257,355	146,068
5. <i>Protected Area Sector</i>	199,515	199,515	193,826	268,760	200,136
Projects	636,234	636,234	242,398	404,871	248,034
Mines and Geo-sciences Bureau ¹	333,795	333,795	394,906	364,210	200,184

¹MGB has a separate budget appropriation

² There is no budget approved by Congress for 2001

Source: General Appropriations Act (1997-2000)²

Table 4.8.2 Budget Allocation (P'000) of Region II to Various Sectors

	2001			2000			1999			1998			1997		
	PS	MOE	CO	PS	MOE	CO	PS	MOE	CO	PS	MOE	CO	PS	MOE	CO
Region II	214598	34810	8036	217323	39005	7423	221791	34674	11213	217342	50676	14868	169456	49012	1551
GASS ¹	35238	2414		35238	2604		42602	1588	2600	40692	5261	8500	31415	3872	
Support to Operations	5316	1132		5316	1489		5316	1002		5688	1002		4300	1002	
Forest Management Service	120839	17089	4233	120839	15748	7423	117371	13915	8613	113716	15651	6368	90885	21001	1138
Land Management Service	41720	3689	3123	44247	6726		42556	5402		45100	8076		33756	6929	
Protected Area and Wildlife Service	2180	4093		2180	5425		2146	6565		4863	6116		3439	8345	413
Environmental Management Service	2826	3740	680	3076	2834		4963	2524		1498	2690		1209	2782	
Ecosystems Research and Development Service	6419	2653		6427	4179		6837	3678		5785	11880		4452	5081	
% FMS to total MOE		49.09			40.37			40.13			30.88			42.85	

¹General Administration and Support Services

Source: Budget Section, Finance Division, DENR Regional Office #2

PS = Personal Services

MOE = Maintenance and Operating Expenses

CO = Capital Outlay

Table 4.8.3 Budget Allocation (P'000) for MOE of FMS Activities in Region 2

(Unit : thousand pesos)

	2001	2000	1999	1998	1997
Region II					
FMS	17089	15746	13915	15651	21001
□ Forest Management Service	821 4.8%	1116 7.09%	946 6.80%	1725 11.02%	1212 5.77%
□ Plantation establishment and maintenance and protection	573 3.35%	478 3.04%	434 3.12%	434 2.77%	551 2.62%
□ Forest protection	3897 22.8%	5221 33.16%	4717 33.90%	5668 36.22%	7558 35.99%
□ Community-based forestry program	1556 9.11%	3667 23.28%	3253 23.37%	3257 20.81%	5391 25.68%
□ Soil conservation and watershed management	2172 12.71%	4945 31.40%	4308 30.96%	4310 27.54%	6003 28.58%
□ Forestland Subclassification (Support to Banner program)	8070 47.23%	319 2.03%	257 1.85%	257 1.64%	286 1.36%

¹General Administration and Support Services

Source: Budget Section, Finance Division, DENR Regional Office #2

Table 4.8.4 Budgetary Allocation (P'000) of PENROs and CENROs Covered by the Study Area (1/2)

	IFUGAO			ISABELA			NUEVA VIZCAYA			QUIRINO		
	PENRO	Lamut	A. Lista	PENRO	Cauayan	Sn Isidro	PENRO	Aritao	Dupax	PENRO	Aglipay	Nagtipunan
A. GASS	MOE+PS	MOE	MOE	MOE+PS	MOE	PS/MOE	MOE+PS	MOE	MOE	PS+MOE	MOE	MOE
□ 2001	3699	137	123	5168	20.56	21.95	4556	345.7	33.2	19449.84	28.56	33.6
□ 2000	3699	137	123	5168	20.56	21.95	4556	345.7	33.2	19449.84	28.56	33.6
□ 1999	3979	115	115	18	9.8	9.3	10314	39.7	39.7	17297.74	17.63	31.65
□ 1998	2921	107	80	22	10.5	10.5	26	21	21	15572.22	21.9	21.9
□ 1997	2592	120	120	5916.56	14.24	14.24	25	16	16	13836	20.5	20.5
B. SUPPORT TO OPERATION				MOE+PS	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE
□ 2001	92	19	31	14	5	6.5	49	10.25	10.25	30.13	11.23	
□ 2000	92	19	31	14	5	6.5	49	10.25	10.25	30.13	11.23	
□ 1999	84	25	22	10.82	3.5	4.73	38	5.33	7.83	24.8	8.5	7.5
□ 1998	222	7	9	10.84	4.15	5.86	2.5	3.5	3.5	22	8.5	10
□ 1997	173	15	14	21.56	6.77	6.78	20.25	11.6	9.05	17	12.5	9.5
C. Forest Management Sector	MOE	MOE/CO	MOE/CO	MOE+CO	MOE+CO	MOE+CO	MOE	MOE+PS+CO	MOE+PS+CO	MOE	MOE	MOE
□ 2001	409	903/1583	765/1572	1497	419	571.64	432	737	812	827.002	433.999	420.999
□ 2000	409	903/1583	765/1572	1497	419	571.64	432	737	812	827.002	433.999	420.999
□ 1999	842	1176/288	975/289	164.01	182.67	253.38		3206.75	1001.25	903.8	438.8	577.5
□ 1998	331	749/162	352/163	397.4	508.22	726.71	163.24	401.52	483.42	292.7	434.5	682.8
□ 1997	360	7821.5/1636	679.5/1295	676.67	258.45	594.27	241.6	652.33	606.93	186	414.5	849.191
D. Land Management Sector	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE
□ 2001	67	28	30	274.02	99.53	34.83	783.9	53	59	224.2	72.9	30.9
□ 2000	67	28	30	274.02	99.53	34.83	783.9	53	59	224.2	72.9	30.9
□ 1999	35	16	21	77.3	7.9	7.3	1104	15.95	11.65	92.4	71.5	12
□ 1998	428	16	16	304.45	11.17	10.67	105	93	130	335.4	71.3	17.3
□ 1997	48	54	91	45.8	12.75	12.75	97	341.26	11.87	14	16.5	16.5
E. Protected Areas & Wildlife	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE
□ 2001 ¹	18	45	17	153.5	22.5	122	297.37	152	132	253.6	154.2	27.2
□ 2000	18	45	17	153.5	22.5	122	297.37	152	132	253.6	154.2	27.2
□ 1999	38	66	16	73.5	2.2	4.2	902		524.75	165.8	41	64
□ 1998	8	26	6	87	1.1	2.4	48	106	810	207	53.5	136.5
□ 1997	10	42	18	154.19	73.85	85.88	253.2	551.4	401.45	61	60	60

Table 4.8.4 Budgetary Allocation (P'000) of PENROs and CENROs Covered by the Study Area (2/2)

	IFUGAO			ISABELA			NUEVA VIZCAYA			QUIRINO		
	PENRO	Lamut	A. Lista	PENRO	Cauayan	Sn Isidro	PENRO	Aritao	Dupax	PENRO	Aglipay	Nagtipunan
F. Environmental Mgt. Sector	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE	MOE			
<input type="checkbox"/> 2001	0	48	5	50.6								
<input type="checkbox"/> 2000	0	48	5	50.6								
<input type="checkbox"/> 1999	39	73	77	77.54	30.95	21.6		40.8	22.3			
<input type="checkbox"/> 1998	27	48	47		51.04	49.55	45.25		27.56			
<input type="checkbox"/> 1997	40	18	17				60.40		32.44			
G. Ecosystems Research				MOE							MOE	
<input type="checkbox"/> 2001											190	
<input type="checkbox"/> 2000											190	
<input type="checkbox"/> 1999				23								
<input type="checkbox"/> 1998				50.3								
<input type="checkbox"/> 1997												

¹ FY 2001 budget is the same as FY2000
Source: Provincial DENR Office

Table 4.8.5 Breakdown of CBFMP MOE of PENROs & CENROs in the Study Area for Year 2001

Object Class	Ifugao			Isabela			Nueva Vizcaya			Quirino		
	PENRO	CENRO Lamut	CENRO Lista	PENRO	CENRO Cauayan	CENRO Sn Isidro	PENRO	CENRO Aritao	CENRO Dupax	PENRO	CENRO Aglipay	CENRO Nagtipunan
TOTAL	101,000	125,000	116,000	230,000	197,845	8,000	107,300	41,900	138,000	152,800	28,600	46,600
02-Traveling Expenses	17,000	26,000	25,000	22,000	46,003	4,500	30,000	15,000	29,000	30,000	3,000	3,000
03-Communication Services				33,000	2,947		16,000	7,000	3,000	13,800	3,600	17,600
04-Repair & Maint. of Equip.				3,000				2,000	0	3,000		
05-Repair & Maint. Of Equip.	2,000		1,000	5,000			1,000	1,000	2,000	5,000		
06-Transportation Services									0			
07-Supplies & Materials	9,000	7,000		13,000	19,302	2,500	10,000	3,000	19,000	3,000	2,000	2,000
08-Rentals										10,000		
014-Water, illumination & Power				64,000			22,000	4,000	5,000	8,000	8,000	8,000
017-Training & Seminar				5,000	2,000		1,000	1,000	2,000	5,000		
023-Gasoline, Oil & Lubricants	16,000	2,000	2,000	40,000	5,267		14,300	3,900	34,000	52,000	10,000	12,000
024-Fidelity bond & insurance Prem.				39,000			13,000	5,000	4,000	10,000		
029-Other Services	57,000	90,000	88,000	6,000	122,326	1,000	0	0	40,000	13,000	2,000	4,000

Source: PENRO/CENRO Planning or Budget Officers

Table 5.1.1(1) Proposed Strategic Agriculture and Fishery Development Zones (SAFDZ) within Forestlands and Protected Areas in Nueva Vizcaya

Proposed Use	Area by Municipality (hectares)														
	A. Cast	Amb	Aritao	Bagab	Bamb	Bayom	Diadi	Dup Nr	Dup Sr	Kasibu	Kayapa	Quezon	Sna Fe	Solano	Villavd
Built-up	1259	105	223	1	61	30	131	40	253	342	1406	270	60	15	41
NPAAAD	2630	538	285	768	530	321	3799	1451	4236	2197	4213	936	1041	0	0
Crops	3544	3643	1783	1256	4495	667	1027	7366	4816	2938	8603	4462	921	318	370
Livestock	1748	340	5067	1502	5306	2266	5309	3617	2414	7455	172	1930	863	40	1480
Fishery	0	0	0	10	0	0	539	0	0	0	0	0	0	0	0
Crop/Livestock	0	0	0	391	0	0	300	0	0	0	0	0	0	0	0
Crop/Fishery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total	9181	4626	7358	3928	10392	3284	11105	12474	11719	12932	14394	7598	2885	373	1891
Total	114,140														
Non-SAFDZ															
Watershed/Forestry Zone	48611	12067	3114	4095	8855	5865	8101	8275	21860	10789	33534	3166	11974	294	1363
Agro-forestry	0	841	7573	218	889	1118	0	511	532	0	719	646	15840	287	520
Subtotal	48611	12908	10687	4313	9744	6983	8101	8786	22392	10789	34253	3812	27814	581	1883
Total	211,657														

NPAAAD = Network of Protected Areas for Agricultural and Agro-industrial Development, areas identified to ensure efficient utilization of land for agriculture and agro-Industrial development and promote sustainable growth.

Source: Provincial Planning and Development Office, Nueva Vizcaya

Table 5.1.1(2) SAFDZ within Proclaimed NIPAS

Proposed Use	Area by Municipality (hectares)					
	A Castaneda	Bambang	Bayombong	Kayapa	Dupax d. Nor	Dupax d. Sur
Built-up	360	59	0	103	28	231
Remaining NPAAAD	244	5	0	97	1,056	3,425
Strat. Crop Subdev Zone	0	1,203	0	1012	2,884	3,948
Strat. Livestock Subd Zone	742	582	7.36	81	1,947	1,381
Subtotal	1,346	1,949	7.36	1293	5,915	8,985
Total	19,495.36					
Non-SAFDZ Areas						
Watershed/Forestry Zone	36,012	999	0	0	2,778	16,175
Agro-forestry	0	470	0	0	725	0
Subtotal	36,012	1,469	0	0	3,503	16,175
Total	57,159					

Source: Provincial Planning and Development Office, Nueva Vizcaya

Table 5.2.1 CBFM Projects with Approved RUP in Quirino

Name of CBFM Project	Location	Area (ha) of Harvestable timber
1. Alicia Sustainable Resource Dev't Corporation	Alicia, Aglipay	14.6
2. Ilongot Livelihood Association, Inc.	Landingan, Nagtipunan	14.5
3. Waside Ilongot Tribe Association, Inc.	Wasid, Nagtipunan	16.2
4. Don Mariano Perez Farmers MPCl	D.M. Perez, Diffun	50.0

Source: PENRO, Quirino

Table 5.3.1 List of CSC-Holders Who Federated to Form CBFMA (FRAME)¹

	NAME	AREA
	Brgy. Pieza, Lamut, Ifugao	
1	Ramon Wan-ol	0.67
2	Vicente Pellog	0.80
3	Jenny Ponchinlan	0.60
4	Mariano Otana	0.626
5	Domingo Otana	1.30
6	Mateo Nalliw	1.31
7	Miguel Martin	0.20
8	Bernardo Bimmoy	0.626
9	Bacali Buccahan	0.615
10	Agapin Ngaya-on	0.50
11	Bonie Anablon	0.639
12	Alfonso Pinkihan	0.624
13	Josephine dela Cruz	1.90
14	Dexter Castillo	0.8149
15	Juan Buccahan	1.2066
16	Pedro Buccahan	0.9464
17	Renato Buccahan	0.6347
18	Renante Buccahan	0.6503
19	Bannao Ammog	1.224
20	Modesto Bengwec	1.1495
21	Rogelio Abloy	0.70
22	Maria Paduyao	0.43
23	Jerome Kihao	0.58
24	Rudy Gotic	0.77
	Sub-total	19.5164
	Brgy. Magulo, Lamut, Ifugao	
25	Julian Ollagon	5.5
	Sub-total	5.5
	Brgy. Payawan, Lamut, Ifugao	
26	Vardo Tayaban	6.0
27	Benito Tayaban	10.288
28	Wandag Naupo	3.1
29	Pablo Wandag	2.5
	Sub-total	21.9
	Brgy. Jolowon, Lamut, Ifugao	
30	Rosemarie/Paulino Bimmactad	3.5
	Sub-total	3.5
	Brgy. Nayon, Lamut, Ifugao	
31	Rosana Namingit	2.55
32	Reinzi Inhumang	9.26
33	Harry Robles	6.27
34	Henry de Leon	2.5
35	Gerry Guimbatan	2.0
36	Pio Gangangan	1.3
37	Martha Saguiliot	2.7
38	Carmen Mongilit	2.3
	Sub-total	28.88
	GRAND TOTAL	79.2844

¹ FRAME = Federation of Responsive Association for Magat Ecology, Inc.
Source: PENRO, Ifugao

Table 5.3.2 List of CSC Holders Given Harvesting Permits in Nueva Vizcaya

Name of CSC-holder	CSC Number	Location	Harvesting Permit No.	Date Approved	Volume Approved M ³
1. Rodolfo Yoro	022411449	Calaocan, Quezon	025	June 5, 2000	6.18
2. Bobby Donato	022411447	Calaocan, Quezon	024	May 22, 2000	14.49
3. Genaro Omarito		Mandiangat, Quezon	019	March 6, 2000	1.27
4. Ruben Ducusin	022411262	Danubba, Quezon	021	June 13, 2000	8.40
5. Joaquin Cablinan	022414885	Ocapan, Villaverde	022	April 22, 2000	47.65
6. Rafael de la Cruz	02411006	Kinacao, Bagabag	026	July 14, 2000	21.35
7. Mariano Ancheto	02240611	-do-	013	June 19, 2000	9.52
8. Christina Marcos	11-2413199	-do-	023	May 4, 2000	6.13
9. Ernesto Divina	520585	Bintauan, Villaverde	028	October 2, 2000	20.34
10. Joseph Dulman, Jr.	022406929	Ampakleng, Diadi	029	October 17, 2000	64.99
11. Olpiano Reyes	022405188	-do-	030	Nov. 7, 2000	23.30
12. Severino Galasinao	022411937	-do-	031	Jan. 25, 2001	10.93
13. Marcela Valdez	022414979	-do-	032	March 13, 2001	24.26
14. Macario Carbonel	11-2413160	-do-	033	May 7, 2001	7.25
15. Julie Corpuz	022406923	-do-	034	June 13, 2001	47.30
16. Catalina Pascua	022414978	-do-	035	June 19, 2001	41.16
17. Fidel Duka	022411285	-do-	036	July 18, 2001	70.03
18. Editha Biag	11-2413269	-do-	037	July 18, 2001	15.73
19. Joseph Dalnuan, Jr	022414890	-do-	038	August 9, 2001	11.91
20. Joaquin Cablinan	022414885	Ocapan, Villaverde	039	Sept. 12, 2001	22.57

