

Analysis of Community Forestry in the Philippines and Development of a Standardized Resource Management Model

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Abstract

Community forestry systems in the Philippines were reviewed and analysed based on literature and field surveys carried out during the participation in the Master Plan Study for Watershed Management in Upper Magat and Cagayan River Basin conducted by Japan International Cooperation Agency (JICA). With a particular focus on the Community-Based Forest Management (CBFM) program, research was conducted on the situation of land tenure and land use. In addition comparative analysis was made on various types of economic revenues including agricultural, livestock and service sectors. It was found that in spite of policy emphasis by the Philippine government on introducing agroforestry systems as a land tenure as well as sustainable land use strategy, marginal economic benefits were so far derived from such initiative. The communities less dependent on fruit sales from agroforestry plantations were more robust in gaining overall economic revenues arising principally from vegetable production, which was being discouraged due to *Kaingin* (slash-and-burn) practice. Such communities were also less dependent on the service sector revenues. Further, the correlation existed between the poorer revenue communities and their interests in the economic aspects in participating in the CBFM program.

Identified interests and constraints coupled with elements for successful implementation of the CBFM program were classified and incorporated into a standardized Resource Management Model (RMM). The Model is comprised of two management components: 1) Management Capital and 2) Natural Resource Management. The Management Capital capitalized by 1) Human Resource Development, 2) Livelihood Development, and 3) Basic Infrastructure is conceived as the principal management agent in effectively mobilizing activities concerning the Natural Resource Management. Community forestry will become viable and effective only when the Natural Resource Management components are pursued based on the satisfactory development of

the Management Capital. By designing and applying the RMM, various management action agenda identified by selected People's Organizations (POs) were classified into the RMM components, identifying priority requirements for healthy development of the CBFM program.

Key words: community forestry, People's Organization (PO), Community-Based Forest Management (CBFM), land tenure, land use, agroforestry, revenue analysis, Community Action Planning (CAP), the Problem Analysis, the Objective Analysis, Resource Management Model (RMM), Management Capital, Natural Resource Management, Human Resource Development.

Introduction and Methods

Community forestry has been increasingly adopted as a sustainable resource management strategy in the tropics in Asia, such as India, Sri Lanka, Nepal, Myanmar, Thailand, Indonesia and the Philippines (Poffenberger, M. (ed.) 1990 and 1997. Lynch, O. J. and Talbott, K. 1995; Poffenberger, M. *et al.* (eds.) 1996; Victor M., Lang, C. and Bornemeier, J. (eds.) 1998; World Bank. 2000). The Philippines has been one of the leading frontiers in promoting as well as in putting into practice the concept of community forestry, supported by the provision of relevant legal and administrative instruments (Talisayon, S. D. (ed.) 1991; Bisson, J. (ed.) 1997; Mickelwait, D.R. (ed.) 1999; ESSC. 1999).

In many cases community forestry has been introduced in an attempt to revert serious consequences that industrial commercial logging brought about by marked reduction of forest resources. In the Philippines, 27 million ha (90%) of the country was endowed with forest coverage during the 1600s. The forest coverage was reduced to 21 million ha (70%) in 1900, and was diminished to mere 5.4 million ha (18%) in 1997. The reduction occurred largely due to massive commercial logging during the 1960s and 1970s.

The thesis reviews the development of community forestry legal framework and its practice in the Philippines. Particular focus will be on the Study Area delineated by the undertaking of The Mater Plan Study for Watershed Management in Upper Magat and Cagayan River Basin. The Study was conducted by Japan International Cooperation Agency (JICA) under the technical cooperation agreement between the governments of Japan and the Philippines¹. The Study Area encompasses the upper watershed of the Magat and Cagayan rivers — the most important river basin for the Philippine economy in terms of crop productions such as rice and corn. The Study Area is illustrated in **Figure 1**.

Focusing on the Study Area, the discussion will be made on people-oriented forestry programs and related projects, with specific interest on Community-Based Forest Management (CBFM) program. First, the CBFM program will be reviewed and analyzed from policies as well as practical application perspectives. Part of such review will include study on foreign-assisted projects.

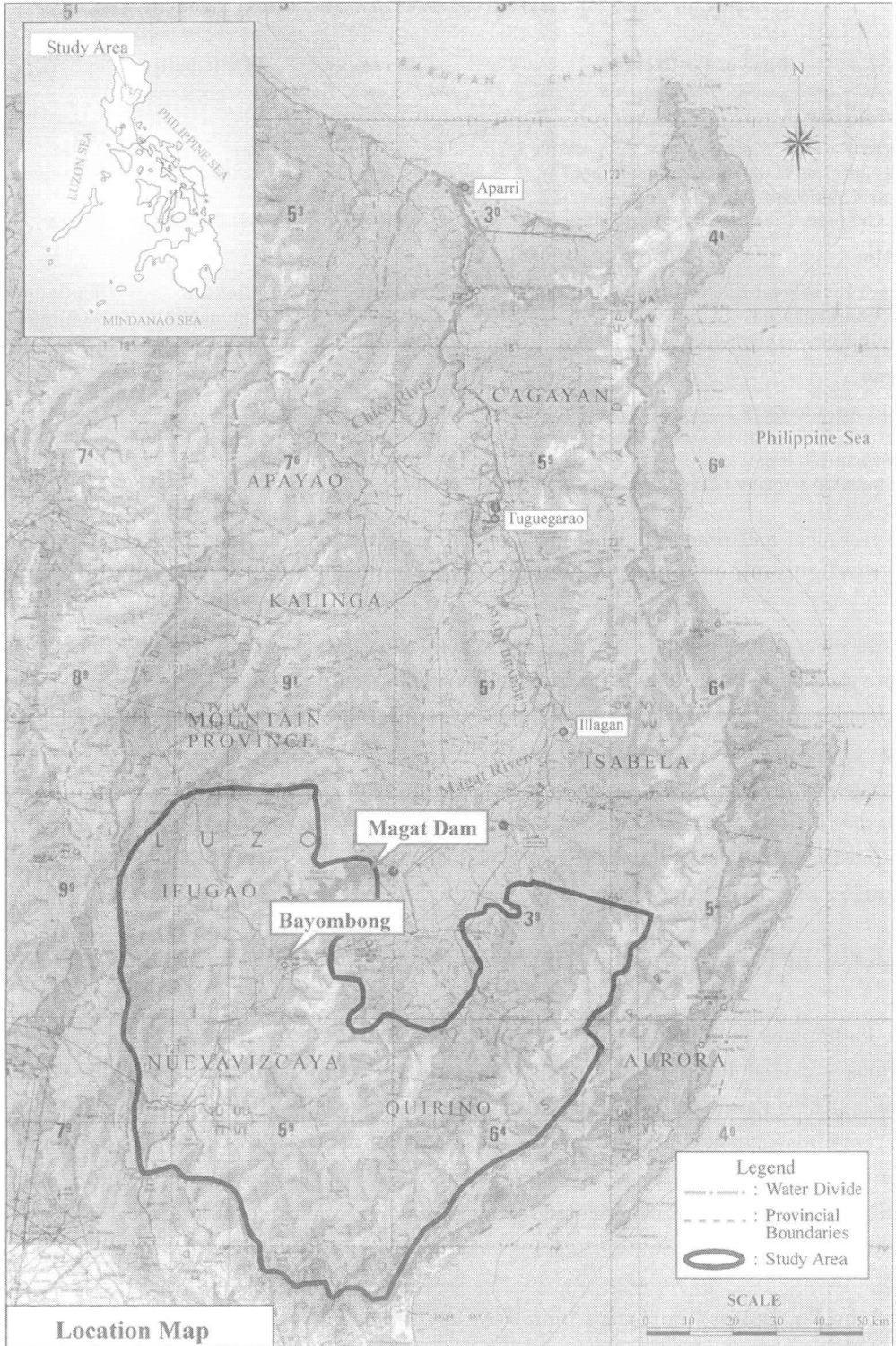


Figure 1.

List of POs for which the Field Survey was Conducted within the Study Area

Name of PO/Province	Barangay	Municipality	Responsible CENRO ²
Nueva Vizcaya			
Yaway Farmers Multi-Purpose Cooperative Inc.	Yaway	Aritao	Aritao
Federation of Vista Hills, Kakongkong and Kakilingan Upland Farmers	Buena Vista	Bayombong	Bayombong
J. V. Greeners Tree Planters Association Inc.	Lublub	Alfonso Castañeda	Dupax
Quirino			
Ilongot Livelihood Association Inc. (ILAI)	Landigan	Nagtipunan	Nagtipunan
Nuh-uh-uhhaan Inc.	Asaklat	Nagtipunan	Nagtipunan
Baguio Village Intercultural Association	Baguio Village	Diffun	PENRO Quirino
Ifugao			
Hapid Agro-forestry Developers Association Inc.	Hapid	Lamut	Lamut
Mayoyao Environment Development Association Inc.	Mayoyao	Mayoyao	Alfonso Lista
Nunhabatan Greeners Livelihood Association Inc.	Hapid	Lamut	Lamut

Then technical and practical constraints of the program will be identified. Appropriate examination on land use involved undertaking a series of field survey on selected CBFM sites³.

The interview survey and site visits involved studies on basic family structure, land use, plantation practice, agriculture system on fruits and vegetable cultivation, livestock raising, forest use, employment opportunities, motivation and interest on CBFM, and identified problems and evaluation on CBFM scheme. Altogether site visits and interviews were conducted on 10 POs covering 48 households, of which 9 POs totalling 46 households were examined for the analysis⁴. The name of POs and their locations are listed in the Table above. For each PO five households in principle were chosen for detailed interview by PO managers under the application of Wealth Ranking Method⁵.

1. Review of Community Forestry in the Philippines

In the Philippines a number of people-oriented programs started to develop in the 1970s. These programs included Forest Occupancy Management, Family Approach to Reforestation, and Communal Tree Farm. In 1980s, Integrated Social Forestry (ISF) Program was introduced. All these programs have now been integrated and unified under the CBFM program, pursuant to the Administrative Order No.96-30 of the Department of Environment and Natural Resources (DENR) integrating all people-oriented forestry programs and projects into the DENR's regular governance.

One of the Philippines's important initiatives in introducing people-oriented forestry was the Integrated Social Forestry (ISF) Program. It was formally launched in 1982 to respond to the needs of the upland dwellers. It aimed to provide the upland farmers with tenure security while

promoting ecologically sound farming practices. Under this program two forms of certificate were issued: 1) Certificate of Stewardship Contract (CSC) awarded to individual household; and 2) Certificate of Community Forestry Stewardship (CCFC) awarded on collective basis to the community. Both CSC and CCFC are tenurial instruments issued within the forestlands. CSC has a duration of 25 years renewable for another 25 years. The title shall be awarded to individuals or families occupying portions of forestlands. While adoption of agroforestry method has been mandatory under CSC, it is not a requirement under CCFC as long as 30% of the project area was covered with either forest or fruit tree species. Matters pertaining to the administration of CSC under ISF have now been devolved from DENR to Local Government Units (LGUs) of the country.

The CBFM Program

Integrating all previous people-oriented approaches, the government adopted Community-Based Forest Management (CBFM) program as the national strategy for sustainable management of the country's forestlands with the issuance of Executive Order No.263 dated July 19,1995. As the national strategy the CBFM program aimed to develop, protect and conserve the existing resources in the delineated forestlands, with management right awarded to the residing organized populations. The CBFM program gives upland communities located within the forestlands the right to manage the natural resources located in the area under the CBFM Agreement (CBFMA). About 20 million upland dwellers existing in the Philippines may be potentially covered by the CBFM Agreement to secure their land tenure. CBFM Agreement is reached between DENR and People's Organization (PO) and has a duration of 25 years, renewable for another 25 years⁶.

The 1987 Constitution of the Philippines classified lands of the public domain into four categories: 1) Agricultural Lands, 2) Forest or Timber Lands, 3) Mineral Lands, and 4) National Parks⁷. Under these categories the CBFM program applies to forestlands. According to PD705⁸ known as Revised Forestry Code of the Philippines, lands of the public domain with slope more than 18% are regarded as forestlands⁹. Further, CBFM also applies to allowable zones within protected designated under NIPAS Act¹⁰ The CBFM program has integrated all previous people-oriented forestry approaches, including Integrated Social Forestry (ISF) Program, Community Forestry Program, Coastal Environment Program, and recognition of Ancestral Domains. The areas eligible for CBFM program are as the following:

- 1) Uplands and coastal lands of the public domain.
- 2) Areas covered by Timber License Agreements, Pasture Lease Agreements, Industrial Forest Management Agreements and other forest land contracts, leases, permits or agreements.
- 3) Areas covered by expired permits for non-timber products.
- 4) Multiple use zones, buffer zones and other areas within the protected areas where utilization activities may be allowed.
- 5) Forest lands assigned by law under the administration and control of government

agencies.

- 6) Certified ancestral lands and domains and other areas occupied by indigenous cultural communities, known to be ancestral but not yet covered by CALC or CADC, provided the community opts to join CBFM.

As of the first quarter 2000, a total of 4,828 CBFM sites were established nationwide. These sites covered an aggregate area of 5,338,080 ha involving 425,352 households. There were 2,013 Peoples Organizations (POs) consisting 308,362 households organized under the CBFM. Of these, 550 sites were covered under CBFM Agreement totaling 762,516 ha with 81,135 household¹¹. Within the Study Area, there were a total of 58 CBFM projects formulated as of May 2001. Areas covered by such instruments amounted to 101,134 ha, occupying 5.02% of the total land area of the four concerning provinces and region, as shown in **Table 1**.

Table 1. Areas Covered under CBFM Agreement in Provinces/Region Encompassing the Study Area

Province/Region	Total Land Area	Area under CBFMA	%
N. Vizcaya (province)	390,387	10,401	2.66%
Quirino (province)	305,720	38,649	12.64%
Isabela (province)	1,066,456	45,562	4.27%
Ifugao (region CAR ⁽¹⁾)	251,778	6,522	2.59%
Total	2,014,341	101,134	5.02%

(1) Cordillera Autonomous Region.

Source: 2001 Philippine Statistical Yearbook, pp. 4-6, for land area statistics.

Table 2 (a) summarizes a list of projects formulated based on CBFMA projects located within the Study Area¹². There were 38 projects, extending 59,303 ha, occupying 6.74% of the total study area of 879,958 ha. These CBFM projects benefited 3,932 households within the Study Area¹³, equivalent to the population of 24,260¹⁴. **Table 2 (b)** shows the number of members existent in each PO located within the Study Area. Comparing the area size of each CBFM project, the area size per each member was obtained.

The area size theoretically responsible for management by each member varied greatly. The average management size per member was the largest in Quirino province, 28.36 ha per member, followed by 15.29 ha in Isabela province and 10.39 ha in Nueva Vizcaya province. The management size per member was the smallest in Ifugao province¹⁵, which was 4.42 ha. Among POs within the Study Area, the largest size per member was found in Wasid Ilongot Tribes Association, being responsible for managing 6,420 ha by 59 members, or 108.81 ha per member. The smallest management size per member was found in Mabasa Tree Planters & Growers Association Inc. in Nueva Vizcaya, which manages 0.80 ha.

