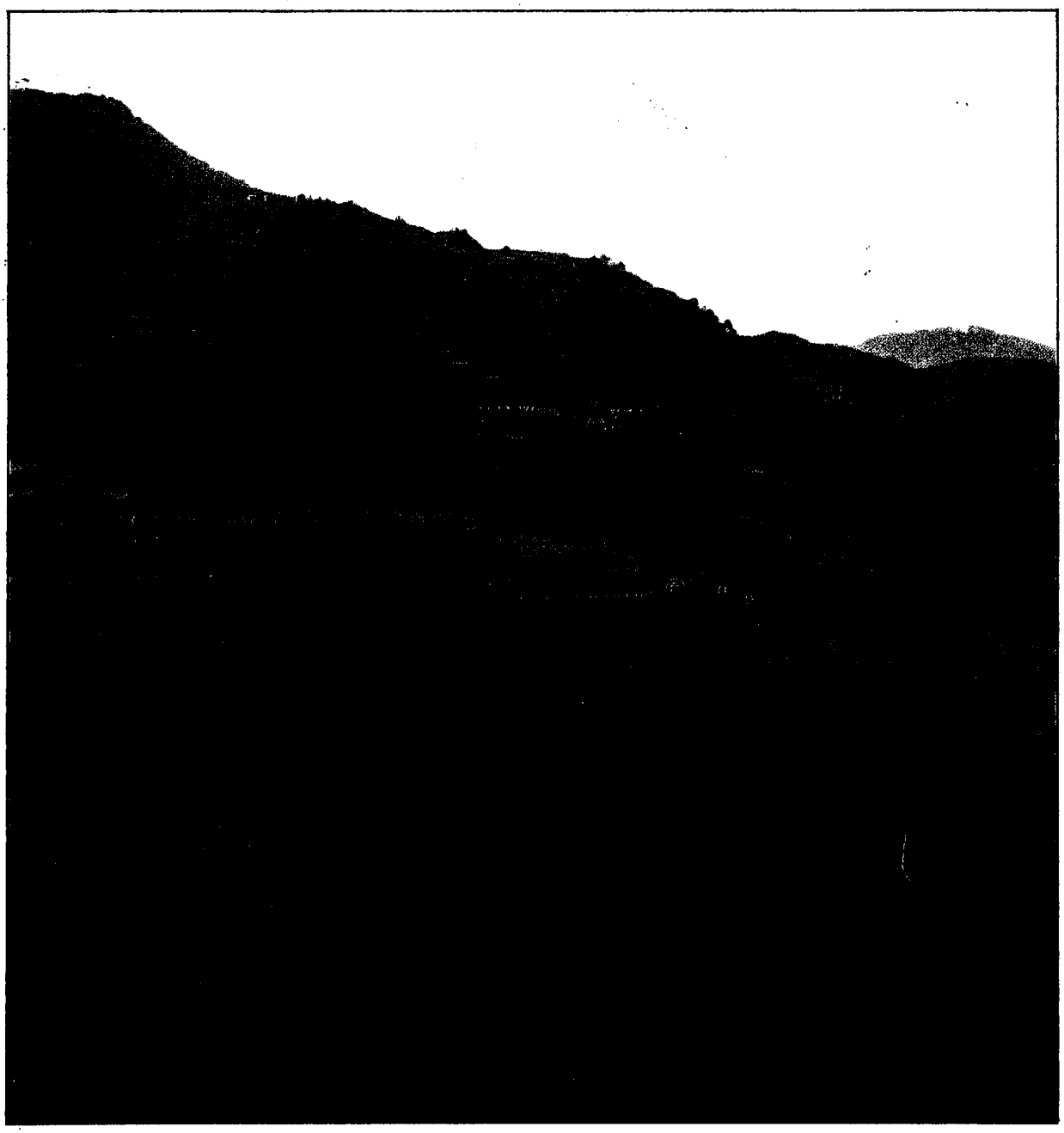

INDISCO Case Studies No. 3

Cooperative Branch
International Labour Organization

"The Way We Live"

Indigenous practices of the Ifugaos, Atis and Badjaos of the Philippines

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Foreword

The INDISCO Programme *to support Self-Reliance of Indigenous and Tribal Communities through Cooperatives and other Self-Help Organizations,* was initiated under the ILO/DANIDA programme for cooperative development in rural areas in 1993. It is coordinated by the Cooperative Branch of the ILO in Geneva. The Programme aims primarily at contributing to the efforts of indigenous and tribal communities worldwide towards achieving self-reliance.