Source: PENRO, Nueva Vizcaya

Table 5.5.1 Results of Survey of CBFM Units of PENROs and CENROs in Study Area on Constraints in Meeting PO Needs, Skills Needed to Respond to PO Needs, Technology Transfer, and Monitoring and Evaluation of CBFM projects. (1/2)

Items	Nueva Vizcaya		Quirino			Isabela			Ifugao
	PENRO	Aritao	PENRO	Aglipay	Nagtipunan	PENRO	Cauayan	San Isidro	Lamut
1. Constraints to meeting PO needs	1. Limited: manpower, budget & time 2. Policies, bureaucratic	1. Shortage of personnel, travel funds 2. Mobility	1. Limited manpower, budget 2. Mobility	1. Manpower, budget, time 2. Policy	1. Manpower, equipment, budget 2. COA policies on travel	1. Limited manpower, budget	1. Change in leadership change in manpower 2. Late budget 3. Change in Dept Head change in policy	1. More personnel, budget 2. Vehicle 3. Time 4. Need compilation of policy issuances	1. No incentives (allowances)
2. Needed resources to respond properly to PO needs	1. Additional manpower, budget, facilities and equipment, 2. Simplified policies addressing need of people 3. Training	1. Computers 2. Vehicles 3. Surveying equipment	1. Additional manpower, budget 2. Vehicle	1. Vehicle 2. Additional funds 3. Surveying equipment 4. Office equipment	1. Funds and manpower 2. Transport and communication equipment 3. Travel allowance	1. Additional manpower, budget 2. Updated maps (scale:1:20,000)	1. Service vehicles 2. Additional funds (MOE) 3. Surveying and mapping equipment 4. Computers, communication equipment 5. Field bunkhouses	1. Manpower 2. Logistics	1. Service vehicles 2. Incentives 3. Trained personnel
3. Skills present in CBFM Unit to meet PO needs	1. Facilitative, organizing skills 2. Tree farm, plantation dev. 3. Agro-forestry 4. Watershed management 5. Surveying & mapping	1. Surveying skills 2. Conduct of seminars/training	1. Community organizing 2. Surveying & mapping		1. IEC 2. Orientation & training in implementation of CBFM program	1. Community organizing 2. Upland dev. technologies	1. Community organizing 2. Planning 3. M & E 4. Cooperative accounting 5. Forest resources management	1. Surveying, scaling 2. Nursery establishment 3. All aspects of forestry work	1. Forest resources mgt. 2. Watershed management
4. Additional skills needed to meet PO needs	1. Livelihood dev't skills 2. Higher level of organizing skills	1. Computer literacy 2. New technologies in watershed mgt & reforestation	1. Livelihood dev't skills (PO) 2. Bookkeeping and financing for PO	1. Use of surveying tools 2. New technologies in watershed mgt and reforestation, GIS	1. More training on mgt 2. Financial mgt 3. Computer literacy	1. Technologies related to CBFM program	1. Political ability 2. Ability to network 3. Resourcefulness 4. Communicate well	1. Training in use of GPS	1. Training of management

Table 5.5.1 Results of Survey of CBFM Units of PENROs and CENROs in Study Area on Constraints in Meeting PO Needs, Skills Needed to Respond to PO Needs, Technology Transfer, and Monitoring and Evaluation of CBFM projects. (2/2)

Items	Nueva Vizcaya		Quirino			Isabela			Ifugao
	PENRO	Aritao	PENRO	Aglipay	Nagtipunan	PENRO	Cauayan	San Isidro	Lamut
Technology acquisition and transfer									
a. Responsible for technology acquisition?	a. Regional Off., PENRO	a. Regional Off., PENRO, CENRO, PMO	a. PENRO, FRDS	a. CBFM Unit Chief	a. CBFM Unit Chief, PMO	a. Research personnel	a. CBFM Unit Chief	a. CBFM Unit Chief, PENRO, Regional Res. Div. TT Unit in Regional Off.	a. Forest Management Service
b. How is acquisition done?	b. Thru research	b. Seminars, training, cross farm visits	b. IEC materials, technical assistance	b. Workshops, training	b. Seminars, training	b. Training, seminars, workshops	b. Training & OJT component	b. Technology manuals	b. Through requests
c. Determination of technology needs?	c. Thru survey	c. PMO observations, PO requests	c.	c. PMO observations, PO requests, issues raised	c. Regional Off. Central Off.	c. Elicit needs of PO	c. PMO observations, PO requests, TNA	c. CBFM Unit provided with manuals	
d. How is technology transferred?	d. Training & piloting	d. Seminars, workshops, training, cross farm visits	d.	d. Action planning, re-echoing	d. Training	d. Thru meetings with PO	d. Training, workshops	d. -do-	
e. Who monitors use of technology?	e. Research Sector	e. PMO, CBFM personnel, CENRO, PENRO	e. CBFM Unit Chief	e. CBFM Unit Chief, Head of Off. concerned	e. Regional Off. Central Off.	e. Research personnel	e. CENRO Manpower Component	e. CBFM Unit	
f. Issues/concerns in technology acquisition and transfer	f. Limited resources esp. funds	f. Limited funds	f.	f. Manpower, time	f.	f. Limited funds, no vehicles	f. Funding problems	f. Limited funds	

Source: Survey of CBFM Units at PENROs and CENROs

Table 5.5.2 Forest Protection Personnel and Budget for Provinces within Study Area

	Area of Forestland for protection (ha)		No. of Forest Protection Personnel	Total MOE for Forest Protection (Pesos)	Travel Allowance (Pesos)	Area (ha) per personnel	Travel Allowance per Person per year (Pesos/P)	Budget (MOE) allocation per hectare (P/ha)
Nueva Vizcaya	335,547	PENRO	32	425,000	72,000	4,474	2,250	1.26
		ARITAO	25		58,000		2,320	
		DUPAX	18		61,000		3,389	
Quirino	247,270	PENRO	14	481,000	54,000	6,570	3,857	1.90
		AGLIPAY	11		45,000		4,441	
		NAGTIPU	13		117,000		9,000	
Isabela	570,489	PENRO	5	790,000	77,000	NA ²	15,400	NA ²
		CAUAYAN	24		39,000		1,625	
		SN ISIDRO	27		48,000		1,778	
Ifugao	226,369	PENRO	1 ¹	290,000	35,000	5,659	35,000	0.78
		LAMUT	19		63,000		3,316	
		A. LISTA	20		40,000		2,000	
NVizcaya ENRO (Barobbob Wshd)	439	ENRO	2	320,000	0	219.5		728.90

1 There are no personnel for forest protection at PENRO, Ifugao since these are all assigned in the CENROs, the FMS takes care of other functions.

2 Value cannot be calculated since there are other CENROs in Isabela conducting forest protection work.

Source: PENRO, Nueva Vizcaya

Table 5.6.1 Work experience and training of personnel assigned as Project Management Officer of CBFM Projects (1/2)

CENRO	Mother Unit of PMO	Position/Work Experience	Training of CBFM
Aglipay, Quirino			
1. San Miguel Victoria Cooperative	CBFM Unit	Forester	CRMF/AWP/RUP preparation, capability program on PO empowerment, biodiversity conservation, FSMS training
2. Balligui Community and Forestry Dev. Coop.	Forest Protection Unit	Forest Ranger	Community organizing, preparation of CRMF/AWP/RUP CO, preparation of CRMF/AWP/RUP
3. Alicia Sustainable Resource Development	Forest Protection Unit	Forest Ranger	CO, preparation of CRMF/AWP/RUP
4. Villa Ventura Multipurpose Cooperative, Inc.	CBFM Unit	Community Development Assistant II	
Natipunan, Quirino			
1. Anak Intercultural Organization	Range Mgt. Unit	Forest Ranger	Community organizing
2. Kadikitan Assoc. for Community Dev.	Reforestation Unit	Forester I	Community organizing, preparation of CRMP/AWP/RUP, Environmental performance monitoring
3. Wasid Ilongot Tribe Assoc. Inc.	CBFM Unit	Forest Ranger	CO, EPM, preparation of CRMF, AWP and RUP
4. Ilongot Livelihood Assoc. Inc.	CBFM Unit	Forest Ranger	CO, EPM, preparation of CRMF, AWP and RUP
5. Sangbay Anak Integrated Farmers Association, Inc.	Chief, Forest Development Section	Forester II	Community organizing
6. Nuh-uh-uhaan, Inc.	Forest Protection	Scaler	Community organizing
San Isidro, Isabela			
1. Ayangan Dapiz Agro-forestry Dev. Association	CBFM	Community Dev. Officer (CDO)	Community organizing
	CBFM	CDA	Community organizing
	CBFM	Forest Ranger	Community organizing
2. Taleb Upland MPC	-do-	-do-	-do-

Table 5.6.1 Work experience and training of personnel assigned as Project Management Officer of CBFM Projects (2/2)

CENRO	Mother Unit of PMO	Position/Work Experience	Training of CBFM
Cauayan, Isabela			
1. Rizal Integrated MPCI	CBFM	Forester I	Community organizing
Lamut, Ifugao			
1. Nunhabatan Greeners Livelihood 2. Bannao Community Org. Inc 3. Hapid Agro-forestry Developers Assoc. Inc	Reforestation Unit	Forester II	Reforestation planning for middle managers, DENR M&E system
A. Lista, Ifugao			
1. Bombanay Upland Farmers Assoc., Inc. 2. Banahao Upland Farmers Assoc. Inc.	Forest Protection	Forest Ranger	CRMF preparation

Table 6.1.1 Existing/Available Personnel, Equipment and Budget of Different Units in DENR Region 2

Items	Units							Minimum	Maximum	Average
	CBFM	FP	Wsh Mgt	ERDS	TTU	PAWS	PDMS			
a. No. of existing personnel at the Regional Office	16	2	7	31	10	9	8	2	31	12
Ideal no. of personnel at the Regional Office		15	9	35	16	18	8	8	35	17
Ideal no. of personnel at the PENRO		15		29	12	4		4	29	15
Ideal no. of personnel at the CENRO		25				4		4	25	15
b. Vehicles at disposal of Regional Unit (no./type)										
No.	0	0	0	0	0	1		0	1	0
Type						pick-up				
c. Travel allowance (TA) of Regional Unit in 2001(P)	30,000	54,000	18,000			163,000	120,000	18,000	163,000	77,000
Ideal TA of Regional Unit personnel/annum	30,000	520,000	30,000	40,000	55,200	60,000	60,000	30,000	520,000	113,600
d. Budget for supplies and materials at Regional Unit in 2001	134,000	79,000	40,000	143,000	38,000	54,000	80,000	38,000	143,000	81,143
Ideal ratio of S&M at Regional Unit in 2001	250,000	450,000	350,000	250,000	500,000		400,000	250,000	500,000	366,668
e. Budget for fuel, oil, etc. (FOe) at Regional Unit in 2001	43,700	58,000	24,000				30,000	24,000	58,000	38,925
Ideal ratio of budget for FOe at Regional Unit in 2001	150,000	175,000	250,000	120,000	166,000	16,000	132,000	120,000	250,000	165,571
f. Available equipment for Regional Unit										
1. Binocular										
2. Hand-held radio with base	2									
3. Camera										
4. Video Camera				1	1					
5. Digital Camera				1						
6. Computer	3			5	1	1	1			
7. OHP	1									
8. Typewriter				1					1	
9. Airconditioner				2						
10. TV Set										1

Source: Survey by JICA Study Team

Table 6.1.2 Existing/Available Personnel, Equipment and Budget of Watershed Management Units at PENRO and CENRO

Items	PENRO				CENRO								Minimum	Maximum	Average
	N.Viscaya	Quirino	Ifugao	Isebela	Dupax	Aritao	Aglipay	Nagipunan	Lamut	A.Lista	Cauayan	Sn.Isidoro			
a. No. of regular WM projects at P/C	1	1					1	1	5		1		1	5	2
Area (ha)	22,500	22,000					11,023	830			4,000		830	22,500	12,071
b. Number of personnel at WM Unit at P/C	1	1					2	2	4		2		1	4	2
c. Ideal no. of WM personnel in the Unit	5	3					2	4	7		5		2	7	4
d. Vehicle at disposal of WM unit, type															
No.		1					0	1			1		0	1	1
Type		pick-up						pick-up			Motorcycle				
e. Travel allowance (TA) for WM at P/C in 2001	11,000	72,000					9,000	9,000	4,000				4,000	72,000	21,000
f. Ratio of TA to W/M in 2001 (P/pax/ann)	15,000	1,000					4,500		28,980				1,000	28,980	12,370
g. Ideal ratio of TA to WM personnel/annum	45,000	6,000					24,000	2,000	75,600				2,000	75,600	30,520
h. Budget for supplies and materials for WM at P/C in 2001	10,000	3,000					7,000	17,000	2,000				2,000	17,000	7,800
i. Ratio of SM per personnel at WM at P/C in 2001	10,000	2,000					3,492		30,000				2,000	30,000	11,373
j. Ideal ratio of SM per personnel at WM at P/c															
k. Budget for FOe for WM at P/C in 2001	9,000	1,000					5,000	11,000					1,000	11,000	6,500
l. Ratio of budget for FOe for WM at P/C in 2001	9,000	60,000					2,508		5,000				2,508	60,000	19,127
m. Ideal ratio of budget for FOe for WM at P/C	26,000	20,000					9,480	20,000	5,000				5,000	26,000	16,096
n. Available equipment for WM at CENRO															
1. Binocular															
2. Handheld radio with base															
3. Camera															
4. Computer									2						
5. Typewriter									4						

Source: Survey by JICA Study Team

Table 6.1.3 Existing/Available Personnel, Equipment and Budget for CBFM of PENRO and CENRO Units

Items	PENRO				CENRO								Minimum	Maximum	Average
	N.Viscaya	Quirino	Ifugao	Isebel	Dupax	Aritao	Aglipay	Nagipunan	Lamat	A.Lista	Cauayan	Sn.Isidoro			
a. No. of CBFM projects at P/C	8	3		3	5	6	4	7	4		1	7	1	8	5
Area (ha)	7,003	1,183		10,608	3,183		10,180	830	1,618		5,000	1,140	1,140	10,608	4,989
b. Number of personnel at CBFM Unit at P/C	7	2		5	11	5	4	7	5		2	4	2	11	5
c. No. of CBFM projects w/o PMO	3	3		2	4	3		1	0				0	4	2
d. Ideal no. of CBFM personnel	12	5		8	6	9	5	8	2		3	6	2	12	6
e. No. of Vehicle at disposal of CBFM Unit															
No.	1			1	0	1	2		1		1	2	0	2	1
Type	motorcycle			motorcycle		motorcycle	motorcycle		motorcycle		motorcycle	motorcycle			
f. Travel allowance (TA) for CBFM at P/C in 2001	21,000	3,000		5,000	89,268	12,000	3,000	100,000	26,000		73,200	4,500	3,000	100,000	33,697
g. Ratio of TA to CBFM in 2001 (P/pax/ann)	3,500	1,500		1,000	8,160	1,500	750	2,000	2,520		12,200	1,124	750	12,200	3,425
h. Ideal ratio of TA to CBFM personnel/annum	2,500	1,500		24,000	18,000	54,000	24,000	2,000	75,600		4,000	54,000	1,500	75,600	25,960
i. Budget for SM for CBFM at P/C in 2001	7,000	3,000		10,000	62,785	3,000	2,00	50,000	7,000		35,000	2,500	2,000	62,785	18,229
j. Ratio of SM for CBFM at CENRO in 2001	1,167			2,000	5,707	375	500				5,800	625	375	5,800	2,311
k. Ideal ratio of SM per personnel at CBFM at P/c															
l. Budget for FOe for CBFM at P/C in 2001	14,300				44,664	3,900	10,000		2,000		8,500	2,000	2,000	44,664	12,195
m. Ratio of budget for FOe for CBFM at P/C in 2001	2,383				4,060	488	2,500				8,500		488	8,500	3,586
n. Ideal ratio of budget for FOe for CBFM at P/C	18,000			18,000	7,636		24,000				12,000	1,800	1,800	24,000	13,573