Foreign Assistance in CBFM Projects

Table 3 illustrates funding sources for each CBFM project within the Study Area. A variety of

Table 2 (a). List of Projects under CBFM Agreement within the Study Area

Name of PO	Responsible CENRO	Municipality	Barangay	PO registration	CBFMA signed	Agreement No.	Project Area (ha)	Other Tenurial Instruments	
								ISA (CSC)	CFSA
CBFMA									
Nueva Vizcaya									
1	Gadagad Vegetable and Fruit Tree Growers Association	Aritao	Santa Fe	Balling	10/31/00	20119014	70	0	
2	Bakir Pagbiagan ti Pagiligan CBFM Association	Aritao	Quezon	Runruno	12/ 4/00	20119015	222	0	
3	Latar Ilocano Minority Farmers Association Inc.	Aritao	Aritao	Latar	12/10/99	20019007	437.5	0	
4	Buayayas Iwak Tribal Council	Aritao	Kayapa	Buayayas	11/23/00	20219013	1,021.00	1	
5	Yaway Farmers Multi-Purpose Cooperative Inc.	Aritao	Aritao	Yaway	2/ 1/95	20219012	1,341.50	0	
6	Association of Upland Farmers of Singian Nueva Vizcaya Inc.	Bayombong	Bagabag	Pogonsino	8/25/00	20119010	64	0	
7	Singian Agro-Forest Association	Bayombong	Bagabag	Tuao South	10/17/00	20119011	84.82	0	
8	Socio-Economic and Environmental Development Cooperative Inc.	Bayombong	Quezon	Dagupan	12/ 9/99	20019008	2,200.00	1	
9	Federation of Vista Hills, Kakkong and Kakkilingan Upland Farmers Inc.	Bayombong	Bayombong	Buena Vista	3/29/99	20019005	3,000.00	0	
10	Mabasa Tree Planters and Growers Association Inc.	Dupax	Dupax del Norte	Mabasa	1/27/98	20019001	20	0	
11	Banila Community-Based Association Inc.	Dupax	Dupax del Sur	Banila	7/12/99	20019006	225	1	
12	Bitnong Guijo Greeners Association Inc.	Dupax	Dupax del Norte	Bitnong	3/23/99	20019004	328	1	
						Sub-total	9,013.82		
Quirino									
1	San Manuel-Victoria Forest Developers Cooperative	Aglipay	Aglipay	San Manuel, Victoria	6/19/96	11/21/96	20218301	3,176.00	1
2	Allicia Sustainable Resource Development (ASREDECO)	Aglipay	Aglipay	Alicia	9/17/97	10/17/97	20218305	1,844.14	1
3	Balligut Community Forestry and Development Cooperative Inc.	Aglipay	Maddela	Balligut, Jose Ancheta	1/23/96	6/24/97	20218302	4,400.00	1
4	Gomez Farmers Multi-Purpose Cooperative Inc.	Nagtipunan	Cabarroguis	Gomez	9/ 3/00	—	—	620	1
5	Ilongot Livelihood Association Inc. (ILAI)	Nagtipunan	Nagtipunan	Landingan	1/28/92	12/16/95	20218304	1,752.00	0
6	Nuh-uh-thuan Inc.	Nagtipunan	Nagtipunan	Asaklat	3/ 8/94	6/15/95	20218307	2,600.00	1
7	Kadikitan Association for Community Development (KAFCDJ)	Nagtipunan	Nagtipunan	Kadikitan, Landingan	12/14/93	12/16/94	20218303	4,958.00	1
8	Anak Intercultural Organization	Nagtipunan	Nagtipunan	Anak	4/30/96	6/15/96	20219560	5,315.00	1
9	Wasid Ilongot Tribe Association Inc. (WITAI)	Nagtipunan	Nagtipunan	Wasid	6/17/94	9/23/95	20219553	6,420.00	0
10	Sangbay Anak Integrated Farmers Association Inc.	Nagtipunan	Nagtipunan	Sangbay	8/27/97	20218309	134	1	
11	Villa Ventura Multi-Purpose Cooperative Inc.	Penro Quirino	Aglipay	Victoria	10/23/95	9/15/00	20218313	776	0
12	Rafael Palma Multi-Purpose Cooperative Inc.	Penro Quirino	Diffun	Rafael Palma	9/ 1/00	20218311	148.83	1	
13	Ifugao Village Aphochan Multi-Purpose Cooperative (IVAMCO)	Penro Quirino	Diffun	Ifugao Village	6/ 2 /00	20218310	1,000.00	1	
14	Baguio Village Intercultural Association	Penro Quirino	Diffun	Baguio Village	4/ 4/94	8/29/95	20218308	1,990.00	1
15	Don Mariano Perez Farmers Multi-Purpose Cooperative	Penro Quirino	Diffun	Don Mariano Perez	3/24/94	6/15/95	20218306	3,100.00	0
16	Salinong T. Campamento Association Inc.	Penro Quirino	Diffun	Campamento	—	—	20218314	415.5	0
						Sub-total	38,649.47		
Ifugao									
1	Bannao Community Organization Inc.	Lamut	Bannao	Bannao	—	—	200	0	
2	Fed. of Responsive Association for Magat Ecology Inc.	Lamut	Lamut	Binal, Jolowon, Nayon	on process	on process	3,027.00	0	
3	Dalligan Multipurpose Development Association	Lamut	Kiangnan	Dalligan	11/19/99	5037	274.26	0	
4	Hapid Agro-forestry Developers Association Inc.	Lamut	Lamut	Hapid	12/24/00	5054	101.15	0	
5	Lingay Farmers Association	Lamut	Kiangnan	Lingay	11/19/99	5036	106.77	0	
6	Mayoyao Environment Development Association Inc.	Alfonso Lista	Mayoyao	Mayoyao	—	5025	2,000.00	0	
7	Nunhabatan Greeners Livelihood Association Inc.	Lamut	Lamut	Hapid	3/29/99	5023	241	1	
						Sub-total	5,950.18		
Isabela									
1	Rizal Integrated Development Multi-Purpose Cooperative Inc.	Cauayan	San Guillermo	Rizal & Burgos	5/ 1/97	—	5,000.00	1	
2	Ayangan Dappig Agro-Forestry Development Association	San Isidro	San Agustin	Dappig	—	—	487.5	0	
3	Taleb Upland Farmers Multi-Purpose Coop. Inc.	San Isidro	Cordon	Taleb, Dallao	12/22/98	20216660	203	0	
						Sub-total	5,690.50		
						Total	59,303.97		

Table 2 (b). Number of Members and Average Area Managed by Each Member

Name of PO/NGOS	CBFM Area (ha)	No. of member	Ave. ha per memb.
NUEVA VIZCAYA			
Yaway Farmers Multi-Purpose Cooperative Inc.	1,341.50	58	23.13
Socio-Economic and Environmental Dev't Coop.	2,200.00	100	22.00
Federation of Vista Hills, Kalongkong and Kakilingan Upland Farmers Inc.	3,000.00	207	14.49
Buyasyas Iwak Tribal Council	1,021.00	120	8.51
Latar Ilocano-Minority Farmers Association Inc.	437.50	52	8.41
Bakir Pagbiagan ti Pag-Ilian Inc.	222.00	42	5.29
Bitnong Guijo Greeners Association Inc.	328.00	86	3.81
Banila Community-Based Cooperative Inc.	225.00	68	3.31
Gadagad Vegetable & Fruit Tree Growers Association	70.00	28	2.50
Association of Upland Farmers of Singian, Nueva Viz.	64.00	42	1.52
Singian Agro-Forest Association	84.82	61	1.39
Mabasa Tree Planters & Growers Association Inc.	20.00	25	0.80
Sub-total	9,013.82	889	10.39
QUIRINO			
Wasid Ilongot Tribes Association	6,420.00	59	108.81
Balligui Community Forestry & Dev't Coop. Inc.	4,400.00	74	59.46
Nun-uh-uh-haan Farmers Association Inc.	2,600.00	56	46.43
Anak Intercultural Organization	5,315.00	117	45.43
Ifugao Village Aphochan Multi-Purpose Cooperative	1,000.00	30	33.33
Kadikitan Association for Community Development	4,958.00	176	28.17
Ilongot Livelihood Association Inc./Bugkalot MPC	1,752.00	63	27.81
Don Mariano Perez Farmers MPC	3,100.00	137	22.63
Villa Ventura MPC	776.00	35	22.17
San Manuel Victoria Forest Developers Cooperative	3,176.00	156	20.36
Baguio Village Inter-Cultural Association	1,990.00	120	16.58
Gomez Farmers Cooperative Inc.	620.00	40	15.50
Alicia Sustainable Resource Development Cooperative	1,844.14	124	14.87
Sangbay-Anak Integrated Farmers Association	134.00	32	4.19
Salinong Ti Campamento Association	415.50	100	4.16
Rafael Palma Multi-Purpose Cooperative Inc.	148.83	44	3.38
Sub-total	38,649.47	1,363	28.36
IFUGAO			
Dalligan Multi-Purpose Dev't Association	274.26	25	10.97
Federation of Responsive Association for Magat Ecology Inc.	3,027.00	407	7.44
Nunhabatan Greeners Livelihood Association	241.00	50	4.82
Lingay Farmer's Association	106.77	32	3.34
Bannao Community Organizations Inc.	200.00	70	2.86
Mayoyao Environment Development Association Inc.	2,000.00	836	2.39
Hapid Agro-Forestry Developers Association	101.15	56	1.81
Sub-total	5,950.18	1,476	4.42
ISABELA			
Rizal Integrated & Dev't Coop.	5,000.00	100	50.00
Ayangan Dapiz Agro-Forestry Dev't Coop.	487.50	67	7.28
Taleb Upland Farmers MPC	203.00	37	5.49
Sub-total	5,690.50	204	27.89
Total	59,303.97	3,932	15.29

Table 3. Funding Sources of CBFMA Projects within the Study Area

	Name of PO	CBFM Area (ha)	DENR funded area	%	Foreign agencies	Foreign-funded area	%	Assit Period	On-going	Currently foreign funded	%
Nueva Vizcaya											
1	Gadagad Vegetable and Fruit Tree Growers Assn.	70.00	70.00		—				0		
2	Bakir Pagbiagan ti Pagilian CBFM Association	222.00	222.00		—				0		
3	Latar Ilocano Minority Farmers Assn.	437.50	437.50		—				0		
4	Buyasyas Iwak Tribal Council	1,021.00			CASCADE, SECAR	1,021.00			1	1,021.00	
5	Yaway Farmers Multi-Purpose Cooperative Inc.	1,341.50	1,341.50		—				0		
6	Association of Upland Farmers of Singian	64.00	64.00		—				0		
7	Singian Agro-Forest Association	84.82	84.82		—				0		
8	S.E.E.D.Coop. Inc.	2,200.00			ADB	2,200.00			0		
9	Federation of Vista Hills Upland Farmers Inc.	3,000.00			ITTO	3,000.00		98-01	0	3,000.00	
10	Mabasa Tree Planters and Growers Assn.	20.00			ADB	20.00		91-93	0		
11	Banila Community-Based Association Inc.	225.00			ADB	225.00			0		
12	Bitnong Guijo Greeners Association Inc.	328.00			ADB	328.00		91-93	0		
12	Sub-total	9,013.82	2,219.82	24.63		6,794.00	75.37			4,021.00	44.61
Quirino											
1	San Manuel-Victoria Forest Developers Coop.	3,176.00			ADB II	3,176.00		93-00	0		
2	Allicia Sustainable Resource Development	1,844.14			USAID	1,844.00		95-02	1	1,844.00	
3	Balligui Community For. Dev. Coop. Inc.	4,400.00			RP-Ger.	4,400.00		97-01	1	4,400.00	
4	Gomez Farmers Multi-Purpose Cooperative Inc.	620.00	620.00		—						
5	Ilongot Livelihood Association Inc. (ILAI)	1,752.00			WB	1,752.00		92-99			
6	Nuh-uh-uhaan Inc.	2,600.00			RP-Ger.	2,600.00		97-01	1	2,600.00	
7	Kadikilan Association for Com Dev.	4,958.00			ADB II	4,958.00		93-00	0		
8	Anak Intercultural Organizatioin	5,315.00			RP-Ger.	5,315.00		97-01	1	5,315.00	
9	Wasid Ilongot Tribe Association Inc. (WITAI)	6,420.00			USAID	6,420.00		95-02	1	6,420.00	
10	Sangbay Anak Integrated Farmers Assn.	134.00			ADB II	134.00		93-00	0		
11	Villa Ventura Multi-Purpose Cooperative Inc.	776.00	776.00		OECF-CARP	776.00			0		
12	Rafael Palma Multi-Purpose Coop.	148.83			—				0		
13	Ifugao Village Multi-Purpose Coop.	1,000.00			RP-Ger.	1,000.00		97-01	1	1,000.00	
14	Baguio Village Intercultural Association	1,990.00			RP-Ger.	1,990.00		97-01	1	1,990.00	
15	Don Mariano Perez Farmers MP Coop.	3,100.00			RP-Ger.	3,100.00		97-01	1	3,100.00	
16	Salinong T. Campamento Association Inc.	415.50	415.50		—						
16	Sub-total	38,649.47	1,811.50	4.69		37,465.00	96.94			26,669.00	69.00
Ifugao											
1	Bannao Community Organization Inc.	200.00			ADB	200.00		91-93	0		
2	Fed. of Responsive Assn. for Magat Ecology Inc.	3,027.00			JBIC	3,027.00		95-03	0	3,027.00	
3	Dalligan Multipurpose Development Assn.	274.26			WB	274.26		92-99	0		
4	Hapid Agro-forestry Developers Assn.	101.15			ADB	101.15		91-93	0		
5	Lingay Farmers Association	106.77			WB	106.77		92-99	0		
6	Mayoyao Environment Development Assn.	2,000.00			JBIC	2,000.00		95-03	0	2,000.00	
7	Nunhabatan Greeners Livelihood Assn.	241.00			ADB	241.00		91-93	0		
7	Sub-total	5,950.18	0.00	0.00		5,950.18	100.00			5,027.00	84.48
Isabela											
1	Rizal Integrated Development MP Coop.	5,000.00			WB	5,000.00		92-99	0		
2	Ayangan Dappig Agro-Forestry Dev. Assn.	487.50	487.50		—				0		
3	Taleb Upland Farmers Multi-Purpose Coop. Inc.	203.00							0		
3	Sub-total	5,690.50	487.50	8.57		5,000.00	87.87			0	0.00
38	Total	59,303.97	4,518.82	7.62		55,209.18	93.10		9	35,717.00	60.23

Sources: (1) DENR internal document. PROFILE CBFM PROJECTS CY 2001.
 (2) DENR internal document. List of CBFM Project in Region 02. As of July 2000.
 (3) Date data taken from original CBFMA document.
 (4) Date Established, data taken from PROFILE CBFM PROJECTS CY 2001.

foreign agencies assisted with initial and maintenance funds for CBFM projects. Such agencies included World Bank, Asian Development Bank (ADB), International Tropical Timber Organization (ITTO), EU, GTZ/KfW, Japan Bank for International Cooperation (JBIC), and USAID. Among 38 CBFM projects existing within the Study Area, 10 projects were funded by DENR regular funding, covering 4,518.82 ha corresponding to 7.62% of the total CBFM area of 59,303.97 ha. Meanwhile, the remaining 93.10% or 55,209.18 ha have been assisted with foreign funds. On-going foreign-assisted project coverage amounted to 35,717.00 ha, or 60.23% of the total CBFM area. Such finding reveals a heavy dependence on foreign funds in promoting on-going CBFM program.

The dependency on foreign funds varied according to provinces. In Ifugao all of the existing CBFM projects were initiated with foreign assistance. In Quirino the dependency on foreign assistance reached 96.94% in terms of area coverage, followed by 87.87% in Isabela and 75.37% in Nueva Vizcaya. Those CBFM projects currently under foreign assistance covered 84.48% in Ifugao, 69.00% in Quirino and 44.61% in Nueva Vizcaya in terms of area coverage. In Isabela none of the three CBFM projects located within the Study Area were currently under foreign assistance. **Table 4** is a brief profile of major foreign-assisted projects existent within the Study Area.

