



National Integrated
Protected Areas Programme
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Baseline Survey in Mt. Pulag Natural Park, Benguet, Ifugao and Nueva Vizcaya (April-May 1997)

By

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EXECUTIVE SUMMARY

GEOGRAPHICAL AND PHYSICAL CHARACTERISTICS

Mt. Pulag is prominently located in the north-eastern part of Benguet Province. It lies in the north to south spine of the Gran Cordillera Central and falls under the Cordillera Biogeographic Zone with a Type 1 climate. The park covers about 11,550 hectares comprising the administrative jurisdictions of the provinces of Benguet (5,550 has.), Ifugao (3,377 has.) and Nueva Viscaya (2,624 has.). Mt. Pulag was declared as a national park on February 20, 1987 through Presidential Proclamation No 75, signed by former President Corazon C. Aquino. It is presently under the administrative jurisdiction of the Department of Environment and Natural Resources.

Mt. Pulag (2,922 m. asl) is the highest peak in Luzon and the Gran Cordillera Central. It is also the second highest mountain in the Philippines, next to Mt. Apo (2,930 m. asl). It has three major vegetation's and these are the dwarf-bamboo (*Arundinaria niitakayamensis*) dominated grassland at the park's summit; the mossy forest, about 2,200 m. asl; and the Benguet Pine forest (*Pinus insularis*) with associated grasslands, about 1,000 m. to 2,200 m. asl. It has five (5) land use patterns, namely: grassland, forestland, open/cultivated, residential, and agricultural. (Viray, 1994). It has highly diversified vegetative characteristics with an approximate number of 1,000 species under 50 families. The most important forest cover is the mossy forest. Its provides substantial habitat to various wildlife species. One of the know endemic specie is the dwarf bamboo (*Yushania niitakayamensis*) which thrives dominantly at the parks' summit.

The park is highly valued as a natural habitat for wildlife and other fauna and archaeological and ecological landmarks suitable for eco-tourism. It is also an important watershed area.

OBJECTIVE AND AREA OF STUDY

The Mt. Pulag National Park Baseline Study was conducted in April-May 1997 with the main aim of establishing a benchmark for the Management Plan and future project monitoring and evaluation relevant to the implementation of the National Integrated Protected Areas Programme (NIPAP). The study covered 3 provinces, 5 municipalities and 17 barangays located in two regions, the Cordillera Administrative Region (CAR) and Region 2. These are the areas located within the Mt. Pulag National Park and the adjoining communities. Respondents were selected based on random sampling.

METHODOLOGY

A total of 210 respondents from 17 barangays in the municipalities of Tinoc, Ifugao; Bokod and Kabayan in Benguet, and Balete, Kayapa were interviewed by the study. Respondents were selected through purposive sampling using the concentration of households in barangays and also the presence of indigenous cultural communities (ICC'), degree of dependency on the Protected Area (PA) resources and proximity of Pulag as a criterion for the selection of respondents.

A research team composed of representatives JVOFI led a group of local researchers selected from the area. They were technically assisted by NIPAP staff.

RESPONDENTS PROFILE

Majority of the respondents is between the ages of 26 to 55, majority of whom (136) are males and 74 are females. Most of the respondents are married and the rest are either single or widow/widower and are generally household heads. Most of the respondents belong to the sect of Protestants, United Espiritista Church of Filipinas Incorporada (UECFI) and Roman Catholics. In terms of education, 56% have

reached elementary level, 24% have reached high school and the rest had no formal education at all. On ethnic grouping, more than half belong to the Kalanguya tribe followed by Ibaloi and the rest are Kankana-eyes or a combination of these three major ethnic groups. The Kalanguya tribe is located within the premises of Mt. Pulag while the Ibaloi tribe is located downstream. The average household size is 6.82 while the male to female ratio is 1.09 or 1.09 males for every female. Majority of the respondents are indigenous to the area.

SOCIO-CULTURAL CHARACTERISTICS

Migration Pattern

More than half of the respondents have resided in their present barangays since birth. Others are either from the same municipality but from a different barangay, from the same barangay but from a different sitio, or from other municipalities within the province.

Among the barangays, Tawangan, Eddet and Bashoy have the most migrants. It is observed that majority of the migrants transferred to the area from the 1960s onwards. The most common reason why people settled in the area is to engage in farming or the spouse is from the place.

Out of 40 respondents from Tawangan, only 8 have resided in the area before 1960. In Eddet, only 6 resided in the area prior to the same year while in Bashoy, only 3. The barangays of Impugong in Tinoc and Balete, Kabayan can be said to be relatively new settlements with respondents having stayed in the area starting from the year 1961 onwards. Older settlements appear to be the barangays of Ekip in Bokod and Duacan, Lusod and Poblacion in Kabayan where respondents have lived beginning from the period 1921-30. There were resettlers in various barangays in the covered municipalities who transferred to their present residences to undertake livelihood and farming activities.

Communication Patterns

The sources of information of the respondents varies. Information comes from the following sources according to rank: neighbours; media such as the radio, TV, newspapers, posters; and government technicians. The common type of information gathered from neighbours is agricultural in nature and general events, which they usually get in their daily or weekly interaction at specific hours of the day. Other information availed are health and nutrition, credit and political.

Radio is another major information source of the respondents for agriculture, general events, health and politics. Listening to the radio is done by a majority, the whole day while the rest listen only during specific hours of the day, which is usually in the morning. Among the radio stations, the people prefer listening to DZWT. This can be accounted to the reason that the radio station reaches all barangays covered by the study.

Television is a minimal source of information. Only less than one tenth of the respondents derive information from this communication channel. The possible reason behind the minimal use of television is that there is no electricity in most of the areas and TV reception is very poor. For those with television sets, the information derived is on general events and the most watched channel is Channel 2 (ABS-CBN), Channel 9 (RPN) and Channel 4 (PTV).

Just like television, government technicians are also considered a minimal source of information with only 5 of the respondents identifying them. For the latter, usual information gathered are on agriculture, health and nutrition and general events. The possible reason behind the low response on government technicians as information source can be attributed to their irregular visit to the area.

Newspapers were also identified as a source of information but only minimal with only 29 of the respondents saying such. This is a source of information for general events and politics. It can be possibly explained by the fact that most of the respondents have reached only the elementary level and there are no papers in the local dialect. Access and circulation of such medium is also hampered by the distances of residences. Among those reading the newspapers, Tempo is the most preferred paper followed by Inquirer and the tabloid Bulgar.

Posters are also not considered a major source of information. Though minimal, information derived from such communication channel is more on agriculture, health, nutrition and environment.

In terms of management of information on environment, one third of the respondents said that they share it with others while another third disseminate and practice the information. Information sharing is usually done with family or neighbours.

Government and Non-government Relations

On their relations with government and Non-Government Institutions, majority of the respondents said they interact with these groups. Of the government institutions, most of the respondents said that the DENR Forest Rangers, Earthquake Rehabilitation Program (ERP) staff and National Irrigation Administration (NIA) usually visit the area. The possible reasons for their relatively frequent interaction are that the DENR Forest Rangers are the field men tasked to guard and protect the area and the ERP and NIA are currently implementing their projects in the area. Among the non-government institutions identified are the NIPAP, Jaime V. Ongpin Foundation, Inc. (JVOFI), and Northern Luzon Cooperative Development Center (NORLU) among others.

Furthermore, the residents also claim that they interact with national/regional government and local government units mainly to know their purpose, to gather information and consult with them. Government representatives usually visit the areas for 1-2 days on a quarterly basis. The villagers identified the types of assistance being extended by government as mostly on infrastructure particularly foot bridge / foot trail and irrigation. Other assistance mentioned are forest protection and organization of cooperatives and associations.

Tourists

The villagers also interact with local and foreign tourists where Kabayan is the mentioned as the most visited municipality. However, most of the respondents were not able to identify the specific frequency of local and foreign tourists' visits. Though there are also periodical tourist arrivals, most of the villagers said that they do not derive benefits from them except for additional income earned by serving as porters locally termed as "comboy". Tourists usually go these places to see the scenic spots, hike and climb mountains. It is worth noting that one reason the residents believe why foreign tourists go to the place is for treasure hunting.

Local Power Structure and Decision Making

The majority of the respondents stated that community activities are mostly political in nature which are usually called by the barangay officials. The second most important activity is socio-cultural in nature organized by the elders and the third most important community activity is environmental in nature being conducted by DENR. It is only in Eddet, Kabayan where a respondent said that economic activities were introduced by a church leader.

The barangay official is a dominant figure in the Mt. Pulag communities. He is often called upon to settle community conflicts and grant permission to use forest resources. Community conflicts often stem from boundary disputes and the use of water sources. There are also cases of conflicts arising from wood or timber

resources and illegal logging. It can be noted that the community resorts to the legal (barangay) and traditional (elders) means to settle conflicts.

On the use of natural resources, the control is wielded by the barangay officials, and in others, by the forest rangers. Majority of the respondents said that permission is needed from these people before they can gather natural resources. It is only in Catlubong, Buguias where people seek the permission of the elders to gather timber from the forest. Also, one from Kabayan said that permission from the Philippine National Police (PNP) is needed. However, it is worth noting that almost 40% said otherwise.

ECONOMIC ACTIVITIES

The major sources of livelihood of residents according to rank are farming, livestock raising, and providing labour.

Farming

Under farming, the average farm size is 7,772.54 sq.m. although farm sizes range between 250 to 100,000 sq.m. Most respondents have a farm size of half hectare. It is worth noting that in terms of the tenurial status of these farms in Mt. Pulag majority (94.4%) of the respondents said that they own their farms while a few respondents claimed that their land are either rented, borrowed or a combination of rented and borrowed. The most number of ancestral land claimants are found in the barangays of Eddet, Bashoy, Poblacion and Balley in the municipality of Kabayan.

Farms are distinguished from gardens by the crops that are planted. Farms pertain to rice farms while gardens are used to refer to vegetable farms.

Residents have been farming for an average of 23.4 years although there are some who have just recently farmed (0 years) while others have been farming for as long as 62 years. Majority have been farming for 20 years already. Gardening has been done for 14.06 years. Some have begun to garden only recently (0 years to 3 years). Majority of these farms are located downhill while the rest are found uphill or a combination of both. The major crops grown in these farms are citrus, mango and avocado.

The average number of hours that these farms can be reached is .607 although the distance ranges from .01 to 10 hours. Two respondents from Kabayan claimed that they have to walk for ten hours to reach their farms. These can be attributed to the steep slopes and terrain of the area.

Gardens, on the other hand, have an average size of 9,319.48 sq.m. Most respondents' gardens are half-hectare in size and like their farms, these are mostly located downhill. According to majority of the respondents, they own their gardens while the rest either rent, borrow or lease their land. It takes .3 hours for most of the respondents to reach their gardens. However, the average time hiked by the respondents is .81 hours or 49 minutes.

Farms are mostly irrigated using pipes/hoses connected to springs and creeks, rainfed, or use a combination of the irrigated and rainfed system.

Production of cash crops ranks second to fruit tree growing (citrus and mangoes) in the municipalities. This may be attributed to the poor soil condition in the area which they describe as not fertile, acidic, and requires much fertilizer.

Residents are constrained from further expanding their farming activities by the lack of capital, land, water and market outlets.

Livestock Raising

Livestock raising is an integral part of the economic activities of majority of the respondents. This is a secondary livelihood source in the area of study. Only five of

the respondents from Kabayan and Tinoc are not into livestock production. Pigs and cattle/cow are the livestock commonly raised by the respondents. However, this livelihood activity is constrained by the poor quality of breeds available, and/or lack of capital.

Labour

Tourists are also a source of income for residents, to whom they provide labour for hauling their baggage's (locally termed as "comboy"). However, majority claims that they do not benefit much from tourists, be they local or foreign.

Woodcarving

Further augmenting the livelihood of the respondents (28) is woodcarving in the municipalities except for Kayapa. Most of them use pine trees while others use oak tree for this purpose. The raw materials for this activity are gathered from the forest since it is a readily available resource. Gathering is usually done yearly.

Fishing

There are also respondents (8) who are into fishing from Buguias, Kabayan and Kayapa but the lack of fishing grounds, technical support and market outlets are the major constraints from further expanding their fishing activities.

Gathering of Forest Products

Majority of the residents gather forest products (timber and non-timber). Among the timber resources being gathered, it was mentioned that the people gather firewood, pine and oak trees. It must be noted that timber is used by a majority of the respondents as fuel for cooking and lighting. Gathering of non-timber forest products is also of primacy to the livelihood of 13 respondents from Kabayan. However, this is hampered by the lack of market outlets and tools. Non-timber forest products, which the respondents said are important to their livelihood, include honey, medicinal plants, rattan, and wild fruits. Other non-timber resources that are gathered in the area are poles or "runo" which are usually used as trellis in the vegetable gardens and cogon grass for house walling or roofing. Residents hike for at least 36 minutes to 28 hours or more than a day to reach their source.

Though the people are engaged in gathering forest products, there are however conservation measures being employed and this usually come in the form of tree planting. Almost a majority of the respondents said they have planted alnus, while the rest of the trees planted are agronomic species like coffee, avocado and some other fruit trees. Majority of the respondents said they have at least planted 1-20 trees but one claimed to have planted 100,000 trees. These are usually planted in their backyards.

Others Sources of Livelihood

Other sources of livelihood mentioned in the municipalities of Bokod and Kabayan are business; store operation; and mining. Others derive income from employment with government projects, the LGU and from SSS pensions.

Desired Livelihood Activities

Most of the respondents signified their interest to improve their livelihood activities by introducing new crops, livestock and fisheries. These are durian, potatoes for crops, cattle, pig, turkey and ducks while tilapia and carp for fisheries. The primary constraint in raising this is lack of capital.

Family Division of Labour

The household head and his wife are responsible for undertaking farming, gathering non-timber forest products, livestock raising and engaging in labour to augment income. They are also responsible for constructing the home.

EXPENDITURE PATTERN

Household expenses are, in general, mostly allocated to basic needs for food, clothing, education and medicines. A high premium on education is reflected in that it ranks second in terms of household expenses.

On community diet, 84 of the respondents said that game animals like the deer; wild birds, rats, pigs, cats, roosters; foxes are part of their diet. However, it is ironic that only 4 of the respondents admitted that they were engaged in game hunting.

ENVIRONMENTAL CHANGES

Majority of the respondents observed that there were changes in the availability of natural resources in their area. Among the major environmental changes observed by the residents are on the land which was observed as no longer fertile, acidic and needs more fertilizer for it to yield a bountiful harvest. There is an observed water shortage. Low production of flora has been observed by many residents including those agriculturally grown, Fauna, which the residents used to refer to wildlife and farm animals was observed to be infested with pests and diseases, and decreasing in population. This was more evident in barangay Eddet, Kabayan.

All these changes in the natural environment have a corresponding effect on the households located in the area. The most felt effect to the households is the shortage of water and lumber.

ENVIRONMENTAL AWARENESS

130 respondents or 61.9 % have not heard of the term NIPAS. For those who have heard of the term, it is usually DENR as the common source of information or the municipal and barangay local government units. Most of the respondents believe that NIPAS is concerned with forest protection. There are 199 respondents, or 94.8% who said that they are interested to know more about NIPAS.

With regard to the Protected Area Management Board or PAMB, majority of the respondents claim that they have heard about the term from DENR, PAMB members themselves, barangay officials, municipal office and other individuals. However, more than half of the respondents believe that no one represents them in the present PAMB. It is only in Bashoy, Kabayan that majority of them know that they are represented. Among the local representatives to this body, only one was not correctly identified by the respondents. 204 or 98.1 % are willing to learn/know about PAMB.

On the term protected area, majority or 173 of the respondents claim to have heard of the term. Again, the main source of the information is DENR followed by the barangay officials. The understanding of the respondents about the protected area is equated to forest protection, mossy forest and forest reservation. 204 respondents would like to learn more about the protected area.

It is worth mentioning that the residents value Mt. Pulag. They claim that it is important as a watershed, a source of water and a habitat for wildlife.

On NIPAP, 159 respondents mentioned that they have heard about it. Their understanding of NIPAP is that it is concerned with protected areas and forest management. Majority of the respondents are willing to learn about NIPAP.

On the possible effect of the NIPAP to the residents, majority said that the program may yield livelihood, scholarships and industrialization.

206 respondents have heard about the Mt. Pulag National Park. They view Mt. Pulag as a beautiful and thick forest. Others associate Mt. Pulag as a tourist spot. Most of the respondents share their views about Mt. Pulag with their neighbours and

parents and these are usually on forest protection and organizing bayanihan activities in the area.

VISION

Almost three fourths of the respondents envision that in the next five years, they will have a better life while the rest feel that their situation will worsen. On the vision for the family, they see their household as happy, healthy, educated and progressive after five years. On their community, they envision their place to have roads and infrastructure projects after five years.

AREA SCAN

Potentials / Opportunities	Issues/Concerns/Constraints/Threats
<ul style="list-style-type: none"> The area is ideal for ecotourism because of its natural beauty 	<ul style="list-style-type: none"> Unregulated gathering of forest and non-forest products
<ul style="list-style-type: none"> Mt. Pulag has a rich biodiversity 	<ul style="list-style-type: none"> Loss of wildlife due to hunting
<ul style="list-style-type: none"> Presence of government and non-government institutions 	<ul style="list-style-type: none"> Unregulated expansion of agricultural areas, which threatens the habitat.
<ul style="list-style-type: none"> Availability of external funds for protected areas 	<ul style="list-style-type: none"> Non-recognition of the ancestral land claim areas
<ul style="list-style-type: none"> The passage of the NIPAS Act which will mandate the preparation of a management plan 	<ul style="list-style-type: none"> Treasure hunting by outsiders
<ul style="list-style-type: none"> The Local Government Code of 1991 which provided more powers to the LGU's 	<ul style="list-style-type: none"> Uncoordinated and conflicting programs of various agencies
<ul style="list-style-type: none"> The availability of sustainable technologies which can replace destructive practices 	<ul style="list-style-type: none"> Use of inorganic chemicals to boost agricultural production
<ul style="list-style-type: none"> The pending ancestral domain bill in congress which can help settle the land issue. 	<ul style="list-style-type: none"> Continued use of game as part of the diet and timber for fuel.
<ul style="list-style-type: none"> Indigenous knowledge and skills of the populace 	<ul style="list-style-type: none"> Shortage of water and low productivity.
<ul style="list-style-type: none"> The presence of the Protected Area Management Board (PAMB) 	<ul style="list-style-type: none"> Poor implementation of environmental laws
<ul style="list-style-type: none"> The high regard of the people for Mt. Pulag as a watershed, forest and ecotourism destination 	<ul style="list-style-type: none"> Limited sources of livelihood and the limited channels of information exchange
<ul style="list-style-type: none"> Presence of natural resources particularly wildlife and forest products 	<ul style="list-style-type: none"> Low awareness of the people on government projects

An assessment of the prevailing conditions in Mt. Pulag revealed the following problem and root causes.

- a. **Environmental:** Poor Management of Mt. Pulag or the difficulty in managing the geo-physical resources due to the uncoordinated and conflicting programs of implementing agencies/offices/institutions; Low awareness of the people on the interplay of the environment and economy; Non-recognition of the ancestral land claim; and Inadequate logistics and manpower of the conservation sector. All the above underlying causes have brought heavy damages to the environment like the loss of biodiversity and eventually low productivity.
- b. **Economic:** Low economic productivity brought about by the limited or no alternative economic undertakings; small farm lands; inadequate irrigation facilities; underutilized resources like land; destruction of watersheds/forest and calamities. All these have resulted in low income.

Based on the above core problems and root causes, the following intervention measures were identified:

a. Environmental

1. Strengthen the PAMB as a multi-sectoral regulatory body to oversee development and conservation efforts in Mt. Pulag.
2. Create a parallel implementing arm specifically for the area as support to the PAMB.
3. Develop a general management plan agreed upon by all stakeholders and backed-up by legislative act.
4. Conduct awareness sessions on the relevance of environmental measures; issues and laws and its relation with economic activities.
5. Conduct of community organizing and institutional development trainings for local associations with the aim of empowering these groups.
6. Conduct trainings on sustainable resource use technology.
7. Undertake the immediate revision of the boundaries of the national park and the physical demarcations of areas for converted lands.
8. Issuance of tenurial instruments to qualified tenured migrants and ICC's as called for in the NIPAS Act.
9. Organize and undertake community-based environmental projects with the assistance or partnership of outside institutions.
10. Develop programs /projects for fund sourcing on the conservation sector.
11. Organize a community-based environmental monitoring group.

b. Economic

- a. Develop or introduce alternative livelihood undertakings like a light ecotourism package with its attendant enterprises.
- b. Conduct trainings on sustainable resource use.
- c. Adapt sustainable technologies in the farming system and forest utilization.
- d. Issuance of tenurial instruments to tenured migrants and ICC's
- e. Adaption of management zones and delineation of existing farms.
- f. Adopt soil amelioration techniques to rehabilitate highly degraded soils due to extensive chemical use and prolonged/continuous usage.
- g. Construct / rehabilitate water systems for irrigation and domestic use.
- h. Organize a community-based environment-monitoring group.
- i. Adapt mitigation measures for calamities.
- j. Adopt sustainable technologies in the existing farming system and forest utilization.

In this baseline study, there are some development imperatives and approaches that can be identified:

1. The need to demonstrate that ecological conservation and economic undertakings can co-exist through the adoption of sustainable resource utilization schemes.
2. The need to create alternative livelihood opportunities with the aim of reducing the pressure on the ecological resources.
3. The need to enhance the capability of the people to take advantage of opportunities and to manage their communities.
4. The need to conserve and protect the natural resources upon which the people are dependent for their existence through the adoption of measures that would promote rational utilization and regeneration of renewable resources.

5. The need to enhance the capability of the various stakeholders especially the LGU and local special bodies (PAMB) to play a vital role in the management of the protected area.
6. There is a need to come up with a management plan that meets the need of the local communities without compromising the ecosystem of Mt. Pulag. This can be done through a genuine participative consultation, planning and decision making with the various stakeholders in the area.
7. The need to recognize the people's stake in the area and to harness them as stewards of the environment.