Source: Survey by JICA Study Team

Table 6.1.4 Existing/Available Personnel, Equipment and Budget for Forest Protection of PENRO and CENRO Units

Items	PENRO				CENRO								Minimum	Maximum	Average
	N.Viscaya	Quirino	Ifugao	Isebela	Dupax	Aritao	Aglipay	Nagipunan	Lamut	A.Lista	Cauayan	Sn.Isidoro			
a. Forest area under jurisdiction of CENRO (ha)	211,153	305,720		102,296	122,399	140,350	63,771	159,503	119,463		18,876	64,741	18,876	305,720	130,828
b. Area protected by CENRO (ha)	51,475	33,155		80,743	122,399	100,004	63,771	157,503	119,463		18,876	32,497	18,876	157,503	77,989
c. No. of personnel assigned to protect area	12	10		21	23	28	7	25	25		16	32	7	32	20
d. Ratio of area protected to number of personnel (ha/FPO)	4,348	3,313		3,845	5,32	3,572	9,110	6,300	5,000		1,179	1,121	1,121	9,110	4,311
e. Ideal of area to number of personnel (ha/FPO)	3,000	1,000		1,000	3,000	2,500	3,000	3,000	1,000		500	500	500	3,000	1,850
f. Vehicles at disposal of FPO															
No.	0			1	2	1	0				0	1	0	2	1
Type				pick-up	Single Motor	Fire Truck						Motorcycle			
g. Travel allowance (TA) for FP at CENRO in 2001 (P)	72,000	60,000		73,000	61,000	58,000	45,000	720,000	63,000		9,600	48,000	9,600	720,000	120,960
h. Ratio of TA to FPO at CENRO in 2001 (P/FPO/ann)	4,000	2,000		3,476	2,655	2,071	6,428	2,000	2,520		150	1,500	150	6,428	2,680
i. Ideal ratio of TA to FPO at CENRO per annum	10,000	12,000		36,000	36,000	18,000	24,000	24,000	75,600		48,000	36,000	10,000	5,600	31,960
j. Budget for supplies and materials for FP at CENRO in 2001	28,000	20,000		11,000	15,000	24,000	25,000	50,000	12,000			6,000	6,000	50,000	21,222
k. Ratio of S&M for FP at CENRO in 2001	4,000	1,99		523	653	857	3,571					188	188	4,000	1,683
l. Ideal ratio of S&M for FP at CENRO in 2001	10,000	2,000		5,000	5,000	2,500	5,000		5,000			6,000	2,000	10,000	5,063
m. Budget for fuel, oil, etc. (FOe) for FP at CENRO in 2001	11,000	6,000		7,142	6,000	6,000	6,000	25,000	10,000			10,000	6,000	25,000	9,682
n. Ratio of budget for FOe for FP at CENRO in 2001	1,571	6,000		340	260	214	857	2,000				312	214	6,000	1,444
o. Ideal ratio of budget for FOe for FP at CENRO in 2001	5,000	20,000		60,000	2,000	1,500	12,000		7,000			1,000	1,000	60,000	13,563
p. Available equipment for FP at CENRO	0	0			0	0	0				0	0			
1. Binocular															
2. Handheld radio with base															
3. Typewriter									1						
4. Camera				1											

Source: Survey by JICA Study Team

Table 6.1.5 Existing/Available Personnel, Equipment and Budget for Protected Areas and Wildlife Sector of PENRO and CENRO Units

Items	PENRO				CENRO								Minimum	Maximum	Average
	N.Viscaya	Quirino	Ifugao	Isebela	Dupax	Aritao	Aglipay	Nagipunan	Lamut	A.Lista	Cauayan	Sn.Isidoro			
a. Forest area under jurisdiction of P/CENRO (ha)															
b. Protected Area within jurisdiction of P/CENRO (ha)	97,997	35,118		819	65,912	9,138	101	16,475	3,398			32,497	101	97,997	29,051
c. Is it included in total area under jurisdiction of P/CENRO	yes	yes		yes	yes	yes	yes	yes	yes			yes			
d. No. of Personnel Assigned to protect area	11	7		4	6		1	8				5	1	11	6
e. Is PAWS area included in area protected by FPU of CENRO?	yes	yes		yes	yes	yes	yes	no	yes			yes			
f. Is there need to have separate FPO for PAWS of P/CENRO	yes	yes		yes	yes	yes	yes	yes	yes			no			
g. If Yes in f, how many FPOs needed at PAWS of P/CENRO?	15	7		8		1	1	5	2				1	15	6
h. Ratio of area to FPO (ha/FPO)		5,000		100	2,000	1,000		4	1,699				4	5,000	1,634
i. Ideal ratio of TA to PAWS personnel at P/CENRO per annum	1,000	6,300		12,000	60,000	4,500	12,000	2,000	40,000				1,000	60,000	17,225
j. Ideal ratio of S&M to PAWS personnel at P/CENRO per annum	378	3,100		40,000	60,000	4,000	5,000	3,000	16,000				378	60,000	11,935
k. Ideal ratio FOe for PAWS personnel at P/CENRO per annum	56	2,300			36,000		12,000		8,000				56	36,000	11,671

Source: Survey by JICA Study Team

Table 6.1.6 Existing/Available Personnel, Equipment and Budget at Provincial ENRO/NREO/AENRO

Items	NREO Quirino	AENRO Ifugao	ENRO N.Vizcaya	Minimum	Maximum	Average
a. No. of existing ENRO/NREO/AENRO personnel in forest and WM	21	17	26	17	26	21
b. Ideal no. of ENRO/NREO/AENRO personnel in forest and WM	33	28	35	28	35	32
c. Travel allowance (TA) for Provincial ENRO/NREO/AENRO in 2001 (P)	51,975	67,000	134,000	51,975	134,000	84,325
d. Ideal ratio of TA of Provincial ENRO/NREO/AENRO	120,000	204,000	218,400	120,000	218,400	180,800
e. Budget for supplies and materials of Provincial ENRO/NREO/AENRO	55,000	87,000	86,667	55,000	87,000	76,222
f. Ideal ratio of S&M of Provincial at ENRO/NREO/AENRO in 2001	100,000	150,000	120,000	100,000	150,000	123,333
g. Budget for fuel, oil, etc. (FOe) for Provincial ENRO/NREO/AENRO in 2001	175,000	9,500	180,000	9,500	180,000	121,500
h. Ideal ratio of budget for FOe of Provincial ENRO/NREO/AENRO in 2001	250,000	255,000	250,000	250,000	255,000	251,667
i. Available vehicle for Provincial ENRO/NREO/AENRO (no./type) Vehicle						
1. Pick-up	1					
2. Stake truck	1		1			
3. Dump truck			1			
4. Wrangler type owner			1			
5. AUC			1			
6. Tamaraw FX			>1			
7. Motorcycle	1					

Source: Survey by JICA Study Team

Table 6.1.7 Manpower Needs of Various Levels of DENR and Provincial ENRO

	REGION							PENRO/CENRO/ENRO													TOTAL
	FPU	WMU	CBFMU	ERRD	TTU	PAU	PDMU	NV	DUP	ARI	QUI	AGL	NAG	IFU	LAM	AL	ISA	CAU	SIS	ENRO	
Forester I	10		2					5			1	5	2		1		1	1		15	43
Forester II								2	1	3	3	5	6		4		5	5	8	3	45
For. Ranger	5		1					2	10		21	15	27		3		8	17	40		149
PMO										5											5
CDO II			1																		1
Park Ranger																					1
Sociologist			1									1									2
Biologist						1															1
Botanist						1															1
Geod. Engr.			1					2													3
Civil Engr.										4											4
Ag. Engr								1												3	4
DevMas Com					1																1
Comp. Progr	21	2			1							3									27
Mach. Opr.					2																2
EMS I					2	1							1							1	5
EMS II						1			2	2			1							1	7
Sr. EMS						2					1										3
Res. Asst.				4																	4
Sc. Aide				4																	4
Layout Artst					1																1
IT/data base					1																1
Cartographer								1													1
Forest Guard										12											12
PA Guard									1		1										2
PW									1	1											2
Clerk						3					1	3						2			9
Laborer							3						1								4
CDA												5									5
Utility								1													1
Nursery Aide																				1	1

Note: NV: ENRO: Environment and Natural Resources Office/r (LGU)

Nueva Vizcaya Province QUI: Quirino Province ISA: Isabela Province IFU: Ifugao Province

DUP: CENRO Dupax, N.V. NAG: CENRO Nagtipnan, Quirino, ARI: CENRO Aritao, N.V. LAM: CENRO Lamut, Ifugao

AGL: CENRO Aglipay, Quirino AL: CENRO Alfonso Lista SIS: CENRO San Isidro, Isabela CAU: CENRO Cauayan, Isabela

TTU: Technical Transfer Unit WMU: Watershed Management Unit PAU: Public Affairs Unit

ERRD: Environmental Resources and Research Division PAU: Protected Areas Unit

Source: Survey by JICA Study Team

Table 6.1.8 Vehicle and Equipment Needs of Various Units of DENR Region 2 and Provincial ENROs (1/2)

	REGION							PENRO/CENRO/ENRO												TOTAL	
	FPU	WMU	CBFMU	ERRD	TTU	PAU	PDMU	NV	DUP	ARI	QUI	AGL	NAG	IFU	LAM	AL	ISA	CAU	SIS		ENRO
Motorcycles	5	3	2	4	2		2	12	11	10	11	15	12		11		5	9	14		128
Pick-up	2	1	1	1	1	1	1	3	3	3	3	3	3		4		2	3	3	1	39
Audio/video van					1																1
Binocular								2	6	4		7			1		2	6			28
Hand held radio w/ base	5																7		6		18
Camera	5			1	1	2		9	8	4							3	2	1		36
Zoom camera						4	1														5
Video camera		1	1		1		1	1									1				6
Digit. Camera			1	1	1			1													4
Computer set	1		3	1			3	4	3	2	3	4	5		4		1	2	3	2	41
Laptop comp.								1				1			1		1				4
OHP								1											1		2
Fire fighting Equipment													1						1		2
Survey equip						6		2	2	2		2	1		2			6	3	3	29
LCD	1			2	1	1											1				6
Scanner				1	1	1															3
GPS							3	3	2	1	4	1	1				3		1	4	23
GIS		1																			1
Cell-phones	1			2		4		2	12									2	4		27
Spotting field telescope						2															2
Photocopier		1	1		1	1	1		1			1			2			2			11
Drawing set		1										2							1		4
Planimeter		1										1							1		3
Fax machine				1																	1
Genset				1																	1
Binding mach					1																1

Table 6.1.8 Vehicle and Equipment Needs of Various Units of DENR Region 2 and Provincial ENROs (2/2)

	REGION							PENRO/CENRO/ENRO												TOTAL	
	FPU	WMU	CBFMU	ERRD	TTU	PAU	PDMU	NV	DUP	ARI	QUI	AGL	NAG	IFU	LAM	AL	ISA	CAU	SIS		ENRO
Duplo mach.					1																1
Slide proj.		2				2															4
Air con																		1			1
Carving set																	1				1
TV set					1	1															2
Laser printer					1	1		1													3
Auto focus											2										2
6 wheeler trk.														1				1			2
Weapon carrier																		1			1
Transit																		2			2
Pantograph																		1			1
Boom truck									1								1				2
AUV														1							2
Filing cabinet											1										1
CD player																	1				1
Megaphone																	1				1
Mimeo machine									1												1
Elec. Typewriter									1			1									2
Brunton compass																			1	1	2
Stake truck												1									2
Tech'l pen												1						1			2

Source: Survey by JICA Study Team

Table 6.1.9 Supplemental Budgetary Requirements of Various Units of DENR Region 2 and Provincial ENRO

(Unit : thousand pesos)

	REGION							PENRO/CENRO/ENRO ¹													
	FPU	WMU	CBFMU	ERRD	TTU	PAU	PDMU	NV	DUP	ARI	QUI	AGL	NAG	IFU	LAM	AL	ISA	CAU	SIS	ENRO ²	
2001 Travel allowance	54	18	30			163	120	21 72	89.3 61	12 58	3 60	3 45	100 720		26 63		5 73	73.2 9.6	4.5 48	84.3	
Ratio/per/yr								3.5 4	8.1 2.7	1.5 2	1.5 2	0.75 6.4	2 2		2.5 76		1 3.5	12 0.2	1.1 1.5		
Ideal ratio		30	30	40	55	60	60	2.5 10	18 36	54 18	1.5 12	24 24	2 24				24 48	4 36	54		
Suggested TA for Unit	520						360								76						180
2001 Budget for S & M	79	40	134	143	38	54	80	7 28	62.8 15	3 58	3 20	2 25	50 50		7 12		10 11	35	2.5 6	76.2	
Ratio/per/yr								1.2 4	5.7 0.7	0.4 0.9		0.5 3.6						5.8	0.6 0.2		
Ideal ratio								- 10	- 5	- 2.5	- 2	- 5			- 5		- 5		- 6		
Suggested S&M for Unit	450	350	250	250	500		400														123
2001 Budget for FOe	58	24	43.7				30	14.3 11	44.7 6	3.9 6		10 6			2 10			8.5	2 10	121	
Ratio/per/yr								2.3 1.6	4 0.3	0.5 0.2		2.5 6						8.5	0.3		
Ideal ratio								18 5	7.6 2	1.5	20	24 12			7		18 60	12	1.8 1		
Suggested FOe for Unit	175	250	150	120	166	166	132														252

¹ Only the CBFM Units and Forest Protection Units of the PENRO and CENRO had more or less complete response to the survey for current budget for specified components of the MOE. They are the ones presented in the Table. The *italicized* number is for Forest Protection Unit.

² The amounts indicated are averages of three ENROs which responded to the survey.

Source: Survey by JICA Study Team

Table 6.1.10 Vehicle and Equipment Needs of DENR Region 2 RED, PENRO, CENRO, FMB and Provincial ENRO

Vehicle/ Equipment	FMB CBFM	FMB WMS	RED	PENRO/CENRO/ENRO												TOTAL	
				NV	DUP	ARI	QUI	AGL	NAG	IFU	LAM	AL	ISA	CAU	SIS		ENRO
Motorcycles							6									6	12
Pick-up			3	1	1		1		1	1				1	1	3	13
Binocular									1								1
Hand held radio w/ base							3		1							3	7
Camera				1											1		2
Digit. Camera			1	1	1					1							4
Computer set	3	1	1	1			3		1	1				1	1	3	16
Laptop comp.			1	1	1		3			1							7
OHP			1														1
Opaque proj.			1	1													2
Multi-media LCD	1	1	1	1	1					1						3	9
CD writer	1	1	1														3
ZIP Drive	1																1
Scanner			1												1		1
GPS			1	1			5		1	1						3	12
GIS				1			2										3
Cell-phones							10										10
Photocopier			1				1									3	5
Engineer's transit							1										1
Fax machine			1														1
Air con							6										6
Laser printer									1								1
Boom truck							1										1
Mini dump truck										1							1
Mini fire truck									1								1

Note: Not all the CENROs were able to submit their vehicular and equipment needs of their offices.