The INDISCO Programme also supports and promotes the preservation of sustainable indigenous knowledge systems and practices particularly regarding environment protection and natural resource management. This survey, "The Way We Live", documents the valuable traditional knowledge systems and practices of three indigenous communities in the Philippines, the Ifugaos, the Atis and the Badjaos, in order to ensure their preservation and promote environmentally sound and sustainable development.

The INDISCO Programme acknowledges with thanks the technical support and assistance provided by the Philippines Resource Center for Sustainable Development and Indigenous Knowledge (PHIRCSDIK) in making this publication possible, and the invaluable support of the Cooperative Development Authority (CDA) as partners in this undertaking. The whole-hearted cooperation and support of these two institutions in the conduct of the study and in the sharing of their knowledge and expertise has resulted in this very substantive and important documentation of the indigenous practices of the Ifugao, Atis and Badjaos of the Philippines. The Study Team was led by Dr. Rogelio Serrano, PHIRCSDIK National Coordinator, and assisted by CDA Administrators, Dr. Richard David Longid, Atty. Allawadin Bandon and Bai Omera Lucman. Mr. Diomides Zamora served as the study's Science Research Specialist.

INDISCO would also like to thank Hajiral Karani, Principal of Panglima Alari Elementary School of Badjao tribe, and the Ati tribal leader, Gregorio Elosendo. Both have gone out of their way to provide and share valuable information for the purpose of the study.

The INDISCO Programme is also very grateful for the support of various NGOs such as tribal cooperatives and Mercy Corps International, and Government agencies such as the Office for Northern Cultural Communities (ONCC) and the Office for Southern Cultural Communities (OSCC), which have helped facilitate the conduct of this survey.

Cooperative Branch

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Acronyms

BSCCI	Banaue Savings Credit Cooperative Incorporated
BFMPCI	Banaue Farmers Multi Purpose Cooperative Incorporated
CAR	Cordillera ~~Autonomous~~ NOT YET, ADMINISTRATIVE Region
CDA	Cooperative Development Authority
CECAP	Central Cordillera Agricultural Program
INDISCO	Interregional Programme to Support Self Reliance of Indigenous and Tribal Communities through Cooperatives and Other Self-Help Organizations
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DSWD	Department of Social Welfare and Development
GO	Government Organization
ICC	Indigenous Cultural Communities
IIRR	International Institute of Rural Reconstruction
ILO	International Labour Organization
IKSP	Indigenous Knowledge Systems and Practices
IP	Indigenous People
ITC	Igcabagti Tribal Council
KMKD	Kaugpungan Mamanua Kaati Dao
NAMIAS	Nagpana Minority Association
NGO	Non Government Organization
PCARRD	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development
PHIRCSDIK	Philippine Resource Center for Sustainable Development and Indigenous Knowledge
OMA	Office for Muslim Affairs
ONCC	Office for Northern Cultural Communities
OSCC	Office for Southern Cultural Communities
SALT	Sloping Agricultural Land Technology
TRICAP	Tribal Communities Association of the Philippines

1. Introduction

The population of the Philippines comprises of 62 indigenous cultural communities (ICCs), distributed across the numerous islands of this archipelagic country. Through the years, the Philippine Government has maintained series of agencies that have looked into their welfare. It is only recently, however, that the need to document and promote indigenous knowledge systems and practices has been recognized.

The declaration of 1993 as the "Year of Indigenous People," served as impetus in recognizing the contribution of the world's indigenous people to sustainable development. In order to sustain such emphasis on the indigenous peoples, the UN General Assembly declared 1995 to 2005 as the "International Decade of Indigenous People". Indigenous people's knowledge systems and practices are their most potent contribution to sustainable development.

In harnessing the ICCs IKSP, it is also realized that they themselves are the most effective promoters and replicators of their own technologies. However, indigenous people must work closely together to promote their knowledge systems, and their organizational capacities must be strengthened. It is recognized that over the years, there have been various indigenous organizational and leadership patterns among the ICCs. Some of these may have faded through the years while others have remained intact. Government's intervention through promotion of cooperatives and other self-help groups may yet strengthen these indigenous organizations so that the ICCs are better able to become partners in development.

The International Labour Organization (ILO) through INDISCO, *the interregional programme to support self-reliance of indigenous and tribal communities through cooperatives and other self-help organizations*, has contracted the Philippine Resource Center for Sustainable Development and Indigenous Knowledge (PHIRCSDIK) and the Cooperative Development Authority (CDA) to undertake this Philippine Study.