CBFM Projects Covering Existing ISF Projects

Tables 5 (a) – (b) list Integrated Social Forestry (ISF) projects in four provinces concerning the Study Area, in which Certificate of Stewardship Contracts (CSCs) have been issued for tenurial instrument. The CSC issued as an individual tenurial instrument awarded within the forestland has been increasingly ‘encroached’ by collective management strategy of the forestland with the introduction of CBFM program. The tables illustrate the situation of those CSCs consolidated into CBFM projects.

As shown in the above Tables in Nueva Vizcaya, there were 210 ISF projects covering 7,108 CSCs and 14,220 ha. All ISF project sites were found within the Study Area. In Quirino, there were 101 ISF projects, in which 97 were located within the Study Area, covering 9,266 ha with 3,737 CSCs issued. In Ifugao, 49 ISF projects were issued, of which 21 projects were located within the Study Area, extending 4,877 ha with 587 CSCs issued. In Isabela, 12 ISF projects were formulated totaling 1,140 CSCs with 2,446 ha. All of these projects were located within the Study Area.

In Nueva Vizcaya four CBFM projects were formulated consolidating existing ISF projects, while the remaining 11 CBFM projects in the province were formed without the presence of CSCs issued within the project area. In Quirino, five out of the total 16 CBFM projects were formulated integrating preceding CSC tenurial arrangement areas. In Ifugao and Isabela, all existing CBFM projects were formed without covering any areas where CSCs preceded to be issued under ISF projects. As can be observed in those tables, while CBFM projects were often formulated covering existing ISF project area, not all areas under CSCs were incorporated into CBFM projects.

Table 4. List and Brief Profile of Foreign-Assisted Projects Conducted within the Study Area

Project/Program Name	Cooperation Agency	Objectives	Components	Duration (Planning and Actual)		Location		Project Area (ha)	No. of Households	Land Tenurial Instruments (LTI) Issuance	Land Tenurial Instruments (LTI) Area (ha)	Agency/Group Involved	Roles and Responsibility of Each Body	Financing Type	Project Cost (Plan and Actual)		
				Plan	Actual	Number of Location	Region/Province								Total	Cooperation Agency	GOP Amount
1. Natural Resource Management Program - Forest Resources Management Component (NRMP=FRMC II)	USAID	1. Develop policies for ecologically sound and sustainable economic growth with special attention to tropical forests, biodiversity and forest industry. 2. Strengthen the capacity of DENR to effective policies 3. Enhance roles of NGOs, communities and private sector in protection and management of natural resources	1. Forest policies to develop framework, guidelines and procedures for sustainable forest management 2. Community forest management	Apr. 1995-Dec. 1999	Apr. 1995-Dec. 2002	Various municipalities	Region 2, 4, 5, 10, 11, 13	625,736	21,091	76	571,214.10	POs LGU NGOs	Implementation body Working in partnership with POs Working in partnership with POs	Grant	US \$ 164.48 million	US \$ 127.85 million	US \$ 36.63 million
2. Forestry Sector Project (FSP II)	ADB and JBIC (ex-OECF)	JBIC 1. Re-establishing vegetation coverage of denuded and degraded areas 2. Improvement of living standards of the local population 3. Conservation of biodiversity 4. Control of soil erosions	JBIC 1. Survey, mapping and planning of 100,000 ha of degraded watershed 2. Organizing communities 3. Comprehensive site development with soil erosion control and plantation establishment 4. Monitoring and evaluation of 80,000 ha of established plantations ADB 1. Financing for reforestation of denuded forest lands, rehabilitation of critical watershed areas, and CBFM areas, totalling 37,000 ha. 2. Supporting demarcation of old growth dipterocarp forests and establishment of forest buffer zones. 3. Identification of CADC areas.	JBIC1994-1998	JBIC1995-2000 extended in Jan. 2001 for another three years	25 watershed sub-project sites 13 proposed mangrove sub-project sites altogether 207 subproject sites nationwide	All 13 Regions and CAR Region 4, 5, 6, 7, 8, 9, 10, 12, 13	105,957	49,588	150	158,837.00	DENR NGOs POs	Site selection, appraisal of sub-projects Conduct of IEE, acquisition of certificates Mapping, socioeconomic surveys Feasibility study of sub-projects Organize and training communities Monitor progress of sub-project Analyze implementation for improvement Establishing tree plantations	Loan	US \$ 159.2 million	ADB US \$ 39.7 million JBIC US \$ 75 million (JBIC P2,479 million)	US \$ 44.5 million
3. Regional Resources Management Project (RRMP)	Japan-World Bank	Overall objectives; 1) Poverty alleviation 2) Natural resources management Specific objectives; 1) Develop and enhance capacity of communities 2) Generate livelihood and employment opportunities 3) Rehabilitate natural resource base 4) Strengthen capacities of DENR and LGUs 5) Enhance government - NGOs partnership 6) Provide essential infrastructure and facilities	1) Local social development, Community organizing and development aiming at capacity building for resource management. 2) Community resource development providing tenurial rights for rehabilitation, sustainable land use and resource management 3) Infrastructure and facilities development 4) Institutional strengthening for DENR, LGUs and other government agencies, POs and NGOs		Jan. 92-Dec. 99	Altogether 30 project sites	CAR 1, 2, 9, 10, 13	134,090	17,887	5,845	178,086.50	DENR, LGUS POs and communities	Capacity building of target communities Strengthening technical and managerial capabilities of their institutions Implementing livelihood improvement and resource management projects	Loan and Grant	US \$ 64.6 million	Loan IBRD US \$ 50 million Grant US \$ 2.4 million (Japan-World Bank)	US \$ 12.2 million
4. Low Income Upland Community Project (LIUCP)	ADB	1) Sustainable socioeconomic development and self-reliance of upland communities 2) Sustainable development and management of critical watersheds	1) Community organizing and cooperative development through establishing management units, service centers and socioeconomic development plan 2) Resource access and resource management, aiming at providing tenure instruments and training for resource management 3) Agroforestry, Reforestation and Livelihood, establishing community nurseries, agroforestry techniques and reforestation 4) Infrastructure and social services, such as water supply, irrigation system, roads, health and education 5) Project management and Institutional building, strengthening capacities of PENROs, CENROs and LGUs	Feb. 1990-Dec. 2000		7 major watershed areas	Provinces of Oriental and Occidental Mindoro	223,931	7,964	1,699	201,040.00	DENR LGUs and NGOs PENROs and CENROs Site Management Units (SMU)/Sitio Service Centers (SSC) Communities	Project management and administration Working partnership with DENR Institutional building of their offices Support communities to formulate their socioeconomic development plan Implementation of project components	Loan	US \$ 30.8 million	Loan ADB US \$ 22.8 million	US \$ 8 million

Project/Program Name	Cooperation Agency	Objectives	Components	Duration (Planning and Actual)		Location		Project Area (ha)	No. of Households	Land Tenorial Instruments (LTI) Issuance	Land Tenorial Instruments (LTI) Area (ha)	Agency/Group Involved	Roles and Responsibility of Each Body	Financing Type	Project Cost (Plan and Actual)		
				Plan	Actual	Number of Location	Region/Province								Total	Cooperation Agency	GOP Amount
5. Community Forestry Project-Quirino (CFP-Q)	GTZ/KfW	1) Community organizing with support from DENR and LGUs 2) Management of natural resources	1) Capacity building of LGUs in planning and natural resource management 2) Support DENR and LGUs in processing land tenure instruments 3) Support forest management by communities 4) Promote rural finance schemes for forestry, agriculture and infrastructure 5) Promote sustainable farming systems 6) Promote income-oriented infrastructure	1997-2001		10 upland sites supporting head waters of Cagayan River	Province of Quirino	43,134	1,858	69	24,620.00	DENR/Provincial Govt of Quirino DENR local offices/LGUs/NGOs Communities	Implementing agencies of the project Working in partnership with DENR/ Provincial Government of Quirino Institutional building of their own offices Implementation of project components	Grant	DM 12 million plus P 36 million	GTZ DM 7 million KfW DM 5 million	DENR P27 million Provincial Govt of Quirino P 9 million
6. Developing Tropical Forest Resources through CBFM (ITTO-CBFM)	ITTO	Overall objective; To improve productivity of degraded and regenerating forest lands through CBFM Specific objectives; 1) Establish 100 ha new forest plantation, manage 100 ha regenerating natural forest and protect and manage 1,500 ha matured and secondary dipterocarp forest 2) Develop and manage 1,300 ha degraded forest lands through CBFM strategy 3) Form at least three community forestry organizations responsible for forest management, livelihood activities and forest based enterprises	1) Community organizing 2) Land tenure and resource access 3) Agroforestry 4) Infrastructure such as roads, trails, training center, water system, fire look-out towers, firebreaks and bunkhouse	Jul. 98-Jul. 2001		Barangay Buenavista of Municipality Buena Vista	Province of Nueva Vizcaya	3,000	178	1	3,000.00	DENR-ITTO Municipal govt of Bayombong Project Steering Committee represented by DENR, LGU and ITTO Project Planning Committee represented by CBFM Division of FMB, PENRO and CENRO	Implementing agency Collaborating agency Providing managerial supervision Providing technical support, extension services	Grant	US\$ 0.96 million (US\$ 957,135)	ITTO US\$ 0.96 million	Dep. of Agriculture (staff salaries) LGUs (staff, equipment, material and funds)
7. Water Resources Development Project - Watershed Management Improvement Component (WRDP-WMIC)	World Bank and DANIDA	Overall objectives; 1) To formulate a national watershed management strategy 2) To formulate a long-term program of investments for watershed management 3) To prepare and implement management plans for selected priority watersheds. Specific objectives; 1) Establish a sound policy and legislative basis for watershed management in the country 2) Institutionalize an effective and responsive administrative machinery and procedures for watershed management 3) Control soil erosion and improve water yield and quality 4) Promote compatible land uses and enhance productivity, increasing economic opportunities for watershed residents 5) Enhance environmental consciousness of watershed communities 6) Design a National Watershed Information System	Phase I Formulation of national watershed management strategy, reviewing criteria and prioritization of watersheds, policy and legal framework, institutional issues and programs and projects. Phase II Formulation of a long-term program of investments and the establishment of institutional mechanisms Phase III Preparation of comprehensive management plans for seriously degraded watersheds (10 watersheds) Phase IV Pilot implementation in selected watersheds	Jul. 2000-Dec. 2002		2 pilot implementation sites; 1) Kaliwa River Watershed in Municipalities of Tanay, Rizal and Gen. Nakar in Quezon Province 2) Maragang River Watershed in Municipality of Tigbao and City of Pagadian in Province of Zamboanga del Sur	Provinces of Quezon and Zamboanga del Sur	31,341	8,936	—	—			Loan and Grant	P\$ 440 million	World Bank loan P\$ 267 million DANIDA Grant P\$ 46 million	P\$ 127 million
8. Caraballo and Southern Cordillera Agricultural Development (CASCADE)	European Union	Overall objectives; 1) To improve the current standard living of the upland farming households. Specific objectives; 1) Increase the average annual income of the target households by 9.1 percent within seven years. 2) Reduce the number of households below the poverty line from 68 % to 30 % in 2004.	1) Agricultural development 2) Micro-Enterprise Development 3) Social development 4) Environmental Resource Management			178 upland barangays in 19 municipalities	Province of Benguet, N. Vizcaya and N. Ecija	478,065	30,020			Department of Agriculture LGUs Communities	EU's counterpart agency Counterpart especially in infrastructure projects Providing volunteer labor, materials, and cash equity in infrastructure, credit and livelihood projects	Grant	ECU 22.5 million	ECU 13.5 million	

Source: Forestry Sector Project - Assessment of Project Implementation and Revised Implementation Program, July 2000; Community-Based Forest Management - Status of Foreign-Assisted Projects, August 2000.

Table 5 (a). Integrated Social Forestry (ISF) Projects in Four Provinces Covering the Study Area

Province/Region	No. of ISF Projects	No. of CSC	Area (ha)	% of Total Land Area (ha)
N.Vizcaya	210	7,108	14,220	3.60%
Quirino	101	3,774	9,334	3.10%
Ifugao	49	997	8,497	3.40%
Isabela	12	1,140	2,446	0.20%
Total	372	13,019	34,497	1.70%

Source: Data obtained from DENR Region 02 office; CBFM Program in Ifugao, 4/18/01.

Table 5 (b). Integrated Social Forestry (ISF) Projects within the Study Area

Province/Region	No. of ISF Projects	No. of CSC	Area (ha)	% of Total Land Area (ha)
N.Vizcaya	210	7,108	14,220	3.60%
Quirino	97	3,737	9,266	3.00%
Ifugao	21	587	4,877	1.90%
Isabela	12	1,140	2,446	0.20%
Total	340	12,572	30,809	

Source: *op. cit.*

Certificate of Ancestral Domain Claims (CADC) and Other CBFM Projects

Table 6 summarizes the issuance of Certificate of Ancestral Domain Claims (CADC) within the Study Area. All together, there were nine project areas under CADC, covering 281,356 ha. In

Table 6. Certificate of Ancestral Domain Claims (CADCs) Issued within the Study Area

Province/Region	Municipality	Area(ha)	Tribe	Date Issued	CADC No.	YES(1) NO (0)	ADMP ⁽¹⁾ Area (ha)	%
1 N. Vizcaya	Dupax del Norte	17,972.31	Bugkalot	1/29/96	RO2-CADC-020			
2 N. Vizcaya	Kasibu	2,822.32	Bugkalot	1/29/96	RO2-CADC-021			
3 N. Vizcaya	Alfonso Castaneda	21,842.20	Bugkalot	1/29/96	RO2-CADC-022			
4 N. Vizcaya	Dupax del Sur	31,112.96	Bugkalot	1/29/96	RO2-CADC-023			
5 N. Vizcaya	Aritao & Santa Fe	40,069.30	Kalanguna-Ikalahan	3/19/98	RO2-CADC-118			
6 Quirino	Nagtipunan	108,360.00	Bugkalot	6/14/94	RO2-CADC-002	1	108,360.00	
7 Quirino	Meddela & Nagtipunan	10,971.00	Agta	6/14/96	RO2-CADC-053	1	10,971.00	
8 Ifugao	Tinoc	27,787.00	Kalanguna	3/4/96	CAR-CADC-036			
9 Ifugao	Kiangan	20,419.00	Kiangan	5/3/96	CAR-CADC-046			
Total		281,356.09					119,331.00	42.4%

(1) Ancestral Domain Management Plan.

Source: Ancestral Domain Claims, Forest Management Bureau.

general the areas covered under CADC was significantly large compared to CBFM areas. While the average land area of the CBFM projects within the Study Area was 1,560 ha, that of CADCs was 31,261 ha. This means that average CADC area is 20.03 times as large as the average CBFM area located within the Study Area. **Table 7** shows a list of projects under Community Forestry Management Agreement (CFMA) and Community Forest Stewardship Agreement (CFSA), which have yet to be converted into projects under CBFM agreement. The total of 6 projects under these instruments have been so far identified, covering 3,963 ha with 2,173 beneficiaries.