Development imperatives were translated into various programs and projects:

1. Management Zoning and Boundary Delineation
2. National Park Protection
 - a. Habitat and Wildlife Management
 - b. Biodiversity Conservation
 - c. Pine Cone and Pine Needlecraft
 - d. Weaving
3. Ecotourism
 - a. Visitors Management
 - b. Infrastructure Development and Maintenance
4. Alternative Livelihood Development
 - a. Agroforestry
 - b. Livestock Raising
 - c. Technology Assistance
 - d. Pine Cone and Pine Needlecraft
 - e. Weaving
5. Recognition of Ancestral Domain and Rights/Tenurial Arrangements

A BACKGROUND AND METHODOLOGY

A.1 BACKGROUND INFORMATION

Mt. Pulag is prominently located in the north-eastern part of Benguet Province as shown in **Figure** It lies in the north to south spine of the Gran Cordillera Central. It falls under the Cordillera Biogeographic Zone with a Type 1 climate and covers about 11,550 hectares comprising the administrative jurisdictions of the provinces of Benguet (5,550 ha), Ifugao (3,377 ha) and Nueva Viscaya (2,624 ha).

Mt. Pulag (2,922 m. asl) is the highest peak in Luzon and the Gran Cordillera Central. It is also the second highest mountain in the Philippines, next to Mt. Apo (2,930-m a.s.l.). Mt. Pulag can be reached from Baguio City via a combination of dirt road networks such as the Baguio-Adonot, Baguio-Labey, or Baguio-Halsema-Buguias routes and other recently constructed road system. Vehicle travel time may take 4 to 5 hours from Baguio City. Foot trails criss-cross the Park. Hiking trails start from either at the foothills or the middle of the mountains where the road systems usually ends.

The plan to protect Mt Pulag's resources through a Protected Area System was initiated by Dr. M. Jacobs (1972) in his visit to the place. It was, however, only on February 20, 1987, that President Corazon C. Aquino signed Presidential Proclamation No 75, declaring Mt. Pulag as a National Park. The presidential directive mandates more or less 11,500 hectares of the public domain- embraced by and situated in the Municipalities of Buguias and Kabayan in Benguet and Kiangan in Ifugao and Kayapa, Nueva Vizcaya be a part of the Mt. Pulag National Park. There are reasons why Mt. Pulag needs to be protected in terms of biodiversity. According to Jensen, et. al., "Forty bird species occurring on Luzon are listed by BirdLife International as having very limited global distribution. Fourteen of these were registered within the protected area of Mt. Pulag. Seven bird species considered globally threatened or near-threatened were also recorded within the National Park. These results indicate that the mossy forest is of international importance for conservation of biodiversity." He further added, "several threatened species of mammals are present in the National Park including Philippine Deer, Giant Bushy-tailed Cloudrat and Long-haired Fruit Bat. Previously botanical surveys have shown that the plant diversity within the National Park is comparable to the worlds richest known mountain floras."

At present, Mt. Pulag National Park is under the administrative jurisdiction of the Department of Environment and Natural Resources.

The Mt. Pulag National Park is centrally located in the municipality of Kabayan, province of Benguet. It has an effective area of 11,550 hectares covering five (5) municipalities. Three major vegetations thrive in Mt. Pulag. These are the dwarf-bamboo (*Arundinaria niitakayamensis*) dominated grassland at the park's summit, approximately from 2,600 m. asl and above; the mossy forest, about 2,200 m. asl; and the Benguet Pine forest (*Pinus insularis*) with associated grasslands, about 1,000 m. to 2,200 m. asl. It has five land-use patterns, namely: grassland, forestland, open/cultivated, residential, and agricultural. (Viray, 1994). It has highly diversified vegetative characteristics with an approximate number of 1,000 species under 50 families. The most important forest cover is the mossy forest. It provides substantial habitat to various wildlife species. One of the known endemic specie is the dwarf bamboo (*Yushania niitakayamensis*) which thrives dominantly at the parks' summit.

The park is highly valued as a natural habitat for wildlife and other fauna and archaeological and ecological landmarks suitable for eco-tourism. It is also an important watershed area.

The majority of the people living within or near the Mt. Pulag National Park belong to the Kalanguya tribe followed by Ibaloi. The rest are Kankanaeys and mixture of both Kalanguya and Ibaloi.

The following table shows that most of the barangays are homogenous in terms of ethnicity except for the barangays Bashoy, Eddet, and Ekip in Bokod. One distinct tribe is that of Karao in Ekip, Bokod. (Data Source. Barangay Profiles)

Barangays / Municipality	Ethnic Grouping					Total
	Ibaloi	Kalanguya	Kankanaey	Ilocano	Karao	
Mun. of Buguias						
Amlimay		Majority				
Catlubong	2.5 %	86 %	9 %	2.5 %		100 %
Poblacion			Majority			
Mun. of Bokod						
Bila	Majority					
Ekip		26 %			74 %	100 %
Mun. of Kabayan						
Ballay		100 %				100 %
Bashoy	64 %	35 %	1 %			100 %
Duacan	95 %			5 %		100 %
Eddet	80 %	20 %				100 %
Lusod		100 %				100 %
Poblacion	Majority					
Tawangan		100 %				100 %

* No secondary data for Tinoc and Kayapa

The language utilised by the respondents are Kalanguya and Ibaloi (Viray, 1994). According to Jensen et. al. (1994), "there are 4,184 who reside near and within the boundaries of the National Park. They occupy 5 barangays of Kabayan, a municipality of Benguet namely Lusod, Tawangan, Ballay, Bashoy, and Eddet. The population densities of these barangays are low. Tawangan, the largest community inside the Park, has only a population density of 0.46 persons per hectare. The Philippines is known to have a very high population growth rate (2.5%). The birth rate in Benguet Province is now 3.4 %. In comparison the birth rate in Kabayan municipality is 4.0 % and in Bokod it is 2.8%. As a result of this high rate 38% of the population in the Pulag region is under the age of 15 years. With the present birth rate in the Pulag municipalities the population trend is likely to double within the next 20 years, which will bring the population up to 44,000 people." Furthermore, Jensen, et. al stated that "majority of the male labour force near or inside the Park is engaged with hunting and in the agricultural sector. Only a small percentage is employed in the service sector (governmental and provincial) or in the forestry and mining sector. So far, rendering service in the tourist business serves as the only temporary employment for a few local guides and porters. Future tourism, however, can accommodate this portion of the labour force which came from other sectors." Lastly, "the communities of Mt. Pulag and even settlements in quite far distances from the Park area are still depending on the utilisation of forest products. Both are provided with many products for their survival, which are a source of supplementary income to farming activities; or are utilised for most of the families' livelihood.

The primary source of income for the respondents is through agriculture, followed by livestock raising. Both husband and wife maintain the farm. On the cultural side, most of the respondents still practice "cañao" as part of their cultural heritage. Another cultural rite is the "kalon" (marriage arrangement by both parents)(Viray, 1994)

A.2 OBJECTIVE OF THE BASELINE SURVEY

The overall objective of National Integrated Protected Areas Programme (NIPAP) is to help protect, conserve, and manage natural habitats and biodiversity in eight selected Protected Areas in the Philippines. The Programme is financed through a grant from the European Union with a progressively increasing contribution from the Philippine Government. The Executing Agency is the Department of Environment and Natural Resources (DENR) and in particular the Protected Areas and Wildlife Bureau (PAWB).

In line with the "National Integrated Protected Areas System Act" of 1992 (Republic Act 7586, also known as the (NIPAS Act), the implementation strategy of the Programme calls for active participation of the local communities in the planning and implementation of programmes for the protection and conservation of habitats and biodiversity. NIPAP considers that a thorough understanding of local people's knowledge, perceptions and practices, and in particular their relationships with the natural resources, forms the basis for community-based Protected Area (PA) planning. The process is iterative and progressive and is expected to enhance the empowerment of local disadvantaged groups, the integration of local knowledge and traditional resources management systems into PA management design and to represent a two-way learning process between outsiders and insiders. Given this broad rationale, the Programme decided to conduct a series of participatory learning exercises in the form of Rapid Rural Appraisals (RRAs) in each of the eight Programme sites, prior to any people-oriented project action. The RRAs focused on the less favoured social groups whose livelihood heavily rely on the natural resources located within the PAs and their surroundings. After the completion of the RRAs, baseline surveys have been conducted in a broader geographical area.

The outputs of the RRAs are regarded as an initial contribution from "potentially critical groups" in Protected Area management planning. In communities where the RRAs are conducted, community organising and participatory planning (Participatory Learning and Action, PLAs) activities will be implemented in a later stage. These are aimed at identifying and implementing community-based activities (micro-projects) that are directly linked to biodiversity conservation and that will reduce the pressures on the natural resource base. A series of focused studies (resources inventories, market studies, etc.) will complement and support the process.

The baseline surveys are undertaken to address the following objectives:

- a) establish a baseline information on the communities living within and around the Protected Areas;
- b) quantify indicators, which may be affected by the implementation of the Programme and which could be used as a benchmarks for impact evaluations;
- c) generate information that may be useful for the preparation of the Protected Area Management Plan, for the design of Information and Education Strategies and for addressing needs and aspirations of communities affected by the establishment of the Protected Area.
- d) generate gender-disaggregated data, where significant.

A.3 IMPORTANCE OF THE STUDY

The Mt. Pulag National Park is known not only as the second highest peak of the country but also for rich biodiversity. According to Jensen, it houses fourteen of the forty birds species occurring in Luzon which have a very limited global distribution and are considered threatened. The park is also the habitat of several threatened

mammal species and the plant diversity is comparable to the world's richest known mountain flora.

The present situation however indicates that the richness in biodiversity of the Park is highly threatened. Demographic and development processes have exerted pressures into the fragile ecosystem of Mt. Pulag.

This baseline study may provide a better understanding of Mt. Pulag in terms of the present issues, concerns, threats and problems besetting the park and its potentials and opportunities. This is also timely given the passage of the NIPAS Act, which mandates the preparation of a general management plan. It will aid the conservation sector and other stakeholders in the formulation of a comprehensive and area-specific plan for Mt. Pulag.

A.4 REVIEW OF LITERATURE

Viray (1994) presented a Conceptual Framework for any intervention in Mt. Pulag. He said that "among various stakeholders, 3 sectors play very important conservation roles. These are the communities, which must be aware of the environment's state and implication of the continuing destruction of the park; the conservation sectors (GOs and NGOs), which must facilitate & initiate change by providing technical support to the communities; and the local government units concerned (especially the Kabayan municipality), which must forge partnership and establish closer relationship with communities in response to the devolution and decentralization programs of the government as called for in the Local Government Code of 1991.

These three sectors must collaborate and act corporately for the creative and innovative formulation of effective responses to the conservation issues and problems confronting the Park. Park protection and meeting community needs should be the focus of such endeavour.

When there is power shift to the grass roots, the local people will heed and participate in environmental conservation measures. Furthermore, genuine collaboration and sincere efforts among the stakeholders can lead to an effective protection and sustainable resource use at Mt. Pulag National Park."

Jensen et. al. as cited by Viray noted that " Conflicts on ancestral land use and population pressure combined with lack of resources for boundary demarcations, lack of community awareness and need for more sustainable development programs make it unrealistic to keep the Reservation intact as envisioned by Presidential Proclamation No. 75. They suggested that management plans must meet the need of the local communities with respect to traditional land use and stricter protection of the flora and fauna." Furthermore, "another important feature (of the NIPAS Act) is the recognition of ancestral domains or land claims by indigenous cultural communities and also by the occupants & tenured migrants. "

Mackinnon et. al. (1986) "recognized that in many tropical countries, strong traditions and customs relate to natural resource use, involving, for example, sacred sites, or respect for environmentally important features like waterholes, caves, reefs, forests protecting water sources, or forests protecting villages from landslides. Many such traditional laws concern the individual use of communal lands or resources and sometimes the extra-legal punishments incorporated for rule-breakers." He added further that "in many cases, these traditional rules may not be incompatible with modern religion or national legislation. Some, however, do not conflict with modern government and can be highly relevant to the protection of natural areas, especially in remote inhabited regions where villagers show greater respect for their ancient traditions than they do for modern and often poorly understood statutory laws."

Aside from the demographic, cultural and legal issues, the economic activities have a heavy environmental implication. Viray (1994) added that "the need for more uma

(upland farm or kaingin) to raise production has significantly increased the agricultural patches within and outside the boundary of the Reservation. The growth of the vegetable industry has lured many local people to expand their farm lot, resulting to a large loss of forest cover and to further loss of wildlife habitat, reduction of water and watershed degradation. Prior to the proclamation of Mt. Pulag as a national park in 1987, there already existed communities in the Reservation. Lusod and Tawangan communities are known to be old settlements. With the recent development of vegetable farms in the area, other communities were established". He stated further that "hunting is a common activity in the Reservation and its peripheries. A socio-cultural practice, it provides one major protein source for most of the indigenous families. Hunting, which is done throughout the year, is generally undertaken in parts of the Reservation accessible to the community".

On the development and conservation actors in the area, Viray (1994) said that "there are NGOs and NGAs working in different sites of the Reservation. Although the development programs of these agencies may not conflict with the conservation objective of the Reservation, no concrete co-ordination & collaboration mechanisms among agencies have been formulated or agreed upon. Thus, the programs are sectoral and agency-specific rather than integrated and holistic."

Lastly, Mt. Pulag is not only of regional or national environmental importance. There is also attached cultural importance. As Merino (1989) stated, "Mt. Pulag is famous not only for having the highest peak but also for its legacy of ethnic values. Merino said that the sacred mountain is the abode of the spirits of the departed. Every person has an adirong (soul). The body is buried but the adirong is taken by Kabunian (God). The animals also have adirong so that they are killed at funeral rites for the dead to take to Mt. Pulag with them as gifts to Kabunian. This belief is shared by all natives of the 13 municipalities of Benguet province including those of Ifugao and Mt. Province which are embraced by Mt. Pulag."

B Survey Methodology

Survey Area Coverage

The study covered 3 provinces, 5 municipalities and 17 barangays within the Cordillera Administrative Region and Region 2. (Figures 1 and 2)

Sampling and Respondents

Purposive sampling using the concentration of households in barangays within Mt. Pulag as primary criterion for the selection of respondents.

Subject Areas Surveyed

The subject areas surveyed are barangays within the Mt. Pulag National Park and the adjoining areas situated in the municipalities of Kabayan; Bokod and Buguias of the province of Benguet and the municipality of Tinoc, Ifugao and Kayapa, Nueva Viscaya.

Survey Implementation

The study employed 4 enumerators from the area under the direct supervision of the Team Leader from the NGO partner. Prior to the actual field work, an orientation by a NIPAP staff was conducted to the survey team specifically to brief the team on the objective of the study; familiarise themselves on the questionnaire for better interpretation; establish the schedule and delineate responsibilities and area coverage among the team members.

Data Processing

All data were encoded and processed using the Microstat computer program. All entries including "no answer" were considered in the analysis.

C PRESENTATION OF SURVEY RESULTS

C.1 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

C.1.1 Geographic distribution of respondents

Of the 210 respondents, a total of 163 or 77.6 % respondents were interviewed in Kabayan since 85 percent of the park's land area is situated in this municipality. The rest of the municipalities are located inside the park or along its boundaries.

Table 1 Distribution of Respondents by Municipality

Municipality	Frequency	Percent (N=210)
Tinoc, Ifugao	6	2.9
Buguias, Benguet	20	9.5
Bokod, Benguet	15	7.1
Kabayan, Benguet	163	77.6
Kayapa, Nueva Viscaya	6	2.9
Total	210	100.0

The most number of barangays covered by the study was located in Kabayan while the other barangays belonged to the rest of the municipalities.

Table 2 Distribution of Respondents by Barangay

Municipality	Barangays	Frequency	Percent (N=210)
Tinoc	Poblacion	2	1.0
	Impugong	2	1.0
	Luhong	2	1.0
Buguias	Catlubong	15	7.1
	Poblacion	1	0.5
	Padang	1	0.5
	Amlimay	3	1.4
Bokod	Ekip	10	4.8
	Bila	5	2.4
Kabayan	Ballay	15	7.1
	Bashoy	23	11.0
	Duacan	5	2.4
	Eddet	30	14.3
	Lusod	25	11.9
	Poblacion	25	11.9
	Tawangan	40	19.0
Kayapa	Balete	6	2.9
Total		210	100.0

C.1.2 Description of Dwellings

Majority of the houses is made of a combination of galvanised iron (GI), lumber and cement. There are, however, houses made out of a combination of GI sheet, lumber, cogon and timber. Municipal profiles of Bokod, Buguias, and Kabayan, show that majority of the general population's houses are made of galvanised iron and lumber.

Table 3 Description of Premises and Buildings by municipality

Description of Premises Building	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
G.I. , lumber, cement	1	0	8	64	4	77	36.7
G.I., lumber	0	0	6	50	2	58	27.6
G.I.	1	5	0	11	0	17	8.1
G.I, lumber, cogon	2	7	0	5	0	14	6.7
cogon, lumber	0	1	0	9	0	10	4.8
G.I. cogon	0	1	1	8	0	10	4.8

lumber, timber	0	5	0	3	0	8	3.8
G.I., lumber, plywood	0	0	0	4	0	4	1.9
Cogon	0	0	0	3	0	3	1.4
G.I. , lumber, hardwood	0	0	0	3	0	3	1.4
cogon, lumber, timber	1	0	0	0	0	1	0.5
G.I, lumber, plywood, hardwood	0	0	0	1	0	1	0.5
G.I.cement, timber	0	1	0	0	0	1	0.5
G.I., cement, lumber	0	1	0	0	0	1	0.5
G.I. lumber, hardwood	0	0	0	1	0	1	0.5
G.I., cement	0	0	0	1	0	1	0.5
Total	5	21	15	163	6	210	100.0
%	2.4	10.0	7.5	77.6	2.9	100.0	

C.1.3 Ages, Gender and Civil Status of Respondents

Of the 210 respondents interviewed for the study, majority are between the productive ages of 26 to 55; 136 (65%) are males and 74 (35%) are females and 167 (79.5%) are married, 32 (15.2%) single, 9 (4.3%) widows and 2 (1%) are widowers.

Table 4 Age of Respondents

Age Bracket	Frequency	Percent (N=210)
10 – 15	2	1.0
16 – 20	8	4.0
21 – 25	13	6.0
26 – 30	29	13.8
31 – 35	40	19.0
36 – 40	21	10.0
41 – 45	20	10.0
46 – 50	22	10.4
51 – 55	20	10.0
56 – 60	15	7.1
61 – 65	7	3.0
66 – 70	6	3.0
71 – 75	5	2.0
76 – 80	2	1.0
Total	210	100.0

C.1.4 Distribution of Respondents by Religion

Of the 210 respondents interviewed, 40% are Protestants. The rest are United Spiritista Church of Filipinas Incorporada (UECFI), Catholics, no religious affiliations (“pagans”), Jehovah’s Witnesses, and Baligi. Of the general population of Bokod, Buguias and Kabayan, about 90 % are Christians and about 10 % are non-Christians. (Barangay Profile)

Table 5 Distribution of Respondents by Religion

Religion	Frequency	Percent (N=210)
Protestant	84	40.0
UECFI	54	25.7
Catholic	53	25.2
No religious affiliation / Pagan	8	3.8
Jehovah Witnesses	4	1.9
Baligi	2	1.0
No Answer	5	2.4
Total	210	100.0

C.1.5 Position in the Family

Majority of the respondents acts as the household head.

Table 6 Position in the Family of Respondents

Position in the Family	Frequency	Percent (N=210)
HH Head	131	62.4
Spouse of HH head	54	25.7
child> 15 yrs	21	10.0
child< 15 yrs	2	1.0
married Child	2	1.0
Total	210	100.0

C.1.6 Educational Attainments of Respondents

More than half of the respondents have finished or reached the elementary grades. Some finished high school, while others, college. Almost ten percent do not have any formal education at all. Of the general population of Bokod, Buguias and Kabayan, majority is elementary graduates. (Survey-Barangay Profile)

Table 7 Educational Attainments of Respondents

Educational Attainment	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
No formal education	0	2	3	15	0	20	9.5
Elementary	3	15	8	86	6	118	56.2
High school	1	2	1	47	0	51	24.3
College	2	1	3	12	0	18	8.6
Others	0	0	0	3	0	3	1.4
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.9	100.0	

C.1.7 Ethno-linguistic Grouping

More than one half of the respondents belongs to the Kalanguya tribe; one fourth are Ibalois; and one tenth are Kankanaeys. Of the general population of Bokod, Buguias and Kabayan, majority belongs to the Ibaloi tribe while the minority belongs to the Kalanguya tribe. (Barangay Profile)

Table 8 Distribution of respondents by ethno-linguistic group by Municipality

Municipality/ Barangay	Kalanguya	Kankanaey	Ibaloi	Kalanguya/ Kankanaey	Ibaloi/ Kalanguya	Total	% n=210
Tinoc	6	0	0	0	0	6	2.9
Buguias	0	20	0	0	0	20	9.5
Bokod	15	0	0	0	0	15	7.2
Kabayan	108	1	51	1	2	163	77.6
Kayapa	6	0	0	0	0	6	2.6
Total	135	21	51	1	2	210	100.0
%	64.3	10.0	24.3	0.5	0.95	100.0	

C.1.8 Household Characteristics

The average household size is 6.8. The following table reflects that the smallest households can be found in barangay Bila, Bokod (5.0) while the largest may be found in barangay Padang, Buguias.

Table 9 Average Household Size by Barangay

Municipality / Barangay	Average HH Size	No. of Households
TINOC		
Poblacion	5.5	2
Impugong	8.0	2
Luhong	9.0	2
BUGUIAS		
Catlubong	7.7	15
Poblacion	8.0	1

Municipality / Barangay	Average HH Size	No. of Households
Padang	10.0	1
Amlimay	6.0	3
BOKOD	6.5	10
Bila	5.0	3
KABAYAN	6.8	15
Bashoy	8.2	23
Duacan	5.4	5
Eddet	7.0	30
Lusod	6.6	25
Poblacion	6.6	25
Tawangan	6.0	40
KAYAPA	7.3	6
Average/Total	6.8	208

The average number of males per household is 3.6. On the other hand, the average number of females per household is 3.23. The male to female ratio is a 1.09, or 1.09 male for every female.

Table 10 No. of Males and Females per Household

Number of Males	Frequency	Percent	No. of Females	Frequency	Percent (N=210)
0	1	0.5	0	7	3.3
1	29	13.8	1	18	8.6
2	41	19.5	2	46	21.9
3	38	18.1	3	54	25.7
4	31	14.8	4	38	18.1
5	34	16.2	5	27	12.9
6	24	11.4	6	9	4.3
7	8	3.8	7	6	2.9
8	1	0.5	8	2	1.0
12	1	0.5	9	1	0.5
No answer	2	1.0	No answer	2	1.0
Total	210	100.0		210	100.0

C.2 SOCIAL CHARACTERISTICS

C.2.1 Migratory Pattern

Out of the 210 respondents, 124 or 59 percent were born in the place (area of settlement); 25 or 11.9 percent are staying in the same barangays but born in different sitios; 33 or 13 percent are from same municipality but born in different barangays; 20 or 9.5 percent are from the same province but from a different municipality; 5 or 2.4 percent are from same region but from a different province; and 3 or 1.4 percent are from other regions.