Source: Survey by JICA Study Team

Table 6.2.1 Training Needs of Different Units at the Regional Office

Trainings								Total
	CBFM	FP	Wsh Mgt	ERDS	TTU	PAWS	PDMS	
of Regional Unit Officers								
1. GPS							/	1
2. GIS			/	/		/		3
3. Computer updates							/	1
4. Database system establishment and management	/		/	/		/		4
5. Computer programming			/	/		/		3
6. Desktop publishing					/			1
7. Technical/Popular writing					/			1
8. Process documentation					/			1
9. Monitoring and evaluation	/							1
10. Watershed instrumentation/calibration				/				1
11. Watershed mgt.			/					1
12. Ecological profiling of freshwater ecosystem (Loctic&Lentic)				/				1
13. Clonal propagatioin (mirco-tissue culture, macro-vegatative)				/				1
14. Rural enterprise development					/			1
15. Wildlife identification						/		1
16. Natural resource accounting						/		1
17. CRMF/AWP/RUP preparation	/							1
18. Community education and development					/			1
19. Community development	/							1
20. Community organizing	/						/	2
21. Community profiling and mapping	/							1
22. Community based resource mgt.	/							1
23. Forest land use and planning	/							1
24. Livelihood enterprise development	/							1
25. CBFM orientation/re-orientation	/							1
26. CBFM Policy implementation, review and planning	/							1
27. Participatory process to upland development	/							1
28. Fire prevention and suppression		/						1
29. Para legal		/						1
30. Soil and water conservation techniques			/					1
31. New technologies on reforestation							/	1
32. Soil and water conservation techniques			/					1
of PENRO Unit Officers								
1. Wildlife Identification						/		1
2. GIS						/		1
3. Natural resource accounting						/		1
4. Computer programming						/		1
5. Database system establishment and management						/		1
6. Fire prevention and suppression		/						1
7. Para legal		/						1
of CENRO Unit Officers								
1. Wildlife Identification						/		1
2. GIS						/		1
3. Natural resource accounting						/		1
4. Computer programming						/		1
5. Database system establishment and management						/		1
6. Fire prevention and suppression		/						1
7. Para legal		/						1

Source: JICA Study Team

Table 6.2.2 Training Needs of Watershed Management Units at PENRO and CENRO

Trainings	PENRO							CENRO					Total
	N.Vizcaya	Quirino	Ifugao	Isabela	Dupax	Aritao	Aglipay	Nagtipunan	Lamut	A.Lista	Cauayan	Sn. Isidro	
1. Watershed mgt & soil & water conservation	/	/					/						3
2. Plantation technology	/												1
3. Integrated watershed mgt for project implementors	/												1
4. Paralegal							/	/					2
5. People oriented							/	/					2
6. Basic watershed							/	/					2
7. Organizing							/	/					2
8. Structural & vegetative soil stabilization tech.										/			1
9. Community organizing		/					/						2
10. Trainors' training		/					/						2
11. Enterprise development		/					/						2
12. Fiscal & budget management		/					/						2

Source: JICA Study Team

Table 6.2.3 Training Needs at Community-based Forest Management of PENRO and CENRO Units

Trainings	PENRO				CENRO								Total
	N. Viscaya	Quirino	Ifugao	Isabela	Dupax	Aritao	Aglipay	Nagtipunan	Lamut	A. Lista	Cauayan	Sn. Isidro	
1. Upland farming systems	/												0
2. Livelihood/enterprise dev't	/						/					/	3
3. Organization dev't	/												1
4. Linkaging and networking	/												1
5. Information technology	/												1
6. GPS	/			/			/					/	4
7. Customer Service Enhancement	/												1
8. Watershed Mgt.	/											/	2
9. Community Organizing					/		/	/			/		4
10. Officers' duties & responsibilities					/								1
11. Human Resources and responsibilities					/								1
12. Value formation					/								1
13. Organization building framework for the upland					/								1
14. Tech. on participation					/								1
15. Concept & principles of agro-forestry & soil & water conservation					/								1
16. Leadership					/								1
17. Monitoring & evaluation					/							/	2
18. Knowledge, skills and attitude					/								1
19. Computer		/		/		/	/					/	5
20. Surveying						/							1
21. People oriented training									/				1
22. Basic photography				/									1
23. CBFM re-orientation											/		1
24. Paramilitary											/		1
25. Paralegal											/		1
26. Applicable agroforestry technologies												/	1
27. Community mapping												/	1
28. Financial management and bookkeeping												/	1
29. Capability enhancement on reforestation												/	1
30. Livestocks production												/	1

Source: JICA Study Team

Table 6.2.4 Training Needs of Forest Protection at PENRO and CENRO Units

Items	PENRO				CENRO								Total
	N. Viscaya	Quirino	Ifugao	Isabela	Dupax	Aritao	Aglipay	Nagtipunan	Lamut	A. Lista	Cauayan	Sn. Isidro	
1. Paralegal					/	/			/		/		4
2. Legal Process		/			/		/						2
3. Community Development					/	/			/				1
4. Forest Fire Prevention & Control	/				/	/			/			/	5
5. Forest Conservation					/								1
6. Community Organizing								/					1
7. IEC								/					1
8. Paramilitary											/		1
9. Moral values												/	1
10. Forest surveying	/												1
11. Training in preparation of complaint and papers relative to the filing of information in court	/												1
12. Actual training in the investigation of forest violation	/												1
13. Orientation seminar on forestry laws, rules & regulations		/											1

Source: JICA Study Team

Table 6.2.5 Training Needs at Protected Areas and Wildlife Sector of PENRO and CENRO units

Trainings	PENRO					CENRO							Total
	N. Viscaya	Quirino	Ifugao	Isabela	Dupax	Aritao	Aglipay	Nagtipunan	Lamut	A. Lista	Cauayan	Sn. Isidro	
1. Basic Computer Programming		/											0
2. Powerpoint		/											1
3. PAWS Profiling & ecological dev't training		/											1
4. Cave Assessment		/											1
5. Wildlife Mgt.		/											1
6. Community Organizing								/					1
7. Biodiversity Monitoring System	/			/		/		/				/	5
8. Computer Training								/					1
9. GIS technology	/												1
10. Information on biological and genetic resources	/												1
11. Proper park management system	/												1
12. Orientation on protected areas laws & regulations	/												1
13. Mgt. & personnel supervision					/								1
14. Maintenance and protection of PA					/								1
15. Advance learning on wildlife identification & mgt.					/							/	2
16. Identifying plants					/								1
17. Flora and fauna identification						/							1
18. RBI				/		/							2
19. Statistics											/		1
20. Ornithology												/	1
21. Spelunking, ornitourism mgt.												/	1
22. Actual aerial wildlife mgt.												/	1
													0
													0
													0
													0

Source: JICA Study Team

Table 6.2.6 Training Needs of Provincial ENRO/NREO/AENRO

Training	NREO	AENRO	ENRO	Total
	Quirino	Ifugao	N. Viscaya	
1. Values	/			1
2. Waste mgt. disposal	/			1
3. Biodiversity conversion	/			1
4. Forest protection & conservation	/			1
5. Administrative	/			1
6. Watershed mgt.	/	/		2
7. Land use plan	/		/	2
8. Forest mgt		/		1
9. Agro-Forestry tech.		/		1
10. Environmental mgt. (Pollution)		/		1
11. GIS & GPS	/		/	2

Source: JICA Study Team

Table 6.2.7 Segregation of Identified Training Areas by DENR Region 2 Personnel PENROs, CENROs and Provincial ENROs

General Orientation	Technical	Project Management
<ol style="list-style-type: none"> 1. Legal process 2. Paralegal process 3. Paramilitary orientation 4. Seminar on forestry laws, rules and regulations 5 Orientation on protected areas rules and regulations 6. People-oriented training 7. CBFM orientation/re-orientation 8. CBFM policy implementation, review and planning 9. Participatory process to upland development 10. Concept and principles of agroforestry and soil & water conservation 11. Information on biological and genetic resources 12. Basic watershed management 13. Forest protection and conservation 14. Biodiversity conservation 15. Computer update training 16. Use of power point 17. Computer programming (operation) 18. Information technology 19. Desktop publishing 20. Basic photography 21. Management and personnel orientation 22. Officer's duties and responsibilities 23. Human resources and responsibilities 24. Value formation 	<ol style="list-style-type: none"> 1. Organization development 2. CRMF/AWP/RUP preparation 3. Community organizing 4. Community development 5. Comm. education & development 6. Comm. profiling & mapping 7. Community-based resource mgt 8. Livelihood/enterprise dev. 9. Livestock production 10. Techniques on participation 11. Upland farming systems 12. Flora and fauna identification 13. Plantation technology 14. Clonal propagation 15. Forest fire prevention & control 16. Soil and water conservation 17. Structural and vegetative soil stabilization 18. Agro-forestry technologies 19. New technologies on reforestation 20. Wildlife identification 21. Wildlife management 23. Advanced wildlife identification and management 24. Ornithology 25. Spelunking, ornitourism mgt 26. Aerial wildlife management 27. Watershed management 28. Watershed instrumentation and calibration 29. PAWS profiling & ecological development 30. Forest surveying 31. Ecological profiling of freshwater ecosystems 32. Cave assessment 33. Park management system 34. Waste management disposal 35. GIS technology 36. GPS 37. Statistics 38. Technical/popular writing 	<ol style="list-style-type: none"> 1. Preparation of complaints & other documents for filing in court 2. Investigation of forest violation 3. Fiscal and budget management 4. Participatory process to upland development 5. Organization building framework for the upland 6. Forest land use planning 7. Capability enhancement on reforestation 8. Natural resource accounting 9. Integrated watershed management for project implementers 10. Maintenance and protection of protected areas 11. Environmental management 12. Monitoring and evaluation 13. Data base system establishment & management 14. Linkaging and networking 15. Process documentation 16. IEC 17. Financial management and bookkeeping 18. Customer service enhancement 19. Leadership training 20. Training on administration

Source: JICA Study Team

Table 6.3.1(1) LIST OF FURNITURE MANUFACTURERS (Province of Nueva Vizcaya)

NO.	FIRM/PROCESSOR	CONTACT PERSON	POSITION	ADDRESS	PRODUCT LINES
1	BAL Furniture Shop	Benzon Liwaliw	Owner	Kayapa	tables, chairs, cabinets, beds, small utility items.
2	MAFIA	Braulio Corpuz	President	Bayombong	tables, chairs, cabinets, beds, small utility items.
3	Salinas West Furniture Shop	Justino Sagun	Owner	Bambang	tables, chairs, cabinets, beds, small utility items.
4	RM Mentano Furniture Shop	Renato Mentano	Owner	Sta. Fe	tables, chairs, cabinets, beds, small utility items.
5	EDPascua Furniture Shop	Eduardo Pascua	Owner	Villaverde	tables, chairs, cabinets, beds, small utility items.
6	LMBorromeo Furniture Shop	Leticia Borromeo	Owner	Villaverde	tables, chairs, cabinets, beds, small utility items.
7	Reylen's Furniture	Helen Grace Agub	Owner	Bayombong	tables, chairs, cabinets, beds, small utility items.
8	Danao's Furniture Shop	Lydia Danao	Owner	Solano	tables, chairs, cabinets, beds, small utility items.
9	VLT Fine Furniture	Adriano Tiongson	Manager	Solano	tables, chairs, cabinets, beds, small utility items.
10	Okamoto's Furniture	Minao Okamoto	Owner	Bagabag	tables, chairs, cabinets, beds, small utility items.
11	Casecnan Furniture	Virgilio Molina	Manager	Talbec	tables, chairs, cabinets, beds, small utility items.
12	JPA Furniture Shop	Jessiebelle Amadure	Owner	Bayombong	tables, chairs, cabinets, beds, small utility items.
13	Naoha's Furniture	Beatriz Manghi	Owner	Bayombong	tables, chairs, cabinets, beds, small utility items.
14	Abellon's Enterprises	Aracelie Abellon	Owner	Bayombong	artifacts
15	Highland Antiques	James Pagadut	Owner	Sta. Fe	wooden antiques

Source: DTI Provincial Office, Nueva Vizcaya

**Table 6.3.1 (2) LIST OF GIFTS, TOYS & HOUSEWARES MANUFACTURERS
(Province of Nueva Vizcaya)**

NO.	FIRM/PROCESSOR	CONTACT PERSON	POSITION	ADDRESS	PRODUCT LINES
1	Kasibu Rattan Industries	Conchita Bumolo	Manager	Kasibu	baskets, trays, pasiking, softbrooms, etc.
2	Vicey's Basketry	Vicey Aggabao	Owner	Sta. Fe	baskets, trays, pasiking, softbrooms, etc.
3	Fernandez Handicraft	Sherly Quibin	Owner	Sta. Fe	baskets, trays, pasiking, softbrooms, etc.
4	Baliling Agri-Based MPC	Virgilio Valderama	Manager	Sta. Fe	baskets, trays, pasiking, softbrooms, etc.
5	Sta. Fe Federation of HL Coop	Alberto Dulnuan	Chairman	Sta. Fe	softbrooms
6	TRICORD MPC	Renato Tallapi	Manager	Aritao	baskets, trays, pasiking, softbrooms, etc.
7	Dupiano's Handicraft	Myrna Dupiano	Owner	Bambang	baskets, trays, pasiking, softbrooms, etc.
8	Highland MPC	Vicente Sibayan	Manager	Aritao	softbrooms
9	Canarem MPC	Benita Suguitan	Manager	Aritao	baskets, trays, pasiking, softbrooms, etc.
10	Beti RIC	Mario Ballegan	President	Aritao	bamboo flowers
11	Kasibu Caterpillar Women's Ass	Leilani Esquero	Manager	Kasibu	fossilized flowers
12	Nagbitin MPC	Angelita Echeverre	Manager	Villaverde	Cogoncraft
13	Buliwao MPC	Gloria Bullawit	Manager	Quezon	softbrooms, fossilized flowers
14	Laby lights & decors	Lilibeth Chua	Owner	Sta. Fe	decors
15	Calititan MPC	Bernardo Asuncion	Manager	Aritao	baskets, trays, pasiking, softbrooms, etc.

16	Tactab Broommakers Asso.	Willie Bugtong	President	Sta. Fe	softbrooms
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Source: DTI Provincial Office, Nueva Vizcaya

Table 6.3.1 (3) LIST OF FOOD PROCESSORS (Province of Nueva Vizcaya)

NO.	FIRM/PROCESSOR	CONTACT PERSON	POSITION	ADDRESS	PRODUCT LINES
1	SMU - CEDER	Isabelita G. Rabec	Officer-In-Cha	SMU, Bayombong	baked breads, pastries, candies
2	NV Abot Palad Coop.	Arlyn P. Paladin	Manager	Bayombong	dried fruits, ginger tea, fried garlic, puree & juices
3	NV Kapitbahayan MPC	Elvira M. Soliven	Chairman	Bayombong	dried fruits, ginger tea, fried garlic, puree & juices
4	MGSK Health Food Products	Ricardo Navis, Jr.	Owner	Bayombong	soya products
5	Rite Foods, Inc.	Froilan Calata	President	Bayombong	pickled fruits & vegetables
6	Luyang RIC	Linda Tomas	President	Bayombong	processed meat
7	Casat Rural Workers Asso.	Rogelio Corpuz	Adviser	Bayombong	soya products & banana chips
8	Dacayo's Meat Products	Helena Dacayo	Owner	Solano	processed meat
9	Max-an Food Products	Maxima S. Miguel	Owner	Solano	processed fruits & vegetables
10	Cecil's Food Products	Cecilia Guiab	Owner	Solano	candies & processed peanuts
11	Chiquison's Banana Chips	Gregorio Castro	Owner	Solano	banana chips, popcorn, candies
12	Paguio's Food Products	Gloria Paguio	Owner	Solano	processed meat
13	Solano RIC MPC	Teresita Santiago	Manager	Solano	processed meat, candies, preserves
14	Villaverde Abot Palad Coop.	Dahlia V. Bajo	Chairman	Villaverde	processed egg
15	Nagbitin MPC	Angelita Echeverre	Manager	Villaverde	banana chips, papaya pickles
16	HOMM Food Products	Asteria Lopez	Owner	Aritao	dried fruits & vegetables, puree
17	Darapidap ASG	Lolita Padura	President	Aritao	banana chips, tamarind balls
18	Lolita's Food Products	Lolita G. Cruz	Manager	Sta. Fe	fried garlic, finger tes, jellies, peanut
19	NVSPC - DOST Proc. Center	Dr. Marites Fronda	Officer-In-Cha	Bambang	processed fruits & vegetables
20	Jed's Food Products	Jessie Argayosa	Owner	Bambang	processed fruits & vegetables
21	San Fernando MPC	Cresencia Barbero	Food Processor	Bambang	banana chips, vinegar
22	Vhency's Food Products	Vency Sablaya	Owner	Quezon	candies & processed peanuts
23	Quenzel's Food Products	Elizabeth Pedregosa	Owner	Quezon	banana chips
24	Taboy's Food Products	Nenita Taboy	Owner	Bagabag	buko products
25	Loria's Food Products	Marivic Loria	Owner	Bagabag	puree, fruits shakes
26	Bagabag Buko Producers	Eugene Daniel	Owner	Bagabag	buko products
27	BUDECO	Pedro Puguon	Chairman	Bagabag	pineapple products
28	NV Mango Growers Asso.	Luis Tiongson	President	Solano	processed mango
29	Malabing Valley MPC	Fernando Sison	Chairman	Kasibu	processed citrus
30	NVSIT - DOST Food Proc. Ctr.	Lolita Saguipad	Officer-In-Cha	Bayombong	processed fruits & vegetables