Table 8 shows the summary of a variety of projects under people-oriented approaches that have now been integrated into CBFM program. It includes projects under CBFM Agreement (CBFMA), Integrated Social Forestry (ISA), Community Forestry Management Agreement (CFMA) and Community Forest Stewardship Agreement (CFSA) as tenurial instruments. Overall, 10.53% of the total study area, or 91,518 ha, were covered under the CBFM program. The percentage was

Table 7. Projects under CFMA and CFSA within the Study Area

Province	Municipality	Project Name	Tenurial Instrument	Project Area(ha)	Fund Source	# of HH
Nueva Vizcaya	Bayombong	Ambaguio Upland Environmentalist Assn., CFMA	CFMA	2,222.0	—	—
Nueva Vizcaya	Aritao	Yaway CFP	CFMA	1,287.0	DENR	478
Nueva Vizcaya	Aritao	Unigold CFSA	CFSA	7.0	DENR	48
Nueva Vizcaya	Aritao	Bayagong, Aritao CFSA	CFSA	1,213.0	DENR	54
Nueva Vizcaya	Bayombong	Senora Falls Upland farmers Assn., CFS	CFSA	490.0	DENR	1,872
Nueva Vizcaya	Kayapa	Baan (to confirm)	CFSA	31.0	CARP	199
			Total	3,963.0 ⁽¹⁾		2,173 ⁽¹⁾

(1) The figure does not include Yaway CFP, which has already been converted to CBFMA project.



Province	Municipality	Project Name	Tenurial Instrument	Project Area(ha)	Fund Source	# of HH
Nueva Vizcaya	Aritao	Yaway Farmers Multi-Purpose Coop. Inc.	CBFMA	1,341.50	DENR	478

Table 8. Land Area Covered under the CBFM Projects within the Study Area (in hectare)

Province/ Region	The Total Land Area	The Study Area	CBFMA Area (ha)	ISF Area (ha)	CFMA/CFSA Area (ha)	TOTAL Area (ha)	% of the Study Area	% of Province Area
N. Vizcaya	390,387	357,728	9,013	14,220	3,963	24,908 ⁽¹⁾	6.96%	6.38%
Quirino	305,720	230,191	38,649	9,266	—	46,443 ⁽²⁾	20.18%	15.19%
Ifugao	1,066,456	174,876	5,950	8,527	—	14,477	8.28%	1.36%
Isabela	251,778	106,529	5,690	0	—	5,690	5.34%	2.26%
Total	2,014,341	869,324	59,302	32,012	3,963	91,518	10.53%	4.54%

(1) Physical land coverage: an aggregate area of 27,196 ha discounting 1,001.15 ha and 1,287 ha under ISF and CFMA/CFSA, respectively located within CBFMA area.

(2) Physical land coverage: an aggregate area of 47,915 ha discounting 1,472.46 ha under ISF located within CBFMA area.

highest in Quirino, amounting to 20.18% covered under CBFM program, followed by 8.28% in Ifugao, 6.96% in Nueva Vizcaya, and 5.34% in Isabela.

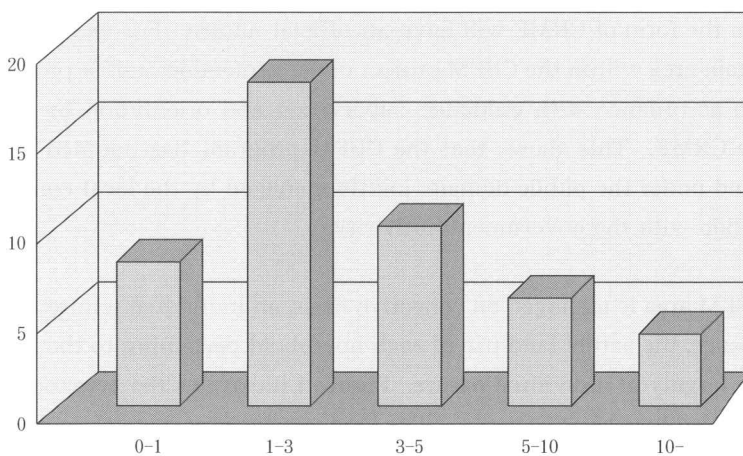
2. Analysis on Land Tenure, Livelihood and Revenues

Land tenure situation was studied based on the field survey. According to the survey results, an average area under land tenure of the studied 46 households was 4.22 ha per household¹⁶. The following **Figure 2** shows an overall picture of land tenure size of the studied households. 39.13% of the population held a land occupying one to three ha, followed by 21.74% of three to five ha. 17.39% of them held the land with zero up to one ha. Overall 78.26% of the studied households had a land of up to five ha.

Legal Tenure and Conventional Tenure

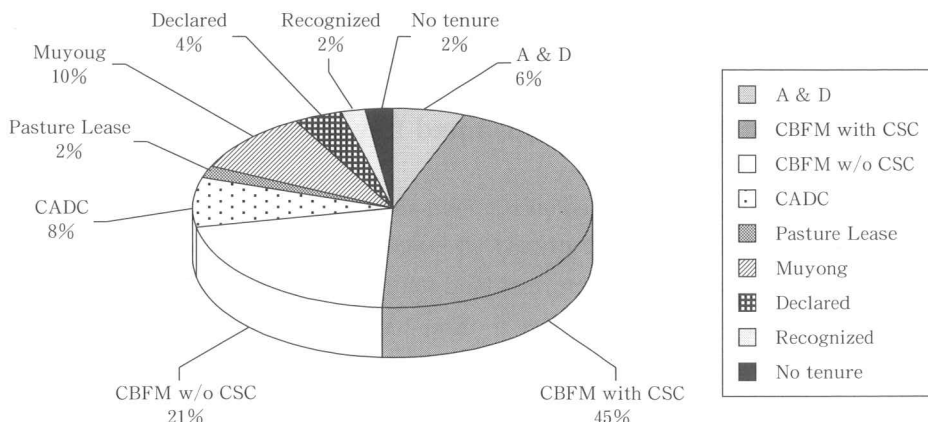
80.00% of the studied households (n=36) held a land under some form of legal tenure. The remaining 20.00% (n=9) occupied a land without any type of legal instruments. Yet, 55.56% (n=5) of such category population possessed a land under *Muyong*¹⁷ system. Among the rest, 22.22% (n=2) and 11.11% (n=1) held a land under declaration and recognition, respectively. The declaration of land and recognition of land are respected by the community members under conventional land tenure systems. Hence, only 2.22% or only one household among the total respondents was without any type of legal or traditional tenure instruments¹⁸.

Among 36 households possessing some form of legal instruments, 8.33% (n=3) possessed land under A&D¹⁹ (private property). 58.33% (n=21) held a Certificate of Stewardship Contract (CSC) under Integrated Social Forestry (ISF) program. 27.78% (n=10) held a land covered under CBFM



Source: Field Survey conducted during April-May, 2001.

Figure 2. Land Holding Size (ha) among the Studied Households (n = 46)



Source: Field Survey conducted during April-May, 2001.

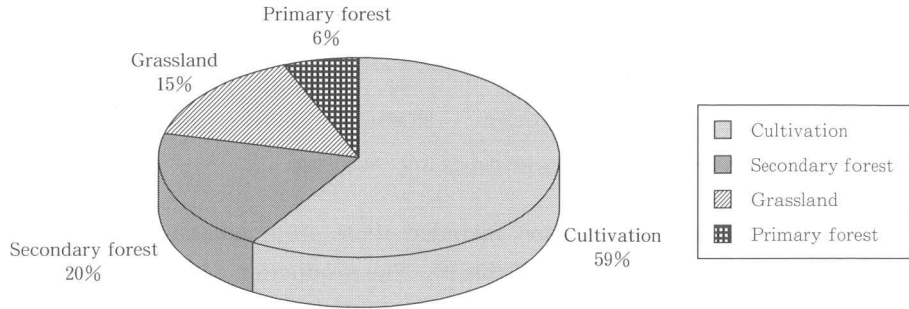
Figure 3. Land Tenure of the Studied Households (n=48)

agreement without individual tenure instrument such as CSC. 11.11% (n=4) had a land covered under CADC also without individual tenure instrument. One household, a member of Nunhabatan Greeners Livelihood Association Inc. had 6 ha under the pasture lease agreement²⁰. The average size of CSC and A&D area was 3.66 (n=21) and 1.73 (n=3) ha, respectively. **Figure 3** shows the above findings according to legal and conventional tenure instruments.

Land Use Classifications

The CBFM area needs to formulate a land use strategy under the formation and approval of Community Resource Management Framework (CRMF). The CRMF will be formulated with assistance from the DENR²¹. The CRMF will be affirmed by CENR officer in charge²². To the extent DENR assists, intervenes and supervise in the formulation of CRMF, the land use strategy adopted by PO in the form of CRMF will have an official nature. For example, the strategy in classifying a certain area within the CBFM project under protection and/or production forest will be formulated in accordance with guidance, supervision and orientation by the DENR in the formation of the CRMF. This shows that the CBFM program has adopted a co-management scheme of the land under the public domain, jointly managed by the local community organization in collaboration with the government authority.

Although the CBFM area is managed on collective basis, an individual tenure by each household is recognized. Hence, the actual land use of each household pertaining to the PO in the management of CBFM is largely of individual nature. **Figure 4** illustrates the breakdown of actual land use among the studied households (n=44). The land use patterns were classified into 1) Primary forest, 2) Secondary forest (Residual forest), 3) Grassland, and 4) Cultivation. Among the total area of 187.54 ha by 44 household holdings, 58.37% was comprised of cultivation, followed by 20.45% of secondary forest, 14.86% of grasslands and 6.32% of primary forest.

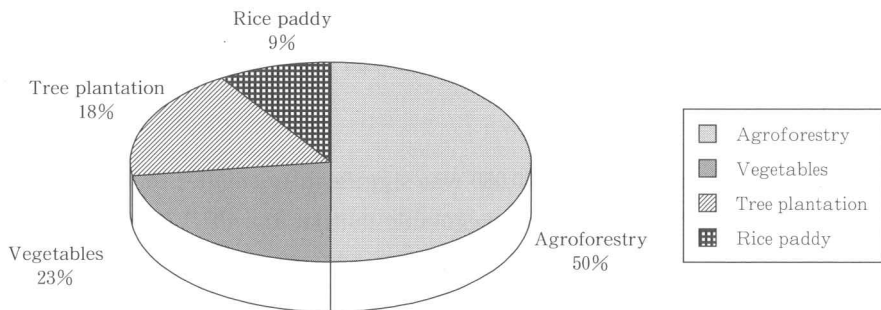


Source: Field Survey conducted during April-May, 2001.

Figure 4. Land Use of the Studied Households (n=44)

Land Use of Cleared Land

Figure 5 describes a land use situation of the cleared land of the studied households. Here the cleared land was classified into those under 1) Agroforestry, 2) Vegetable farming, 3) Tree plantation, and 4) Rice Paddy. The data was available from 37 households, amounting to the total 93.46-ha cleared land. On average, a half of the cleared land was destined for agroforestry. About one fourth of the cleared land was appropriated for vegetable growing. Tree plantation without interplanting fruit trees or vegetables occupied 18%, followed by rice paddy of 9%.



Source: Field Survey conducted during April-May, 2001.

Figure 5. Land Use of Cleared Land among the Studied Households (n=37)

Revenue Analysis on Crop Productions

Subsistence farming prevails among the upland farmers of the Study Area. Yet, a substantial interest existed in income generating opportunities. The following are discussions of analysis concerning revenues obtained from a number of sources. First, agriculture revenues were studied, classified into those from 1) Diet crop production, 2) Vegetable production, and 3) Fruits production.

Table 9. Revenues from Diet Crops Production (n=19)

Upland rice		Corn		Total	
PHP	%	PHP	%	PHP	%
44,064	13.70%	277,570	86.30%	321,634	100.00%

Source: Field Survey conducted during April–May, 2001.

The Revenues from diet crops production included those from upland rice and corn. They amounted to PHP 321,634, as shown in the **Table 9**²³. The production of upland rice was basically for family consumption. Of these diet crops revenues, 86.30% was obtained from corn sales. Comparing to the rice production, more households were involved with corn sales. Subsequently in terms of revenues, PHP 277,570 came from the corn sales, while the rice revenue composed only PHP 44,064, as shown in **Table 9**.

With respect to the vegetable growing in the Study Area, altogether 28 kinds were identified. In spite of the numerous variety however, a major thrust of volumes was destined for domestic family consumption, as was the case with rice. Nevertheless, the revenues arising from vegetable sales, PHP 441,086 surpassed those from diet crops revenues of PHP 321,634. Two single kinds, sweet peas and Baguio beans, comprised a half of all economic revenues²⁴.

For fruit kinds, altogether 11 species were generating revenues, equivalent to 52.38% of altogether 21 fruit kinds identified as growing on their farms. Like other two categories, the fruit species were to the great extent for domestic consumption, unable to be commercialized. Lack of appropriate systems for fruits collection, storage, transportation and marketing was observed. Further, processing fruits into value-added products is considered necessary in the future to promote fruits production under agroforestry systems.

The revenues from fruit growing, PHP 60,080 was significantly smaller than those obtained from cultivation of diet crops, PHP 321,634 and vegetable cultivation, PHP 441,086. Further, the two thirds, or 67.33% of such revenues were derived from banana. Other fruits had a minor importance, such as Papaya (8.12%), Mandarin (7.99%), Peanut (5.83%) and Pineapple (4.16%). This means that in spite of present policies promoting fruit species planting under agroforestry systems such as mango, avocado, jackfruit, coconut and guayabano, no or marginal revenues were so far attained from such products.

Analysis of the Revenue Types

The following **Table 10** summarizes the agricultural crops revenues arising from the above three categories; 1) vegetables, 2) diet crops, and 3) fruits. A sum of PHP 822,800 was obtained from those revenues among the total of 46 households. 53.61% was obtained from vegetables sales, 39.09% from rice and corn. A minor percentage of 7.30% was driven from commercialization of fruit kinds.

Table 10. Agricultural Crops Revenues of the Studied Households (n=46)

PO Name	Vegetable		Diet Crops		Fruits		Total PHP
	PHP	%	PHP	%	PHP	%	
Yaway Farmers Multi-Purpose Coop.	199,050	100.00%	0	0.00%	0	0.00%	199,050
Vista Hills Upland Farmers Association	171,050	89.11%	18,750	9.77%	2150	1.12%	191,950
JV Greeners Tree Planters Assn.	22,266	75.95%	4,050	13.81%	3,000	10.23%	29,316
Mayoyao Env. Dev. Association (MEDAI)	6,125	68.63%	2,500	28.01%	300	3.36%	8,925
Nunhabatan Greeners Livelihood Assn.	22,335	20.69%	82,500	76.41%	3,130	2.90%	107,965
Baguio Village Intercultural Assn.	11,160	14.55%	57,434	74.89%	8,100	10.56%	76,694
Hapid Agroforestry Developers (HADAI)	1,350	6.04%	20,100	89.93%	900	4.03%	22,350
Nuh-uh-uhhaan Inc.	2,750	5.72%	2,800	5.83%	42,500	88.45%	48,050
Ilongot Livelihood Association Inc. (ILAI)	5,000	3.61%	133,500	96.39%	0	0.00%	138,500
Total	441,086	53.61%	321,634	39.09%	60,080	7.30%	822,800

Source: Field Survey conducted during April-May, 2001.

Table 11. Diet Crops and Vegetables vs. Fruits Revenues (n=46)

PO Name	Diet Crops and Vegetables		Fruits		Total PHP
	PHP	%	PHP	%	
Yaway Farmers Multi-Purpose Coop.	199,050	100.00%	0	0.00%	199,050
Ilongot Livelihood Association Inc. (ILAI)	138,500	100.00%	0	0.00%	138,500
Vista Hills Upland Farmers Association	189,800	98.88%	2150	1.12%	191,950
Nunhabatan Greeners Livelihood Assn.	104,835	97.10%	3,130	2.90%	107,965
Mayoyao Env. Dev. Association (MEDAI)	8,625	96.64%	300	3.36%	8,925
Hapid Agroforestry Developers (HADAI)	21,450	95.97%	900	4.03%	22,350
JV Greeners Tree Planters Assn.	26,316	89.77%	3,000	10.23%	29,316
Baguio Village Intercultural Assn.	68,594	89.44%	8,100	10.56%	76,694
Nuh-uh-uhhaan Inc.	5,550	11.55%	42,500	88.45%	48,050
Total	762,720	92.70%	60,080	7.30%	822,800

Source: Field Survey conducted during April-May, 2001.