Table 11 Distribution of Respondents by Place of Birth

Place of Birth	Frequency	Percent (N=210)
From the place	182	86.7
Same province, different municipality	20	9.5
Same region, different province	5	2.4
From other regions	3	1.4
Total	210	100.0

Majority (86.67%) of the respondents is from the place, i.e. from the municipality but different barangay or from the same barangay but different sitio. Only 9.5% are from the same province but from a different municipality. Also, there are only three respondents, 1 from Buguias and 2 from Kabayan who are from other regions.

Table 12 Distribution of Respondents by Place of Birth and by Municipality

Place of Birth	Municipality					Freq.	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
From the place	4 1.9%	16 7.6%	15 7.1%	144 68.6%	3 1.4%	182	86.7
Same province, diff. municipality	2 0.95%	2 0.95%		13 6.1%	3 1.4%	20	9.5
Same region, different province		1 0.47%		4 1.9%		5	2.4
From other region		1 0.47%		2 0.95%		3	1.4
Total	6	20	15	163	6	210	100.0
Percent	2.9	9.5	7.1	77.6	2.9	100.0	

C.2.2 Reasons for Migration

The year of migration of the 28 respondents who are not from the place was not established. However, the most common answers why respondents settled in the area / barangay are:

- Their livelihood and jobs are there;
- They have ancestral claims in the area;
- Because of intermarriage.

The most number of claimants of ancestral lands are found in these areas:

Table 13 Number of Ancestral Land Claimants

Municipality / Barangay		Frequency	% (n=31)
KABAYAN	Eddet	9	29.0
	Bashoy	7	22.6
	Poblacion	5	16.1
	Balley	4	12.9
	Lusod	1	3.2
	Tawangan	1	3.2
BUGUIAS	Amlimay	2	6.4
BOKOD	Ekip	1	3.2
KAYAPA	Balete	1	3.2
Total		31	100.0
%		100.0	

Migrants who resettled elsewhere to undertake livelihood and farming activities are in these barangays:

Table 14 Location of Resettlers Motivated by Livelihood and Farming to Migrate (n=28)

Municipality / Barangay		Livelihood	Farming
TINOC	Poblacion	1	0
	Impugong	1	0
BUGUIAS	Catubong	2	2
BOKOD	Ekip	0	0
KABAYAN	Balley	0	2
	Bashoy	3	3
	Eddet	1	1
	Duacan	1	0
	Lusod	8	0
	Poblacion	0	0
	Tawangan	1	0
KAYAPA	Balete	3	0

Municipality / Barangay	Livelihood	Farming
Total	21	8

C.3 COMMUNICATION PATTERN

This section examines the different channels of information that the residents of Mt. Pulag are exposed to which are their neighbours; media such as radio, TV, newspapers, posters; and government technicians. Majority of information derived comes from the radio followed by their neighbours and newspapers. Only a few considered or mentioned government technicians and posters as a source of information.

Table 15 Sources of Information's

Source of Information	No. of Responses	% on total number of responses
Radio	181	86.0
Neighbor	134	63.8
Newspaper	28	13.3
Television	22	10.5
Government technician	5	2.4
Posters	3	1.4
Total number of answers	373	

C.3.1 Types of Information derived from Radio

Majority (86%) of the respondents mentioned that general events are the information they derive from the radio. Others are on politics, health and environment.

Table 16 Type of Information Availed from the Radio

Type of Information	Frequency	Percent of n=181
General Events	88	48.6
Politics	42	23.2
Health	36	18.9
Environment	27	14.9
Agriculture	24	13.2
Credit	4	2.2
Others	2	1.1

Almost half of the respondents listen to the radio all day while more than one fourth listen only during specific hours of the day. Other household members, such as the spouse, siblings and children also have access to the radio. The information they derive from these sources are more on general events, agriculture and health and environment.

Table 17 Type of Information Availed of by Other Household Members from the Radio

Type of Information	Frequency	Percent (n=181)
General Events	130	47.7
Agriculture	55	30.3
Health	45	24.8
Environment	34	18.8
Politics	24	13.2
Others	3	1.7
Credit	2	1.1

145 respondents, or 67.6%, prefer listening to DZWT; followed by 19, or 9.0%, who prefer listening to DZWT and DZWX. The radio station DZWT reaches all barangays covered by the study. Moreover, more than half of the respondents prefer listening to the radio in the morning. Others listen to the radio all day.

C.3.2 Neighbours as a Source of Information

More than half of the respondents affirmed that they obtain information from their neighbours. However, a large number of households in Kabayan and Bokod barangays who do not interact with their neighbours are noticeable and this may perhaps be attributed to the long distances between houses.

The types of information that are availed from neighbours are mostly agricultural in nature followed by credit, general events, health and political information.

Table 18 Type of Information Availed from Neighbours

Types of Information	Frequency	Percent (n = 134)
Agricultural	80	59.7
Credit	33	24.6
General Events	30	22.3
Health	29	21.6
Political	21	15.6
Environment	8	5.9
Others	3	2.2
No Answer	42	31.3

Residents interact with their neighbours during specific hours of the day or weekly. Other members who have access to their neighbours are the spouse, children and siblings.

The most common type of information availed by other household members from their neighbours are general events and health followed by agriculture, credit, political, environmental and others.

Table 19 Type of Information Other Household Members Avail from Neighbours

Type of Information	Frequency	Percent (n=134)
General events	57	42.5
Health	57	42.5
Agriculture	55	41.0
Credit	22	16.4
Political	15	11.1
Environmental	14	10.4
Others	7	5.2

C.3.3 Newspaper as a Source of Information

Out of the 210 respondents, 28 or 13.3 percent identified the newspaper as one source of information. A total of 7 out of the 29 are from Poblacion, Kabayan while the rest are from Poblacion and Impugong, Tinoc (2); Catlubong (3) and Amlimay (1), Buguias; Bila, Bokod (2); Ballay (1), Bashoy (3), Duacan (3), Eddet (4), and Lusod (2) in Kabayan.

The respondents read the newspaper for general events and political information; others for general events; health and nutrition; and agriculture.

A total of 11 respondents read the newspaper monthly. Only 7 or 3.3 % read the newspaper daily. This information source is also accessed by the spouse, children and so with other relatives. The preferred newspapers are Tempo, followed by Inquirer, and Bulgar.

C.3.4 Television as a Source of Information

Less than one tenth of the respondents' (22) derive information from the television. Most of these respondents are from Poblacion (10), Duacan (4), Eddet (2), Bashoy (2), Eddet (2), and Balley (1) in Kabayan; and Bila, Bokod (1). Those who have access on television derive general information and events. They usually watch TV

either the whole day or only on specific hours of the day. Other household members who have access to the TV are the spouses and children who are interested in general events and agriculture.

The channels that they prefer watching are Channel 2 (ABS-CBN), Channel 9 (RPN), and Channel 4 (PTV). Some also watch Channel 7 (GMA).

C.3.5 Government Technician as a Source of Information

Out of the 210 respondents, only 5 (2%) identified the government technician as a source of information. These respondents are from Catlubong, Buguias; Bashoy, Lusod and Tawangan in Kabayan. These can be accounted to the frequency of visits of the government technicians which the respondents claim are not regular. However, respondents stated that the government technicians are a source of information on agriculture; health and nutrition; and a combination of agriculture and general events.

C.3.6 Posters as a Source of Information

Only 3 or 1.4% of the respondents obtain information from posters and these are mostly on agriculture, health and nutrition and environmental.

C.3.7 Management of Information on Environment

More than one third of the respondents' claim that environmental information gathered from the radio, neighbours and posters (nil) are shared with others while another third disseminate and practice the information. These information are shared with the family, neighbours, community, relatives and spouse for them to be updated or to practice it too.

Table 20 Persons with Whom Information is Shared

Persons	Frequency	Percent (N=210)
Family	96	45.7
Neighbor	54	25.7
Community	37	17.6
Relatives	23	10.9
Spouse	22	10.4
Friends	13	6.1
Barangay officials	1	0.5

C.4 RELATIONS WITH OUTSIDE INSTITUTIONS

Majority of the respondents (99.5%) said that outside institutions visit these areas.

Table 21 Visit of Outside Institutions

Answer	Municipality					Total	% N = 553 (1 st - 3 rd mention)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	6 100%	19 95%	15 100%	163 100%	6 100%	209	99.5
No	0	1 5%	0	0	0	1	0.5
Total	6 100%	20 100%	15 100%	163 100%	6 100%	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Of the 538 responses (1st-3rd mention), 19.1 % (103) said that the DENR forest rangers are the government people who visit their area followed by the municipal level staff and the Department of Agrarian Reform staff.

Table 22 List of Institutions that Visit the Area

Visiting Outside Institutions	Total (1 st to 3 rd Mention) n=538	% (n = 538)
DENR (Ranger)	103	19.1
Municipal level	66	12.2
DAR	55	10.2
ERP	50	9.3
NIA	40	7.4
DOH	39	7.2
Barangay Officials	37	6.9
DA	33	6.1
DECS	15	2.8
DSWD	12	2.2
Provincial level	11	2.0
NIPAP	9	1.7
PNP	8	1.4
JVOFI	8	1.4
DPWH	6	1.1
Others	96	17.8
Total	538	100.0

Others: Sanguniang Bayan, DTI, DOTC, PTA, BHW, KFA, Javiers, CADC, NGO, DILG, Womens, Red Cross, BENECO, NORLU, Farmers Asso., CECAP, ITAG, Foreign, Church, CAFGU, NMYC, ONCC, PAMB

Majority of the respondents stated that they interact with the visiting institutions with only 5.7% stating otherwise from the municipality of Bokod and Kabayan.

Table 23 Interactions with Agency by Municipality (1st to 3rd Mention)

Answer	Municipality					Total n=553	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	7	51	30	416	18	522	94.3
No	0	0	3	28	0	31	5.7
Total	7	51	33	444	18	553	100
%							

The major reason of interaction of the residents with visiting institutions is to know their purpose, gather information and for consultation.

Table 24 Reasons for Interaction (1st to 3rd mentions)

Reasons for Interaction	Total	Percent (n =506)
know their purpose	112	22.1
Gather info	85	16.8
Consultation	53	10.4
Coordinate	44	8.7
ask help / assistance	30	5.9
Meeting / General Assembly	29	5.7
ask/implementation of project	21	4.1
to learn	17	3.3
Visit	16	3.1
Conduct seminar/training	14	2.8
Patrol/monitor	12	2.3
Study environment	9	1.8
Friendship	9	1.8
Medical services	8	1.6
Share our problem	5	0.9
Spring/waterworks	5	0.9
Reforestation	4	0.7
Farm inputs	4	0.7

Loan	3	0.5
Awareness campaign	3	0.5
Survey/census	2	0.3
Control epidemic	2	0.3
Sanitation	2	0.3
To serve them	2	0.3
Budget out IRA	2	0.3
Irrigation	2	0.3
Rules and regulations	2	0.3
Increase income	1	0.1
Concerned/issues/problem of other people	1	0.1
Farm technology	1	0.1
Settle job	1	0.1
Boundary national park (Disputes/area/sites)	1	0.1
Offer help	1	0.1
Family planning	1	0.1
Illegal cutting	1	0.1
free food	1	0.1
Total	506	100.0

The major help extended by government / LGU consistently mentioned by the respondents comes in the form of infrastructure and environmental projects. Under infrastructure, the commonly mentioned projects are construction of foot trail / footbridge; irrigation and road extensions while under environment is forest protection.

Table 25 Type of Help Extended by GO/LGU (1st to 3rd mentions)

Type of Assistance extended by LGU	First Mention n=93	Second Mention N=67	Third Mention N=54
footrail/footbridge	31	13	10
Proposed irrigation/pipes	28	12	14
forest protection	25	26	20
road extension	9	16	10

31.69% from 1st to 2nd mention stated that GO/LGU's visit their area daily while 23.01% said that visits are done quarterly.

Table 26 Frequency of visits by Government / LGU (1st to 3rd mentions)

Frequency of Visit	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Daily	9	37	16	106	0	168	31.69
Weekly	1	4	0	14	0	19	3.58
Monthly	2	2	2	90	6	102	19.24
Quarterly	1	1	9	108	3	122	23.01
Semestral	1	0	4	12	1	18	3.39
Annually	0	1	0	49	0	50	9.43
Others	0	1	11	39	0	51	9.62
Total	14	46	42	418	10	530	100.00
Percent	2.64	8.67	7.92	78.86	1.88	530	

C.5 TOURISTS

C.5.1 Local Tourists

Among the five municipalities covered by the study, Kabayan is most visited by local tourists.

Table 27 Presence of Local Tourists

Presence of Local Tourist	Municipality					Total n=210	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		

Yes	3 50%	10 50%	9 60%	142 87%	4 67%	168	98.80
No	1 16.7%	1 5%	0 0	0 0	0 0	2	0.95
No Answer	2 33.3%	9 45%	6 40%	21 13%	2 33%	40	19.05
Total	6 100%	20 100%	15 100%	163 100%	6 100%	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

The respondents believe that local tourists come mostly to visit scenic spots, treasure hunt, simply to pass by and climb the mountain, conduct research and view the area.

Table 28 Reasons why Tourist go to the Place

Reasons Why Local Tourist Come	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Visit scenic spots	0	4	1	38	2	45	21.42
Hike/climb mountains	0	0	4	10	0	14	6.67
Pass by	0	5	1	14	0	20	9.52
Treasure hunting	0	0	0	15	0	15	7.14
Viewing	0	1	2	11	0	14	6.67
Research	1	0	0	12	1	14	6.67
Visit friends	0	0	0	5	0	5	2.38
Tour/excursion	0	0	0	3	1	4	1.90
Swim & picnic	0	0	0	4	0	4	1.90
Promote the mountain	0	0	1	1	0	2	0.95
Hold meetings	0	0	0	2	0	2	0.95
Others:	1	0	0	5	0	6	2.85
No Answer	4	10	6	43	2	65	31.00
Total	6	20	15	163	6	210	100.00
%	2.86	9.52	7.14	77.61	2.86	100.0	

Most tourists visit the barangays of Tawangan, Eddet, and Poblacion.

Most of the respondents were not able to identify the months when these local tourists usually arrive.

Table 29 Frequency of Visit of Local Tourists (n=166)

Frequency	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Periodically	1 16.6%	2 10%	2 13.3%	70 42.9%	2 33.3%	77	36.7
Annually	1 16.6%	3 15%	2 13.3%	35 21.5%	1 16.7%	42	20.0
Anytime	0 0	0 0	0 0	13 8.0%	0 0	13	6.1
Monthly	0 0	2 10%	0 0	3 1.8%	2 33.3%	7	3.3
Every 2 months	0 0	0 0	0 0	7 4.3	0 0	7	3.3
Quarterly	0	2 10%	0 0	4 2.5	0 0	6	2.8
Others	1 16.6%	1 5%	5 33.3%	7 4.3%		14	6.6
No Answer	3 50.0%	10 50%	6 40%	24 14.7%	1 16.7%	44	20.9
Total	6 100%	20 100%	15 100%	163 100%	6 100%	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

More than half of the respondents spend some time with local tourists.

Table 30 Do respondents spend time with local tourists? (n=168, N=210)

Answer	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	3	8	5	102	4	122	58.1
No	0	2	4	40	0	46	21.9
No Answer	3	10	6	21	2	42	20.0
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

There is no fixed amount of time usually spent with tourists. Many residents spend less than an hour while some as long as half a day with local tourists.

Table 31 Time Spent with Local Tourists

Amount of Time	Municipality					Total	% n=122
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
<1 hour	0	0	4	37	2	43	20.4
<half day	0	0	0	10	0	10	4.7
Half day	0	0	0	2	0	2	0.95
1 day	0	0	0	1	0	1	0.47
Others	3	8	1	52	2	66	31.4
No Answer	3	12	10	61	2	88	41.9
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Majority of the respondents said that they do not derive any benefit from local tourists.

Table 32 Availability of Benefits from Local Tourists

Answer	Municipality					Total	% n=168
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	3	3	3	41	1	51	24.2
No	0	7	6	101	3	117	55.7
No Answer	3	10	6	21	2	42	20.0
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

For those who mentioned that they benefit from tourists, residents said that they derive additional income by acting as porters (*comboy*). The non-monetary benefit is friendship.

Table 33 Benefits from Local Tourists

Benefits	Municipality					Total	% n=51
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
"Comboy"/labour/guides	0	0	3	18	0	21	41.1
Friendship / meet other people	0	3	0	5	1	9	17.6
Gather info/learn dialect	2	0	0	10	0	12	23.5
Buy local products/get orchids	0	0	0	3	0	3	5.8
Donation	0	0	0	3	0	3	5.8
Projects	1	0	0	1	0	2	3.9
Others	0	0	0	1	0	1	1.9
Total	3	3	3	41	1	51	100.0
%	5.9	5.9	5.9	80.4	2.0	100.0	

Barangays, which are most often visited by local hikers, are Ekip and Bila in Bokod; Ballay, Bashoy, Eddet, Lusod, Poblacion, and Tawangan in Kabayan.

Local tourists pass through the barangays of Catlubong and Amlimay in Buguias; Bila in Bokod; Bashoy, Duacan, Eddet, Poblacion, and Tawangan in Kabayan on their way to their final destination.

Tourists have also arrived in the barangays of Ballay, Bashoy, Eddet, Lusod, Poblacion and Tawangan in Kabayan to treasure hunt.

Researchers also visit Ballay, Bashoy, Eddet, Lusod and Tawangan in Kabayan.

Barangay Eddet is usually visited by local tourist because of its good picnic grounds and its rivers (recreation); Barangay Poblacion for its famous centuries-old mummies and caves; and Barangays Ballay and Tawangan because of the mountain lakes.

C.5.2 Foreign Tourists

Foreign tourists visit the Mt. Pulag area as well. Barangays usually visited by them are Tawangan, Eddet, Poblacion and Bashoy. Just like the local tourist, the barangay often visited is Poblacion because of its famous mummies and caves, followed by Eddet because of its proximity to Mt. Pulag. Others are Tawangan, Lusod and Ballay because of its mossy forest, which are subject of research; presence of lakes and its preserved culture.

The months when they come were not identified but in terms of frequency, the respondents said that tourists arrive periodically.

Table 34 Presence of Foreign Tourists and Reasons why they come (n=170, N=210)

Presence of Foreign Tourists	Municipality					Total n=170	Percent %
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	4	10	9	120	2	145	69.04
No	0	1	0	22	2	25	11.9
No answer	2	9	6	21	2	40	19.04
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.14	77.6	2.9	100.0	

Just like local tourists, foreign tourists come to visits scenic spots and climb the mountains.

Table 35 Reasons why Foreign Tourist Go to the place

Reason why Foreign Tourists Come	Municipality					Total	Percent % n=145
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Visit scenic spots/watch	0	3	2	41	2	48	33.1
Hike mountains/recreation	0	0	4	42	0	46	31.7
Treasure hunt	3	5	1	12	0	21	14.4
Research	0	0	1	8	0	9	6.2
Pass by	0	0	0	8	0	8	5.5
Visit friends	0	0	0	3	0	3	2.0
Collect forest products	0	0	0	3	0	3	2.0
Religion/minister	0	2	0	0	0	2	1.3
Herbal info	0	0	0	1	0	1	0.68
Forest management	0	0	0	1	0	1	0.68
No Answer	1	0	1	1	0	3	2.0
Total	4	10	9	120	2	145	100.0
%	2.7	6.8	6.2	82.7	1.3	100.0	

Majority of the respondents spends time with foreign tourists, usually an hour or so. Just like local tourists, majority of the respondents believes that foreign tourists do not offer any benefits to them. Respondents, however, from barangay Tawangan were divided as to whether they derive benefits from foreign tourists.

Table 36 Availability of Benefits from Foreign Tourists

Availability of Benefits	Municipality					Total	% n=170
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	2	2	4	43	0	51	24.28

No	2	8	5	77	2	94	44.76
No Answer	2	10	6	43	4	65	30.95
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.14	77.6	2.9	100.0	

The most important benefit of foreign tourists to residents is the additional income they earn from giving labour as porters.

Table 37 Benefits from Foreign Tourists

Benefits	Municipality					Total	% n=51
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
"Comboy"/labour	1	0	3	25	0	29	56.86
Gather info	1	1	1	5	0	8	15.68
Friendship	0	0	0	2	0	2	3.9
Learn local dialect	0	0	0	2	0	2	3.9
Results of research	0	0	0	2	0	2	3.9
Donations	0	0	0	2	0	2	3.9
Spiritual	0	1	0	0	0	1	2.0
Buy local products	0	0	0	1	0	1	2.0
Forest techniques	0	0	0	1	0	1	2.0
Others	0	0	0	3	0	3	2.0
Total	2	2	4	43	0	51	100.0
%	3.9	3.9	7.8	84.3	0	100.0	

Foreign tourists visit the barangays of Ekip and Bila in Bokod; Balley, Bashoy, Duacan, Eddet, Lusod, Poblacion and Tawangan in Kabayan to hike mountains.

Barangays visited by foreign tourists for scenic spots are Catlubong in Buguias; Ekip, Bokod; Balley, Bashoy, Eddet, Poblacion and Tawangan, Kabayan.

Treasure hunting was done by foreign tourists in Poblacion, Impugong, Luhong in Tinoc; Ekip, Bokod; Balley, Duacan, Lusod, Poblacion and Tawangan in Kabayan.

C.6 COMMUNITY ACTIVITIES

Majority of the respondents first mentioned that community activities are mostly political in nature, which are called by the barangay officials. Second mentioned community activity is socio-cultural which is called usually by the elders while third mention is environmental which is spearheaded by DENR. It was only in barangay Eddet in Kabayan that a respondent said that a church leader introduced economic activities.

Table 38 Community Activities (1st to 3rd Mention)

FIRST – THIRD MENTION							
Community Activities	Municipality					Total	% (n=348)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Political	3	14	12	82	2	113	32.47
Socio-Cultural	6	22	17	150	6	201	57.75
Economic	0	1	2	4	0	7	2.01
Environmental	0	5	1	21	0	27	7.76
Total	9	42	32	257	8	348	100.0
%	2.58	12.06	9.19	73.85	2.29	100.0	

C.7 USE OF NATURAL RESOURCES

A total of 60.5% (106) of the respondents said that permission is needed before they can gather natural resources.