Source: DTI Provincial Office, Nueva Vizcaya

Figures

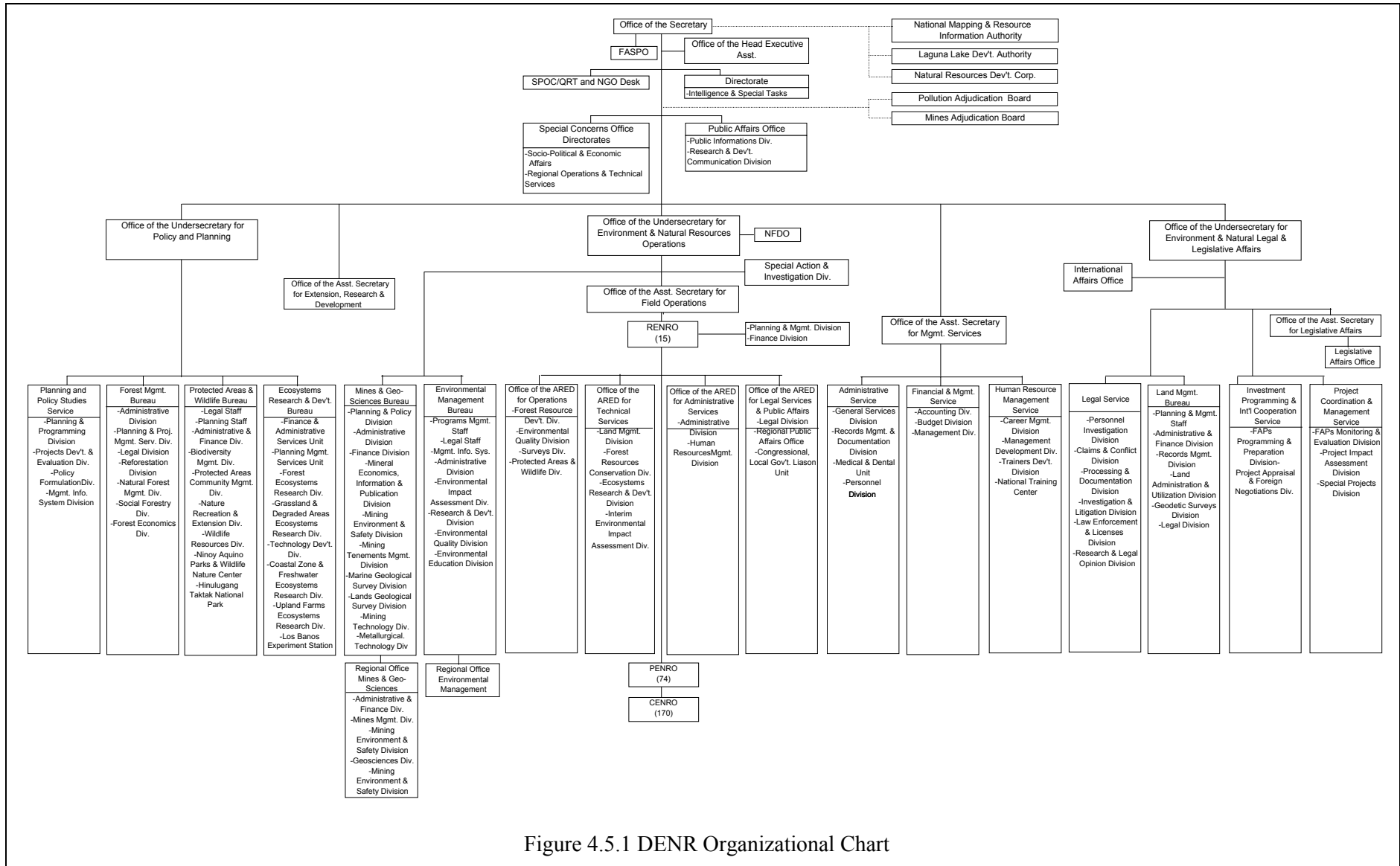


Figure 4.5.1 DENR Organizational Chart

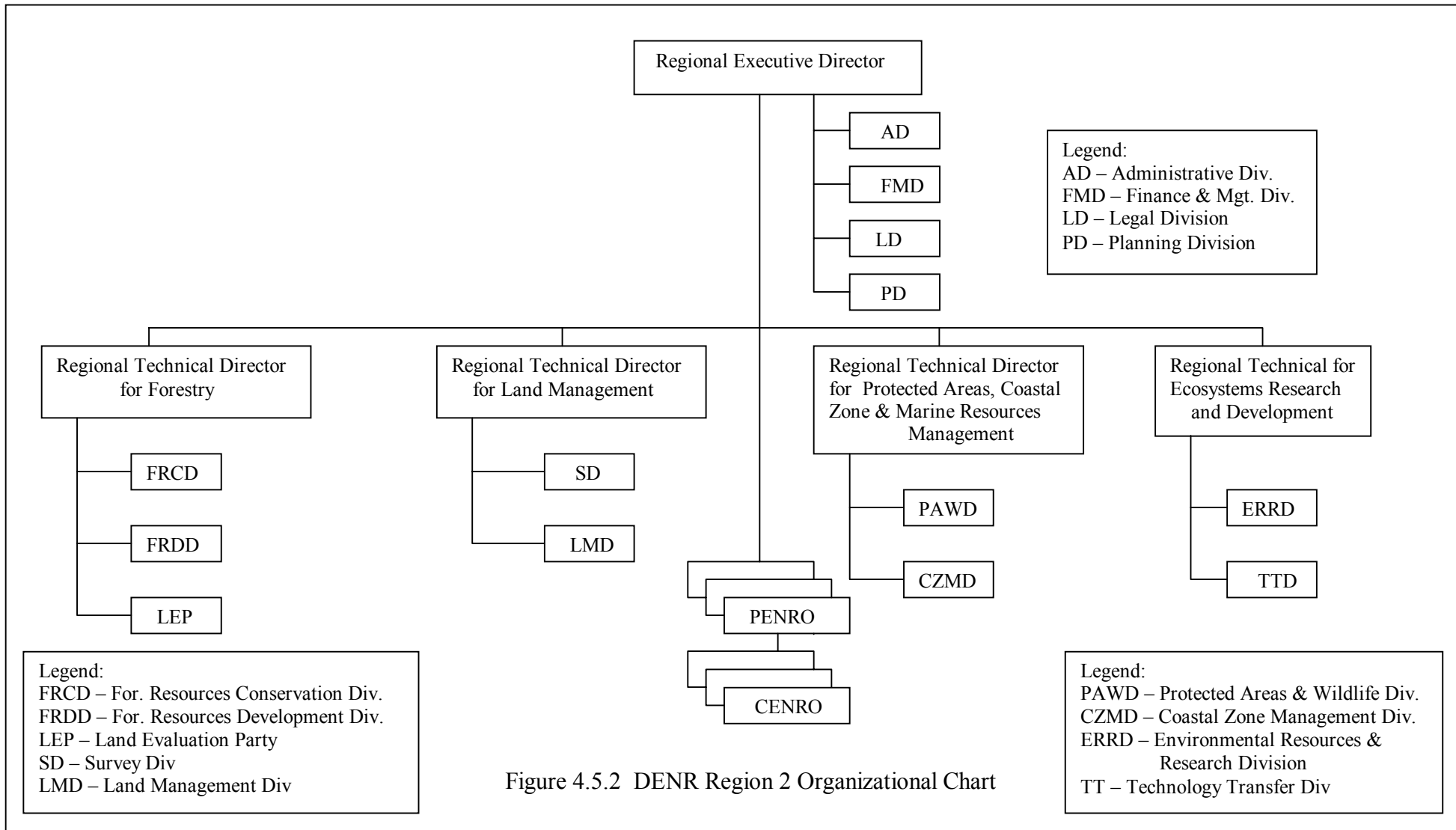


Figure 4.5.2 DENR Region 2 Organizational Chart

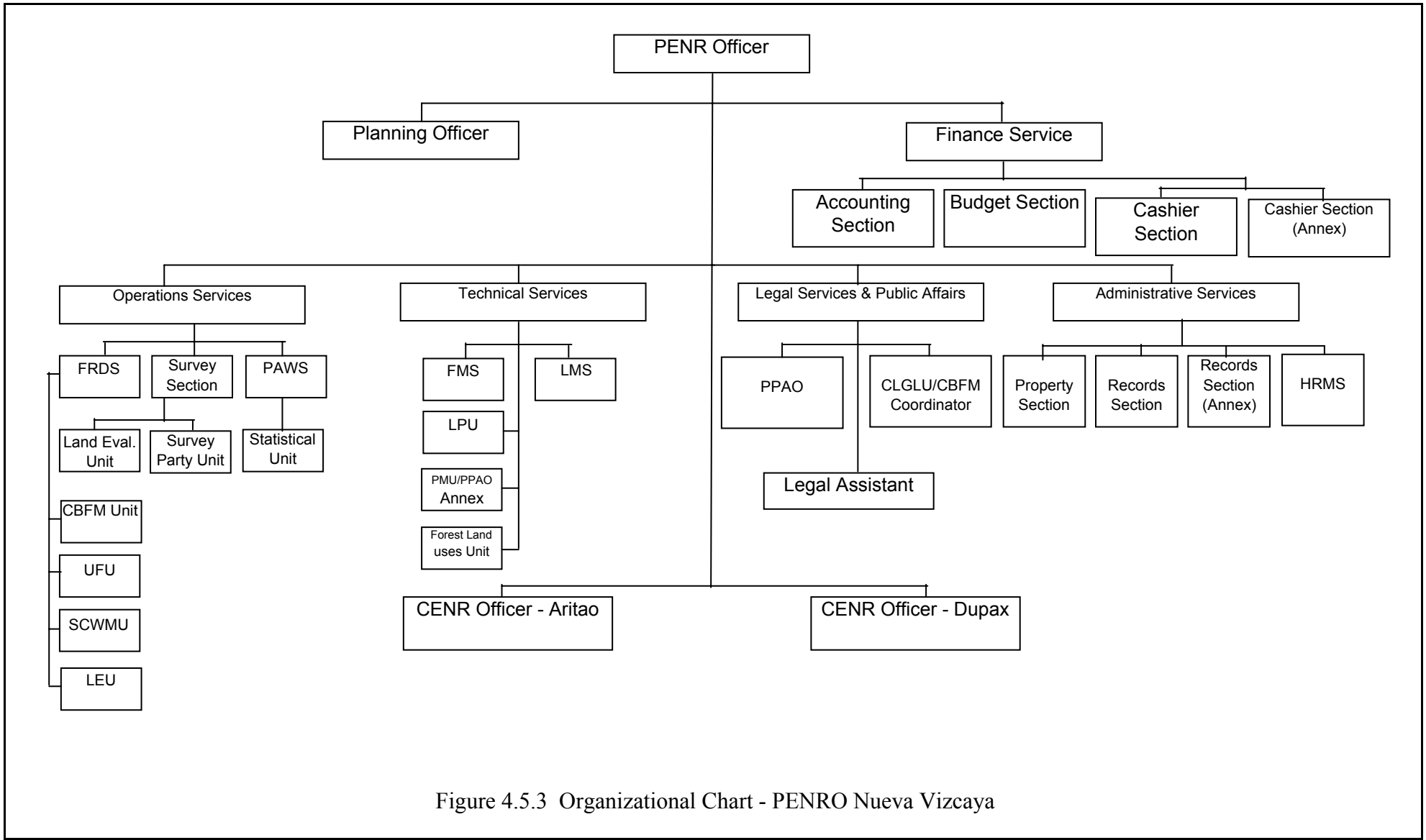


Figure 4.5.3 Organizational Chart - PENRO Nueva Vizcaya

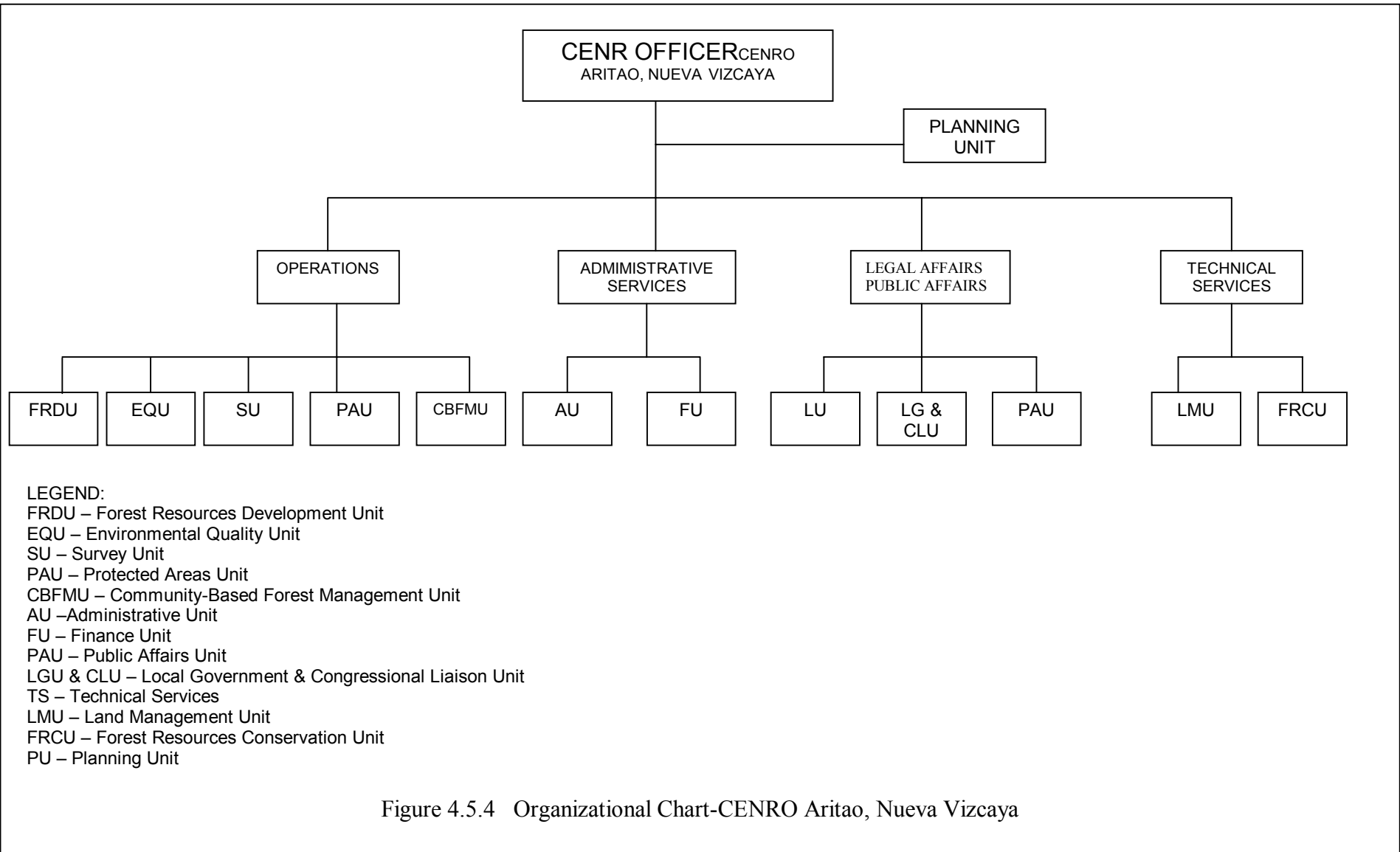