Such findings were further analyzed in **Table 11**. The Table congregated the revenues arising from vegetables and diet crops as opposed to those from fruits. The table indicates a clear tendency that the less the PO was dependent on fruits sales, the higher revenues they attained in overall agricultural production sales. For example, Yaway, Ilongot and Vista Hills POs gained the highest economic revenues from agricultural activities. And they were the least dependent on fruits commercialization. Likewise, those POs dependent on fruits sales over 10%, such as JV Greeners, Baguio Village and Nur-uh-uhhaan POs were among the lowest earning organizations. Such situation suggests that the promotion of planting fruit trees for tenurial instrument as well as forest restoration strategies had yet to meet with POs quest for increased income. It is considered that encouraging fruits planting should be accompanied simultaneously by providing concrete incentives and assistance for down-streaming processing and marketing of the harvested produce.

Service Sector Revenues

Table 12 shows the study results on cash revenues derived from the service sector. Among the category, the largest segment came from employment at public services, occupying 47.21%²⁵. This was followed by the small business revenues of 13.63%²⁶, and the employment revenues at private entities of 12.42%. Public works included employment opportunities under various government projects²⁷. Farm labor included providing labor at others' farm for daily wage basis²⁸.

Figure 6 illustrates the service sector revenues among three categories: 1) Public Sector; 2) Private sector; and 3) Family Sector. 61% of the service sector revenues were derived from the Public Sector, while 36% from the Private Sector. It can be noted that among overall upland communities in the forestlands, the Public Sector was providing significant cash earning means through employment opportunities as well as various public works and government projects. Meanwhile, financial support from family members, when treated as a separate account among service sector revenue, did not play a significance role.

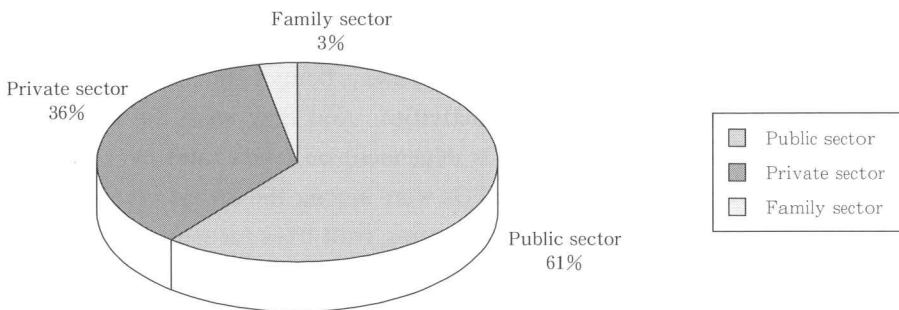
Economic Revenues Analysis

Table 13 summarizes the above analysis on economic revenues classified into three sectors; 1) Agriculture Sector, 2) Livestock Sector, and 3) Service Sector. Overall economic revenues during the past year (from April-May 2000 to April-May 2001) of 46 studied households amounted to PHP 1,900,995. The average yearly revenue per household was PHP 41,325.98, or PHP 3,443.83 per month.

Table 12. Revenues from the Service Sector of the Studied Households (n=46)

Category	Public works	Reforest. project	Public servants	Private emplmt	Small business	Farm labour	Family assistance	Total
PHP	94,000	20,013	410,388	108,000	118,500	88,750	29,600	869,251
%	10.81%	2.30%	47.21%	12.42%	13.63%	10.21%	3.41%	100.00%

Source: Field Survey conducted during April-May, 2001.



Source: Field Survey conducted during April-May, 2001.

Figure 6. Revenues from the Service Sector of the Studied Households (N=46)

Table 13. The Summary of Economic Revenues among the Studied Households (n=46)

PO Name	Agriculture		Livestock		Service		Total PHP
	PHP	%	PHP	%	PHP	%	
Yaway Farmers Multi-Purpose Coop.	199,050	90.95%	13,800	6.31%	6,000	2.74%	218,850
Vista Hills Upland Farmers Assn.	191,950	88.27%	25,500	11.73%	0	0.00%	217,450
Baguio Village Intercultural Assn.	73,694	66.82%	0	0.00%	36,600	33.18%	110,294
Ilongot Livelihood Association Inc.	138,500	53.54%	37,500	14.50%	82,700	31.97%	258,700
Nunhabatan Greeners Livelihood Assn.	107,965	44.39%	51,250	21.07%	84,000	34.54%	243,215
Hapid Agroforestry Developers	22,350	25.30%	24,795	28.07%	41,200	46.64%	88,345
Nuh-uh-uhhaan Inc.	48,050	20.01%	4,900	2.04%	187,188	77.95%	240,138
JV Greeners Tree Planters Assn.	29,316	7.90%	18,000	4.85%	323,850	87.25%	371,166
Mayoyao Env. Dev. Association	8,925	5.84%	36,200	23.69%	107,713	70.48%	152,838
Total	819,800	43.12%	211,945	11.15%	869,251	45.73%	1,900,995

Source: Field Survey conducted during April-May, 2001.

This was equivalent to yearly and monthly revenues of Yen 99,182, and Yen 3,443, respectively, at PHP=Yen 2.40. based on the approximate exchange rate during the field survey period²⁹.

The best earning sector among the above three sectors was Service Sector. It occupied 45.73% of all revenues, followed by Agriculture Sector (43.12%) and Livestock Sector (11.15%). Among upland communities within the Study Area, Agriculture and Service Sectors seemingly represented an equal importance. On this table, an important general trend was found. Those POs attaining higher revenues by Agriculture Sector depended less on Service Sector revenues. For example, the top two earners of Agriculture Sector revenues — Yaway Farmers and Vista Hills POs — demonstrated nil or marginal revenues obtained from Service Sector. Among Vista Hills PO members, no revenue was derived from Service Sector.

Further, an interesting observation was made on the above results in comparison to results obtained in **Table 8** on main interests in participating in the CBFM program. The smaller revenues the POs derived from Agriculture Sector, the more interest was shown on economic income in participating in the CBFM program. For example, MEDAI-Mayoyao Environment Development Association and Hapid Agroforestry Developers were the least earner of agriculture revenues. And they expressed the highest level of interest on economic income in participating in the CBFM. Likewise, the best two earners on agricultural revenues, Yaway Farmers Multi-Purpose Coop. and Vista Hills Upland Farmers Association were among those who showed the least interest on economic income in participating the program. Such results showed that those POs unable to earn enough revenues on agriculture needed to depend on other revenue sources, principally from Service Sector, and demonstrated clear intention in improving income opportunities through participation in the CBFM program.

3. Forest Management Methods within the CBFM Areas

This section reviews matters relating to forest management practiced within the CBFM areas of the Study Area. The discussions include methods and costs for plantation establishment and maintenance, techniques on agroforestry, the situation on timber harvesting and forest protection. Further, the discussion involves the study results on problems and constraints faced by the POs in the effort to promote sustainable forest management within the CBFM area.

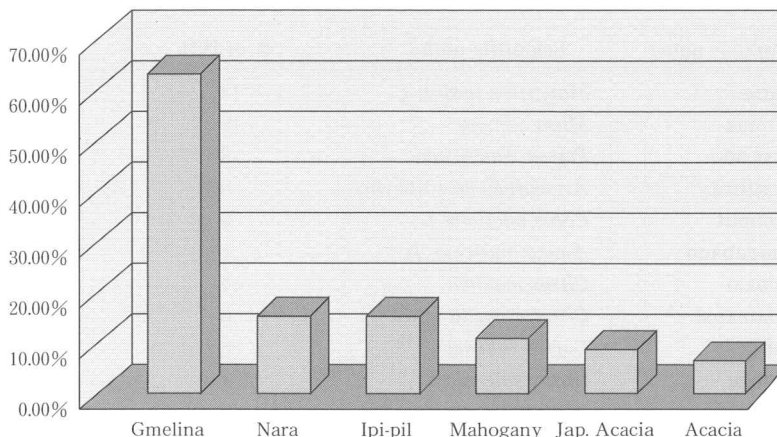
Plantation Establishment Methods

Inputs of necessary labor for plantation establishment normally required remuneration for participants. Small subsistence farmers — a majority among upland populations — were not able to allocate time nor money to invest on tree plantations. Hence, the labor required for plantation was usually paid on a daily basis whenever the administrating POs were financially capable.

In a number of case studies, the seed collection was handled by PO members themselves. For example, in the ITTO-supported project in Vista Hills in the Province of Nueva Vizcaya, PO members themselves produced necessary seeds for plantation establishment. The seeds were selected carefully from quality mother trees — a lesson learned from the previous phase of the project in which the community members had applied any seeds available for plantation, resulting in poor growth performances. Seeds of Yamane (*Gmelina arborea*) and Mahogany (*Sweitenia macrophylla*) were collected from existing natural vegetations and stored during six months. Using the seeds, seedlings were managed in a tree nursery by PO members.

In the ITTO-supported project, a unique experience was gained to study appropriate tree species as well as planting methods within the Study Area. The study offered the only practical example of such study accompanied by scientific monitoring. In 1995 the Plantation Method Establishment project in Vista Hills was financed by ITTO and implemented by DENR. A 16-ha experimental plantation was formed using four principal tree species; Yamane, Mahogany, Narra (*Pterocarpus indicus*) and Japanese Acacia or Auri (*Acacia auriculiformis*). Soil treatment techniques were applied. Subsequently, a 100-ha demonstration plantation was established. Among the four species, Yamane showed successful growth results. It was found that as far as the project site was concerned, the planting of Narra and Acacia was not appropriate due to poor soil conditions.

Figure 7 presents data on forest tree species planted by the studied households (n=46). 63.04% of the households occupied lands where Yamane were planted, either by reforestation projects or by their own initiatives. In case their lots were located within the reforestation area, Yamane was naturally planted. Yamane was by far the most predominant species to be selected in reforestation project in the Philippines, followed by Narra and Ipil-ipil (*Leucaena glauca*) which were



Source: Field Survey conducted during April-May, 2001.

Figure 7. Forest Tree Species Planted by the Studied Households (n=46)

Table 14. Spacing Method Used for Yamane Plantation (n=29)

Spacing	2m × 3 m	random	2m × 2m	3m × 3m	4m × 8m	Total
# of H. H.	16	5	1	1	1	29
%	55.17%	17.24%	3.45%	3.45%	3.45%	100.00%

Source: Field Survey conducted during April-May, 2001.

planted by 15.22%. Mahogany and Japanese Acacia followed with minor percentage of planting by the population.

The data was available for all households on spacing method used for Yamane plantation. The dominant method used for Yamane plantation was 2 m × 3 m spacing, which was confirmed by 55.17% of the households with the species planted within their holding. 17.24 of the Yamane growers planted randomly, followed by minor incidence of other spacing methods shown on **Table 14**.

Table 15 is a list of fruit bearing trees planted by the studied households on their farm (n=46). Those fruits planted on their home gardens are not included. The list shows a magnitude, preference and relative importance of each crop for those planters under agroforestry systems. 20 fruit kinds were identified in which mango and banana were the most widely planted kinds affirmed by 41.30% of all households. Avocado, jackfruit and coconut were planted by 17.39%. Guayabano, pomelo, calamansi and coffee were among those fruits that were chosen less as commercial fruit species.

Table 15. Fruit Bearing Trees Planted among the Studied Households (n=46)

Popular name	Scientific name	# of H.H.	%
Mango	<i>Mangifera indica, L.</i>	19	41.30%
Banana	<i>Musa cocoina</i>	19	41.30%
Avocado	<i>Persea Americana</i>	8	17.39%
Jackfruit	<i>Artocarpus heterophylus</i>	8	17.39%
Coconut	<i>Cocos nucifera, L.</i>	8	17.39%
Guayabano	<i>Anona muricola, L.</i>	7	15.22%
Pomelo	<i>Citrus maxima</i>	6	13.04%
Calamansi	<i>Citrofortenella mitis</i>	6	13.04%
Coffee	<i>Coffea rubusta</i>	5	10.87%
Orange	<i>Citrus sinensio</i>	4	8.70%
Pineapple	<i>Ananas comosus</i>	3	6.52%
Rattan	<i>Calamus merrili</i>	3	6.52%
Santol	<i>Sandoricum koetjape</i>	2	4.35%
Apple	<i>Malus pumila</i>	1	2.17%
Lemon	<i>Triphasia guranteola</i>	1	2.17%
Tamarind	<i>Tamarindus indica</i>	1	2.17%
Singuelas	<i>Spondias purpuria</i>	1	2.17%
Rambutan	<i>Nephelium philippinesis</i>	1	2.17%
Tiesa	<i>Pauteria campuchiara</i>	1	2.17%
Bamboo	<i>Bambusa vulgaris</i>	1	2.17%
Total		46	100.00%

Source: Field Survey conducted during April-May, 2001.

Plantation Establishment Costs

A per-ha cost for plantation establishment varied within the Study Area. In one instance of ADB funded reforestation project in Barangay Lublub in Alfonso Castañeda in the province of Nueva Vizcaya, PHP 18,000 per ha was incurred during three years between 1991 and 1993. The cost included various components, including site preparation, seedling production, planting and re-planting, in addition to construction of infrastructure such as bunkhouse and watchtowers. According to cost standards adopted by the report on assessment and revised implementation of Forestry Sector Project financed by JBIC, a per-ha plantation establishment cost including nursery operations were measured at PHP 12,123, under 2×3 m spacing of such species as Yamane, Acacia Mangium, Eucalyptus and Falcata. In the same assessment, a per-ha establishment cost for the same operation in case of planning only fruit trees, such as coffee, cacao, calamansi and guayabano by 4×4 m spacing was estimated at PHP 5,003³⁰.

Maintenance Costs

Maintaining established plantations presented a major hurdle for promoting forest management. A majority of the POs were not able to generate on a sustainable basis management costs for maintenance of established plantations. Maintenance costs were usually shouldered by specific funding under reforestation projects. After that the plantations were maintained in an unstable

and precarious manner. Many POs needed to depend on their fragile financial accounts. While the maintenance cost was sometimes covered personally by PO chairman, it was often burdened by voluntary labor among PO members. According to the assessment on Forestry Sector Project by JBIC financing, a three-year maintenance and protection cost was estimated at PHP 19,866 or PHP 6,622 per year, in case of the plantation established by 2 x 3 m spacing with forest tree species discussed above. The fruit tree plantation was estimated to cost PHP 11,893 during three years for maintenance and protection, or PHP 3,964 per year. Usually these maintenance costs were covered under reforestation projects, such as those financed by ADB and JBIC. In such circumstances, the maintenance cost after the third year onward encountered difficulty for POs to cover.

Timber Harvesting

Reflecting current situation on dwindled timber resources in the Philippines, POs within the Study Area were cautious in the prospect of timber harvesting in the future. Such concern was expressed for example among members of J. V. Greeners Tree Planters Association in Alfonso Castañeda in the province of Nueva Vizcaya where timber poaching existed among poverty-stricken upland populations. The PO managers were apprehensive in allowing timber harvesting, which would facilitate illegal logging of the remaining natural forest. Meanwhile, Yaway Farmers Multi-Purpose Cooperative in Aritao in the province of Nueva Vizcaya was one of the POs interested in timber harvesting under forest management. The Coop joined the CBFM program in 1995 to introduce erosion control and protection of the remaining forest. Ilongot Livelihood Association in Nagtipunan municipality of the province of Quirino was another example in which a clear strategy for timber harvesting, processing and commercialisation of processed products was adopted.