The control over the use of natural resources is wielded by the barangay officials, and in others, by the forest ranger.

Table 39 Position of Person Who Grants Permission for Use of Natural Resource

Position of Person	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Brgy. Officials	0	1	2	32	2	37	17.6
Forest ranger & brgy. Official	0	0	3	18	0	21	10.0
Brgy. Official & PNP	0	0	0	10	0	10	4.7
Owner & brgy. Official	0	4	0	2	0	6	2.8
Forest ranger	1	0	0	3	0	4	1.9
Elders	0	1	0	0	0	1	0.4
Mambunong (Traditional healer)	0	0	0	1	0	1	0.4
PNP	0	0	0	1	0	1	0.4
Owner & mambunong	0	0	0	1	0	1	0.4
Brgy. Official & elders	0	0	0	1	0	1	0.4
No Answer	5	14	10	94	4	127	60.5
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.14	77.6	2.9	100.0	

It is only in Catlubong, Buguias where people seek the permission of the elders to use timber resources from the forest. One respondent from Poblacion, Kabayan said that permission from the PNP is needed to be able to use timber.

Among the resources present, firewood, pine and oak trees are the timber resources gathered by residents while Non-timber forest products primarily obtained by residents in Mt. Pulag are "runo" or poles used in vegetable gardening (trellis), herbal plants, vines and cogon grass.

Table 40 Timber Obtained by Respondents

Timber Resource	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Firewood	2	10	0	16	0	28	13.3
Pine tree	0	1	2	30	0	33	15.7
Oak tree	0	1	0	0	0	1	0.4
Lumber	0	0	4	58	2	64	30.4
No Answer	4	8	9	59	4	84	40.0
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.4	77.6	2.9	100.0	

Table 41 NTFP Resources Obtained by Respondents

NTFP Resource	1 st – 3 rd Mention Total	1 st – 3 rd Mention % (n=133)
Runa/poles	19	15.0
Herbal plants	19	15.0
Vines	17	13.4
Cogon grass	16	13.0
Wild tea	15	11.8
Rattan	12	9.9
Wild fruits	11	8.7
Bamboo	11	8.7
Wild trees	2	1.5
Honey	2	1.5
Wild animals	1	0.79
Mushroom	1	0.79
Fresh Water	1	0.79
Total	127	100.00

C.8 COMMUNITY CONFLICTS

Community conflicts commonly stem from boundary disputes and the use of water sources. Barangay officials and elders usually settle these.

Boundary disputes are experienced in all barangays while conflicts from the use of water sources are common in the barangays of Catlubong and Amlimay in Buguias; Bila, Bokod; Balley, Bashoy and Eddet in Kabayan.

Conflict arising from wood or timber resources is experienced in Catlubong, Buguias; Bashoy and Eddet, Kabayan. Illegal logging, on the other hand, was identified as a source of community conflict in Bila, Bokod.

Table 42 Sources of Community Conflict

Sources of conflict	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Boundary disputes	4	11	4	71	5	95	45.23
Water source	0	6	2	18	0	26	12.38
Wood/timber/illegal cutting	1	2	2	7	0	12	5.71
Politics/official	0	1	0	1	0	2	0.95
Marriage/Egoism relationship	0	0	0	4	0	4	1.90
No Answer	1	0	7	62	1	71	33.8
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.4	77.6	2.9	100.0	

Table 43 Persons who Settle Conflicts

Person who Settle Conflicts	Municipality					Total	% n=139
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Brgy officials	2	9	4	41	4	60	43.1
Brgy officials & elders	3	8	3	40	1	55	39.5
Elders	0	2	0	9	0	11	7.9
Brgy officials & DENR	0	0	0	5	0	5	3.5
Brgy officials, family, elders, forester, PNP	0	0	1	3	0	4	2.8
COMELEC	0	1	0	0	0	1	0.7
Brgy officials & mayor	0	0	0	1	0	1	0.7
Brgy officials & family	0	0	0	1	0	1	0.7
Brgy officials & midwife	0	0	0	1	0	1	0.7
Total	5	20	8	101	5	139	100.0
%	3.5	14.3	5.7	72.6	3.5	100.0	

C.9 ECONOMIC ACTIVITIES

The major sources of livelihood of residents are farming, livestock raising, and providing labour. In Kabayan, most of the respondents mentioned livestock raising and provision of labour as a major source of livelihood. Farming came in only third followed by woodcarving and gathering of NTFP's.

Table 44 Major Livelihood Activities

Livelihood	Municipality					Total	% (n=542)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Farming	5 38.5	21 32.8	15 34.1	62 15.4	6 31.6	109	20.1
Livestock raising	4 30.8	21 32.8	15 34.1	159 39.6	6 31.6	205	37.8
Labour	3 23.1	18 28.1	9 20.5	121 30.1	6 31.6	157	29.0
Woodcarving	1 7.8	3 4.7	1 2.3	23 5.7	0 0	28	5.2
Fishing	0 0	1 1.6	0 0	6 1.5	1 5.3	8	1.5
Others (NTFP)	0 0	0 0	4 9.1	31 7.7	0 0	35	6.5
Total	13 100	64 100	44 100	402 100	19 100	542	100.0

C.9.1 Farming

Out of a total of 590 respondents interviewed, 168 or 28.4 percent are engaged in farming, 165 or 27.9 percent are engaged in livestock raising, 165 or 27.9 percent are engaged in fishing and 92 or 15.6 percent are engaged in labour.

Table 45 Rank of Farming as Livelihood Source

Rank	Municipality					Total	% (n=209)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
1	6 100	20 100	9 60.0	88 54.3	2 33.3	125	59.5
2	0 0	0 0	0 0	10 6.2	0 0	10	4.7
3	0 0	0 0	6 40.0	61 37.6	4 66.7	71	33.8
4	0 0	0 0	0 0	3 1.8	0 0	3	1.4
No Answer	0 0	0 0	0 0	1 61	0 0	1	.5
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.4	77.6	2.9	100.0	

Except for the barangays of Tawangan in Kabayan and Balete in Kayapa, farming is a major source of livelihood in all the rest of the barangays.

Citrus and mangoes are the major crops grown by residents. In Tinoc, the major crops are sweet peas, carrots, avocado and citrus. In the barangays of Buguias covered by the study, the major crops of the respondents are citrus, soybeans, sweet peas, and cauliflower. In Bokod, the major crops are mangoes, citrus and vegetables. Mangoes and citrus are also the major crops of those from Kabayan and Kayapa.

Table 46 Crops/Trees the Respondents Would Like to Raise

Primary Crop	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Citrus	2	11	8	59	2	82	23.31
Mango	1	2	6	59	3	71	20.46
Avocado	1	1	2	11	0	15	4.32
Cauliflower	1	2	1	7	0	11	3.17
Fruit trees	0	1	0	9	0	10	2.88
Sweet peas	2	2	0	8	0	12	3.45
Coffee	0	3	0	8	0	11	3.17
Durian	0	0	0	6	1	7	2.01
Mahogany	0	1	0	7	0	8	2.30
Soy beans	2	4	0	3	0	9	2.59
Star apple	0	0	0	15	0	15	4.32
Broccoli	0	1	0	4	0	5	1.44
Carrots	1	0	1	8	0	10	2.88
Chesa	0	0	0	9	0	9	2.59
Vegetables	0	0	3	7	0	10	2.88
Jackfruit	0	0	0	18	2	20	5.76
Any crop	0	0	0	2	2	4	1.15
Banana	0	2	0	5	0	7	2.01
Condos seed	0	1	0	1		2	0.57
Granola	0	0	0	2	0	2	0.57
Guava	0	1	0	2	0	3	0.86
Rootcrops	0	1	0	1	0	2	0.57
Apple	0	0	2	5	1	8	2.30
Cabbage	0	0	0	5	0	5	1.44
Lanzones/Grapes	0	0	2	4	0	6	1.73
Rambutan	0	0	0	1	1	2	0.57
Seedlings	0	0	0	1	0	1	0.29
Total	10	33	25	267	12	347	100.0
%	2.88	9.51	7.20	76.94	3.46	100.0	

Of the 210 respondents, only 142 answered the question on their farm size. Of these respondents, 90 (42.85%) said that the size of their farm are less than a hectare. The rest are within 1-5 hectares. Only one claimed to have 10 hectares. Note that in Benguet, farm is different from that of a garden. Gardens are usually referred to as areas devoted to vegetable and farms are for perennial crops.

Table 47 Size of Farm by Municipality

Size of Farm by Ha.	Municipality					Total	% (n=142)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
0.01 - 0.99	4	4	4	74	4	90	42.85
1.0 – 1.49	1	2	4	27	1	35	16.6
1.5 – 1.99	0	0	0	1	0	1	0.47
2 – 2.99	0	0	1	8	1	10	4.7
3 – 4.99	0	0	0	4	0	4	1.9
5	0	1	0	0	0	1	0.4
10	0	0	1	0	0	1	0.4
No Answer	1	13	5	49	0	68	32.3
Total	6	20	15	163	6	142	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Table 48 Average Farm Size by Barangay

Municipality	Barangay	Average of farm size by hectare
Tinoc	Poblacion	0.0500
	Impugong	0.5000
	Luhong	0.7500
Buguias	Catlubong	1.38

Municipality	Barangay	Average of farm size by hectare
Bokod	Ekip	1.67
Kabayan	Bashoy	0.7666
	Duacan	0.426
	Eddet	0.6333
	Lusod	0.8156
	Poblacion	0.6333
	Tawangan	0.7010
Kayapa	Balete	0.6150

Weighted Average = 7772.5

32 (22.5%) of the respondents said that they have been into farming for the past 16-20 years and 20 (14%) said they have been farming for 11-15 years. There were two respondents from Kabayan who said that they were engaged in farming for the past 61 years and only one from the same municipality who said to have been engaged in farming for not more than a year. Of the 142 who stated that they are engaged in farming, only 133 responded to the question.

Table 49 Number of Years Farming by Municipality

Number of years Farming	Municipality					Total	% (n=142)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
less than a year	0	0	0	1	0	1	0.7
1 – 5	1	0	0	7	1	9	6.3
6 – 10	1	0	1	17	0	19	13.3
11 – 15	1	1	1	16	1	20	14.0
16 – 20	1	4	2	23	2	32	22.5
21 – 25	0	1	1	5	1	8	5.6
26 – 30	0	0	0	11	0	11	7.7
31 – 35	0	0	2	5	0	7	4.9
36 – 40	0	0	2	8	1	11	7.7
41 – 45	0	1	0	4	0	5	3.5
46 – 50	0	0	1	6	0	7	4.9
51 – 55	0	0	0	0	0	0	0.0
56 – 60	0	0	0	1	0	1	0.7
61 – 65	0	0	0	2	0	2	1.4
No Answer	1	0	0	8	0	9	6.3
Total	5	7	10	114	6	142	100.0
%	3.5	4.9	7.0	80.0	4.2	100.0	

Table 50 Average Number of Years Farming by Barangay

Municipality	Barangay	Ave. number of years farming
Tinoc	Poblacion	12.5
	Impugong	22.5
	Luhong	30.5
Buguias	Catlubong	20.8
Bokod	Ekip	29.0
Kabayan	Bashoy	26.4
	Duacan	25.2
	Eddet	26.8
	Lusod	28.8
	Poblacion	21.6
	Tawangan	16.5
Kayapa	Balete	20.3

Weighted Average = 23.39

Majority of the respondents (135) said that they own their farms while the rest are leased, rented or borrowed.

Table 51 Tenurial Status of Farms by Municipality

Tenurial Status	Municipality					Total	% (n=142)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Own	5 100	7 0	9 46.66	108 66.8	6 100	135	95.0
Rented/leased	0 0	0 0	0 0	3 1.84	0 0	3	2.1
borrowed	0 0	0 0	0 0	2 1.22	0 0	2	1.4
owned & rented	0 0	0 0	1 6.66	1 0.61	0 0	2	1.4
No answer	0	0	0	0	0		
Total	5	7	10	114	0	142	100.0
%	3.5	4.9	7.0	80.2	4.2	100.0	

64 of the respondents, majority of which are from Kabayan said that their farms are located downhill while 28 said it is located uphill. There were 26 respondents who claimed that their farms are both located uphill and downhill and mostly these are also from Kabayan.

Table 52 Location of Farms by Municipality

Location of Farm	Municipality					Total	% (n=142)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
downhill	1	5	4	52	2	64	45.0
Uphill	4	2	2	20	0	28	19.7
downhill & uphill	0	0	4	21	1	26	18.3
adjacent	0	0	0	15	3	18	12.6
north	0	0	0	2	0	2	1.4
backyard	0	0	0	1	0	1	0.7
western	0	0	0	1	0	1	0.7
east	0	0	0	1	0	1	0.7
No Answer	0	0	0	1	0	1	0.7
Total	5	17	10	114	6	142	100.0
%	3.5	4.9	7.0	80.2	4.2	100.0	

98 (69%) of the respondents said that their farms could only be reached through a .30-hour walk followed by 32 who said that they have to walk for one hour to reach their farms. Most of these are from Kabayan. Also, two respondents from Kabayan said that they have to walk more than 3 hours to reach their farms. The average is .607 hours hike. This indicates a relative short walking time and easy access to their farms. The figures can be translated to more time saved in walking to and from the farm. The time saved can be further translated to more time for productive purposes which may include more time for both their farms and gardens; and raising of livestock. Furthermore, the data shows that the farms are within the proximity of their houses.

Table 53 Number of Hours Walk to Farm by Municipality

No. of hours to Farm	Municipality					Total	% (n = 142)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
0 - .30	2	3	4	85	4	98	69.0
.31 – 1:00	1	0	6	23	2	32	22.5
1:01 – 1:30	0	0	0	0	0	0	0.0
1:31 – 2:00	1	0	0	0	0	1	0.7
2:01 – 2:30	1	0	0	0	0	1	0.7
2:31 – 3:00	0	1	0	1	0	2	1.4
3:01 – above	0	0	0	2	0	2	1.4
No Answer	0	3	0	3	0	3	2.1
Total	5	7	10	114	6	137	100.0
%	3.5	4.9	7.0	80.2	4.2	100.0	

Table 54 Average Number of Hours Walk to Farm by Barangay

Municipality	Barangay	Mean Ave. hours of walk to farm
Tinoc	Poblacion	2.2
	Impugong	0.6
	Luhong	10.6
Buguias	Catlubong	0.18
Bokod	Ekip	0.79
	Bila	0.20
Kabayan	Bashoy	0.43
	Duacan	0.15
	Eddet	0.44
	Lusod	0.49
	Poblacion	0.74
Kayapa	Tawangan	0.63
	Balete	0.52

Weighted Average = 0.60 hrs.

The adult male and female, or the father and mother, and their male child are engaged in farming activities.

Table 55 Household Members Engaged in Farming

Household Member	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Adult male & female	3	9	4	54	4	74	35.23
Adult male	1	0	5	45	1	52	24.76
Whole family	1	4	4	15	1	25	11.90
Adult male, adult female & male child	0	1	1	13	0	15	7.14
Others	0	6	0	29	0	35	16.66
No Answer	1	0	1	7	0	9	4.28
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.4	77.6	2.9	100.0	

Residents are constrained from further expanding their farming activities by the lack of capital, inadequate land and water, lack of market outlets, transportation and others.

Table 56 Constraints in Expanding Gardening Activities

Farming Constraint	Municipality					Total	% (n=664)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Capital	0	17	9	104	4	134	20.2
Land	4	17	8	55	1	85	12.8
Water	2	11	3	67	1	84	12.7
Market outlets	1	8	6	53	3	71	10.7
Transportation	2	10	3	44	3	62	9.3
Pests & diseases	2	0	2	38	0	42	6.3
Post harvest facilities	1	1	4	31	1	38	5.7
Seeds	0	6	1	25	1	33	5.0
Technical support	0	0	2	30	1	33	5.0
Fertilisers/ chemicals	2	8	1	18	1	30	4.5
Skills	0	5	2	20	1	28	4.2
Tools	0	3	4	9	0	16	2.4
Information	0	1	0	2	0	3	0.5
Labour	0	0	0	2	0	2	0.3
Calamity	0	0	0	1	0	1	0.2
Insufficient income	0	0	0	1	0	1	0.2
Road	0	0	0	1	0	1	0.2
Total	14	87	45	501	17	664	100.0

On the size of their garden, 92 claimed that they have less than 0.5-hectare gardens and 25 said that they have between 0.5 - 1.0-hectare lots. Only 2 from Ballay, Kabayan claimed to have more than 4.5 hectares.

Table 57 Size of Garden by Municipality

Size of Garden (Ha.)	Municipality					Total	% (n = 154)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Less – 0.50	5	8	8	69	2	92	43.8
0.51 – 1.00	0	8	0	17	0	25	11.9
1.01 – 1.50	0	0	0	8	0	8	3.8
1.51 – 2.00	0	3	2	13	0	18	8.6
2.01 – 2.50	0	1	0	1	0	2	0.09
2.51 – 3.00	0	0	0	4	0	4	1.9
3.01 – 3.50	0	0	0	0	0	0	0.0
3.51 – 4.00	0	0	0	3	0	3	1.4
4.51 above	0	0	0	2	0	2	0.09
No Answer	1	0	5	46	4	56	26.6
Total	6	20	15	163	6	210	100.0
%	3.24	12.98	6.49	75.97	1.29	100.0	

Table 58 Average size of garden per barangay (Hectare)

Municipality	Barangay	Average Size of Garden
Tinoc	Poblacion	0.0625
	Impugong	0.5000
	Luhong	0.2750
Buguias	Catlubong	1.6333
	Poblacion	0.5000
	Padang	0.5000
Bokod	Amlimay	0.8500
	Ekip	0.5600
	Bila	0.5925
Kabayan	Ballay	2.1066
	Bashoy	1.4775
	Duacan	0.2700
	Eddet	1.0232
	Lusod	0.0500
	Poblacion	0.5779
Kayapa	Tawangan	0.1716
	Balete	0.0750

Weighted Average = 0.93 hectares

44 (20.95%) respondents said that they have been engaged in gardening less than 5 years, 33 claimed 11-15 years; 24 for 16-20 years while 23 between 6-10 years. Two from Bokod and Kabayan claimed to have been engaged in gardening for the past 60 years. Correlating the age of respondents, majority of whom are between the productive ages of 26-55, there is a probability that sizes of gardens have increased plus the fact that there are still available areas to be cultivated.

Table 59 No. of Years Gardening by Municipality

No. of years Gardening	Municipality					Total	% (n=148)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
5 year less	3	2	2	35	2	44	20.95
6 – 10	1	3	5	14	0	23	10.95
11 – 15	0	5	1	27	0	33	15.71
16 – 20	0	2	1	21	0	24	11.42
21 – 25	0	3	0	6	0	9	4.29
26 – 30	0	3	0	4	0	7	3.33
31 – 35	0	1	0	2	0	3	1.43

No. of years Gardening	Municipality					Total	% (n=148)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
36 – 40	0	1	0	1	0	2	0.95
41 – 45	0	0	0	1	0	1	0.47
46 – 50	0	0	0	0	0	0	0.0
51 – 55	0	0	0	0	0	0	0.0
56 – 60	0	0	0	0	0	0	0.0
61 - and above	0	0	1	1	0	2	0.95
No Answer	2	0	5	51	4	62	100.0
Total	6	20	15	163	6	210	
%	2.9	9.5	7.4	77.6	2.9	100.0	

Gardening compared to farming, the Farming activities have been the undertaking of respondents for an average of 23.39 years, therefore, gardening appears to be relatively new. This observation can be noted in barangays Poblacion in Tinoc, Ifugao; Ekip in Bokod; Lusod and Tawangan in Kabayan.

Table 60 Average Years Engaged in Gardening and farming by Barangay.

Municipality	Barangay	Average years gardening	Average years farming
Tinoc	Poblacion	6.00	12.5
	Impugong	3.00	22.5
	Luhong	30.00	30.5
Buguias	Catlubong	18.33	20.8
	Poblacion	40.00	0
	Padang	15.00	0
Bokod	Amlimay	17.00	0
	Ekip	8.33	29.0
	Bila	28.50	0
Kabayan	Ballay	20.26	0
	Bashoy	15.00	26.4
	Duacan	15.00	25.2
	Eddet	17.14	26.8
	Lusod	2.5	28.8
	Poblacion	10.87	21.6
	Tawangan	4.12	16.6
Kayapa	Balete	3.00	20.3

Weighted Average Gardening 14.06 Weighted Average Farming 23.39

Majority of the respondents said that they own their gardens while the rest are either tenants or lessees; or borrowed the land they till.

Table 61 Tenurial Status of Garden by Municipality

Tenurial Status	Municipality					Total	% (n=155)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
owned	5 100.0%	18 85.6%	9 90.0%	100 85.5%	2 100.0%	134	86.5
rented	0 0	1 4.8	0 0	7 5.9	0 0	8	5.2
tenant	0 0	1 4.8	0 0	3 2.5	0 0	4	2.6
rented & leased	0 0	0 0	1 10.0%	3 2.5%	0 0	4	2.6
owned & rented	0 0	1 4.8%	0 0	2 1.7%	0 0	3	1.9
leased	0 0	0 0	0 0	1 0.8%	0 0	1	0.6
borrowed	0 0	0 0	0 0	1 0.8	0 0	1	0.6
Total	5	21	10	117	2	155	100.0
%	3.2	13.5	6.5	75.5	1.3	100.0	

Majority of the respondents, most of whom are from Kabayan claim that their gardens are located downhill while 30 said they are located uphill. 27 of them said that their gardens are located both uphill and downhill.

Table 62 Location of garden by municipality

Location of garden	Municipality					Total	% n = 139
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
downhill	2	1	3	57	1	64	46.04
Uphill	2	1	3	23	1	30	21.58
uphill & downhill	0	6	0	21	0	27	19.42
adjacent	0	0	0	14	0	14	10.07
Others	0	1	1	2	0	4	2.87
Total	4	9	7	117	2	139	100.0
%	3.2	13.6	5.8	76.0	1.3	100.0	

22 of the respondents said that it takes a 1.0-hour walk to reach their gardens and another 18 claimed that it takes only .20 hours walk. One from Buguias claimed that it takes him 24 hours walk to reach his garden. The average however is .816 hours on a range of 0-24 hours.