Figure 4.5.4 Organizational Chart-CENRO Aritao, Nueva Vizcaya

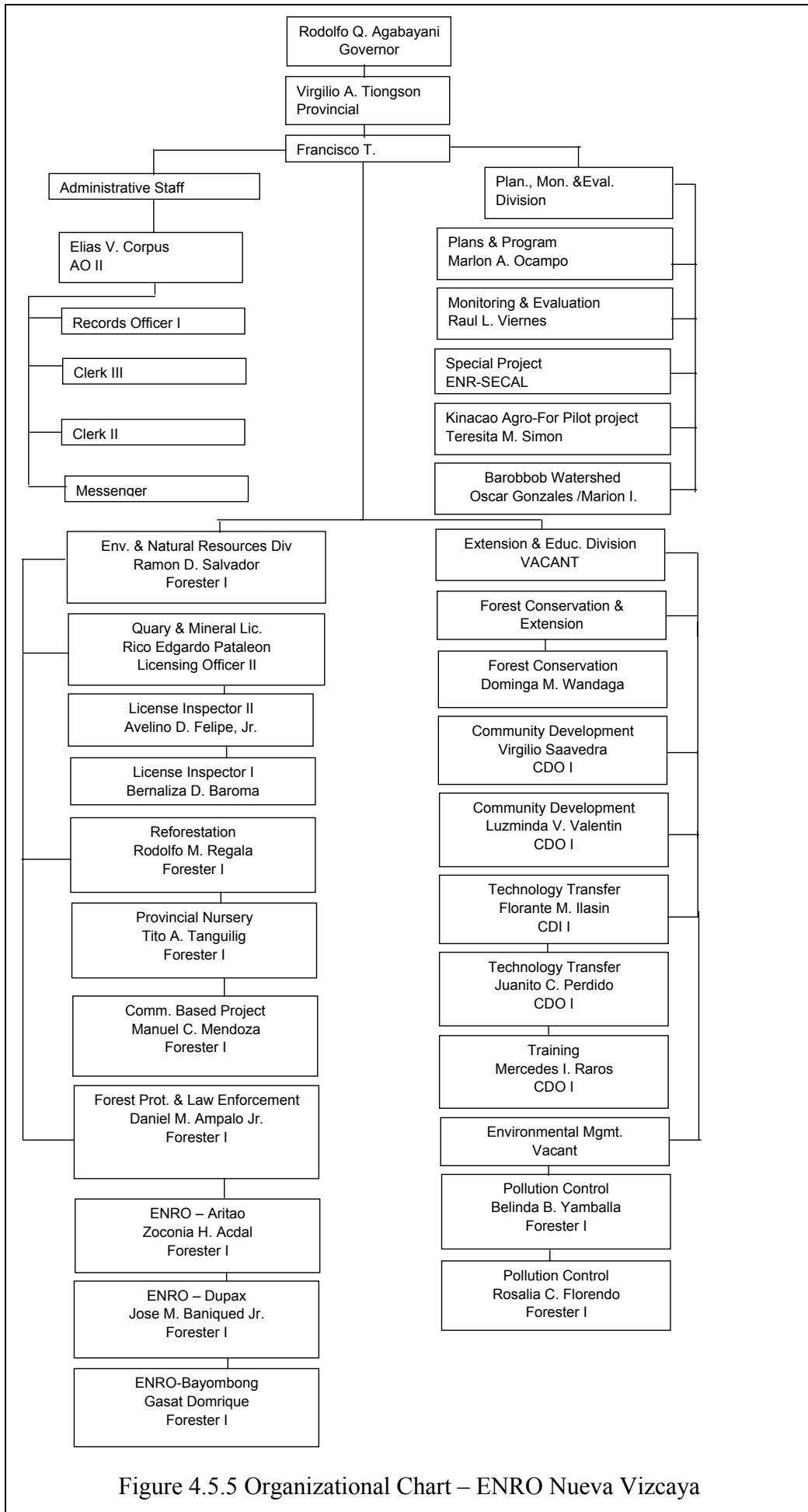
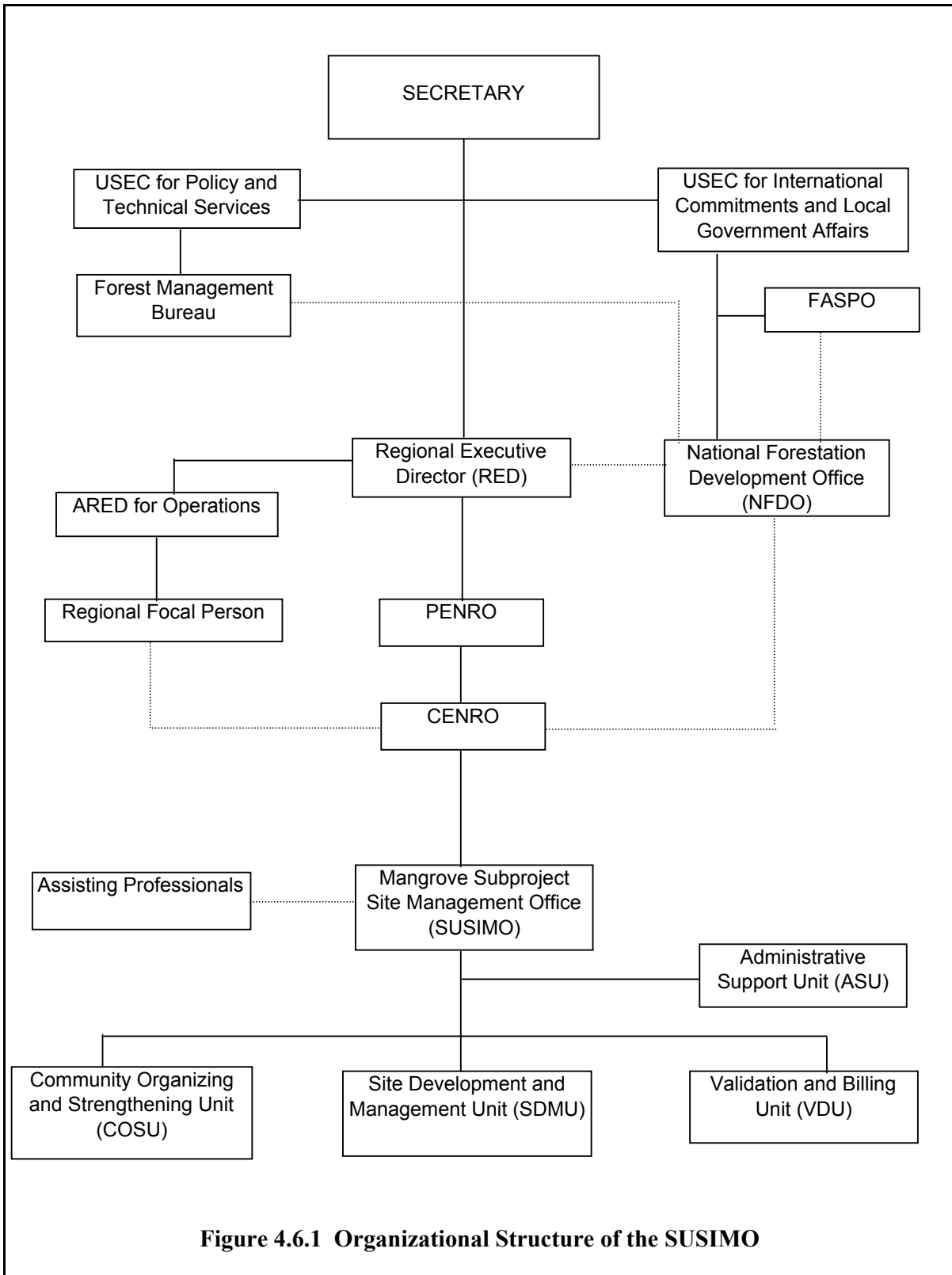


Figure 4.5.5 Organizational Chart – ENRO Nueva Vizcaya



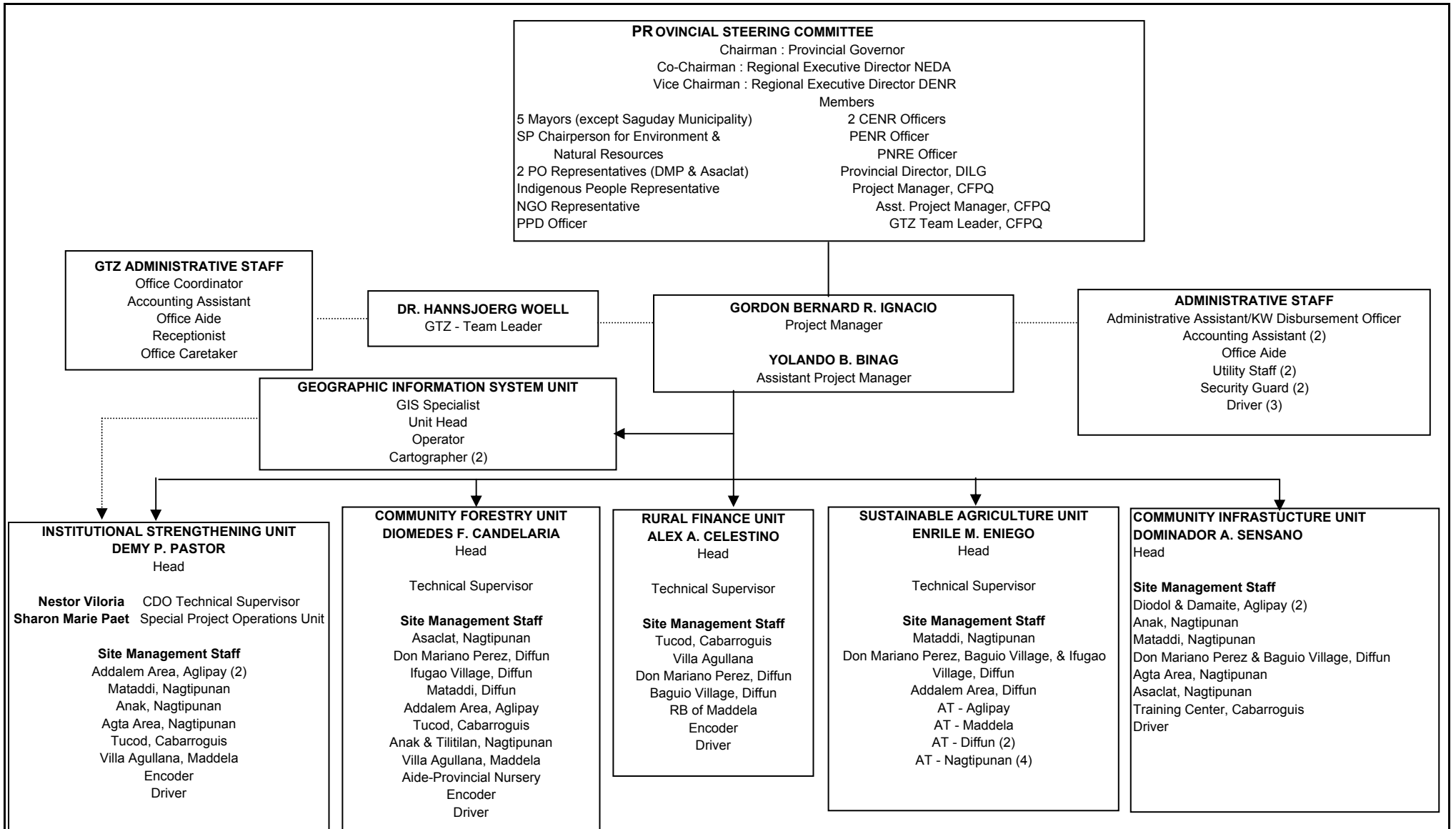


Figure 4.6.2 Philippine-German Community Forestry Project - Quirino Organizational Chart