Forest Protection

A number of examples were examined regarding how the remaining forest was protected under the CBFM program. In Vista Hills in Nueva Vizcaya, the old growth forest within the CBFM project area was under protection by the community through regular patrol against potential timber poaching. Cutting timber of old growth forest for community's domestic needs was under strict control by the members. Illegal felling by the members was to be detected with confiscation of timber and a fine imposed on the poacher according to the community rule. Thus, the old growth forest was prohibited to cut for sale. The CBFM area managed by Yaway Farmers Multi-Purpose Cooperative was divided into three management categories, such as protection forest, reforestation stands and agroforestry plots, totaling 1,341.5 ha. In the area encompassing the CBFM area logging took place since 1970s leaving the landscape covered with secondary forest. Small portion of primary forest existed covering 20 ha. The forest protection constituted a major focus among the PO's management agenda and was undertaken voluntarily by the PO members. The activities included foot patrolling and confiscation of illegally felled logs.

Agroforestry and Fruit Species

In the Philippines, agroforestry was introduced in 1970s under the multiple-use management

concept adopted by pilot slash-and-burn (*kaingin*) management initiatives. The concept was incorporated into the Integrated Social Forestry (ISF) program. A good number of examples in restoring forest formation by agroforestry were observed within the Study Area. In the agroforestry Yamane and Giant Ipil-ipil (*Leucaena leucocephala*) were predominant mixed with a variety of annual, short-term and mid-term subsistence as well as cash crops. Planting vegetables was very much preferred among farmers in applying agroforestry. Farmers sometimes expressed concern over lack of space for growing vegetables under the scheme. As discussed earlier vegetables presented an immediate and the most important source of revenues for the studied upland farmers. In standardized agroforestry model diet crops such as upland rice, taro and sweet potatoes were usually interplanted with scattered fruit bearing trees surrounded by commercial tree plantations.

Many fruit bearing trees were introduced under agroforestry systems. The seeds were obtained within home gardens and agroforestry farms. Wild fruit species such as rattan was extracted from natural stands for reproduction. Rattan was planted and harvested for commercial purpose since excessive harvesting exhausted naturally available resources. In Quirino, the PO such as Kadikitan Association for Community Development planted 194 ha of rattan within the CBFM area. Nuh-uh-uhhaan Inc. in Quirino was another example introducing rattan planting. The main interest for rattan was to extract fruits rather than rattan vines for furniture making. Rattan fruit production was more economically lucrative than vine production. A per-kilo of rattan fruit was traded at PHP30 at the local market. In addition to rattan, coffee as a fruit bearing tree was widely introduced to enrich resource base of the residual stands in Mayoyao in Ifugao province.

4. Monitoring, Interests and Constraints on the CBFM Program

Technical Assistance and Monitoring

A hearing survey was conducted regarding the existence of systems on periodical monitoring as well as on technical assistance by DNER in exercising the CBFM program. Questionnaire was distributed to DENR's branch offices — Community Environment Natural Resource Offices (CENROs) — responsible for administration of CBFM projects. Altogether, replies from nine offices were available. According to the study results summarized in **Table 16**, all offices except CENRO-Lamut affirmed the existence of periodical monitoring system on CBFM projects. 55.56% of the offices replied that they had a monitoring system to conduct every month. 22.22% affirmed on every-three-month monitoring system. The same percentage replied that the monitoring was conducted as the need arose.

Under the monitoring system, Site Coordinator and other responsible personnel of CBFM Unit examine the progress and achievement of targets and goals set forth and agreed upon between POs and DENR. Monitoring was often conducted for validation and billing purposes under various reforestation contract schemes. CENRO-Lamut and CENRO-Alfonso Lista noted of the

Table 16. Monitoring and Technical Assistance Systems on CBFM by DENR

CENRO	Province	Monitoring				Tec. Asst		
		Yes (1) No (0)	Depends	Every month	Every 3 months	Yes (1) No (0)	Depends	Every month
1 Lamut	Ifugao	1	1			1	1	
2 Alfonso Lista	Ifugao	1			1	1		1
3 Aglipay	Quirino	1		1		1		1
4 Nagtipunan	Quirino	1		1		1		1
5 RP-German	Quirino	1			1 ⁽¹⁾	1	1	
6 Aritao	N. Vizcaya	1	1 ⁽²⁾			1		1
7 Dupax del Norte	N. Vizcaya	1		1		1	1	
8 San Isidro	Isabela	1		1		1	1	
9 Cauayan	Isabela	1		1		1	1	
	Total	9	1	5	2	9	5	4
	%	100.00%	22.22%	55.56%	22.22%	100.00%	55.56%	44.44%

(1) 3 times a year (planting year), every 6 months (2nd year after planting), once a year (after the 3rd year).

(2) After the plantation is established.

validation being conducted for billing purposes to determine the extent to which contracted reforestation was accomplished. The validation was determined for inspection on the field. CENRO-Aritao also noted of the formation of a joint PENRO-CENRO Evaluation Team to ascertain if the reported accomplishments really exist in the field under reforestation projects. Within the GTZ-supported community forestry project sites, plantation areas were surveyed by GPS and mapping by GIS on survival counting, measurement of height and diameter on a sampling basis. Those data were being gathered and integrated.

All CENRO offices also adopted systems on providing technical assistance. However, for 55.56% of the offices, the assistance was provided as the need arose instead of on periodical basis. The needs for technical assistance had to be communicated by PO representatives to CENRO offices. On the other hand, 44.44% replied of the system of providing technical assistance on every-month basis. Normally assistance was provided through information, education and training. In training, PO members were given lectures, demonstration and actual practices to learn skills and technologies related to reforestation and other required matters. Technical assistance also included delineation and mapping surveys as well as preparation of project proposals.

Main Interests on the CBFM Program

Table 17 shows the results of study on interest in participating in CBFM program for PO members. For 71.43% of the studied population, participation in the CBFM occurred on voluntary terms rather than encouragement by others. Because of irregular numbers of obtained samples, direct comparison of percentage among POs may not be feasible. Yet, all interviewed members of Nunhabatan Greeners Livelihood Association and Mayoyao Environment Development Association confirmed voluntary participation in the CBFM initiated by the reforestation project.

Table 17. Main Interests in Participating in CBFM for the Studied Households.

	Motivation		Total	Land tenure	Main Interest in CBFM				Total	
	Vol. (1) Non-Vol. (0)	Pop.	H. H. Pop.		Env. Pop.	Concern	Economic Pop.	income	H. H. Pop.	
Vista Hills Upland Farmers Assn.	75.00%	n=3	4	100.00%	n=5	0.00%	n=0	20.00%	n=1	5
Baguio Village Intercultural Assn.	66.67%	n=2	3	80.00%	n=4	20.00%	n=1	20.00%	n=1	5
Nuh-uh-uhhaan Inc.	25.00%	n=1	4	60.00%	n=3	100.00%	n=5	60.00%	n=3	5
Yaway Farmers Multi-Purpose Coop.	75.00%	n=3	4	50.00%	n=2	50.00%	n=2	25.00%	n=1	4
Ilongot Livelihood Association	100.00% ⁽¹⁾	n=1	1	40.00%	n=2	40.00%	n=2	60.00%	n=3	5
Nunhabatan Greeners Livelihd Assn.	100.00%	n=5	5	40.00%	n=2	80.00%	n=4	60.00%	n=3	5
JV Greeners Tree Planters Assn.	40.00%	n=2	5	25.00%	n=1	50.00%	n=2	50.00%	n=2	4
Mayoyao Env. Development Assn.	100.00%	n=4	4	25.00%	n=1	75.00%	n=3	75.00%	n=3	4
Hapid Agroforestry Dev. Assn.	80.00%	n=4	5	20.00%	n=1	40.00%	n=2	80.00%	n=4	5
Total	71.43%	25	35	50.00%	21	50.00%	21	50.00%	21	42

(1) Based on one baseline population, due to non-participant to CBFM or non-available data.
Source: Field Survey conducted during April-May, 2001.

In order to study the nature of interest in participating in the CBFM, the main interests were divided into three categories; 1) Land tenure, 2) Economic benefits, and 3) Environmental benefits. Although these interests are related to each other, the selection among these answers should represent a priority interest for respondents³¹. Curiously, overall interest on each of those three categories was shared by an equal magnitude of interest, both on comparative terms as well as absolute terms of the population. Each interest was supported by 21 households, which corresponded to 50% of the studied population. Such findings may suggest that the CBFM scheme has been supported by uplanders based on those three platforms on both theoretical as well as practical grounds. Due to equitable evaluation made on those interests, the CBFM scheme should generally pursue achieving those interests on equal basis.

On the other hand, any one of those interests should outweigh the others depending on practical needs of each PO participating in the CBFM program. Such presumption was endorsed by the further analysis. Despite the curious coincidence of each interest gaining equal significance, the priority ranking varied among all nine POs. The above Table lists the names of POs in accordance with more priority of interest given to land tenure under CBFM. For example, all respondents pertaining to Vista Hills Upland Farmers Association confirmed a land tenure as the highest priority interest, while the environmental conservation function of the CBFM was only supported by one respondent. A correlation was found between the elements of land tenure and economic benefits. Those POs interested more in land tenure tend to recognize minor degree of interest on economic benefits, and vice versa.

Constraints to Sustainable Forest Management

In order to identify constraints in the execution of the CBFM program, all of the available Community Resource Management Framework (CRMF) documents concerning POs within the

Study Area were reviewed and analysed. Leading constraints included: 1) lack of training on human resource development, 2) lack of basic infrastructure including water supply facility and 3) forest protection against fires. Necessary trainings included training on financial management and bookkeeping, organizational management, forest management and law enforcement, technology on upland farm management, marketing, in addition to enterprise and business development. Fire constituted a leading threat to successful management of forestlands. Rampant examples were found in which reforestation efforts were disrupted due to uncontrolled fires that occurred both accidentally and intentionally under inappropriate *Kaingin* (slash-and-burn) and pasture management practices. Necessary infrastructure included road, electrification, water supply and communication tools.

The above general picture on constraints was further examined by conducting a field survey on the studied households. The survey findings are summarized in **Table 18**.

Altogether 45.00% of respondents identified some kind of problems concerning the execution of the CBFM program. Identified problems however concerned more with practical applications rather than fundamental scheme and structure of the CBFM framework. As shown in the Table, the responses varied greatly among the studied POs. No problem was raised by all interviewed members of the three POs: Vista Hills Upland Farmers Association, Ilongot Livelihood Association and Mayoyao Environment Development Association. On the other hand, all respondents of

Table 18. Problems Facing the CBFM Program

PO Name	%	No. of H. H.	Plant'n	Harvest.	Com.	Livelihood	Natural	Admin.	Total
			*Lack of funds for plant'n & mait'n ce *Fire	*Delayed approval of harvesting *Timber poaching	*Com. org'ng str'ng	*Lack of livelihood income *Delayed payment	Cond'n *Water Supply *Unfertile soil	*CBFM coverage *LGU taxation	
Nuh-uh-uhhaan Inc. (n=5)	100.00%	5		5					5
Nunhabatan Greeners Livelihood Assn. (n=4)	100.00%	4	2			1	1		4
JV Greeners Tree Planters Assn. (n=4)	75.00%	3	1		1	1			3
Hapid Agroforestry Developers Assn. (n=5)	60.00%	3	2					1	3
Baguio Village Intercultural Assn. (n=5)	40.00%	2					1	1	2
Yaway Farmers Multi-Purpose Coop. (n=4)	25.00%	1			1				1
Vista Hills Upland Farmers Assn. (n=5)	0.00%	0							0
Ilongot Livelihood Association Inc. (n=4)	0.00%	0							0
Mayoyao Env. Dev. Assn. (n=4)	0.00%	0							0
Total	40	18	5	5	2	2	2	2	18
		45.00%	27.78%	27.78%	11.11%	11.11%	11.11%	11.11%	100.00%

Source: Field Survey conducted during April-May, 2001.

Nunhabatan Greeners Livelihood Association and Nuh-uh-uhaan Inc. affirmed the existence of problems. Identified problems were classified into the following five categories. These problem areas will be incorporated as management requirements and developed into the Resource Management Model, as discussed later.

- 1) Initial Capital
 - Lack of funds for plantation establishment and maintenance
- 2) Human Resources Development
 - Insufficient community organizing and PO strengthening
- 3) Livelihood Development
 - Lack of livelihood income opportunities and delayed payments of contract labor on reforestation projects
- 4) Forest Protection
 - Accidental as well as intentional fire for *kaingin* (slash-and-burn agriculture) and pasture, in addition to timber poaching
- 5) Forest Management
 - DENR approval on timber harvesting

Elements for Successful CBFM Program

In order to further study the situation, elements leading to successful CBFM program were examined by the field survey. During the survey four principal elements were presumed: 1) Human Resource Development through community organizing and good leadership; 2) Livelihood Development through income and marketing opportunities, 3) Livelihood Development through processing of harvested products; and 4) Basic Infrastructure represented by land tenure. The results were shown on the **Table 19**. The multiple choice gained a total of 64 responses, in which

Table 19. Perceptions on Successful CBFM Program Elements

PO Name	Community organizing & Good leader	Income & Marketing opportunity	Land tenure	Processing of products	Total
Nuh-uh-uhaan Inc.	5	5	2	2	14
Baguio Village Intercultural Association	4	0	1	0	5
Hapid Agroforestry Developers Association	4	3	1	0	8
Mayoyao Environment Development Assn.	3	3	0	0	6
Nunhabatan Greeners Livelihood Assn.	3	4	1	0	8
Vista Hills Upland Farmers Association	3	1	2	0	6
Yaway Farmers Multi-Purpose Coop.	3	3	0	0	6
J V Greeners Tree Planters Assn.	3	2	1	0	6
Ilongot Livelihood Association Inc.	1	1	2	1	5
Total	29	22	10	3	64
%	45.31%	34.38%	15.63%	4.69%	100.00%

Source: Field Survey conducted during April-May, 2001.

45.31% replied in support of community organizing and good leadership as the most important element for successful CBFM, followed by income and marketing opportunities (34.38%), Land tenure (15.63%) and Processing products (4.69%). As discussed later on the Resource Management Model, all of these elements constitute a Management Capital enabling to promote natural resource management. In the following section, the standardized Resource Management Model is discussed and applied to the selected POs within the Study Area.

5. Development of a Standardized Resource Management Model

Based on the above findings within the Study Area concerning the land tenure, land use, economic revenues analysis as well as interests and constraints of the CBFM program, a standardized Resource Management Model was developed. Through the exercise and application of Community Action Planning (CAP), various activities were planned to carry out the Pilot Study of JICA's Mater Plan Study for Watershed Management in Upper Magat and Cagayan River Basin, on which this study was formulated.

The Pilot Study is an actual verification process on the viability of the drafting of the Master Plan. It was conducted by selected POs through the undertaking of a series of activities related to the watershed management. **Table 20** summarizes the basic profile of the four POs participating in the Pilot Study program. The total CBFM area destined to the implementation of the Pilot Study program amounted to 2,098.50 ha.

The exercise of the Community Action Planning (CAP) involved the undertaking of the Project Cycle Management (PCM) in which the Problem Analysis³² as well as the Objective Analysis³³

Table 20. Basic Profile of the POs Participating in the Pilot Study

Name of PO	CBFM Area (ha)	Nature of PO	No. of PO Members ⁽²⁾	No. of Active PO Members ⁽²⁾	Active Member Ratio	Management Area per Member (ha)	Management Area per Active Member (ha)
Banila Community-Based Association	190.00 ⁽¹⁾	Coop.	73	73	100.00%	2.60	2.60
Balligui Community Forestry and Dev't Coop.	1,180.00	Coop.	74	54	72.97%	14.59	20.00
Nunhabatan Greeners Livelihood Assn.	241.00	Association	50	0	0.00%	4.82	—
Ayangan Dapiz Agro-Forestry Dev't Assn.	487.50	Association	67	0	0.00%	7.28	—
Total	2,098.50		264	127	—	—	—
Average	499.63		66	32	43.24%	7.32	

(1) Extended Area for the Pilot Study activities from the original CBFM area of 225 ha. The new CBFM area amounts to 2,395 ha.