Table 63 Number of Hours Required to Reach Garden by Municipality

No. of Hours to garden	Municipality					Total	% (n=160)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
30 mins. less	3	11	3	100	0	117	73.13
.31 – 1:00	0	6	6	19	2	33	20.63
1:01 – 1:30	0	0	0	0	0	0	0
1:31 – 2:00	1	3	0	1	0	5	3.12
2:01 – 2:30	0	0	0	0	0	0	0
2:31 – 3:00	0	0	0	0	0	0	0
3:01 – 3:30	1	0	0	1	0	2	1.25
3:31 – 4:00	0	0	0	0	0	0	0
4:01 – 4:30	0	0	0	0	0	0	0
4:31 – 5:00	0	0	0	0	0	0	0
Above 5 hours	0	1	0	2	0	3	1.87
Total	5	21	9	123	2	160	100.0
%	3.12	13.12	5.63	76.87	1.25	100.0	

Note that the average time to reach their garden is .081 hours farther than the farm with an average of 0.60 hours.

Table 64 Average Time Needed to Reach Garden by Barangay

Municipality	Barangay	Average. time of walk to garden
Tinoc	Poblacion	2.65
	Impugong	0.25
	Luhong	1.15
Buguias	Catlubong	2.12
	Poblacion	1.00
	Padang	0.40
Bokod	Amlimay	1.08
	Ekip	0.56
	Bila	0.39
Kabayan	Ballay	0.26
	Bashoy	1.02
	Duacan	0.39
	Eddet	0.87
	Lusod	0.23
	Poblacion	0.78
	Tawangan	0.22
Kayapa	Balete	1.00

Weighted Average = 0.81

89 of the respondents said that the source of water for their crops is the irrigation system using pipes and private hoses while 65 said that water comes from a combination of rainfed and irrigation system. 55 of the respondents also said that their water source is the rain.

Table 65 Water source for crop per municipality (First mention)

Water Source	Municipality					Total	% (n=209)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
irrig. System	1	12	8	66	2	89	42.0
rainfed and irrig.	2	7	5	51	0	65	31.0
rainfed	2	2	1	46	4	55	26.0
Total	5	21	14	163	6	209	100.0
%	2.4	10.0	6.7	78.0	2.9	100.0	

Majority of the respondents said that game is not part of the community diet while the 40% said otherwise.

C.9.2 Livestock keeping

Livestock raising appears to be another important source of livelihood by more than half of the respondents. Both the adult male and female members of the household usually undertake this activity; in others, the adult female member does it.

Table 66 Rank of Livestock Raising in Livelihood Activities

Rank	Municipality					Total	% (n=139)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
1	0	1	2	29	3	35	16.66
2	1	1	7	46	3	58	27.61
3	4	7	1	33	0	45	21.42
4	0	0	0	1	0	1	0.47
No Answer	1	11	5	54	0	71	33.80
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.4	77.6	2.9	100.0	

Table 67 Household Members Engaged in Livestock Raising

Household Member	Municipality					Total	% n=134
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Adult male & female	3	1	3	36	3	46	34.5
Adult female	1	0	6	30	1	38	28.5
Female adult & child	0	6	1	6	0	13	9.7
Adult male	0	0	0	9	0	9	6.7
Whole family	1	0	0	4	0	5	3.7
Female child	0	0	0	3	0	3	2.3
Adult male & male child	0	1	0	2	0	3	2.3
Others	0	0	0	4	2	6	4.5
Adult male & female child	0	0	0	1	0	1	0.7
Total	5	8	10	104	6	133	100.0
%	3.7	6.7	7.5	77.6	4.5	100.0	

Constraints in livestock raising identified by the respondents are varied but 19 said that feeds are the major constraint.

Table 68 Constraints in Livestock Raising

Livestock raising Constraints	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Feeds	0	0	2	17	0	19	20.7
Capital, feeds, market	0	0	1	6	1	8	8.7
Breeds	0	0	0	7	0	7	7.6
Capital	0	0	0	6	0	6	6.5
Pests/diseases	0	0	0	3	0	3	3.3
Capital, market, transportation	0	0	0	3	0	3	3.3
Labour	0	0	0	2	0	2	2.2
Information	0	0	0	2	0	2	2.2
Market outlets	0	0	0	2	0	2	2.2
Transportation	1	0	0	1	0	2	2.2
Capital, feeds & transportation	1	0	0	1	0	2	2.2
Capital & transportation	0	1	0	1	0	2	2.2
Capital, feeds, breeds	0	2	0	0	0	2	2.2
Capital, feeds, breed & transport	0	1	0	1	0	2	2.2
Feeds & transportation	0	0	1	1	0	2	2.2
Feeds, breed	0	0	1	1	0	2	2.2
Capital, pests, breeds	0	0	1	1	0	2	2.2
Capital & breed	0	0	1	1	0	2	2.2
Capital, feeds, breed, market	0	0	0	2	0	2	2.2
Capital, feeds	0	0	0	2	0	2	2.2

Livestock raising Constraints	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Grazing ground	0	0	0	1	0	1	1.09
Others	3	3	3	8	0	17	18.5
Total	5	7	10	69	1	92	100.0
%	5.4	7.6	10.9	75.0	1.09	100.0	

C.9.3 Forest / NTFP Resources

Thirteen out of 29 respondents from Kabayan indicated the importance of gathering non-timber forest products to their livelihood. Twelve out of 18 respondents from Tawangan stated that NTFP gathering ranks first in terms of importance to them.

Table 69 Rank According to Income of NTFP Gathering

Rank	Municipality					Total	% (n=29)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
1	0	0	0	13	0	13	44.8
2	0	0	0	1	0	1	3.4
3	1	4	0	0	0	5	17.2
4	1	1	0	5	0	7	24.1
	0	2	0	0	0	2	6.9
	0	0	0	1	0	1	3.4
Total	2	7	0	20	0	29	100.0
%	6.9	24.1	0	69.0	0	100.0	

The residents depend on the forest to provide timber and cogon for construction purposes, fuel wood for lighting and cooking, and poles for farming.

Table 70 Forest Resources Gathered as a Source of Income by Respondents

Forest Resources	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Lumber	0	0	4	58	2	64	30.5
Firewood	2	10	0	16	0	28	13.3
NTFP Resources	0	0	0	0	0	0	0.00
Cogon	1	2	0	5	0	8	3.8
Rattan	0	0	0	8	0	8	3.8
Wild tea	0	1	0	7	0	8	3.8
Herbs	0	0	0	7	0	7	3.3
Vines	1	2	1	2	0	6	2.9

Majority of the respondents consistently mentioned that medicinal plants, wild fruits, honey, rattan, vines, fresh water fish are the most important non-timber forest product for livelihood. It is worth noting that gold and game are also considered as an important NTFP gathered from the area. However, the gathering of these NTFP's have some heavy implications to the protected area in terms of specie and habitat conservation.

Table 71 Forest Product Important for Livelihood (First - Fifth mention)

NTFP Product	First Mention n=175	Second Mention n=165	Third Mention n=133	Fourth Mention n=77	Fifth Mention n=42
honey	115	2	6	2	4
medicinal plants	16	38	48	10	15
rattan	14	17	3	3	3
vines	12	28	26	11	4
wild fruit	10	33	25	25	6
fresh water fish	2	2	2	1	1
game	0	11	3	1	1
mineral gold	0	1	5	0	0
mushroom	0	0	0	0	1
Total	344	297	251	130	35

The farthest distance from their respective barangays to the forest where they gather these products as claimed by 49 respondents is 24.0 hours. Respondents were from barangays Impugong, Tinoc; Catlubong, Buguias, Ekip, Bokod and barangays Ballay,

Bashoy, Eddet, Lusod, Poblacion and Tawangan of Kabayan. The average distance to forest product in the area of study is 9.23 hours.

Table 72 Distance to Forest Product 1 by Municipality

No. of Hours	Approx. distance	Municipality					Total	%
		Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Less .30	2.5 km.	1	4	6	22	0	33	18.9
.31-1:00	5 km.	0	3	0	10	0	13	7.4
1:01-1:30	7.5 km.	0	0	0	2	0	2	1.1
1:31-2:00	10 km.	1	4	2	9	2	18	10.3
2:01-2:30	12.5 km.	1	0	0	0	0	1	0.6
2:31-3:00	15 km.	0	2	1	4	0	7	4.0
3:01-3:30	17.5 km.	1	0	0	0	0	1	0.6
3:31-4:00	20 km.	0	0	0	11	0	11	6.3
4:01-4:30	22.5 km.	0	0	0	0	0		0.00
4:31-5:00	25 km.	0	0	0	12	0	12	6.9
5:01-5:30	27.5 km.	0	0	0	0	0		0.00
5:31-6:00	30 km.	0	0	0	9	0	9	5.1
6:01-6:30	32.5 km.	0	0	0	0	0		0.00
6:31-7:00	35 km.	0	0	0	4	0	4	2.3
More than 7:01	40 km.	1	8	2	53	0	64	36.6
Total		5	21	11	136	2	175	100.0
%		2.9	12.0	6.3	77.7	1.1	100.0	

By comparing Table 75 with that of the distance of the barangay to Mt. Pulag, one may conclude that:

1. The negative values indicate that the forest product is easily accessible to the respondent in a certain barangay. One does not need to hike as far as the Mt. Pulag National Park to be able to gather. The product may be plentiful and abundant.
2. The positive values on the other hand, may imply that one has to hike deeper into the national park to be able to gather the product. It may also imply spending more time roving around the park to locate the source, thus pointing perhaps to the increasing scarcity of the product.

Table 73 Mean Distance to Forest Product 1 (Honey)

Municipality	Barangay	Average Distance to Forest Product (A)	Ave. Distance to Mt. Pulag (B)	A-B Difference
Tinoc	Poblacion	2.80	8.00	(5.2)
	Impugong	13.00	7.15	(5.85)
	Luhong	1.15	7.00	5.58
Buguias	Catlubong	9.64	4.06	5.58
	Poblacion	2.00	0.35	1.65
	Padang	0.15	3.00	(2.85)
	Amlimay	8.33	1.36	6.98
Bokod	Ekip	8.07	4.50	3.57
	Bila	1.00	3.00	(2.0)
Kabayan	Ballay	11.88	7.40	4.48
	Bashoy	12.09	1.75	10.34
	Duacan	4.67	8.60	(3.93)
	Eddet	9.71	4.60	5.11
	Lusod	6.42	4.64	1.78
	Poblacion	11.14	8.93	2.21
	Tawangan	9.20	8.41	0.79
Kayapa	Balete	2.00	4.72	(2.72)
Weighted Averages		9.23	5.76	3.47

28 of the respondents said that the farthest distance to the second mentioned forest product is 1.00 hour or 5 km.; 24 claimed 2.00 hours or 10 km. and 20 respondents said that the farthest distance is 24 hours walk. One respondent from Luhong, Tinoc claimed that the farthest distance is 48 hours. The average distance to the forest product is 5.95 hours. However, respondents from Tinoc and Kabayan take as short as .10 hours or 6 minutes and residents from Tinoc and Kayapa as long as 2 days to reach the source of the second mentioned forest product.

Table 74 Distance to Forest Product 2 by Municipality

No. of Hours	Approx. Distance	Municipality					Total	% (n=165)
		Tinoc	Buguias	Bokod	Kabayan	Kayapa		
.01	.080 km.	0	0	0	1	0	1	0.6
.02	.160 km.	0	0	0	1	0	1	0.6
.05	.400 km.	0	0	0	1	0	1	0.6
.10	1.2 km.	1	0	0	4	0	5	3.0
.20	1.65 km.	2	0	0	1	0	3	1.8
.25	2.05 km.	0	0	0	2	0	2	1.2
.30	2.50 km.	0	3	1	10	0	14	8.5
.40	3.10 km.	0	1	1	1	0	3	1.8
.45	4.20 km.	0	0	0	4	0	4	2.4
1.00	5 km.	0	3	3	22	0	28	17.0
1.30	7.5 km.	0	1	0	3	0	4	2.4
2.00	10 km.	1	2	0	21	0	24	14.5
3.00	15 km.	0	1	1	11	2	15	9.1
4.00	20 km.	0	0	1	9	0	10	6.1
5.00	25 km.	0	0	1	4	0	5	3.0
6.00	30 km.	0	0	0	6	0	6	3.6
8.00	40 km.	0	1	0	2	0	3	1.8
12.00	60 km.	1	3	0	10	0	14	8.5
24.00	120 km.	0	5	1	14	0	20	12.1
25.00	125 km.	0	0	0	1	0	1	0.6
48.00	240 km.	1	0	0	0	0	1	0.6
Total		5	21	9	128	2	165	100.0
%		3.0	12.7	5.5	77.6	1.2	100.0	

The same conclusion may be drawn from Table 75, lesser number of negative values may reflect forest product further and more difficult to obtain than product 2 (medicinal plants) with positive values.

Table 75 Mean Distance to Forest Product 2. (Medicinal Plants)

Municipality	Barangay	Mean Distance to Forest Product (A)	Table 3. Average distance to Mt. Pulag (B)	(A - B) Difference
Tinoc	Poblacion	1.10	8.00	(6.9)
	Impugong	6.05	7.15	(1.1)
	Luhong	24.10	7.00	17.1
Buguias	Catubong	9.82	4.06	5.76
	Poblacion	12.00	0.35	11.65
	Padang	2.00	3.60	(1.0)
	Amlimay	5.10	1.35	3.75
Bokod	Ekip	5.39	4.50	0.89
	Bila	1.00	3.00	(2.0)
Kabayan	Ballay	5.38	7.40	(2.02)
	Bashoy	6.87	1.75	5.12
	Duacan	4.67	8.60	(3.93)
	Eddet	4.39	4.61	(0.22)
	Lusod	2.10	4.64	(2.54)
	Poblacion	2.50	8.93	(6.43)
Kayapa	Tawangan	8.07	8.41	(0.34)
	Balete	3.00	4.72	(1.72)

Municipality	Barangay	Mean Distance to Forest Product (A)	Table 3. Average distance to Mt. Pulag (B)	(A - B) Difference
Average		5.93	5.76	0.17

The farthest distance of the third mentioned forest product is 1 hour or 5 km. as mentioned by 35 respondents followed by 2 hours and .3 hours. The average distance is 3.45 hours. The period of time needed to get to the source of the third mentioned forest product ranges from .03-24 hours.

Table 76 Distance to Forest Product 3 by Municipality (Rattan)

No of Hours	Approx. Distance	Municipality					Total	% (n=133)
		Tinoc	Buguias	Bokod	Kabayan	Kayapa		
.03	.240 km.	0	0	0	1	0	1	0.8
.05	.400 km.	0	0	0	5	0	5	3.8
.10	1.2 km.	0	0	0	3	0	3	2.3
.15	1.25 km.	1	0	0	2	0	3	2.3
.20	1.65 km.	0	0	0	3	0	3	2.3
.25	2.05 km.	0	1	0	0	0	1	0.8
.30	2.50 km.	0	2	2	12	0	16	12.0
.40	3.10 km.	0	0	0	1	0	1	0.8
.45	4.20 km.	0	1	0	3	0	4	3.0
1.00	5.0 km.	1	7	2	25	0	35	26.3
1.30	7.5 km.	0	0	0	1	0	1	0.8
2.00	10 km.	1	4	2	15	0	22	16.5
3.00	15 km.	0	0	0	5	1	6	4.5
4.00	20 km.	0	1	0	6	0	7	5.3
5.00	25 km.	0	0	1	2	0	3	2.3
6.00	30 km.	0	2	0	5	0	7	5.3
7.00	35 km.	0	0	0	1	0	1	0.8
8.00	40 km.	0	0	0	1	0	1	0.8
12.00	60 km.	0	2	0	3	0	5	3.8
24.00	120 km.	2	1	0	5	0	8	6.0
Total		5	21	7	99	1	133	100.0
%		3.8	15.8	5.3	74.4	.8	100.0	

Table 77 Mean Distance to Forest Product (3)

Municipality	Barangay	Mean Distance to Forest Product	Average Distance to Mt. Pulag (A)	(A - B) Difference
Tinoc	Poblacion	13.00	8.00	5.00
	Impugong	12.50	7.15	5.35
	Luhong	1.07	7.00	(5.93)
Buguias	Catlubong	3.89	4.06	(0.17)
	Poblacion	4.00	6.35	3.65
	Padang	1.00	3.60	(2.00)
	Amlimay	5.00	1.35	3.65
Bokod	Ekip	1.66	4.50	(2.84)
Kabayan	Ballay	7.82	7.40	0.42
	Bashoy	2.71	1.75	(0.96)
	Duacan	8.00	8.60	(0.6)
	Eddet	3.65	4.61	(0.96)
	Lusod	2.06	4.64	(2.58)
	Poblacion	3.39	8.93	(5.54)
Tawangan	1.23	8.41	(7.18)	
Kayapa	Balete	3.00	4.72	(1.72)

Weighted Average = 3.45

The farthest distance of the fourth mentioned forest product is 1 hour as mentioned by 7 respondents followed by 2 hours and .3 hours. The average distance is 4.96 hours but actual time ranges from .01-24 hours.

Table 78 Distance to Forest Product 4 by Municipality (Vines)

No. of Hours	Approx. Distance	Municipality					Total	% (n=40)
		Tinoc	Buguias	Bokod	Kabayan	Kayapa		
.10	.8 km.	0	0	0	1	0	1	2.5
.15	1.25 km.	0	1	0	0	0	1	2.5
.20	1.65 km.	0	1	0	0	0	1	2.5
.30	2.5 km.	0	0	0	5	0	5	12.5
.45	4.20 km.	0	0	0	1	0	1	2.5
1.00	5.0 km.	0	6	0	1	0	7	17.5
2.00	10 km.	1	1	0	5	0	7	17.5
3.00	15 km.	1	1	0	2	0	4	10.0
4.00	20 km.	1	0	0	0	0	1	2.5
5.00	25 km.	0	2	0	0	0	2	5.0
6.00	30 km.	0	0	0	2	0	2	5.0
8.00	40 km.	0	1	0	0	0	1	2.5
12.00	60 km.	2	1	0	2	0	5	12.5
24.00	120 km.	0	2	0	0	0	2	5.0
Total		5	16	0	19	0	40.0	100.0
%		12.5	40.0	0.00	47.5	0.00	100.0	

The farthest distance of forest product stated by 6 respondents is 12 hours, followed by 24 hours and 1 hour. The mean average distance is 4.44 hours with a range of 10-24 hours.

Table 79 Distance to forest product 5 by municipality (Wild Fruits)

No. of Hours	Approx. Distance	Municipality					Total	% (n=23)
		Tinoc	Buguias	Bokod	Kabayan	Kayapa		
.10	.8 km.	0	0	0	1	0	1	4.3
.30	2.5 km.	1	0	0	0	0	1	4.3
1.00	5 km.	1	2	0	1	0	4	17.4
2.00	10 km.	0	1	0	2	0	3	13.0
6.00	30 km.	0	1	0	0	0	1	4.3
8.00	40 km.	0	2	0	0	0	2	8.7
12.00	60 km.	1	4	0	1	0	6	26.1
24.00	120 km.	1	2	0	2	0	5	21.7
Total		4	12	0	7	0	23	100.0
%		17.4	52.2	0.00	30.4	0.00	100.0	

The adult males usually do gathering of NTFP.

Table 80 Household Members Involved in NTFP Gathering for Income Generation

Household Member	Municipality					Total	% (n=29)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Whole family	0	0	0	1	0	1	3.4
Adult male	0	1	0	16	0	17	58.6
Adult female	0	0	0	1	0	1	3.4
Adult male and female/ female and male child	2	6	0	2	0	10	34.5
Total	2	7	0	20	0	29	100.0
%	6.9	24.1	0	69.0	0	100.0	

The lack of market outlets and tools are the major constraints of residents in NTFP gathering.

Table 81 Constraints in NTFP Gathering

NTFP Constraints	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Lack of land	0	0	0	1	0	1	3.6
Capital	0	0	0	1	0	1	3.6
Technical support	0	0	0	1	0	1	3.6
Tools	0	2	0	3	0	5	17.9
Seeds/feeds	0	0	0	1	0	1	3.6
Selected Breeds	0	0	0	1	0	1	3.6
Market outlet	0	0	0	8	0	8	28.6
Climate, skills, capital, seeds	1	0	0	0	0	1	3.6
Climate, irrigation, water	1	0	0	0	0	1	3.6
Climate, fertilizer	0	1	0	0	0	1	3.6
Climate, skills	0	2	0	0	0	2	7.1
Climate, seeds, skills	0	1	0	0	0	1	3.6
Climate, seeds	0	1	0	0	0	1	3.6
Capital, breeds	0	0	0	1	0	1	3.6
Climate, breeds, capital	0	0	0	2	0	2	7.1
Total	2	7	0	19	0	28	100.0
%	7.1	25.0	0	67.9	0	100.0	

There are also efforts by the residents in conserving their natural resources. This usually comes in the form of tree planting or reforestation. Alnus and coffee are the most common trees planted.

Table 82 Type of Trees Planted by Respondents

Type of Trees Planted	Municipality					Total	% (n=200)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Alnus	4	18	4	71	2	99	49.5
Coffee	1	0	6	34	3	44	22.0
Avocado	0	0	0	15	1	16	8.0
Dulce fruit	0	0	0	11	0	11	5.5
Orange	0	0	0	7	0	7	3.5
Pine tree	0	1	1	3	0	5	2.5
Banana	0	0	0	5	0	5	2.5
Guava	0	1	0	3	0	4	2.0
Mulberry	0	1	0	0	0	1	0.5
Citrus	0	0	0	1	0	1	0.5
Gmelina	0	0	0	1	0	1	0.5
Ipil-ipil	0	0	0	1	0	1	0.5
Pomelo	0	0	0	1	0	1	0.5
Jackfruit	0	0	0	1	0	1	0.5
Cypress	0	0	0	1	0	1	0.5
Bamboo	0	0	0	1	0	1	0.5
Calamansi	0	0	0	1	0	1	0.5
Total	5	21	11	157	6	200	100.0
%	2.5	10.4	5.5	78.6	3.0	100.0	

183 of the respondents said they have planted between 1-50 trees while 3 claimed to have planted more than 100 trees.

Table 83 Number of Trees Planted

No. of Trees Planted	Municipality					Total	% (n=194)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
1-50	4	20	8	145	6	183	94.8
51-100	0	0	2	5	0	7	3.6
101-up	1	0	1	2	0	4	1.5

Total	5	20	11	152	6	194	100.0
%	2.6	10.3	5.7	78.4	3.1	100.0	

Most of the respondents planted these trees in their own backyards.

Table 84 Location of Trees Planted

Location of Tree planted	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
A. Backyard	3	15	11	131	6	166	80.6
B. Others					0		
1. Dontog (Mountain)	1	3	2	23		27	13.2
2. Farms	1	3		4		7	3.4
3. Kaingin				1		4	1.9
4. Along the road				2		2	.97
Total	5	21	13	161	6	206	100.0
%	2.4	10.2	6.3	78.2	2.9	100.0	

Other trees planted by the respondents are avocados and coffee.