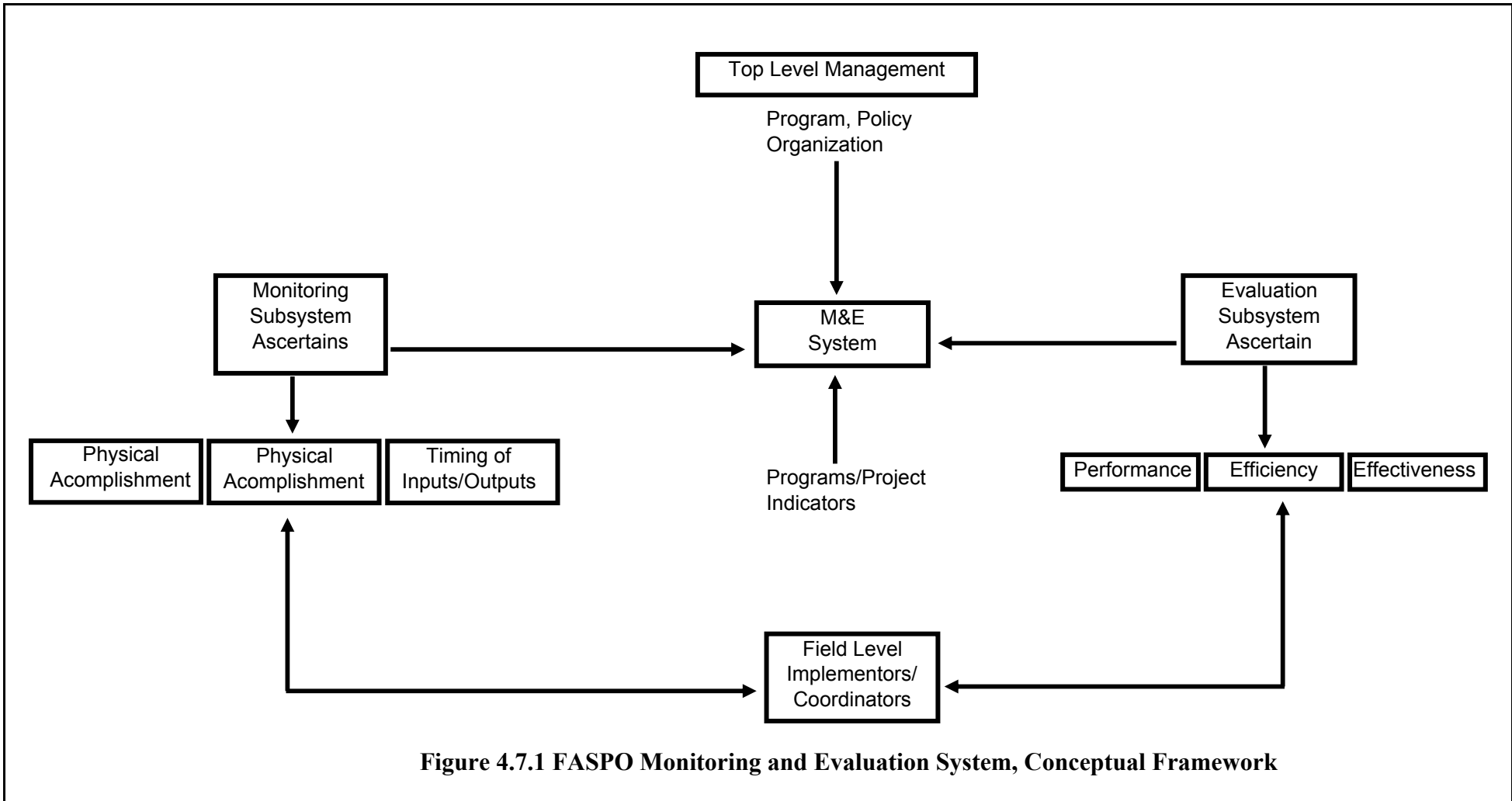


Figure 4.7.1 FASPO Monitoring and Evaluation System, Conceptual Framework

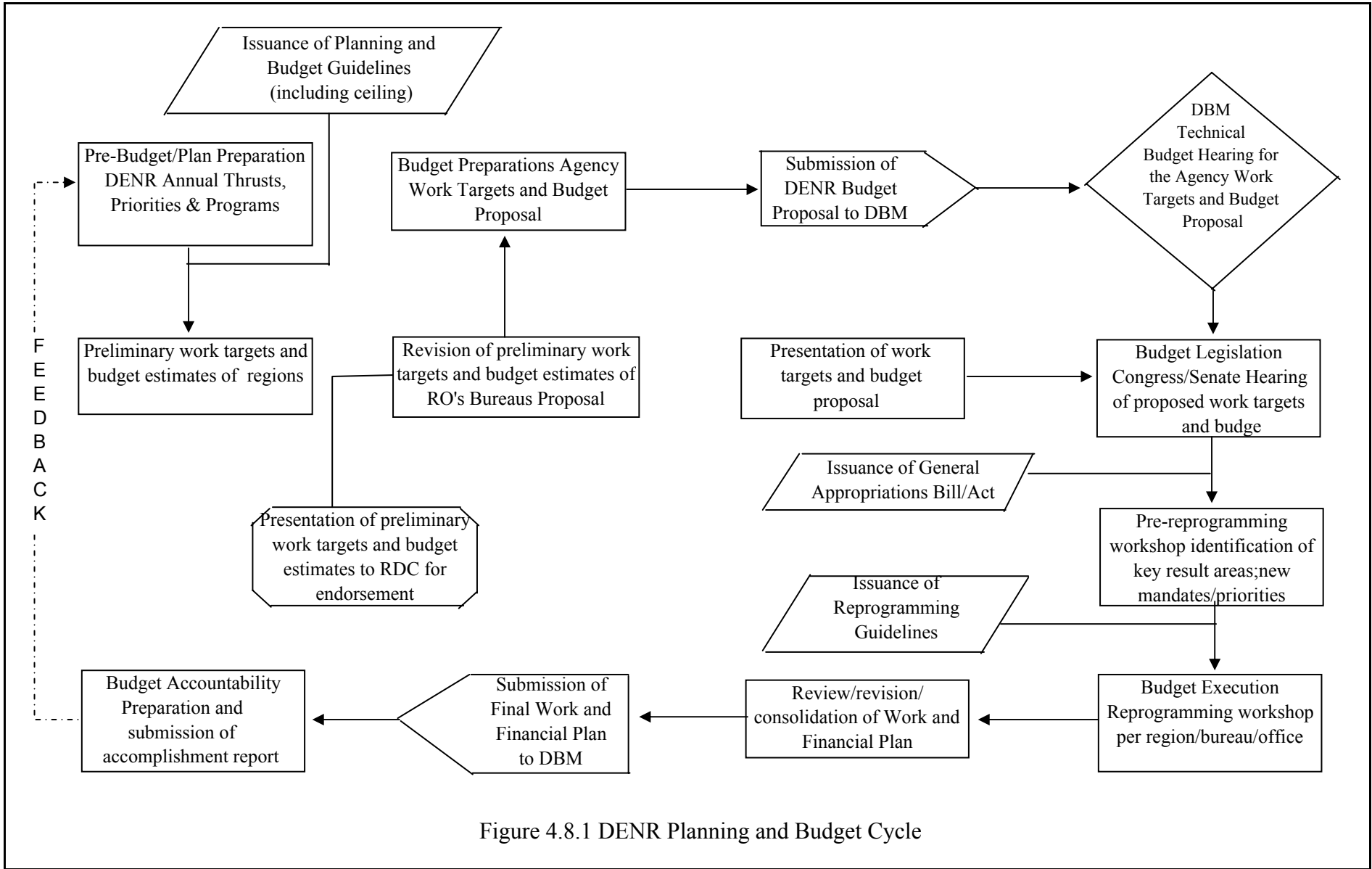


Figure 4.8.1 DENR Planning and Budget Cycle

Attachment

Attachment

Profiles of Potential Community-Based Enterprises

The following are considered some of the potential community-based enterprises. The list is by no means complete. The choice of a technology would depend so a large extent on the sustainable raw materials that may be found in the community. More enterprises could be identified after a thorough assessment of raw materials that exist in the community.

POTENTIAL COMMUNITY-BASED ENTERPRISE

1. Kalamansi Powder

Natural fruit drinks are in demand by an increasingly health conscious population particularly the young and school children. Kalamansi or citrus powder is a good source of vitamin.

1. Economic size of production: 2,500 packs/mo.
2. Requirements based on the above economic size:
 - 2.a. Equipment and estimated costs:

	Equipment	Estimated Cost (P)
1.	Basket centrifuge, 1 unit	300,000
2.	Spray dryer, 1 unit	250,000
3.	Working tables, 3 units	6,000
4.	Peristaltic pump, 1 unit	50,000
5.	Blender, 1 unit	3,000
6.	Plastic sealer, 1 unit	2,000
7.	Kitchen utensils and other accessories	4,500
	TOTAL EQUIPMENT COST	P 615,500
8.	Building	P 300,000
9.	Office equipment	P 10,000

- 2.b. Space requirement, 300 m² (15m x 20m): rent free

- 2.c. Raw material requirement per month:

1.	Calamnasi, kgs	9,541
2.	Maltodextrin, kg	624
3.	Anti-caking agent, kg	0.6

- 2.d. Personnel requirements

1.	Supervisor, 1	P10,000/mo or P30,000 for 3 months
2.	Laborers, 5	Ave. wage P 135/day or 50,625 for 3 mos.
3.	Employee benefits; 25 % of salary/wage	P 20,156 for 3 mos.

- 2.e. Pre-operating Expenses P 100,000
- 2.f. Operating capital P 375,308 for 3 mos.
- 2.g. Contingency P 18,765 (5% of operating capital)
- TOTAL CAPITAL NEEDED P 1,726,514
3. Profitability indicators:
- IRR: 26%
 - ROI: 20%
 - Payback period: 8 yrs.
4. Break-even selling price: P49.84/pack of 250 gm
5. Proposed selling price: P 71.00/pack of 250 gm
6. Environmental Considerations: The process does not use and polluting raw materials and there are no foreseen negative environmental impacts.

2. Bamboo Furniture

- Demand: Bamboo furniture is gaining recognition not only in the rural areas but also in urban areas as well. In fact it is already exported to European countries. Demand will depend on quality and price.
- Economic size of production: 16 sets/mo.
- Requirements based on the above economic size:

3.a. Equipment and estimated costs:

	Equipment	Estimated Cost (P)
1.	Portable drill, 1 unit	3,500
2.	Handsaw, 2 units	600
3.	Scraper, 4 pcs.	1,000
4.	Gauge chisel, 5 pcs.	1,000
5.	Flat chisel, 2 pcs.	400
6.	Rasp file, 2 pcs.	400
7.	Rubber mallet, 4 pcs.	600
8.	Claw hammer, 2 pcs.	500
9.	Spoke shave, 4 pcs.	800
10.	Bolo/machete, 4 pcs.	1,000
11.	Sizer, CITC, 2 units	500
12.	Thickneser, CITC, 2 units	500
	TOTAL EQUIPMENT	P 7,300
13.	Building	P 120,000

- 3.b. Space requirement, 300 m² (15m x 20m): rent-free
- 3.c. Raw material requirement per month:
- | | |
|----------------------|---------|
| 1. Bamboo poles, pcs | 167/mo. |
| 2. Adhesives, gal | 200/mo. |
| 3. Abrasives, pcs. | 75/mo. |
- 3.d. Personnel requirements
- | | |
|--|-------------|
| Contract labor (includes material preparation, assembly and finishing) | P750.00/set |
|--|-------------|
- 3.e. Pre-operating Expenses P 50,000
- 3.f. Operating capital P 100,000 for 3 mos.
- 3.g. Contingency 5,000 (5% of operating capital)
- TOTAL CAPITAL NEEDED P 282,300
4. Profitability indicators:
1. IRR: 82%
 2. ROI: 74%
 3. Payback period: 3 yrs.
5. Proposed selling price: P 3,000/set
6. Environmental Considerations: No negative environmental impacts. On the contrary it stimulates the planting of bamboo in the rural areas thus enhancing the environment. The wastes are biodegradable. Care, however, should be taken with respect to disposal of waste paints, varnishes and solvents as these are pollutants.

3. **Banana Sauce and Banana Chips**

1. Demand: No data on demand on banana sauce and banana chips. It could be stated however, that banana chips is becoming a favorite snacks not only by the younger generation but also by the middle-aged. Similar to tomato catsup, banana sauce is also growing in popularity as food condiment.
2. Economic size of production:
Banana Sauce: 7,250 bottles/mo.
Banana Chips: 25,500 packs/mo.
3. Requirements based on the above economic size:

3.a. Equipment and estimated costs:

	Equipment	Estimated Cost (P)
1.	Mechanical slicer, 1 unit	50,000
2.	Refractometer, 1 unit	40,000
3.	Soaking tank, 2 units	5,000
4.	Frying bowl w/ burner, 2 units	20,000
5.	Sealer, 2 units	3,000
6.	Gas tank, 2 units	1,200
7.	Weighing scale, 2 units	10,000
8.	Colloid mill, 1 unit	500,000
9.	Jacketed kettle w/ stirrer	185,000
10.	Utensils, 1 set	25,000
11.	Working tables, 2 units	5,000
	Sub-total	P 883,400
12.	Office equipment	P 30,000
13.	Building, 150 m ²	P 1,050,000

3.b. Space requirement: 300 m² (15mx 20m): rent free

3.c. Pre-operating Expenses P 120,000

3.d. Operating capital P 1,979,112 for 3 mos.

3.g. Contingency P 98,170 (5% of operating capital)

TOTAL CAPITAL NEEDED P 4,062,512

4. Profitability indicators:

a. IRR: 52%

b. ROI: 58%

c. Payback period: 4 yrs.

5. Break-even selling price:

Banana sauce: P6.05/bottle

Banana chips: P7.95/pack

6. Proposed selling price: 35% mark-up

Banana sauce: P8.50/bottle

Banana chips: P10.00/pack

7. Environmental Considerations: No polluting raw material is used, all materials are biodegradable.

4. Handicraft Weaving

Handicrafts are one of the dollar-earning export industries of the country. It is one the fastest growing industries. Export value of handicrafts is close to \$500 million a year. This industry has bright prospects.

1. Economic size of production:

Baskets: 1,500 pcs. /mo, assorted sizes

Trays : 1,200 pcs./mo., assorted sizes

2. Requirements based on the above economic size:

2.a. Equipment and estimated costs:

Equipment	Estimated Cost (P)
1. Bolos, 10 pcs.	2,000
2. Knife, 10 pcs.	1,000
3. Pruning shears, 5 pcs.	2,500
4. Grinding stone, 2 pcs.	300
5. Soaking tank, 2 pcs.	500
TOTAL EQUIPMENT	p 6,800

2.b. Space requirement, 300 m² (15m x 20m): rent free

2.c. Raw material requirement per month:

1. Vines, kg.	3,000
2. Cislin, ltrs	4,000
3. Farmay, ltrs.	1,000
4. Finishing materials	1,000

2.d. Personnel requirements

1. Supervisor, 1	P 150/day
2. Weavers, 10	P 10.00/pc
3. Laborers, 2	P 120/day
4. Employee benefits,	P 1,485/mo or P4,455 3 months

2.e. Pre-operating Expenses P 20,000

2.f. Operating capital P 150,000 for 3 mos.

2.g. Contingency P 7,500 (5% of operating capital)

TOTAL CAPITAL NEEDED P 281,255

3. Profitability indicators:
 1. IRR: 36%
 2. ROI: 31%
 3. Payback period: 5 yrs.
4. Break-even selling price:
5. Proposed selling price:

Basket, small:	P25.00/pc
Basket, medium:	P35.00/pc
Basket, large:	P45.00/pc
Tray, small:	P30.00/pc
Tray, large:	P45.00/pc.
6. Environmental Considerations: The natural raw materials are biodegradable and can be composted and used as fertilizer. They also could be used as fuel. However, care in disposal of the preservatives used for prophylactic treatment of the materials should be exercised.

5. Canton Noodles with Squash

Canton noodles with squash are a nutritious noodle prepared from a blend of wheat flour, squash puree, salt, egg, and noodle improver. It is golden yellow and a 50 g serving will provide 16%, 20% and 24% of the Recommended Dietary Allowance (RDA) for energy, protein and vitamin A, respectively of 4-6 year-old children¹.

Noodle products are well accepted by all classes of consumers. Children as well as adults take noodles for breakfast, lunch or dinner but more popularly as snacks. It is also a favorite food served during parties. The advantage of canton noodles with squash is its nutritive value such as B-carotene.

1. Demand: There has been no study on the demand for canton noodles. However, this is now being manufactured in Metro Manila and is selling quite well according to the DOST. The product is not yet widely distributed in the rural areas. This could be an opportunity for whoever is going to produce canton noodles with squash.
 - 1.a Local price of canton noodles with squash snacks: P19.62/pack of 250g.
2. Economic size of production: 13,000 packs /month

¹ Canton Noodle with Squash. Food and Nutrition Research Institute (FNRI), DOST. Bicutan, Taguig, Metro Manila. 1998.

3. Requirements based on the above economic size:

3.a. Equipment and estimated costs:

Equipment	Estimated Cost (P'000)
1. Noodle machine (1 pc.)	85,000
2. Spike mixer (1 pc.)	65,000
3. Stove with tank & regulator (3 pcs)	7,500
4. Kettle (3 pcs)	3,000
5. Grinder (1 pc)	40,000
6. Weighing scale, 1 kg cap. (2 pcs)	4,000
7. Weighing scale, 100 kg. cap (1 pc)	15,000
Sub-total	P 219,500
8. Office equipment and transport	180,000

3.b. Space requirement: 200 m² (10mx 20m): rent free

3.c. Raw material requirement per month:

1. Wheat flour, kg.	2,083
2. Squash, kg.	983
3. Vegetable oil, kg	425
4. Salt, kg.	23
5. Egg, kg.	43
6. Lye solution, kg.	20

3.d. Personnel requirements

1. Supervisor, 1	Salary at P12,000/month
2. Laborers, 10	Ave. wage at P4,000/mo or P40,000/mo
3. SSS benefits	25% of wages & salaries or P13,000/mo.

3.e. Pre-operating Expenses P19,086

3.f. Operating capital P 507,111 for 3 mos.

3.g. Contingency P 25,355 (5% of operating capital)

TOTAL CAPITAL NEEDED P 951,052

4. Profitability indicators:

- IRR: 129%
- ROI: 24%
- Payback period: 3 yrs.

5. Break-even selling price: P14.53/pack

6. Proposed selling price: P19.62/pack (35% mark-up)

6. Juice Concentrate

1. Demand: No data on demand for juice concentrate but more and more Filipinos are becoming health conscious and natural fruit juice drinks are becoming popular even in the rural areas.
2. Economic size of production:
 - Juice concentrate: 82,720 bottles /mo @ 45 ml.
 - Jelly spread: 11,616 bottles/mo @250 ml.
 - Calamansi oil: 88 bottles /mo.@ 500 ml.
3. Requirements based on the above economic size:
 - 3.a. Equipment and estimated costs:

Equipment	Estimated Cost (P)
1. Heating tank, 1 unit	25,000
2. Vacuum dearator, 1 unit	50,00
3. Pasteurization tank, 2 units	12,000
4. Gas tanks, 4 units	2,000
5. Gas stoves, 4 units	4,800
6. Filter, 3 units	3,000
7. Storage container, 3 units	1,080
8. Cooking vessel, 3 units	21,600
9. Soaking container, 2 units	480
10. Filter press, 1 unit	4,200
11. Refrigerator, 1 unit	15,000
TOTAL EQUIPMENT	P 139,160
12. Office equipment	P 20,000
13. Building (100 sq m)	P 800,000

- 3.b. Space requirement, 200 m²: rent-free
 - 3.c. Pre-operating Expenses P 80,000
 - 3.d. Operating capital P 482,941 for 3 mos.
 - 3.e. Contingency P 28,086 (5% of operating capital)
- TOTAL CAPITAL NEEDED P 1,522,101
4. Profitability indicators:
 1. IRR: 146%
 2. ROI: 150%
 3. Payback period: 2 yrs

5. Proposed selling price:

Juice concentrate:	P3.31/ bottle
Jelly spread	P15.10/bottle
Calamansi oil	P180.00/bottle

7. Kalamansi Powder

Natural fruit drinks are in demand by an increasingly health conscious population particularly the young and school children. Kalamansi or citrus powder is a good source of vitamin.