(2) Data obtained from the Base Line Data for Capacity Building for POs conducted by the JICA Study Team.

were employed to detect and ascertain by PO members themselves problems and needs to be resolved. Based on these findings a set of program agenda accompanied by a series of activities were designed for the CAP. The analysis and the classification of a variety of management requirement components led to formulate a standardized Resource Management Model (RMM).

The Model conceives two fundamental resources to be managed — Human Resources and Natural Resources. Natural resource management consists of the management of a variety of natural resources within a certain biosphere such as that delineated by CBFM Agreement. They included forest resources, agricultural as well as pastoral resources, water resources, genetic resources, resources for developing eco-tourism with esthetic as well as ethno-cultural values. On the other hand, the existing local population will be regarded as human resources. The model assumes that through the development of human resources they will become a principal management agent to manage the natural resources.

This means that the Model considers that the viable, cost-effective and efficient management of natural resources in a given demarcated biosphere is attained by the mobilization of existing human resources therein, through capitalizing themselves as a *Management Capital*, by which the natural resource management will be pursued. Such resource management approach integrates and incorporates the existing human resources into a management of natural resources in a means-and-end dynamics. The human resources will be able to constitute a Management Capital

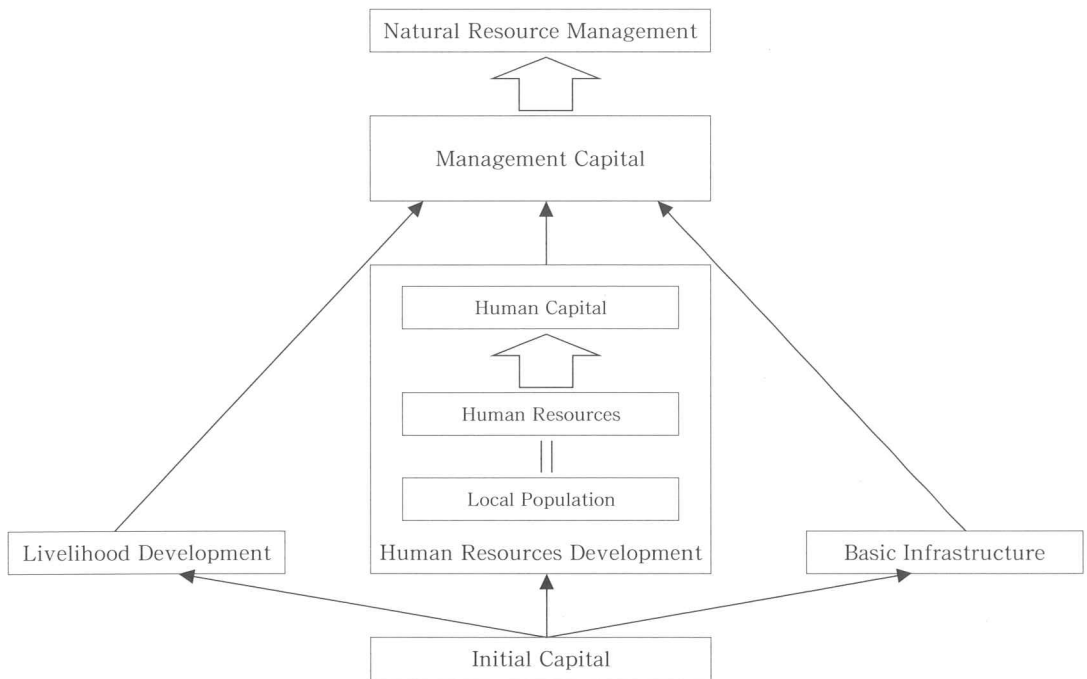


Figure 8. Basic Structure of the Resource Management Model

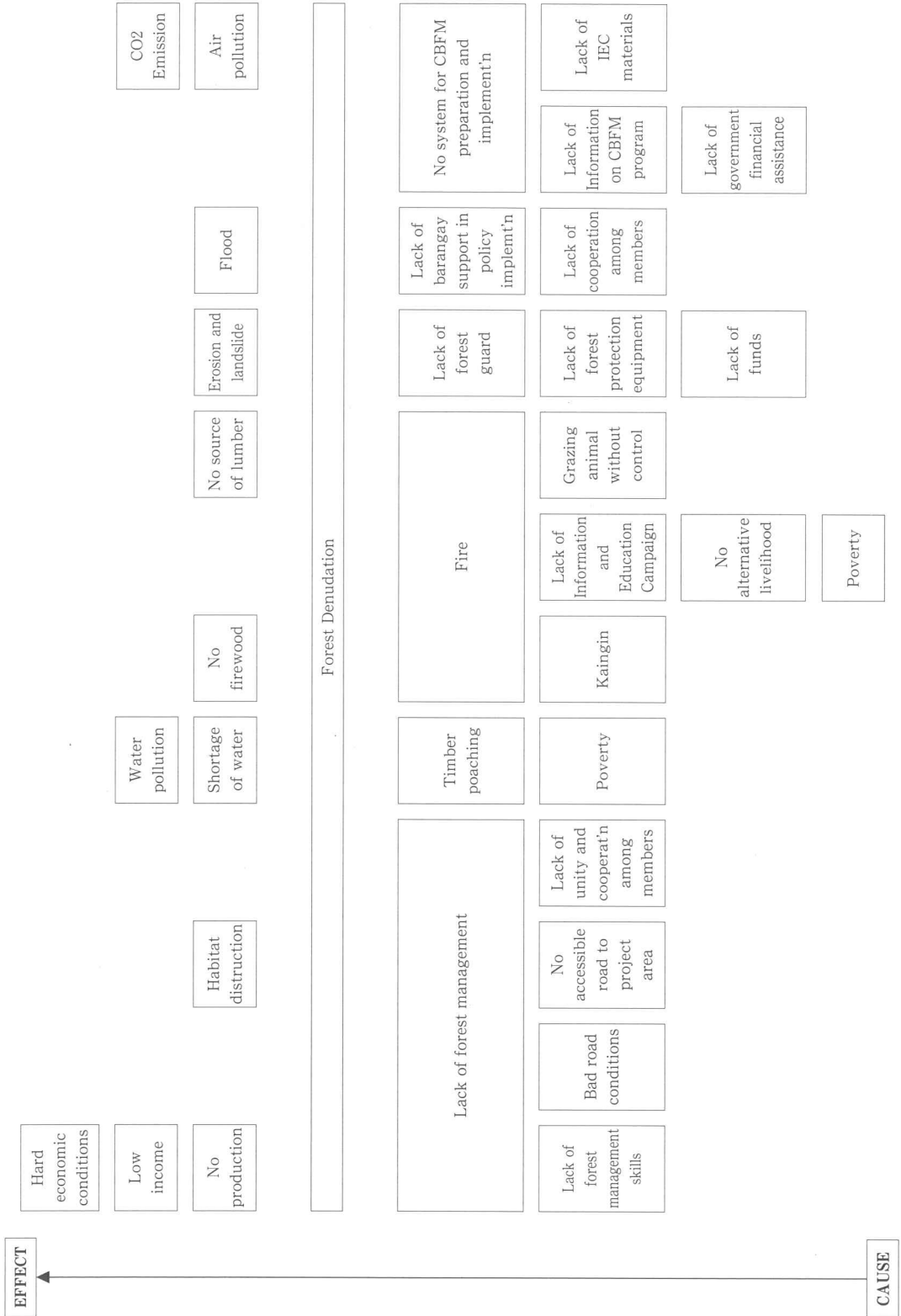


Figure 9. Problem Analysis of Banila Community-Based Cooperative Inc.

provided that two other prerequisite components are satisfied to exist: 1) Basic Infrastructure; and 2) Livelihood Development.

A variety of livelihood development initiatives, such as livestock raising, fish culture or apiculture, in the quest for income raising have often been regarded as supplementary components in the resource management. Here in the Resource Management Model however, the livelihood development is considered as a vital and indispensable element in any resource management initiatives, by way of nurturing the Management Capital furnished by organized and capable human resources. Likewise, a set of basic infrastructure such as farm-to-market road, bridges and adequate storage facility also constitutes a fundamental component comprising the Management Capital of the natural resource management.

Figure 8 illustrates a basic structure of the Resource Management Model. It is conceived that community forestry becomes viable when Natural Resource Management is carried out by satisfactory development of the Management Capital. Because the Management Capital is the principal management agent in mobilizing management initiatives, concrete activities concerning natural resource management will become effective provided that the Management Capital is satisfactorily capitalized and built-up.

Application of the Resource Management Model

Figure 9 and **10** show the examples of the result on Problem Analysis and Objective Analysis, respectively obtained for one of the Pilot Study participating POs — Banila Community-Based Association. Among those elements detected by these analysis, the direct voting was conducted by the cooperative representative members in order to further clarify and prioritize the management requirements. In the voting those elements identified in the Objective Analysis were to be selected as necessary actions, the results of which are shown in **Table 21 (a)**³⁴.

Table 21 (a). Necessary Actions Identified by Voting of the Banila Community-Based Association

Necessary Actions	Votes	%	Category
Funds	39	17.57%	Initial Capital
Alternative Livelihood	38	17.12%	Livelihood Development
Tree planting	37	16.67%	Natural Resource Management
Accessible roads	24	10.81%	Basic Infrastructure
Upliftment of life	20	9.01%	Livelihood Development
Strengthened forest protection	18	8.11%	Natural Resource Management
PO Strengthening	13	5.86%	Human Resource Development
Rules and Discipline	12	5.41%	Human Resource Development
Forest guard	12	5.41%	Natural Resource Management
Grazing control	9	4.05%	Natural Resource Management
Total	222	100.00%	

Source: Field Survey conducted during August, 2001.

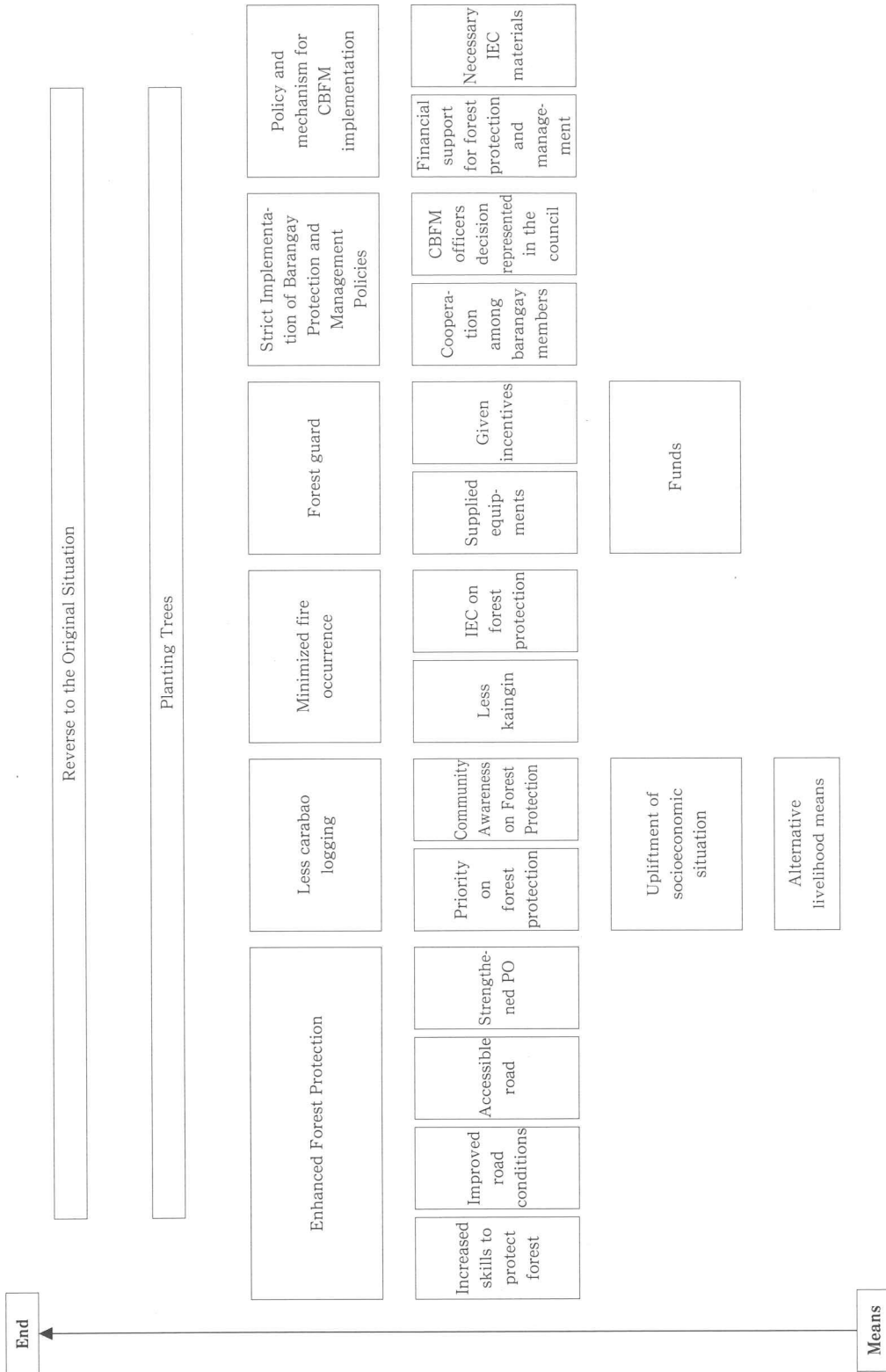


Figure 10. Objective Analysis Exercised by Banila Community-Based Cooperative Inc.

In the Table each action is classified into either of the category components constituting the Resource Management Model shown in the **Figure 8**, the results of which are summarized in **Table 21 (b)** and **Figure 11**. It can be seen that about two thirds of management requirements concern with nurturing a Management Capital, while the remaining one third was related to actions pertaining to natural resource management itself. The finding suggests that as far as the resource management is concerned within the CBFM area managed by Banila Community-Based Association more emphasis should be given to the Management Capital build-up than introducing actual management activities.