Table 85 Other Trees Planted by Respondents

Other trees Planted	Municipality					Total	% (n=195)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Avocado	1	6	5	31	1	44	22.6
Coffee	1	0	2	31	0	34	17.4
Pine tree	2	10	1	19	1	33	16.9
Orange	0	0	1	19	1	21	10.8
Banana	1	0	1	16	1	19	9.7
Guava	0	1	0	8	0	9	4.6
Mango	0	0	0	6	1	7	3.6
Mulberry	0	2	0	3	0	5	2.6
Dulce fruit	0	0	0	3	1	4	2.1
Papaya	0	0	0	4	0	4	2.1
Citrus	0	0	1	1	0	2	1.0
Chesa	0	0	0	2	0	2	1.0
Jackfruit	0	0	0	2	0	2	1.0
Alnus	0	0	0	1	0	1	0.5
Eucalyptus	0	0	0	1	0	1	0.5
Ipil-ipil	0	0	0	1	0	1	0.5
Pear	0	0	0	1	0	1	0.5
E-ilog	0	0	0	1	0	1	0.5
Acacia	0	0	0	1	0	1	0.5
Bamboo	0	0	0	1	0	1	0.5
Tangan	0	0	0	1	0	1	0.5
Starapple	0	0	0	1	0	1	0.5
Total	5	19	11	154	6	195	100.0
%	2.6	9.7	5.6	79.0	3.1	100.0	

These trees were mostly planted in their backyards.

Table 86 Location of Other Trees Planted by Respondents

Location of Trees	Municipality					Total	% (n=193)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Backyard	1	6	9	128	6	150	77.7
Duntog	1	4	0	0	0	5	2.6
Farm	0	0	1	2	0	3	1.6
Up hill	1	0	0	0	0	1	0.5
Surroundings	1	1	0	2	0	4	2.1
Others:	1	8	1	20	0	30	15.5
Total	5	19	11	152	6	193	100.0

%	2.6	9.8	5.7	78.8	3.1	100.0
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C.9.4 Fishing

Only 8 respondents from Buguias, Kabayan & Kayapa indicated that fishing is a major source of livelihood. Five of the 8 respondents are located in Tawangan.

Table 87 Rank of Fishing in Livelihood Activities

Rank	Municipality					Total	% (n=8)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
1	0	1	0	1	0	2	25.0
2	0	0	0	2	0	2	25.0
3	0	0	0	1	0	1	12.5
4	0	0	0	1	1	2	25.0
5	0	0	0	1	0	1	12.5
Total	0	1	0	6	1	8	100.0
%	0	12.5	0	75.0	12.5	100.0	

Lack of fishing grounds, fry, technical support and market outlets are the problems that constraint them from further expanding their fishing activities.

Table 88 Constraints in Fishing

Fishing Constraints	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Fishing ground	0	0	0	2	0	2	22.2
Technical support	0	0	0	1	0	1	11.1
Fry/fingerlings	0	0	0	2	0	2	22.2
Market outlets	0	0	0	1	0	1	11.1
climate & water source	0	1	0	0	0	1	11.1
Fishing ground & market outlets	0	0	0	1	0	1	11.1
Fishing ground & fry	0	0	0	0	1	1	11.1
Total	0	1	0	7	1	9	100.0
%	0	11.1	0	77.8	11.1	100.0	

C.9.5 Woodcarving

The pine tree is the most common type of tree used for woodcarving. The oak tree is used by a respondent from Luhong, Tinoc and Eddet, Kabayan.

Timber is obtained 100% from the forest at least yearly. It maybe observed that the most number of wood carvers is found in Kabayan. They usually gather forest trees for wood carving at an interval of 2-3 years.

C.9.6 Labour

Less than half of the 157 respondents indicated that providing labour is of secondary importance to them.

Table 89 Rank of Providing Labour in Terms of Livelihood

Rank	Municipality					Total	% (n=157)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
1	0 0.00%	0 0.00%	0 0.00%	9 7.4%	0 0.00%	9	5.7
2	0 0.00%	0 0.00%	3 0.00%	65 53.7%	4 0.00%	72	45.9
3	0 0.00%	1 0.00%	3 0.00%	17 14.0%	2 0.00%	23	14.6
4	0 0.00%	0 0.00%	0 0.00%	1 (.83) 0.83%	0 0.00%	1	0.6
5	1	0	0	0	0	1	0.6

	0.00%	0.00%	0.00%	0.00%	0.00%		0.6
6	2	17	3	29	0	51	
	0.00%	0.00%	0.00%	24.0%	0.00%		35.5
Total	3	18	9	121	6	157	100.0
%	1.9	11.5	5.7	77.1	3.8	100.0	

Household members who usually render labour are adult males.

Table 90 Household Members Engaged in Labour to Generate Income.

Household Member	Municipality					Total	% (n=145)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Whole family	2	3	0	3	0	8	5.6
Adult male	0	5	2	35	3	45	31.3
Adult female	0	0	0	8	0	8	5.6
Male child	0	1	1	7	0	9	6.3
Adult male and female	1	4	3	34	1	43	29.9
Others	0	5	1	23	2	31	21.5
Total	3	18	7	110	6	144	100.0
%	2.1	13.0	4.9	76.4	4.2	100.0	

The major constraints in providing labour are the lack of skills and tools.

Table 91 Constraints in Providing Labour

Labour Constraints	Municipality					Total	% (n=146)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Lack land	0	0	0	1	0	1	0.7
Labour force	0	1	0	2	0	3	2.1
Capital	0	0	0	1	0	1	0.7
Technical support	0	0	0	3	0	3	2.1
Information	0	0	0	6	0	6	4.1
Skills	0	2	1	32	4	39	26.7
Tools	0	3	1	25	0	29	19.9
Capital, fert., irrig., post harvest	1	0	0	0	0	1	0.7
low rate	1	0	0	3	0	4	2.7
Skills & tools	0	5	3	4	0	12	8.2
Labour & skills	0	4	0	2	0	6	4.1
Labour, capital & information	0	1	0	0	0	1	0.7
Land, Labour, capital, skills,	0	1	0	0	0	1	0.7
Land, water & capital	0	0	1	0	0	1	0.7
Lack of employment	0	0	0	7	0	7	4.8
Technical support, skills & tools	0	0	0	1	0	1	0.7
Tools & low rate	0	0	0	2	0	2	1.4
Technical support & skills	0	0	0	5	0	5	3.4
Tools & credit	0	0	0	1	0	1	0.7
Low salary	0	0	0	1	0	1	0.7
Tools & lack of employer	0	0	0	1	0	1	0.7
Information & skills	0	0	0	11	2	13	8.9
Capital, market outlets & transport	0	0	0	1	0	1	0.7
Technical support, info. & skills	0	0	0	1	0	1	0.7
Technical support & information	0	0	0	1	0	1	0.7
Skills & irrig. Water	0	0	0	1	0	1	0.7
Materials	0	0	0	1	0	1	0.7
Labour, skills & tools	0	0	0	1	0	1	0.7
Information & fert./ chem.fert./chem	0	0	0	1	0	1	0.7
Total	2	17	6	115	6	146	100.0
%	1.4	11.6	4.1	78.8	4.1	100.0	

C.10 EXPENDITURE PATTERN

Based on the mean, food, education and clothing are the top expenditure items of the respondents. The median, on the other hand, indicates that the top five expenditure items of the respondents are food, education, clothing, medicines, and house repair. These figures indicate that the respondents are not producing their own food requirements or preferred foods. Their produce is sold to the market and any income derived from livelihood, which is primarily agriculture, is used to purchase back food items. However, it is worth noting that education comes second in priority. It shows that the families put a high premium to the education of their children.

Table 92 % Allocated to Household Expenditures

Item	Percent (%)						No. of Respondents
	Mean	Standard Deviation	Median	Mode	Minimum	Maximum	
Food	47.62	13.60	50.00	50.00	5.00	90.00	209
Education	17.50	13.30	15.00	10.00	1.00	90.00	183
Clothing	11.26	7.91	10.00	10.00	2.00	60.00	207
Medicines	9.98	6.37	10.00	5.00	1.00	50.00	200
House repair	9.92	6.03	10.00	10.00	1.00	35.00	197
Electricity	6.36	6.39	5.00	5.00	1.00	50.00	196
Recreation	4.64	6.31	3.00	5.00	1.00	50.00	127
Water	3.19	3.08	2.00	2.00	1.00	20.00	52
Others	12.33	15.31	4.00	3.00	3.00	30.00	3

C.10.1 Fuel (Pinewood)

The total number of respondents who use fuelwood is 180 or 86.1% of which 102 or 62.6 % respondents are located in Kabayan, 13 or 65%. 0 in Buguias, 6 or 100 % in Kayapa, 14 or 93.3 % in Bokod and 4 or 66.6 % in Tinoc. 25 or 15.3 % use LPG in Kabayan since this areas are located within the Poblacion area which is accessible to the supplies.

Table 93 Type of Fuel Used for Cooking by Municipality

Type of fuel	Municipality					Total	% (n=209)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Firewood	4 66.6%	13 65.0%	14 93.3%	102 62.6%	6 0.00%	139	66.1
Both	0 0.00%	4 20.0%	1 6.7%	36 22.1%	0 0.00%	41	19.5
LPG	1 16.6%	3 15.0%	0 0.00%	25 15.3%	0 0.00%	29	13.8
No Answer	1 16.6%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1	0.4
Total	65	20	15	163	6	210	100.0
%	2.3	9.5	7.1	77.6	2.3	100.0	

It may be noted from the following table that all respondents in Poblacion and Luhong, Tinoc; Ekip, Bokod; Lusod, Kabayan; and Balete, Kayapa are dependent on firewood to cook their food. This is so because of the unavailability and inaccessibility of LPG or gas for cooking.

Table 94 Type of Fuel Used for Cooking by Barangay

Barangay	Type of Fuel			Total	% (n=209)
	Firewood	LPG	Both		
Tinoc					
Poblacion	2	0	0	2	1.0
Impugong	1	1	0	2	1.0
Luhong	2	0	0	2	1.0
Buguias					

Catubong	10	2	2	14	6.7
Poblacion	0	0	1	1	0.5
Padang	0	0	1	1	0.5
Amlimay	2	1	0	3	1.4
Bokod					
Ekip	10	0	0	10	4.8
Bila	4	0	1	5	2.4
Kabayan					
Balley	2	3	10	15	7.2
Bashoy	14	2	7	23	11.0
Duacan	0	4	1	5	2.4
Eddet	14	7	9	30	14.4
Lusod	25	0	0	25	12.0
Poblacion	9	8	8	25	12.0
Tawangan	38	1	1	40	19.1
Kayapa					
Balete	6	0	0	6	2.9
Total	139	29	41	209	100.0
%	66.5	13.9	19.6	100.0	

A total of 173, or 98.3%, of those 180 that are using fuelwood obtained fuelwood from the public forest. One respondent each from the barangays of Ballay, Poblacion and Tawangan in Kabayan get their firewood from private land.

A total of 143 respondents, or 81.7% of 175 respondents, consumes between eight to fifteen (8-15)-board feet of firewood daily.

Table 95 Amount of Firewood Consumed for Cooking and Heating.

Per Board feet Consumption	Municipality					Total	% (n=175)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
5-7 bft. Daily	0	0	4	12	0	16	7.6
8-10 bft. Daily	2	12	9	58	0	81	38.6
11-15 bft. Daily	1	5	2	48	6	62	29.9
16-20 bft. Daily	1	0	0	11	0	12	5.7
21-25 bft. Daily	0	0	0	1	0	1	0.47
10 bft. Weekly	0	0	0	3	0	3	1.4
No Answer	2	3	0	30	0	35	16.7
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.1	77.6	2.9	100.0	

42.5% mentioned pinewood as a source of lighting while 7.6% use electricity. Most of the respondents gather these from the forest and the National Power Corporation produced electricity. Others get it from Baguio.

Table 96 Type of Fuel Used for Lighting and its Sources (First and Second Mention)

Type of Fuel Used	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Saleng / Pine	4	19	12	116	6	157	42.5
Electricity	0	0	0	28	0	28	7.6
gas/kerosene	5	16	13	120	6	160	43.3
firewood	0	0	3	5	0	8	2.1
wonder lamp	0	0	0	4	0	4	1.08
bamboo	0	0	0	1	0	1	0.27
candle	1	3	0	5	0	9	2.4
flashlight	0	0	0	2	0	2	0.5
Total	10	38	28	281	12	369	100
%	2.7	10.2	7.6	76.1	3.2	100.0	

Table 97 Sources of Fuel wood for lighting (First and Second Mention)

Source of Fuel Used for Lighting	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Forest	4	19	15	118	6	162	43.7
NPC dam	0	0	0	28	0	28	7.5
Baguio	2	1	9	61	2	75	20.2
Local store nearby	4	18	4	70	2	98	26.4
private	0	0	0	1	0	1	0.26
gas station	0	0	0	1	0	1	0.26
coop.	0	0	0	2	2	4	1.07
Total	10	38	28	283	12	371	100.00
%	2.6	4.8	7.5	76.2	3.2	100.00	

C.10.2 Construction Materials

The forest is the major source of construction materials for 41% of the respondents.

Table 98 Source of Construction Materials

Source	Municipality					Total	% (n=143)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Forest	0	10	5	69	2	86	41.0
Baguio	3	5	4	36	2	50	23.8
Backyard	0	2	0	3	0	5	2.4
La Trinidad	0	1	0	0	0	1	0.47
Pacso	0	0	0	1	0	1	0.47
No Answer	3	2	6	54	2	67	31.9
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.1	77.6	2.9	100.0	

Household members involved in the gathering of construction materials are the household head, or the father, and his children.

Table 99 Household Members Involved in Gathering Construction Materials

Household Member	Municipality					Total	% (n=139)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Spouse/HH head	0	0	2	42	1	45	21.4
Children	0	2	5	21	0	28	13.3
Parents	2	7	0	16	0	25	12.0
Adult male	0	3	2	12	0	17	8.1
Family	1	5	0	8	3	17	8.1
Siblings	0	0	0	4	0	4	1.9
Relatives	0	0	0	2	0	2	.95
Family & relatives	0	1	0	0	0	1	.47
No answer	3	2	6	58	2	71	33.9
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.1	77.6	2.9	100.0	

C.10.3 3. Encounter of Wildlife

Majority of the respondents said that they have encountered wildlife in the area. There were only 53 in the municipalities of Buguias, Kabayan and Bokod who said otherwise.

Table 100 Encounter Wild Life by Municipality

Answer	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	5	18	9	119	6	157	74.8

No	0	3	6	44	0	53	25.2
Total	5	21	15	163	6	210	100.0
%	2.4	10.0	7.1	77.6	2.9	100.0	

Wild birds are the most frequently mentioned wild life encountered by the respondents followed by the wild deer and the wild cat. It is worth noting that the cloud rat was mentioned 19 times by the respondents. Majority of the respondents said that they have seen the wild animals in the forest while some along the way. Other areas of sighting are in places located in the various sitios in the area of study. Of the five municipality 91 or 58.0 % total respondent have seen wild animals in the forest while 7 or 4.5 % respondent have seen wild animals along the way.

Table 101 Wild Animals Encountered by Municipality (1st-4th Mention)

First Mention to Fourth Mention							
Wild animal	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
wild birds	1	10	4	75	5	95	33.8
wild cat	4	6	3	28	1	42	14.9
deer	1	5	3	70	0	79	28.1
wild rabbit	0	2	0	8	0	10	3.5
cloud rat	0	0	2	16	1	19	6.7
wild pig	1	5	0	14	1	21	7.4
fox	2	1	0	2	0	5	1.7
Monkey	2	0	0	3	0	5	1.7
Chicken	0	2	0	1	1	4	1.4
Squirrel	0	1	0	0	0	1	0.3
Total	11	32	12	217	9	281	100.0
%	3.9	11.3	4.2	77.2	3.2	100.0	

84 (40%) of the respondents stated that game is part of their diet. Of the respondents who said that game is part of the community diet, 42 or 50.6 % stated that wild birds and the deer are the most common among them. Wild birds in particular was mentioned in Catlubong, Tinoc; Amlimay, Buguias; Ekip, Bokod and all the barangays of Kabayan covered by the study. Deer are part of the community diet of respondent from Poblacion, Luhong and Catlubong in the municipality of Tinoc and the barangays of Ballay, Bashoy, Eddet and Tawangan of Kabayan. Third in the list is the wild pig and a combination of the birds and wild rat.

C.11 ENVIRONMENTAL AWARENESS

C.11.1 Changes in the Availability of Natural Resources and Its Effect to Households

Majority of the respondents said they observed changes in the availability of natural resources in their area while 8 from Buguias and Kabayan said there were none.

Table 102 Changes-Availability of Natural Resources by Municipality

Answer	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	6	19	15	156	6	202	96.2
No	0	1	0	7	0	8	3.8
Total	6	20	15	163	6	210	100.0
%	2.9	9.5	7.1	77.6	2.9	100.0	

The commonly mentioned observed changes in the availability of natural resources are less pine trees, less water; fewer wild animals and less NTFP's. There were 3 who mentioned that there were more birds. As a result of these changes in the availability of natural resources, the households are experiencing water problems;

shortage in lumber materials; longer distance to walk in gathering. The others stated that it resulted in community conflicts; lack of animal feeds, illnesses and others.

Table 103 Changes in the Availability of Natural Resources and its Effect on the Households (1st-3rd Mention)

FIRST – THIRD MENTION					
Changes in the Availability of Natural Resources	Total	%	Effects of Change to Households	Total	%
Less pine trees	85	53.8	Water problem	111	47.6
Less water	40	25.3	lumber shortage	35	15.0
few wild animals	26	16.4	Longer distance to walk	35	15.0
More birds	3	1.8	increase income	13	5.5
less NTFP	4	2.5	restored-future	9	3.8
			water problem & lumber shortage	6	2.5
			fresh air &, enough water	7	3.0
			Limited source of income	4	1.7
			More lumber/firewood	2	0.8
			no diet	5	2.1
			low production	1	0.4
			happy community life	1	0.4
			community conflict	1	0.4
			lack of animal feed	1	0.4
			sickness	2	0.8
Total	158	100.0	Total	233	100.0
%	100.0		%	100.0	

C.11.2 Indigenous Indicators of Resource Changes

The respondents observe that today, land is acidic, not fertile or needs more fertiliser to yield some harvest, has low productivity and easily eroded.

Table 104 Ten Most Observed Changes in Natural Resources by Municipality

Municipality	Land	Water	Flora	Fauna
Tinoc	<ul style="list-style-type: none"> not fertile too much use of fertiliser sandy/clay stony 	<ul style="list-style-type: none"> water shortage Far source 	<ul style="list-style-type: none"> low production less tubers not edible temperature 	<ul style="list-style-type: none"> small decreasing population
Buguias	<ul style="list-style-type: none"> not fertile stony/acidic stony sandy & clay & compact sandy, clay no land available stony and sandy water shortage, soil is compress 	<ul style="list-style-type: none"> water shortage far source 	<ul style="list-style-type: none"> scabskin production crop quality broot disease thin stalks/tubes low income no land available less forest 10. low production and sickness 	<ul style="list-style-type: none"> small / decreasing number of population pest diseases blackleg no pasture land temperature
Bokod	<ul style="list-style-type: none"> .not fertile acidic stony, acidic black, brown not fertile, needs more fertiliser infertile, easily eroded 	<ul style="list-style-type: none"> water shortage 	<ul style="list-style-type: none"> low crop quality low production seldom bear fruit thin stalks/tubes scabskin/ whealth cannot survive decrease in medicinal plants 	<ul style="list-style-type: none"> small decreasing number of population pests/diseases blackleg stunted growth no pasture land
	<ul style="list-style-type: none"> acidic not fertile too much use of fertiliser low production 	<ul style="list-style-type: none"> water shortage 	<ul style="list-style-type: none"> low production decaying seldom bear fruit low crop quality clubroot 	<ul style="list-style-type: none"> pests/diseases black leg small / decreasing population stunted growth

Kabayan	<ul style="list-style-type: none"> • black, brown • poor crop quality • crops cannot survive • sandy, clay • crops seldom bear fruit • acidic, compact 		<ul style="list-style-type: none"> • disease • more fertiliser • thin stalks/tubes • cannot survive • scabskin 	<ul style="list-style-type: none"> • cannot survive • many wild animals
Kayapa	<ul style="list-style-type: none"> • not fertile • acidic • hard to cultivate 	<ul style="list-style-type: none"> • 1. water shortage 	<ul style="list-style-type: none"> • low production • seldom bear fruit • thin stalks/tubes 	<ul style="list-style-type: none"> • pests/diseases • small decreasing population

Table 105 Observed Land Changes

Change	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Low fertility	3	6	10	47	6	72	44.4
Acidic	0	2	3	54	1	60	37.0
Low productivity	0	0	0	7	0	7	4.3
Hard to cultivate /eroded	2	7	2	11	1	23	14.2
Total	5	15	15	119	8	162	100.0
%	8	9.2	9.2	73.4	4.9	100.0	

Water shortage, for majority of the respondents, was observed to be happening in their barangays, except for one from Lusod, Kabayan.

Table 106 Observed Changes in Water

Observed Changes	Municipality					Total	% (n=202)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Water shortage	4	19	14	157	6	200	99.0
None	0	0	0	1	0	1	0.5
Far source	0	1	0	0	0	1	0.5
Total	4	20	14	158	6	202	100.0
%	1.9	9.9	6.9	78.2	2.9	100.0	

Low agricultural production, decaying plants, and poor quality are some of the changes observed in plants, including those agriculturally grown.

Table 107 Observed Changes in Water by Barangay

Barangay	no change	water shortage	far source distance	Total	% (n=204)
Pob., Tinoc	0	1	0	1	0.5
Impugong	0	2	0	2	1.0
Iuhong	0	2	0	2	1.0
Catlubong	0	14	1	15	7.4
Pob., Buguias	0	1	0	1	0.5
Amlimay	0	3	0	3	1.5
Ekip	0	10	0	10	4.9
Bila	0	4	0	4	2.0
Ballay	0	14	0	14	6.9
Bashoy	0	23	0	23	11.3
Duacan	0	5	0	5	2.5
Eddet	0	30	0	30	14.7
Lusod	1	23	0	24	11.8
Pob., Kabayan	0	24	0	24	11.8
Tawangan	0	38	0	38	18.6
Balete	0	6	0	6	2.9
Total	1	200	1	202	
%	0.5	98.0	0.5		100.0

Majority of the respondents stated that there were changes in the flora. Foremost of these changes is the decrease in productivity or low yield followed by the occurrence

of pest and diseases and low crop quality. It is also worth noting that there is an observed decrease in medicinal plants.