1. Economic size of production: 2,500 packs/mo.
2. Requirements based on the above economic size:
 - 2.a. Equipment and estimated costs:

Equipment	Estimated Cost (P)
1. Basket centrifuge, 1 unit	300,000
2. Spray dryer, 1 unit	250,000
3. Working tables, 3 units	6,000
4. Peristaltic pump, 1 unit	50,000
5. Blender, 1 unit	3,000
6. Plastic sealer, 1 unit	2,000
7. Kitchen utensils and other accessories	4,500
TOTAL EQUIPMENT COST	P 615,500
8. Building	P 300,000
9. Office equipment	P 10,000

2.b. Space requirement, 300 m² (15m x 20m): rent free

2.c. Raw material requirement per month:

1. Calamnasi, kgs	9,541
2. Maltodextrin, kg.	624
3. Anti-caking agent, kg	0.6

2.d. Personnel requirements

1. Supervisor, 1 P10,000/mo or P30,000 for 3 months
2. Laborers, 5 Ave. wage P 135/day or 50,625 for 3 mos.
3. Employee benefits; 25 % of salary/wage P 20,156 for 3 mos.

2.e. Pre-operating Expenses P 100,000

- 2.f. Operating capital P 375,308 for 3 mos.
- 2.g. Contingency P 18,765 (5% of operating capital)
- TOTAL CAPITAL NEEDED P 1,726,514
3. Profitability indicators:
- IRR: 26%
 - ROI: 20%
 - Payback period: 8 yrs.
4. Break-even selling price: P49.84/pack of 250 gm
5. Proposed selling price: P 71.00/pack of 250 gm
6. Environmental Considerations: The process does not use and polluting raw materials and there are no foreseen negative environmental impacts.

8. Squash Catsup

- Demand: Squash catsup is a new product that has come out from the laboratory and it has to be tested on the market.
- Economic size of production: 5,750 bottles/month
- Requirements based on the above economic size:
 - Equipment and estimated costs:

Equipment	Estimated Cost (P'000)
1. Burner (4 pc.)	24,000
2. Cooking vessels (4 pcs)	4,000
3. Grinder (1 pc.)	25,000
4. Utensils, assorted	5,000
6. Weighing scale, 1 kg cap. (1 pcs)	2,000
7. Weighing scale, 50 kg. cap (1 pc)	8,000
Sub-total	P 68,000
8. Office equipment	15,000

- Space requirement: 150 m² (10mx 15m): rent free

3.c. Raw material requirement per month:

1. Squash, kg.	1,213
2. Sugar, kg.	400
3. Onion, kg	47
4. Salt, kg.	38
5. Red pepper, kg.	35
6. Cornstarch, kg.	20
7. Garlic, kg.	12
8. Siling labuyo, g.	1,880
9. Artificial coloring, g	1,305
10. Cinnamon, g	60
11. Allspice, g.	60
12. Vinegar, ltr.	400

3.d. Personnel requirements

1. Supervisor, 1	Salary at P8,000/month
2. Laborers, 10	Ave. wage at P3,600/mo or P10,800/mo
3. SSS benefits	25% of wages & salaries or P4,700/mo.

3.e. Pre-operating Expenses	P 8,200
3.f. Operating capital	P 361,338 for 3 mos.
3.g. Contingency	P 18,067 (5% of operating capital)
TOTAL CAPITAL NEEDED	P 452,538

4. Profitability indicators:

- a. IRR: 108%
- b. ROI: 47%
- c. Payback period: 4 yrs.

5. Break-even selling price: P19.06/bottle
6. Proposed selling price: P25.73/bottle (35% mark-up)
7. Environmental considerations: Wastes are biodegradable, can be composted for fertilizer. No foreseen negative impacts.

9. Handmade Paper Pulp

Handmade pulp is used in the manufacture of handmade paper. Sometimes it is also exported but the volume is rather low. Abaca is the most used raw material for handmade pulp production.

Abaca pulp is blended with short fiber pulp such as cogon and other grasses. Abaca pulp is priced at P120 to 150 a kilo in the open market.

1. Demand for handmade pulp
 - 1.a Local demand: 500 tons abaca pulp per year valued at P60 M
 - 125 tons cogon pulp per year valued at P4.4M
 - 125 tons salago pulp per year
2. Economic size of production: 50 kg per day
3. Requirements based on the above economic size:
 - 3.a. Equipment and estimated costs:

Equipment	Estimated Cost (P)
1. Mechanical fiber/grass cutter	5,000
2. Stainless steel cooking vessel	10,000
3. Furnace/stove	30,000
4. Naginata beater	50,000
5. Screen boxes	2,000
6. Weighing scales	1,000
Sub-total	P 98,000
7. Building, 150 m ²	P 120,000

3.b. Space requirement: 100 m² (10mx 10m): rent free

3.c. Raw material requirement per month:

1. Fiber materials, kg	1,500/mo.
2. Sodium hydroxide, kg.	375/mo.

3.d. Personnel requirements

1. Supervisor, 1	P 8,000/month
2. Laborers, 4	P 5,400/mo or 16,200 for 3 mos.

3.e. Operating capital P 146,100 for 3 mos.

3.f. Contingency P 7,305 (5% of operating capital)

TOTAL CAPITAL NEEDED P 365,009

4. Profitability indicators:

- a. IRR: 86%
- b. ROI: 65%
- c. Payback period: 3 yrs.

5. Break-even selling price: P61.20/kg.
6. Proposed selling price: P107.00/kg.
7. Environmental Considerations: The cooking liquor contains NaOH and it is a pollutant. A settling pond should be constructed and the liquor to settle in the pond until it is drained in water bodies on in the soil.

10. Rattan Furniture

Rattan furniture used to be an important export of the country especially to the USA, Europe and Japan. With declining raw material sources because of the denudation of the natural forest, rattan furniture is declining in sales. Its popularity has not diminished and could become again an important export commodity given an improve raw material supply situation. Rattan furniture can still command a good price even in the rural areas.

1. Economic size of production: 35 chairs/mo.
2. Requirements based on the above economic size:
 - 2.a. Equipment and estimated costs:

Equipment	Estimated Cost (P)
1. Metal scraper, 5 pcs.	750
2. Air compressor w/ accessories,1 unit	12,000
3. LPG tank/blow torch,1 unit	700
4. Hacksaw, 2 pcs.	600
5. Hammer, 3 pcs.	900
6. Spray gun, 2 units	10,000
7. Electric drill, 3 units	3,000
TOTAL EQUIPMENT	P 147,950
8. Building	P 120,000

- 2.b. Space requirement, 300 m² (15m x 20m): rent free

2.c. Raw material requirement per month:

1. Rattan poles, assorted sizes, pcs.	150
2. Back and seat cane weave, pcs.	100
3. Binding materials, bundles	20
4. Sanding sealer, gal.	3
5. Clear gloss lacquer, gal.	3
6. Sandpaper, #100, ft.	6
#180, pcs.	5
7. Lacquer flow, bottles	9
8. Tinting color in oil, pints	3
9. Lacquer thinner, gal.	3
10. Putty, pints	2

2.d. Personnel requirements

1. Contract labor, 3	P120/day
2. Supervisor, 1	P150/day

2.e. Pre-operating Expenses P50,000

2.f. Operating capital P100,000 for 3 mos.

2.g. Contingency P5,000 (5% of operating capital)

TOTAL CAPITAL NEEDED P 302,950

3. Profitability indicators:

- a. IRR: 39%
- b. ROI: 40%
- c. Payback period: 5 yrs.

4. Proposed selling price: P 1,200/chair

5. Environmental Considerations: No foreseen negative impacts except that finishing materials like paints and varnishes should be carefully disposed of.

11. Handmade Paper

The handmade pulp and paper industry is a small-scale enterprise. However, it has a very high potential. Handmade paper is being exported to Europe, mostly.

1. Economic size of production: 800 sheets /day (24 “ x 36”)
2. Requirements based on the above economic size:

2.a. Equipment and estimated costs:

Equipment	Estimated Cost (P)
1. Disintegrator	20,000
2. Hydraulic press	30,000
3. Paper vats	10,000
4. LPG fired handmade paper dryer	30,000
5. Mold and deckle sets	10,000
Sub-total	P 100,000
6. Building, 150 m2	P 120,000

2.b. Space requirement: 300 m2 (15mx 20m): rent free

2.c. Raw material requirement per month:

1. Pulp, kg	750
2. Chlorox, ltrs	150
3. Alum, rosin, starch, dyestuff	P1,500/mo

2.d. Personnel requirements:

1. Supervisor, 1	P 8,000/mo.
2. Labor, 4	P 7,200/mo.
3. SSS, 25 % of salary/wages	P 3,800/mo.

2.e. Pre-operating Expenses:

2.f. Operating capital P 363,582 for 3 mos.

2.g. Contingency P 18,179 (5% of operating capital)

TOTAL CAPITAL NEEDED P 381,761

3. Profitability indicators:

1. IRR: 95 %
2. ROI: 90 %
3. Payback period: 4 yrs.

4. Break-even selling price: P 8.95/sheet

5. Proposed selling price: P 15.00/sheet

6. Environmental Considerations: The wastewater from handmade paper industries contains still some amount of the cooking liquor. Bleaching materials are often used. If dyes are used, this could be source of pollution especially if the dye material is not biodegradable. Settling ponds and treatment of the wastewater is needed.

12. Fossilized Leaves

Fossilized leaves are leaves that are cooked in weak solution of NaOH to remove parts of the leaves so that what is left are just the veins making the leaves appear as fossils. These are used as decorations in the production of several items of handmade paper and paper products, handicrafts, home décor and gift items. All leaves can be fossilized but there are certain species that are in demand in the industry. Linkage with the handicrafts and handmade paper industry is the key to success in this livelihood activity.

1. Demand for fossilized leaves: There is no figure on the demand but handicraft manufacturers and specialty handmade paper products producers are in need of fossilized leaves.

1.a Local price: ₱ 1.00/pc

2. Economic size of production: 25,000 pcs/month

3. Space requirement: 9 m² (backyard or elsewhere)

4. Personnel requirements:

4.a Supervisor: Salary per month ₱8,000/month

4.b Laborers: Contractual Ave. wage/month ₱0.15/pc

P7,500 for 50,000 leaves

5. Total investments:

5a. Equipment

Kettle (1 pc)	P 200.00
Drum (1pc)	P 800.00
Pails (5 pcs)	P 300.00
Stove (1 pc)	P 200.00

Total P 1,500.00

5b. Raw Materials

Leaves (20 kg)	P200.00
Chemicals	P294.00
Fuelwood	P 60.00
Total	P554.00

6. Operating capital: P32,054 for 3 months

7. Profitability: Assuming 80% sale of 50,000 leaves = P40,000
Cost of production of 50,000 leaves = P32,045
Profit in 3 months: P 7,955; if he is his own Supervisor, plus P24,000 or P31,955 less cost of sales.
8. Environmental considerations: Some chemicals are used such as NaOH and Chlorine. These should be disposed of properly in order not to pollute the environment.

13. Sericulture²

1. Demand for silk cocoons:
 - 1.a Local: raw silk: 5,730 m² in 1999 and 12,688 m² in 2000
 - 1.b Importation of silk: Most of the demand for raw silk was through imports ever, the country exported 47,801 m² of raw silk in 2000.
2. Economic size of silk cocoon production: 225kg/year or in terms of worms/month 9 boxes of 20,000 eggs per box
3. Land requirement for mulberry plantation: 1 ha (33,333 trees), assumption: free rent
4. Labor requirements: P40,231/year or P10,057/3 months
5. Total investments:
 - 5.a Mulberry plantation ₱72,986
 - 5.b Buildings ₱ 50,000
 - 5.c Silk worms ₱120/box or ₱1,080/month
 - 5.d Equipment ₱137,240
 - 5.e Materials P6,149/3 months
6. Operating capital: ₱19,446 for 3 months
7. Price per kg: P150/kg
8. ROI 32%
9. Environmental considerations: Wastes are biodegradable and can be composted as bio-fertilizer. The mulberry plantation has positive environmental impacts.

² Source: College of Forestry, Nueva Vizcaya State Institute of Technology, Bayombong, Nueva Vizcaya.

14. Instant *Kalamansi* Extract

Kalamansi or Philippine Lime is a very versatile souring agent utilized since the early settlers learned how to plant valuable crops for seasonings, dips and even juices because it tastes fresh and is concentrated. It livens up fried or grilled dishes and whisk drops of freshness into *kinilaw*, vegetables and salads with the *kalamansi* extract. It contains 15.3 mg of ascorbic acid for every 100 ml of extract. It is packaged in 150 ml bottle. It can be stored in cool, dry place and away from strong light or direct sunlight. Under these conditions it has a shelf life of 6 months.

Kalamansi extract has a potential for export since the demand for ethnic foods with distinct Filipino tastes are high in the global market. The commercial availability of this convenience food is very timely, and the possibility of linking food processors to the global market is great. The presence of ethnic foods from the Philippines will likewise cater to expatriates. It can be promoted as a mainstream product of the Philippines in the global market³.

1. Demand: There is no available data on the demand for Instant *Kalamansi* Extract. It is relatively a new product and it is doubtful if this is already available in the rural areas. It may need some market testing.
 - 1.a Suggested selling price of *kalamansi* extract: P 25/bottle of 150 ml.
2. Economic size of production: 12,500 bottles/month of 150 ml/bottle
3. Requirements based on the above economic size:
 - 3.a Equipment and estimated costs:

	Equipment	Estimated Cost (P'00)
1.	Freezer (1 pc)	12,000
2.	Stove (10 pcs)	15,000
3.	Gas tank with regulator (1 pc)	3,000
4.	Wire baskets (12 pcs)	1,200
5.	SS steel cookers (10 pcs)	25,000
6.	Weighing scale, 100 kg cap. (1 pc)	5,000
7.	Weighing scale, 10 kg cap. (1 pc)	500
8.	Measuring cups (liquid & solid) (2 pcs)	100
9.	Measuring spoons (1 set)	50
10.	Juice extractor (6 pcs)	300
11.	Cutting boards (6 pcs)	300
12.	SS steel knives (6 pcs)	600
13.	Plastic pails, 36 lts cap. (6 pcs)	600
14.	Colanders (12 pcs)	600
15.	Plastic basins (12 pcs)	600

³ Instant *Kalamansi* Extract. Food and Nutrition Research Institute (FNRI), DOST. Bicutan, Taguig, Metro Manila. 1999.

16.	Osterizers (2 pcs)	2,000
17.	Strainers (10 pcs)	500
	Sub-total	P67,350
18.	Office equipment and transport	184,000
3.b	Space requirement: 300 m ² (15 m x 20 m) [Assumption: rent free]	
3.c	Raw material requirement per month:	
a.	<i>Kalamansi</i> , kg	8,250
b.	Stablizer, kg	4.75
c.	Bottles with caps & seals	12,500
d.	Cartons (pcs)	500
3.d	Personnel requirements:	
3.a	Supervisor: 1	Salary per month ₱ 12,000/month
3.b	Laborers: 20	Ave. wage/month P 4,000/mon. or P80,000/mon.
3.c	SSS	P 4,000/month
3.e	Pre-operating expenses	P 20,000
3.f	Operating capital:	P 463,895 for 3 months
3.g.	Contingency	P 22,090 (5% of Operating capital)
3.g.	Total capital needed:	P 713,155
4.	Profitability: IRR 239%; ROI: 170%; Payback period: 2 yr	
5.	Breakeven selling price:	P11.83/bottle
6.	Proposed selling price:	P25.00/bottle (53% mark up)
7.	Environmental considerations: Centralized waste disposal. Wastes are biodegradable and can be converted into compost for fertilizer. There are no foreseen negative impacts of the enterprise.	

15. Rice-Mongo Crunchies

Rice-mongo crunchies are a nutritious deep-fried snack made from a blend of rice flour and mingo flour. The product is crisp and has an appealing cereal taste further enhanced by the addition of artificial or natural flavors. Rice-mongo crunchies contains 490 kcal and 10 g protein

- 3.a Supervisor: 1 Salary per month ₱ 12,000/month
- 3.b Laborers: 11 Ave. wage/month P 4,000/mon. or P44,000/mon.
- 3.c Benefits 25% of wages & salaries (P2,800/mo)
- 3.e Pre-operating expenses P 32,010
- 3.f Operating capital: P 1,070,397 for 3 months
- 3.g Contingency P 53,940 (5% of Operating capital)
- 3.g. Total capital needed: P 1,560,940

- 4. Profitability: IRR: 141%; ROI: 69%; Payback period 3 yrs
- 5. Breakeven selling price: P2.03/pack
- 6. Proposed selling price: P2.71/pack (35% mark up)
- 7. Environmental considerations: Centralized waste disposal. Wastes are biodegradable and can be converted into compost for fertilizer. There are no foreseen negative impacts of the enterprise.