Based on the findings on management requirements identified by the exercise of Problem

Table 21(b). Management Requirements of Banila Community-Based Association

Management Requirements	Votes	%
1. Natural Resource Management	76	34.23%
2. Management Capital	107	65.77%
2.1. Human Resource Development	25	11.26%
2.2. Livelihood Development	58	26.13%
2.3. Infrastructure	24	10.81%
3. Initial Capital	39	17.57%
Total	222	100.00%

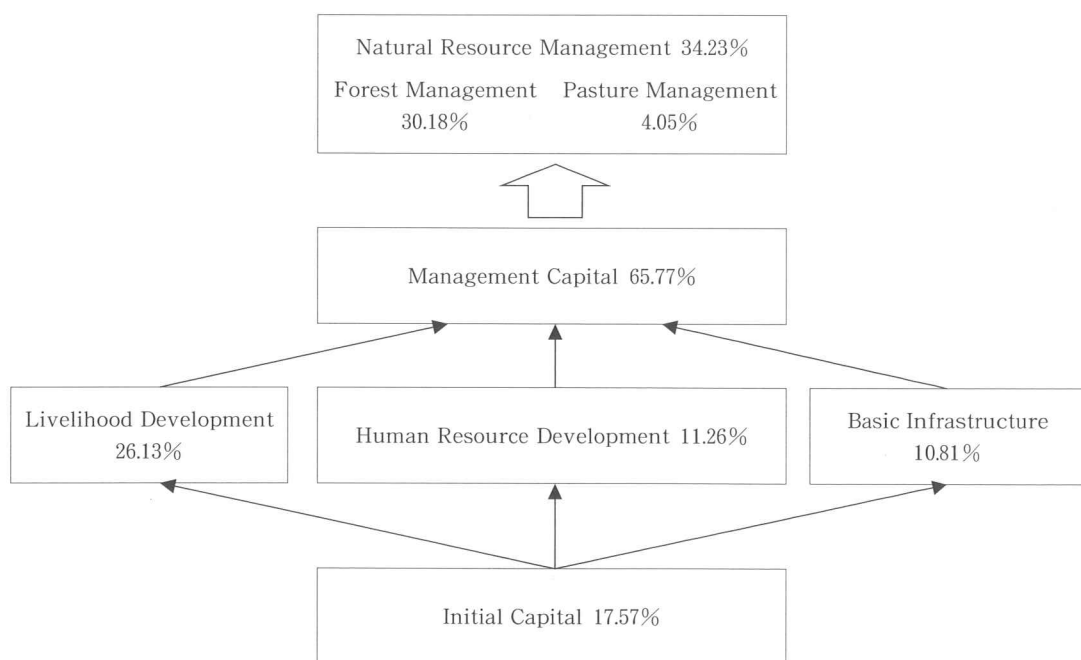


Figure 11. Resource Management Model of Banila Community-Based Cooperative Inc.

Table 22. Management Requirements of the POs Participating in the Pilot Study

Management Requirements	Banila	Ayangan Dapiz	Nunhabatan	Balligui
Management Capital	60.81%	52.55%	48.57%	24.57%
Livelihood Development	19.34%	31.70%	28.89%	0.00%
Basic Infrastructure	22.14%	0.00%	0.00%	24.57%
Human Resource Development	19.34%	20.85%	19.68%	0.00%
Natural Resource Management	39.19%	47.45%	51.43%	75.43%
Forest Protection	16.28%	22.13%	14.60%	16.96%
Forest Management	22.90%	25.32%	18.73%	66.78%
Pasture Management	0.00%	0.00%	18.10%	0.00%
Total	100.00%	100.00%	100.00%	100.00%

Analysis and the Objective Analysis, a set of action agenda was organized and proposed for approval at the General Assembly meeting for each PO participating in the Pilot Study. **Table 22** presents the proposed action agenda for each PO accompanied by the results of gained votes classified according to the nature of management components and categories constituting the Resource Management Model. The classification process has enabled to clarify management requirements of each PO illustrated in **Table 23**.³⁵

In the Table management requirements were classified into two basic management category: 1) Management Capital comprised of Human Resource Development, Livelihood Development and Basic Infrastructure; and 2) Natural Resource Management including Forest Protection, Forest Management and Pasture Management³⁶. Introducing a line of activities relating to natural resource management will become feasible only when the sound Management Capital has been built up. The voting results shown in the Table enabled to identify management components perceived necessary by voters to introduce or to reinforce in materializing viable natural resource management within a biosphere delineated by a given CBFM program.

According to the study results, for viable natural resource management more emphasis should be given to nurturing a Management Capital for Banila Community-Based Association as well as for Ayangan Dapiz Agro-Forestry Development Association than introducing activities directly related to the management of natural resources. On the other hand, more emphasis on management activities on natural resources was expected both for Balligui Community Forestry and Development Cooperative Nunhabatan Greeners Livelihood Association rather than activities directed towards building up the Management Capital. To the extent the emphasis on specific management requirement was made based on the voting exercise, these tendencies were indicative of perceived requirements among the PO members. Yet these findings were useful for comparative analysis among the POs to identify management components to be developed and strengthened.

Table 23. Results of Voting on Action Agenda by PO Members and Categorization of the Management Components

Action Agenda	votes	%	Management Component	Management Category
Banila Community-Based Association Inc.				
Provide alternative livelihood for slash and burn farmers and carabao loggers	76	19.34%	Livelihood Development	Management Capital
Improve existing road and trails going to and within the CBFM area	87	22.14%	Basic Infrastructure	Management Capital
Strengthen the capacity of the PO to manage their organization and projects	76	19.34%	Human Resource Development	Management Capital
Minimize Forest Fires	64	16.28%	Forest Protection	Natural Resource Management
Enhance skills and knowledge on plantation management	90	22.90%	Forest Management	Natural Resource Management
Total	393			
Nunhabatan Greeners Livelihood Association Inc.				
Improve quality of life of PO members to become effective forest managers	91	28.89%	Livelihood Development	Management Capital
Improve organizational cooperation and unity	62	19.68%	Human Resource Development	Management Capital
Minimize forest fires	46	14.60%	Forest Protection	Natural Resource Management
Improve plantation management within CBFM area	59	18.73%	Forest Management	Natural Resource Management
Improve pasture land management	57	18.10%	Pasutre Management	Natural Resource Management
Total	224	71.11%		
Balligui Community Forestry and Development Cooperative Inc.				
Improve efficiency of transporting planting materials, forest and agricultural products	71	24.57%	Basic Infrastructure	Management Capital
Sustainability of land use for forestland occupation through the promotion of forestry	63	21.80%	Forest Management	Natural Resource Management
To mobilize funds for environmental projects	59	20.42%	Forest Management	Natural Resource Management
Improve resource management and protection of remaining forest	49	16.96%	Forest Protection	Natural Resource Management
Migration control	47	16.26%	Forest Management	Natural Resource Management
Total	289	100.00%		
Ayangan Dapiz Agro-Forestry Development Association				
Improve quality of life to become effective forestland managers	149	31.70%	Livelihood Development	Management Capital
Develop leaders and members to become effective forest zone managers	98	20.85%	Human Resource Development	Management Capital
Improve enforcement of forest protection policies	104	22.13%	Forest Protection	Natural Resource Management
Establish and manage fruit and forest tree plantations	119	25.32%	Forest Management	Natural Resource Management
Total	470	100.00%		

References

- Bisson, J. (ed.) 1997. Mid-Term Assessment of the Forest Resources Management Activity. October–December 1996. USAID project assessment document.
- ESSC. 1999. Forest People Facing Change. Learning of the Philippine Working Group on Community Forest Management. Vol. No. 2. Philippine Working Group. Environmental Science for Social Change (ESSC).
- JICA. 2001. The Master Plan Study for Watershed Management in Upper Magat and Cagayan River Basin in the Republic of the Philippines. Interim Report. Vol. 1: Main Text Vol. 2: Appendices.
- Lynch, O.J. and Talbott, K. 1995. Balancing Acts: Community-Based Forest Management and National Law in Asia and Pacific. World Resources Institute. September 1995.
- Mickelwait, D.R. (ed.) 1999. Community-Based Forest Management at a Crossroads: The Future of Sustainable Forest Management in the Philippines. Prepared for USAID by Development Alternative Inc. under Natural Resource Management Program.
- Talisayon, S.D. (ed.) 1991. Innovative Development Process in the Philippines. Case Studies. Asian Center. University of the Philippines.
- Poffenberger, M. (ed.) 1990. Forest Management Partnerships: Regenerating India's Forests. Executive Summary of the Workshop on Sustainable Forestry. New Delhi. 10–12 September 1990.
- Poffenberger, M. *et al.* (eds.) 1996. Grassroots Forest Protection: Eastern Indian Experiences. Asia Forest Network. Research Network Report. No. 7. March 1996.
- Poffenberger, M. (ed.) 1997. Linking Government with Community Resource Management. What's Working and What's Not. A Report of the 5th Asia Forest Network Meeting. Surajkund, India. 2–6 December 1996. Asia Forest Network. Research Network Report. No. 9. May 1997.
- Victor, M., Lang, C. and Bornemeier, J. 1998 (eds.). Community Forestry at a Crossroads: Reflections and Future Directions in the Development of Community Forestry. Proceedings of an International Seminar held in Bangkok, Thailand. 17–19 July 1997. Regional Community Forestry Training Center (RECOFTC). 1998.
- World Bank. 2000. Alleviating Poverty through Forest Development (India). Evaluation Country Case Study Series.

- 1 The author participated in the JICA's Master Plan Study during May 2001–February 2002 as an expert on community forestry. The data used in this thesis was collected by literature as well as field survey conducted during the undertaking of the Study. The collected data used for the production of this thesis was made possible under permission from JICA.
- 2 CENRO signifies Community Environment Natural Resource Office — DENR's branch office at municipality level. CENRO also refers to Community Environment Natural Resource Officer — head of the Community Environment Natural Resource Office.
- 3 These surveys were conducted based on: 1) Interview with Chairman and/or Manager of the People's Organization (PO) responsible for the CBFM program; 2) Interview with selected PO members; and 3) Site visits to areas where management was conducted through plantation, agroforestry and other management techniques.
- 4 Eight of the POs were located within the Study Area, while one PO — J. V. Greeners Tree Planters Association Inc. — was excluded during the course of the Master Plan Study. The eight POs represent 21.05% of the total 38 POs located within the Study Area.
- 5 Based on discussions with PO managers, the basic economic structure was gauged according to classifying the PO population into three relative wealth ranking, such as 1) Well off, 2) Median, and 3) Poorer economic classes. Based on the classification, five households were then chosen corresponding to the relative wealth structure of the PO. Such sampling procedure aimed at not so much grasping precisely

- the representative picture of the studied PO as presenting relative tendency and orientation on the given subject. By choosing five households, comparative analysis was made possible among nine selected POs.
- 6 Individual land tenure within CBFM area is still permitted subject to the approval of PO members, by continued issuance of Certificate of Stewardship Contract (CSC).
 - 7 Article XII, Sec. 3 of the Constitution of the Philippines.
 - 8 Presidential Decree No. 705 issued 19 May 1975.
 - 9 Hence, forestlands do not refer to those areas with forest coverage. They are areas in which forest coverage and subsequent resource use have been considered appropriate as a land use strategy due to slope conditions.
 - 10 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, 1 June 1992.
 - 11 DENR internal document. Briefing Material and Status of CBFM Project Implementation in Regions CAR and 2.
 - 12 As can be seen from Table 1 and Table 2 (a), most of the existing CBFM projects in provinces of Nueva Vizcaya, Quirino and Ifugao were found within the boundary of the Study Area. 80.00%, 77.78% and 75.00% of the CBFM projects found those provinces were located within the Study Area. Meanwhile, only 16.67% of the CBFM projects were included within the Study Area in Isabela, due to the Study Area's small area coverage located within the Province.
 - 13 3,932 refer to the number of members pertaining to the 38 POs existent within the Study Area. It was assumed that each member represented one household.
 - 14 The average size of a median household was estimated at 6.17 persons per a occupying unit in Cagayan Valley, as per data derived from 2001 Philippine Statistical Yearbook (pp.1-4, pp. 1-33); 2,756,000 (The pop. of Cagayan Valley)/446,839(# of H. H) = 6.17.
 - 15 While Nueva Vizcaya, Quirino and Isabela constitute a Province pertaining to Region 02 of administrative boundary of the country, Ifugao is classified as a Cordillera Autonomous Region (CAR) due to its historical autonomous background. Yet all of these administrative units within the Study Area will be described as provinces for practical convenience in comparative analysis.
 - 16 The largest holder had a tenure over 29 ha in Mayoyao among members of Mayoyao Environment Development Association Inc. Out of the 29 ha 28 ha were held under the *Muyong* system inherited from the holder's grand parents. The smallest holding was 0.15 ha declared by Ifugao also located in Mayoyao. In this case although the holding size is small, it can be expanded as he declares holding by cultivation.
 - 17 *Muyong* is a piece of natural forest traditionally set aside and protected on an individual household basis among the Ifugao. It is normally established above the established rice terraces to safeguard the watershed and its stable water supply for rice production. *Muyong* is owned and inherited by an individual household.
 - 18 The interviewee was a tenant of 0.3 ha of land working under sharecropping basis.
 - 19 Alienable and Disposable (A&D) land under the Philippine's land law, usually referring to private property.
 - 20 While two of the three A&D holders held another piece of land covered under CSC and CADC, the pasture leaseholder had another land covered under CSC. This makes 39 the total number of tenure holders under A&D, CSC, CBFM, CADC and pasture lease agreement, surpassing the total number of household of 36.
 - 21 Department Administrative Order (DAO) No. 96-29, Section 8 of the DENR.
 - 22 Memorandum Circular No. 97-12, Section 1 of the DENR.
 - 23 The congregated economic values as well as those appeared in the discussions are largely indicative, capable of conducting comparative analysis among revenue sources. The value itself does not represent a substantial meaning.
 - 24 The revenue of any specific crop kind was derived by interviewing 1) whether or not the crop was produced during the past year, 2) whether or not any portion of the crop was sold during the period, 3) the volume of sales measured usually in sacks converted into kilo volume, and 4) the unit price sold per

- kilo. The revenue was obtained by kilo volume multiplied by the unit price.
- 25 The public servants included public school teachers, civil servants at barangay office, utility services and an operator of community-run rice mill.
 - 26 The small business includes owning sari-sari store, buy and sell of agricultural crops and tricycle transport service.
 - 27 These included employments at road construction, dam project site, road maintenance and other services under various projects including the CASECNAN infrastructure project and RP-German funded projects. Further, private employment included a store keeping and a company honorarium. Family assistance includes financial support from family members including a remittance from overseas workers.
 - 28 In Mayoyao for example, a farm labor was commonly practiced with payment of PHP100-120 per day. Aside from cash payment, the provision of labor in exchange for harvest share was also observed in POs such as Yaway Farmers Multi-Purpose Cooperative and Mayoyao Environment Development Association. They worked on a rice paddy of other family in exchange for receiving half of the harvest volume. Further in Mayoyao, barter transactions were commonly practiced in a limited cash income opportunity. The planting is sometimes done within private holding by contracted labour available within the community paying PHP150 per day.
 - 29 The obtained values in Peso was converted into Yen in consideration for possible inflationary effects in Peso.
 - 30 Forestry Sector Project, Assessment of Project Implementation and Revised Implementation Program. July 2000. Nippon Koei Co. Ltd in association with OI DCI and Philkoei International Inc. The data was obtained from figures in Table 29 and 33 of the project report.
 - 31 Because of interrelated nature of answers however, multiple answers were allowed.
 - 32 The Problem Analysis is a participatory analytical process for detecting problems and its root causes faced by a group of members to be identified by members themselves. Through participation and discussions among the members facilitated by a moderator, a variety of concurrent problems faced by the members will be grouped together and organized in a cause-and-effect manner into a Problem Tree format, as illustrated in Figure 1.
 - 33 The Objective Analysis is a participatory analytical process for detecting a group of action agenda which will be identified by reversing each situation component of the Problem Tree formulated by the Problem Analysis, through the statement of ideally desirable situation when the identified problem has been resolved. A group of identified ideal situation component will be organized into means-and-effect relationships.
 - 34 The voting was conducted by 20 members representing the Coop., allocating each member with 10 votes. Due to counting error during the exercise, the votes totaled 222.
 - 35 The results of management requirements for Banila Community-Based Cooperative differed in Table 21 and 22 due to: 1) the change of components included in the action agenda led by the workshop facilitator; 2) the composition change of voters at the workshop and the General Assembly; and 3) the change of opinions of voters.
 - 36 The latter category should include management of a variety of other natural resources: such as flora and fauna and its genetic resources; headwaters, springs and other watersheds; minerals; resources for eco-tourism and landscape of esthetic values.

(2002年5月28日経済学会受理)