Table 108 Observed Changes in Flora

Observed Change	Municipality					Total	% (n=182)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Low production / Yield	3	3	4	61	5	76	41.8
Pest and Diseases	0	6	1	55	1	63	34.6
Low crop quality	1	2	5	28	1	37	20.3
Cannot survive	0	0	1	1	0	2	1.0
Low income derived	0	1	0	1	0	2	1.0
Decrease in medicinal plants	0	1	0	1	0	2	1.0
Total	4	13	11	147	7	182	100
%	2.1	7.1	6.0	80.7	3.8	100	

There were observed changes in the fauna, majority of responded stated the occurrence of pest and diseases followed by the dwindling of fauna population. One respondent from Kabayan observed a positive change, i.e. the increase in wild animals. The changes in the fauna are observed mostly in Bokod and Kabayan.

Table 109 Observed Changes in Fauna

Observed Changes in Fauna	Municipality					Total	% (n=120)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Pests/diseases	0	2	4	91	4	101	84.1
Small /decreasing population	1	2	3	10	1	17	14.1
Cannot survive	0	0	0	1	0	1	0.8
Many wild animals	0	0	0	1	0	1	0.8
Total	1	4	7	103	5	120	100.0
%	0.8	3.3	5.8	85.8	4.1	100.0	

Table 110 Areas Observed with Decreasing Fauna

Municipality/Barangay	No. of Respondents	% (n=17)
TINOC		
Poblacion	1	0.6
BUGUIAS		
Catlubong	1	0.6
Amlimay	1	0.6
BOKOD		
Bila	3	17.6
KABAYAN		
Bashoy	1	0.6
Eddet	1	0.6
Tawangan	8	47.1
KAYAPA		
Balete	1	0.6
Total	17	100.0
%	100.0	

C.11.3 Importance Attached to Mt. Pulag

Residents are aware that Mt. Pulag is important to them as a watershed area; it prevents erosion and provides a habitat for wildlife.

Table 111 Importance Attached to Mt. Pulag

Importance	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Watershed	0	2	3	28	0	33	16.2
Watershed & no erosion	0	3	1	17	1	22	10.8

Importance	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Water source	2	0	1	18	0	21	10.3
Watershed & habitat	0	0	0	17	0	17	8.3
Habitat for wildlife	0	1	3	9	3	16	7.8
No erosion	0	3	0	8	0	11	5.4
No erosion & water source	1	3	0	6	0	10	4.9
No pollution	0	0	1	7	1	9	4.4
No pollution & water source	0	0	3	5	0	8	3.9
Habitat & water source	0	1	0	4	0	5	2.5
No erosion & flood	0	0	0	4	0	4	2.0
No flood	0	0	0	4	0	4	2.0
Watershed & no pollution	0	2	0	2	0	4	2.0
Habitat, no erosion & water source	1	0	0	2	0	3	1.5
No erosion, pollution; water source	0	0	0	3	0	3	1.5
Others: Combination of responses	1	0	3	29	1	34	16.7
Total	5	15	15	163	6	204	100.0
%	2.4	10.0	7.1	77.6	2.9	100.0	

C.11.4 Understanding of Terms

C.11.4.1 NIPAS

A total of 130 respondents, or 61.9%, has not heard of the term NIPAS.

Table 112 Have you heard of the term NIPAS?

Answer	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	0 0.00%	2 10%	5 33%	69 42.3%	4 67%	80	38.0
No	5 83%	18 90%	10 67%	94 57.7%	2 33%	139	61.4
No Answer	1 17%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1	0.3
Total	6 100%	20 100%	15 100%	163 100%	6 100%	210	100.0
%	2.8	9.5	7.1	77.6	2.9	100.0	

Residents however from all barangays in Kabayan covered by the study have heard the term NIPAS.

The DENR was the most common source of information regarding NIPAS although some heard of it from barangay and municipal officials, the NIPAS magazine and other individuals.

Table 113 Source of Information on the NIPAS

Source of Information	Municipality					Total	% (n=80)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
DENR	0	1	5	39	3	48	60.0
Barangay officials	0	0	0	3	1	4	5.0
ITAG	0	0	0	2	0	2	2.5
NIPAS magazine	0	0	0	6	0	6	2.5
Office	0	0	0	2	0	2	2.5
Baseline survey	0	0	0	1	0	1	1.25
Haribon Foundation, DENR	0	0	0	1	0	1	1.25
Igorota Foundation	0	0	0	1	0	1	1.25
Municipal office	0	0	0	1	0	1	1.25
NIPAP	0	0	0	1	0	1	1.25
PAMB officers	0	0	0	1	0	1	1.25
Radio & DAR	0	0	0	1	0	1	1.25
RRA of Babadak	0	0	0	1	0	1	1.25

Source of Information	Municipality					Total	% (n=80)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
School	0	0	0	1	0	1	1.25
Visitors	0	0	0	1	0	1	1.25
Others	0	0	0	4	0	4	5.0
No Answer	0	1	0	3	0	4	5.0
Total	0	2	5	69	4	80	100.0
%	0	2.5	6.3	86.3	5.0	100.0	

Most of the respondents believe that NIPAS is concerned with forest protection.

Table 114 Understanding of the Term NIPAS

Meaning	Municipality					Total	% (n=80)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Forest protection	0	0	5	48	0	53	66.25
Mt. Pulag area	0	0	0	3	0	3	3.75
NIPAS law	0	0	0	3	0	3	3.75
No kaingin/cutting of trees	0	0	0	2	0	2	2.5
Sustainable dev't	0	0	0	2	0	2	2.5
Wild animals protection	0	0	0	1	1	2	2.5
Affected parks	0	0	0	1	0	1	1.25
Biodiversity conservation	0	0	0	0	1	1	1.25
Environment	0	1	0	0	0	1	1.25
No Answer	0	1	0	9	2	12	15.0
Total	0	2	5	69	4	80	100.0
%	0	2.5	6.251	86.25.7	5	100.0	

A total of 98.0%, or 199 of 203 respondents, are interested to know more about NIPAS. There were 4 respondents, 2 from Poblacion, Tinoc and Tawangan, Kabayan who are not interested.

Table 115 Willingness to Learn More About NIPAS

Answer	Municipality					Total	% (n=203)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	3	20	14	155	6	198	94.2
No	2	0	0	2	0	4	1.9
No Answer	1	0	1	6	0	8	3.8
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.14	77.6	2.8	100.0	

C.11.4.2 PAMB

There were 94, or 45.0% of 209 respondents, who heard of the term PAMB.

Table 116 Have You Heard of the Term PAMB?

Answer	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	1		2	85	5	93	44.3
No	4	20	13	77	1	115	54.8
No Answer	1	0	0	1	0	2	1.0
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.14	77.6	2.8	100.0	

Among the barangays, majority of the residents of Bashoy, Lusod, Tawangan in Kabayan and Balete in Kayapa had heard of the term PAMB.

Respondents learned of the PAMB from DENR, the PAMB members themselves, barangay officials, the municipal office and other individuals.

Table 117 Source of Information on the PAMB

Source of Information	Municipality					Total	% (n=93)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
DENR	0	0	2	35	5	42	46.7
PAMB members	0	0	0	14	0	14	15.6
Barangay officials	0	0	0	6	0	6	6.7
Municipal office	0	0	0	5	0	5	5.6
Neighbour	0	0	0	2	0	2	2.2
Office	0	0	0	2	0	2	2.2
DENR & NGO	0	0	0	1	0	1	1.1
Ex vice-mayor	0	0	0	1	0	1	1.1
Igorota Foundation	0	0	0	1	0	1	1.1
Newspapers	0	0	0	1	0	1	1.1
Women's seminar	0	0	0	1	0	1	1.1
Other individuals	0	1	0	13	0	14	15.6
Total	0	1	2	82	5	90	100.0
%	1.1	1.1	2.2	90.3	5.4	100.0	

More than half of the respondents believe that no one represents them in the PAMB. It is only in Bashoy, Kabayan that majority of the respondents know that they are represented in this body and they personally know this people.

Table 118 Does someone represent you in the PAMB?

Answer	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	0	0	1	70	3	74	35.2
No	5	20	13	93	3	134	63.8
No Answer	1	0	1	0	0	2	0.8
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.9	100.0	

Majority of the respondents would like to know more about the PAMB.

Table 119 Willingness to Learn More About the PAMB

Answer	Municipality					Total	% (n=208)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	3	19	14	161	6	203	96.7
No	2	1	1	0	0	4	1.9
No Answer	1		0	2	0	3	1.4
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

There were two respondents from Poblacion, Tinoc and one each from the barangays of Catlubong, Tinoc and Ekip, Bokod who said that they were not interested in the PAMB.

C.11.4.3 Protected Area

Majority of the respondents in all barangays have heard of the term "protected area". The DENR and the barangay officials were identified as having created awareness among them on the term.

Table 120 Have you ever heard of the term "protected area"?

Answer	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	4	13	13	136	6	172	81.9
No	1	7	2	27	0	37	17.6
No Answer	1	0	0	0	0	1	0.4
Total	6	20	15	163	6	210	100.0

%	2.8	9.50	7.1	77.6	2.8	100.0
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Table 121 Source of Information on the Term “Protected Area”

Source of Information	Municipality					Total	% (n=171)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
DENR	0	3	11	56	5	75	43.8
Brgy. Officials	2	2	1	16	1	22	12.9
Radio	0	5	0	13	0	18	10.5
PAMB officers	0	0	0	11	0	11	6.4
Neighbours	2	2	0	6	0	10	5.9
NIPAP	0	1	1	4	0	6	3.5
Enumerators	0	0	0	4	0	4	2.3
Municipal office	0	0	0	4	0	4	2.3
Relatives	0	0	0	4	0	4	2.3
Others	0	0	0	10	0	10	5.9
No Answer	0	0	0	7	0	7	4.1
Total	4	13	13	135	6	171	100.0
%	2.3	7.6	7.6	79.0	3.4	100.0	

Many of the residents associate the term “protected area” with protection of the forest, no clearing, and mossy forest.

Table 122 Understanding of the Term “Protected Area”

Meaning	Municipality					Total	% (n=172)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Forest protection	1	3	4	50	1	59	34.3
No clearing	0	0	3	29	2	34	19.8
Mossy forest	0	4	1	20	0	25	14.5
Forest reservation; wildlife	0	1	0	16	1	18	10.5
National park	0	2	4	7	0	13	7.6
Mt. Pulag	1	0	1	6	1	9	5.2
Forest management by the gov't	2	3	0	3	0	8	4.7
Conservation, sustainable dev't	0	0	0	0	1	1	0.6
Cut kaingin practices	0	0	0	1	0	1	0.6
DENR project	0	0	0	1	0	1	0.6
Minimize illegal logging	0	0	0	1	0	1	0.6
No more tree cutting	0	1	0	0	0	1	0.6
Promote the welfare of everyone	0	0	0	1	0	1	0.6
Total	4	14	13	135	6	172	100.0
%	2.4	8.2	7.6	78.2	3.5	100.0	

A total of 204 respondents, or 99.5%, are interested in knowing more about protected areas. Only one respondent from Bokod was disinterested.

Table 123 Willingness to Learn More about Protected Areas

Answer	Municipality					Total	% (n=205)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	5	20	14	158	6	203	96.7
No	0	0	1	0	0	1	0.4
No Answer	1	0	0	5	0	6	2.8
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

C.11.4.4 NIPAP

Majority have heard of the term NIPAP.

Table 124 Have you heard of the term NIPAP?

Answer	Municipality					Total	% (n=204)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	4	16	11	122	6	159	75.7
No	1	3	2	39	0	45	21.4
No Answer	1	1	2	2	0	6	2.8
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Many of the respondents associate the term NIPAP with protected areas and forest management.

Table 125 Understanding of the Term NIPAP

Meaning	Municipality					Total	% (n=159)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Protected area	1	9	5	61	6	82	51.5
Forest management	0	1	2	20	0	23	14.4
Mt. Pulag area	2	3	1	3	0	9	5.7
DENR projects	0	0	0	7	0	7	4.4
Wild animals & forest	0	1	1	3	0	5	3.1
Research	0	0	0	3	0	3	1.9
Implement projects	0	0	2	0	0	2	1.2
Implement rules on resources	0	0	0	2	0	2	1.2
Communal forest	0	0	0	1	0	1	0.6
Help community progress	1	0	0	0	0	1	0.6
Partnership program	0	0	0	1	0	1	0.6
Research on ancient people	0	0	0	1	0	1	0.6
Wild life reservation	0	0	0	1	0	1	0.6
No Answer	0	0	0	0	0	0	13.2
Total	4	16	11	122	6	159	100.0
%	2.5	10.0	6.9	76.7	3.7	100.0	

Majority of those who have not heard of the term NIPAP are interested to learn more about it. Only one from Eddet, Kabayan is not interested in the program

Table 126 Willingness to Know More About NIPAP

Answer	Municipality					Total	% (n=45)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	1	3	2	31	0	37	82.2
No	0	0	0	1	0	1	2.2
No Answer	0	0	0	7	0	7	15.6
Total	1	3	2	39	0	45	100.0
%	2.2	6.7	4.4	86.7	0.00	100.0	

C.11.5 Vision of life 5 years from The Time Of The Survey

Almost three fourths of the respondents envision that they will have a better life in five years. The rest feel that their situation will worsen.

Table 127 Vision of Respondents Life 5 Years Henceforth

Vision	Municipality					Total	% (n=176)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Progress, happiness & health	0	5	4	47	0	56	26.7
Hard up	0	0	3	25	0	28	13.3
No progress	0	0	1	9	0	10	4.7
Community improvement	0	0	0	7	1	8	3.8
Employment	1	4	0	3	0	8	3.8
May be dead already	0	0	0	8	0	8	3.8

Vision	Municipality					Total	% (n=176)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Extended family	0	0	2	5	0	7	3.3
Rich	0	5	0	2	0	7	3.3
Education	0	2	1	1	0	4	1.9
Better life	1	0	0	2	0	3	1.4
Healthy & happy	0	0	0	3	0	3	1.4
No one knows	0	0	0	3	0	3	1.4
Strengthening	1	1	0	1	0	3	1.4
Sustain gardening/ farming	0	0	0	3	0	3	1.4
Improved environment	1	0	0	1	0	2	0.9
Livelihood	0	0	0	2	0	2	0.9
Happy	0	0	0	1	0	1	0.45
Happy, educated	0	0	0	1	0	1	0.45
Industrialization	0	1	0	0	0	1	0.45
Know more about the environment	0	1	0	0	0	1	0.45
Reach goal	0	0	0	1	0	1	0.45
No Answer	2	0	4	38	5	50	23.8
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Many of the respondents anticipate that the NIPAP will result in livelihood and employment for them.

Table 128 Possible Effect of NIPAP

	Municipality					Total	% (N=210)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Livelihood	0	3	3	37	1	44	20.9
Employment	1	7	5	25	0	38	18.0
Assistance, in general	0	1	0	7	0	8	3.8
Forest protection	0	4	0	2	0	6	2.8
Technical assistance	0	0	0	6	0	6	2.8
Improve quality of life	0	0	0	5	0	5	2.3
Release ancestral domain	1	0	0	4	0	5	2.3
Conduct seminars	0	0	0	3	0	3	1.4
Financial assistance	1	0	1	1	0	3	1.4
Grant for old age	0	0	0	3	0	3	1.4
Strengthen	0	2	0	1	0	3	1.4
Agricultural training	0	2	0	0	0	2	0.9
Planning	0	0	0	2	0	2	0.9
Seminar on NIPAP	0	1	0	1	0	2	0.9
Others	1	0	0	4	0	5	2.3
No Answer	2	0	6	62	5	75	35.7
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

The respondents envision their family to be happy, healthy, educated and progressive 5 years from now.

Table 129 Vision of Family Life 5 Years Henceforth

Vision	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Educated	2	5	5	44	1	57	27.1
Progress, happy, healthy	1	4	1	33	0	39	18.6
Happy, educated	1	1	3	24	4	33	15.7
Employment	0	0	0	6	0	6	2.8
No progress	0	0	0	6	0	6	2.8
Happy	0	4	0	1	0	5	2.3
Extended family	0	0	1	3	0	4	1.9
Hard-up	0	0	0	4	0	4	1.9
Community improvement	0	0	0	3	0	3	1.4

Educated & employed	0	0	2	1	0	3	1.4
Educated & progressive	0	0	0	3	0	3	1.4
Don't know, only God can tell	0	0	0	2	0	2	0.9
Happy, progressive	0	0	0	2	0	2	0.9
Reforestation	0	0	0	2	0	2	0.9
Rich & healthy	0	1	0	1	0	2	0.9
Others	0	0	1	12	1	14	6.6
No Answer	2	5	2	16	0	25	11.9
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

For them, NIPAP can positively affect their families through scholarships and employment.

Table 130 Possible Effect of NIPAP on Respondent's Lives

Effect	Municipality					Total	% (n=173)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Scholarship/ education	1	9	3	54	2	69	39.9
Livelihood	0	2	2	23	2	29	16.8
Employment	1	0	2	11	0	14	8.1
Scholarship & employment	0	0	2	6	0	8	4.6
Assistance, in general	0	2	0	4	0	6	3.6
Financial assistance	0	1	1	4	0	6	3.5
Infrastructure	0	1	0	5	0	6	3.5
Technical assistance	0	1	0	4	0	5	2.9
Conduct IEC, training	0	2	0	1	1	4	2.4
Release ancestral claims	0	0	0	4	0	4	2.3
Improve quality of life	0	0	0	3	0	3	1.7
Materials/ equipment	0	1	0	2	0	3	1.7
Forest protection	0	0	0	2	0	2	1.2
Provide seedling	0	0	0	2	0	2	1.2
Conduct agricultural training	0	0	0	1	0	1	0.6
Discipline, learn	1	0	0	0	0	1	0.6
Forest management	0	1	0	0	0	1	0.6
Help use NTFP	1	0	0	0	0	1	0.6
Monitor	0	0	0	1	0	1	0.6
Nursery, livelihood	0	0	0	1	0	1	0.6
Project proposal on Mt. Pulag	0	0	1	0	0	1	0.6
Scholarship & conduct IEC	0	0	0	0	1	1	0.6
Scholarship & financial assistance	0	0	1	0	0	1	0.6
School building	0	0	0	1	0	1	0.6
Teach family planning	0	0	0	1	0	1	0.6
Water system	0	0	0	1	0	1	0.6
Total	4	20	12	131	6	173	100.0
%	2.3	11.6	6.9	75.7	3.5	100.0	

On the other hand, the respondents envision that there will be roads and infrastructure in their communities 5 years from now.

Table 131 Vision of Community 5 Years From Now

Vision	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Road open/ constructed	0	0	2	46	3	51	24.2
Progressive, happy, healthy	0	0	4	38	0	42	20.0
Peaceful, clean community	0	2	4	12	0	18	8.6
Industrialized	3	8	0	5	0	16	7.6
Improved waterworks & roads	0	0	0	8	0	8	3.8
Peace, progress	0	3	0	5	0	8	3.8
Community improvement	0	1	0	6	0	7	3.3
Overpopulated	0	0	0	6	0	6	2.8
Reforestation	0	0	0	4	2	6	2.8

No progress	0	0	0	5	0	5	2.3
Improved environment	1	1	0	2	0	4	1.9
Business establishments	0	0	1	2	0	3	1.4
Residents understand each other	0	1	0	1	1	3	1.4
Do not know, only God can tell	0	0	0	2	0	2	0.9
Livelihood	0	1	1	0	0	2	0.9
Minimised illegal logging	0	1	0	1	0	2	0.9
Rich	0	2	0	0	0	2	0.9
Others	0	0	1	13		13	6.2
No Answer	3		2	8	0	13	6.2
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

The possible effects of NIPAP on the respondents' respective municipalities are livelihood opportunities, financial assistance, among others.

Table 132 Possible Effect of NIPAP on Covered Municipalities

Effect	Municipality					Total	%
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Livelihood	1	2	2	37	1	43	20.4
Financial assistance	0	0	3	21	1	25	11.9
Infrastructure	0	0	3	11	0	14	6.7
Technical assistance	0	3	0	9	0	12	5.7
Livelihood & infras.	0	0	1	7	2	10	4.7
Forest protection	0	5	0	4	0	9	4.2
Assistance	1	1	0	6	0	8	3.8
Clean environment	1	5	0	0	0	6	2.8
Nursery, livelihood	0	0	1	4	0	5	2.3
Conduct seminars	0	0	0	4	0	4	1.9
Good environment	0	0	1	3	0	4	1.9
Materials/ equipment	0	2	0	1	0	3	1.4
Farm development	0	0	0	2	0	2	0.9
Release ancestral claims	0	0	0	2	0	2	0.9
Set boundary of the NP	0	0	0	0	2	2	0.9
Others	1	2	1	16	0	20	9.5
No Answer	2	0	3	36	0	41	19.5
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Majority of the respondents had heard of the Mt. Pulag National Park.

C.12 OPINIONS ON MT. PULAG

Table 133 Have you heard of the Mt. Pulag National Park?

Answer	Municipality					Total	% (n=209)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Yes	5	20	14	160	6	205	97.6
No	0	0	1	2	0	3	1.40
No Answer	1	0	0	1	0	2	0.9
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Those who have heard about it believe that Mt. Pulag is a beautiful, thick forest. Some appreciate its practical benefits and its aesthetic qualities. Others, on the other hand, associate Mt. Pulag with their long-held traditions and beliefs.

Table 134 Views on Mt. Pulag

Views	Municipality					Total	% (n=205)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		

Views	Municipality					Total	% (n=205)
	Tinoc	Buguias	Bokod	Kabayan	Kayapa		
Beautiful, fantastic	0	3	3	66	3	75	35.7
Many tourist spots	1	2	8	33	0	44	20.9
Thick forest & high mountain	3	11	0	15	0	29	13.81
Protected area	0	0	0	13	2	15	7.1
Mossy forest	1	2	0	4	0	7	3.3
Holds different species	0	0	2	3	0	5	2.3
National park	0	1	0	3	0	4	1.9
Place for rest	0	0	1	4	0	5	2.3
Wild plants disappear	0	0	0	4	1	5	2.3
Beautiful place where the souls of ancestors go	0	0	0	4	0	4	1.9
Home to the goddess of the community	0	0	0	3	0	3	1.4
Peaceful	0	0	0	2	0	2	0.9
Improving	0	0	0	1	0	1	0.47
Water source	0	0	0	1	0	1	0.47
No Answer	1	1	1	7	0	10	4.7
Total	6	20	15	163	6	210	100.0
%	2.8	9.5	7.1	77.6	2.8	100.0	

Majority had the chance to share their views with others. Most of those who did not said they did not have the time to discuss it with others.

Those who did, on the other hand, shared their views oftentimes with their neighbours. The respondents were asked what was done by these persons about the information they share and they answered that forest protection was taught; Bayanihan activities were done.

C.13 GENERAL DISCUSSION

C.13.1 Situation Scan

Strength - Weakness - Opportunities - Threat (SWOT) Matrix

	Strengths	Weaknesses
<p>Internal Environmental Assessment</p> <p>External Environmental Assessment</p>	<ul style="list-style-type: none"> • Intact customs and traditions • Wealth of indigenous knowledge and skills • Availability of manpower • Presence of natural resources particularly wildlife and forest products • High regard of people for Mt. Pulag, i.e as a watershed, forest and tourist spot • Presence of the PAMB • Presence of govt/LGU/Elders 	<ul style="list-style-type: none"> • Low awareness of government projects • Uncoordinated programs of stakeholders • Low productivity • Limited channels for information exchange • Limited sources of livelihood, highly dependent on the forest • Shortage of water • Poor implementation of laws • Use of chemicals to boost production • Continued use of game as part of diet • Use of timber for fuel
Opportunities	Strength-Opportunity Option	Opportunity-Weakness Option
<ul style="list-style-type: none"> • Presence of tourist (local and foreign) • Presence of govt and non-govt institutions • NIPAS Act passage • Local Government Code • Presence of funding for protected areas • Available sustainable technologies • Ecotourism • Pending ancestral domain bill • Biodiversity for scientific research 	<ul style="list-style-type: none"> • Intensify and expand government / LGU and non-government services 	<ul style="list-style-type: none"> • Linkaging or networking with other institutions • Joint undertakings with other stakeholders
Threats	Strength-Threat Option	Weakness-Threat Option
<ul style="list-style-type: none"> • Gradual loss of forest due to firewood and lumber gathering • Loss of wildlife due to hunting • Unregulated farm development and expansion • Non-recognition of ancestral land claim • Encroachment • Treasure hunting • Increasing population • Road construction • Illegal logging 	<ul style="list-style-type: none"> • Collaboration among stakeholders • Community empowerment • Development of new services, i.e. sustainable alternatives 	<ul style="list-style-type: none"> • Information and Education Campaign

Based on the above Situation Analysis using the Strength-Weakness-Opportunities-Threat (SWOT) Matrix, there are various strategic options we can derive when we match the internal and external characteristics of Mt. Pulag.

A. Strength-Opportunities (SO) Option: Intensify and expand government / LGU and NGO Services

The SO strategic option is an aggressive strategy to maximise the opportunities available in the external environment utilising the internal strength of the area. There is a need to expand and intensify further (in terms of magnitude and scope) the existing services provided by various development actors. In particular, conservation and development efforts can be brought down further to the community level (i.e. with full community participation) by using the elders/PAMB/LGU as the prime movers. It can be noted that the elders and PAMB/LGU are the highly respected people of the community. However, these efforts must explicitly integrate the customs, traditions and indigenous knowledge and skills of the people. Intensification and expansion of services is made more possible with the aid of the law (Local Government Code and the NIPAS Act). Further, the presence of fund sources protected areas; the entry of more actors in these endeavours like NGO's and the renewed commitment of government to development with utmost consideration to environment are all plus factors for a better intervention in Mt. Pulag.

B. Weaknesses-Opportunities (W-O) Options: (a) Linking and Networking with other institutions and (b) Joint venture with other stakeholders.

The internal weaknesses of demographic nature like the (a) low awareness of government projects; (b) Use of chemicals to boost production; (c) continued use of game as part of diet; (d) use of timber for fuelwood; and (e) low productivity coupled with the other weaknesses of economic and geo-political character can be overcome using the opportunities that abound. The NIPAS Act in particular provides the legal bases on resource use and the LGC of 1991 puts more teeth on local law enforcement. To overcome the economic weaknesses, linking with other institutions for the availment of sustainable technologies is an imperative. However, entry of new technologies must complement indigenous knowledge and shall aim eliminate non-sustainable practices.

Under Joint undertakings, the LGC provides the legal framework for joint collaboration among stakeholders. This strategy will enable better complementation of efforts and maximize use of resources for the attainment of a common objective. Classic cases here are government, LGU and NGO working together. The PAMB is a good start under the policy and regulatory level. These types of a joint undertaking can be translated in the implementation level.

C. Strength-Threats (ST) Options: (a) Collaboration among stakeholders; (b) Community empowerment; and (c) development of new services.

The collaboration among stakeholders in Mt. Pulag is an imperative because of the magnitude and variety of concerns of the area. As cited by Viray (1994) on collaboration and community empowerment "among various stakeholders, 3 sectors play very important conservation roles. These are the communities, which must be aware of the environment's state and implication of the continuing destruction of the park; the conservation sectors (GO and NGO), which must facilitate and initiate change by providing technical support to the communities; and the local government units concerned, which must forge partnership and establish close working relationship with communities in response to the devolution and decentralisation programs of the government as called for in the local government code of 1991. The three sectors must collaborate and act corporately for the creative and innovative formulation of effective responses to the conservation issues and problems confronting the Park.

Park protection and meeting community needs should be the focus of such endeavour. When there is a power shift to the grass roots, the local people will heed and participate in environmental conservation measures. Furthermore, genuine collaboration and sincere efforts among the stakeholders can lead to an effective protection and sustainable resource use of Mt. Pulag National Park."

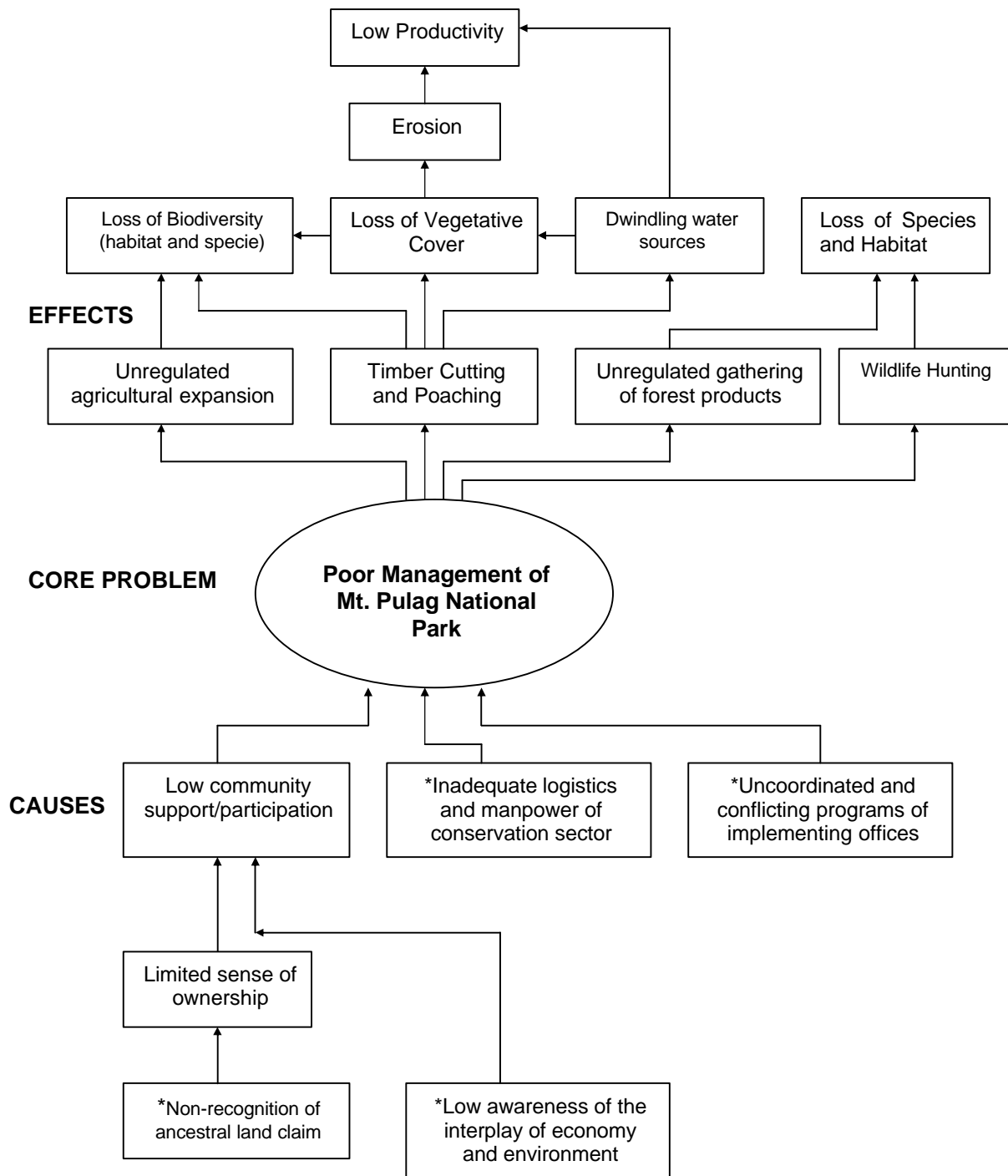
As stated further by Viray, " Strategies toward community empowerment shall centre on encouraging the people to help themselves; making them aware of their potential towards self-development, strengthening, uniting, and making them participate in programs affecting their lives and the future of their communities. An empowered people is capable of managing and developing their own resources and are active, informed and vocal decision-maker." A good take-off for this strategy is to hook-up empowerment interventions on the high regard of the people for Mt. Pulag as a watershed, forest and tourist spot. The factors of the presence of an intact customs and traditions and of indigenous knowledge and skills of the people can further complement this.

Lastly, the development of new services is a challenge for any development intervention for the area because it requires a cautious effort of harmonising traditional practices with new technologies. Sustainable alternatives to address both the economic need of the people and at the same time conserving the environment of Mt. Pulag would need careful study since it does not only require a technology introduction but must consider and integrate indigenous skills and knowledge.

D. *Weakness-Threats (WT) Option:* Information and Education Campaign.

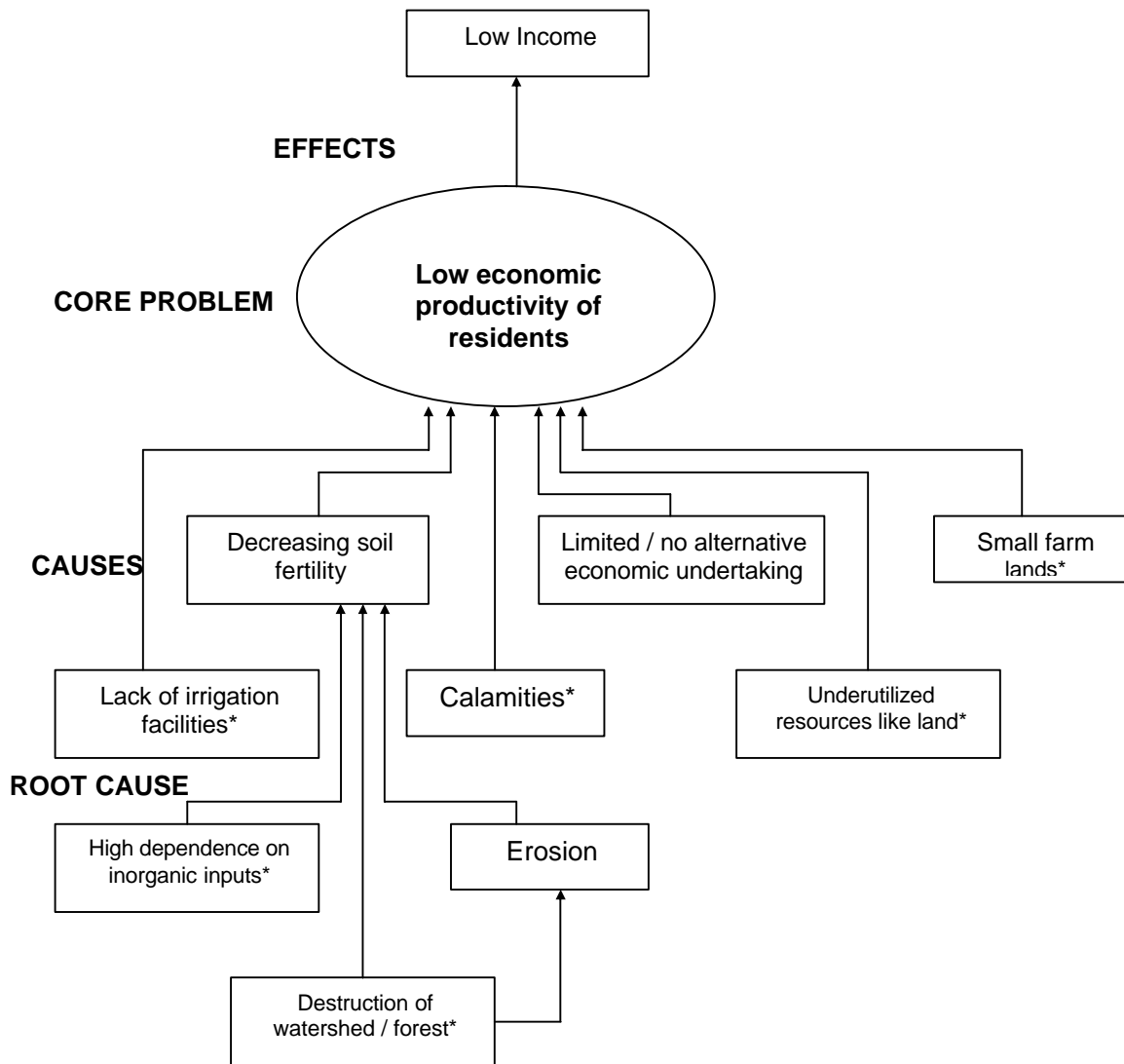
This strategic option must be effectively developed with the main aim of lessening the effects of the internal weaknesses and the external threats. This may entail the IEC with emphasis on the relevance of Mt. Pulag as a life support system in relation their livelihood and conservation measures and concerns showing sustainable use and stewardship of resources. This option may also entail the conduct of training on technologies and laws specifically the NIPAS Act. The NIPAS Act is a critical input to the education of the residents for two major reasons: (a) According to Viray, "it sets a social approach to managing areas such as Mt. Pulag. The Act can guide in the formulation of an integrated and holistic approach in managing the complex issues of the Park. He stated further that the NIPAS Act "provides an opportunity for resource users to be in control of the Park"; (b) In particular, the ACT provides the general framework on the manner and level of resource utilisation dependent on the management zoning agreed upon with the community and the recognition of ancestral domains or land claims by indigenous cultural communities and also of tenured migrants. The law will give a legal basis to minimise the identified threats like gathering of forest products specifically lumber; loss of wildlife due to hunting; treasure hunting; road construction and others.

The situation scan reveals the core environmental problem as shown in Figure 3.



*Root Causes

The second core problem identified is economic in nature as shown in Figure ____



Core Problem and Root Causes	Intervention Measures
<ul style="list-style-type: none"> • Core Problem: Poor management of Mt. Pulag • Root Causes: <p>1. Uncoordinated and conflicting programs of implementing agencies/offices/institutions</p>	<p>Strengthen the PAMB as a multi-sectoral regulatory body to oversee development and conservation efforts in Mt. Pulag.</p> <p>Create a parallel implementing arm specifically for the area as support to the PAMB.</p> <p>Develop an general management plan agreed upon by all stakeholders and backed-up by legislative act.</p>
<p>b. Low awareness of the people on the interplay of the environment and economy</p>	<p>Conduct awareness sessions on the relevance of environmental measures; issues and laws and its relation with economic activities.</p> <p>Conduct of community organizing and institutional development trainings for local associations with the aim of empowering these groups.</p>
<p>c. Non-recognition of the ancestral land claim</p>	<p>Undertake the immediate revision of the boundaries of the national park and the physical demarcations of areas for converted lands.</p> <p>Issuance of tenurial instruments to qualified tenured migrants and ICC's as called for in the NIPAS Act.</p>
<p>d. Inadequate logistics and manpower of the conservation sector</p>	<p>Organize and undertake a community-based environmental projects with the assistance or partnership of outside institutions.</p> <p>Develop programs/projects for fund sourcing on the conservation sector.</p> <p>Organize a community-based environmental monitoring group.</p>

Core Problem and Root Causes	Intervention Measures
<ul style="list-style-type: none"> • Core Problem: Low Economic Opportunities • Root Causes: <p>a. High dependence on inorganic inputs</p>	<p>Conduct trainings on sustainable resource use technology.</p> <p>Adapt sustainable technologies in the farming system and forest utilization</p> <p>Adapt soil amelioration measures to rehabilitate highly degraded soils.</p>
2. Small farm lands	<p>Issuance of tenurial instruments to migrants and ICC's</p> <p>Adaption of management zones as called for in the NIPAS and delineate existing farms</p>
3. Calamities	Adapt mitigation measures
4. Lack of irrigation facilities	Construct/rehabilitate water systems for irrigation
5. Destruction of watersheds/forests	Organize a community-based environmental monitoring group
6. Underutilized resources like land and inland water	Develop or introduce technologies with the aim of maximizing land and water utilization; ex. Fishing
7. Limited or no alternative economic undertaking	Develop new enterprises like a light eco-tourism package

In this baseline study, there are some development imperatives and approaches that can be identified:

1. The need to demonstrate that ecological conservation and economic undertakings can co-exist through the adoption of sustainable resource utilization schemes.
2. The need to create alternative livelihood opportunities with the aim of reducing the pressure on the ecological resources.
3. The need to enhance the capability of the people to take advantage of opportunities and to manage their communities.
4. The need to conserve and protect the natural resources upon which the people are dependent for their existence through the adoption of measures that would promote rational utilization and regeneration of renewable resources.
5. The need to enhance the capability of the various stakeholders especially the LGU and local special bodies (PAMB) to play a vital role in the management of the protected area.
6. There is a need to come up with a management plan that meets the need of the local communities without compromising the ecosystem of Mt. Pulag. This can be done through a genuine participative consultation, planning and decision making with the various stakeholders in the area.
7. The need to recognize the people's stake in the area and to harness them as stewards of the environment.

These development imperatives can be translated into the following programs / projects:

1. Management Zoning and Boundary Delineation

The program shall entail the division of Mt. Pulag into various management zones and the actual monumenting on the ground. It shall specifically define the utilization and

protection zones and shall be identified together with the community through consultations. DENR or NIPAP however, must be able to initially identify what resources need strict protection like biodiversity-rich areas.

2. National Park Protection

This shall entail various projects in line with the defined management zones. It may include the following:

- a. **Habitat and Wildlife Management** - The project shall involve measures to maximize in situ conservation of habitat/ecosystem diversity which may include creating new legislations to stop habitat alterations and establishing sanctuaries.
- b. **Biodiversity Conservation** - This shall entail inventory and research of wildlife species and the necessary conservation measures to be adopted.
- c. **Information and Education Campaign (IEC)** - The project entails the development of effective IEC materials for the community as well as provision of trainings specifically on the NIPAS Act and other related laws. On the IEC, it should put emphasis on (i) the relevance of Mt. Pulag as a life support system in relation to their livelihood and (ii) Conservation Measures and concerns showing sustainable use and stewardship of resources. Under conservation measures and concerns, specifics may include hunting season and regulation, interplay of people, environment and economy; cultural dimensions of conservation and the indigenous conservation measures. The Education and Training on the NIPAS Act and other relevant laws aim to increase the peoples' appreciation and understanding of the pertinent provisions, its importance and implications.
- d. **Patrol** - The project involves the continuing patrol of the park by authorities. It would be ideal if a community-based resource management committee be crated to assist in the monitoring and guarding of the park.

3. Ecotourism

The program involves ecologically sustainable tourism. It aims to enhance the sites potential to generate income while at the same time maintaining its natural integrity. It includes various projects that aims to develop the high tourism potential of Mt. Pulag.

- a. **Visitors Management** - It involves promotion campaigns to attract ecologically-interested visitors, birdwatchers, and others. Also, it may involve the provision of traditional transportation like horses and carabaos to ferry visitors.
 - b. **Infrastructure Development and Maintenance** - Involves the development of light infrastructures like foot trails, interpretative signs, visitors center and towers. It must also incorporate a visitors educational component to educate the tourists on the consequence of inappropriate behaviour inside the protected area.
4. **Alternative Livelihood Development** - This program entails the identification of other sources of income for the residents with the main aim of controlling expansion of farm/garden lots and more intensive cultivation of existing farms to maximize yield per unit area.

- a. **Agroforestry** - Can be undertaken outside the core zone of the park particularly barangays Eddet and Bashoy, Kabayan.

- b. **Livestock Raising** - This shall involve the upgrading of breeds and increasing stocking density. It can include stocks like hogs, cattle and chicken.
- c. **Inland Fishing (Aquaculture)** - The project involves the development of existing fishing areas to maximize catch. This can be viable in areas with abundant water resources like the barangays of Tawangan, Poblacion and Eddet, Kabayan.
- d. **Technology Assistance** - This shall involve the provision of technical assistance to farmers through extension with the aim of improving farming practice and eventually increasing yield per unit area.

The other alternative livelihood undertakings stated below are tied-up with the ecotourism program:

- e. **Pine Cone and Pine Needlecraft** - This is a cottage-based industry which involves the manufacture of small products like baskets. However, there is a need to further study the market demand for this product.
- f. **Weaving** - This is the manufacture of woven products like sweaters and others for tourists. However, there is a need to assist further the Kabayan Women Weavers Association based in Poblacion, Kabayan.
- g. **Recognition of Ancestral Domain and Rights/Tenorial Arrangements** - The project may entail the issuance of tenurial rights to migrants as called for in the NIPAS Act and the recognition of ancestral domains and rights.

However, the initial management plan for Mt. Pulag needs further in-depth field validation since there exist a mismatch on the geophysical element of the consolidated vision of the residents of Mt. Pulag National Park with that of what the NIPAS Law states - Mt. Pulag as a Protected Area. The vision of the residents in the next five years for their family states “ **a better life with a happy, healthy, educated and progressive family**” while on the geo-physical element states “**living in an area with roads and infrastructure.**” A participative management planning for Mt. Pulag may give some answers and harmonize the perceptions and ideas.