1.1 Objectives

The objectives of this survey are to collect and analyze information about indigenous knowledge systems and practices of the major indigenous groups in the Philippines. It also seeks to determine the roles and functions of their traditional institutions in implementing/promoting these practices, and to assess the viability of existing rural cooperatives established by these indigenous groups, their organizational structures, financial mechanisms and management patterns with a view to devising possible alternatives to create appropriate legal indigenous cooperative structures within which these groups could preserve their traditional systems and practices for sustainable development.

1.2 Methodology

Owing to time and resource constraints, this pilot survey covered only three major indigenous communities in the Philippines, namely the Ifugaos of Cordillera (Luzon), the Atis of Panay (Visayas) and the Badjaos of Tawi-tawi (Mindanao). These ICCs were chosen based on the array of livelihoods and IKSP they represent and to cover the range of geographical locations from uplands to lowlands and the coastal area.

The survey made use of a pretested questionnaire. Interviews were conducted by local enumerators who speak the local dialect. Most of these enumerators came from local institutions and NGOs which had earlier contact, or worked with, the respondent ICCs. Actual observation and photo documentation of local practices and technologies were also done in conjunction with the field interviews.

Forty eight respondents were interviewed for each of these three ICCs, i.e. a total of 144 for the whole study. Key informants included old folks in the community, teachers and tribal leaders. Both men and women as well as youth representatives were interviewed.

To enhance understanding and for thorough background on the ICCs and their IKSP an exhaustive literature search and review was also conducted. These documents greatly helped in the finalization of this report.

1.3 Limitation

The conduct of this survey was constrained by both time and resources. In the short time allowed (from October 1994 to January 1995) the survey team carried out the interviews as thoroghly as possible. More in depth details could have been gathered, had time allowed. Owing to the inaccessibility of some of the communities included in the survey, a lot of time was spent on travel.

2. The Ifugaos of the Cordillera

2.1 Introduction

■ Who are the Ifugaos?

The Ifugaos are inhabitants of the eastern and north-eastern parts of the Cordillera mountain ranges of Central-Northern Luzon.[1]

There are a number of theories as to the origin of the Ifugaos. Some historians claim that the earliest inhabitants of the mountain region of Northern Luzon were the bow and arrow-carrying pygmies or Negritos, who migrated to the Philippines by way of land bridges, which connected the Philippines with mainland Asia.

Several years later, a better skilled sea-migrating group of Indonesians landed on the Luzon shores pushing the Negritos higher into the mountains. Descendants of the Indonesian settlers are the present day Kalingas, the Apayaos and the people of Cagayan Valley. Between 300 BC to 850 AD,[2] the third group of settlers to inhabit the country arrived. They were another sea-migrating people called the Malay. They are believed to be the ancestors of the Ifugaos. The Ifugaos resemble the Malays in being short and having Mongoloid features.[3] It will be noted that rice terracing was a common practice in Java and other parts of the Southeast Asia, where the present day Malays are.

The Ifugaos, however, do not believe in this account. They believe that Ifugao was first populated when deity *Wigan,* of the Heaven *Lagud,* sent down his son, *Cabigat,* and his daughter, *Bugan,* to *Kiangan* and they became the ancestors of the Ifugaos.[4]

Ifugaos are tall compared to other tribes, and brown with dark eyes, straight hair and thin lips. They are an industrious people depending mainly on rice growing for their subsistence. As mountain dwellers, all their activities are associated with the surrounding environment. They improve and manage their environment based on their intimate experience and traditional knowledge accumulated over many generations. For centuries the Ifugaos have managed to extract sustenance from their rugged environment using the simplest handtools.

■ Major livelihood

The major livelihoods of the Ifugaos are farming, handicrafts and wood carving. From these livelihoods, they are able to support their children's education and acquire the basic

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[1] Diaz, Fermin M.: *The Ifugaos of North Luzon, Philippines.* Journal of Education, Vol. 11 (6), (July 1985) pp. 88-89.

[2] ibid.

[3] ibid.

[4] Dulawan, Lourdes S.: *An Ifugao Album.* The Filipino Heritage. The Making of the Nation., Vol. 4, Lahing Filipino Publishing Inc. (Manila, 1978).

necessities of life. Their farming practices have greatly altered the environment, but have nevertheless been recognized as among the most productive, stable and sustainable systems in the world.

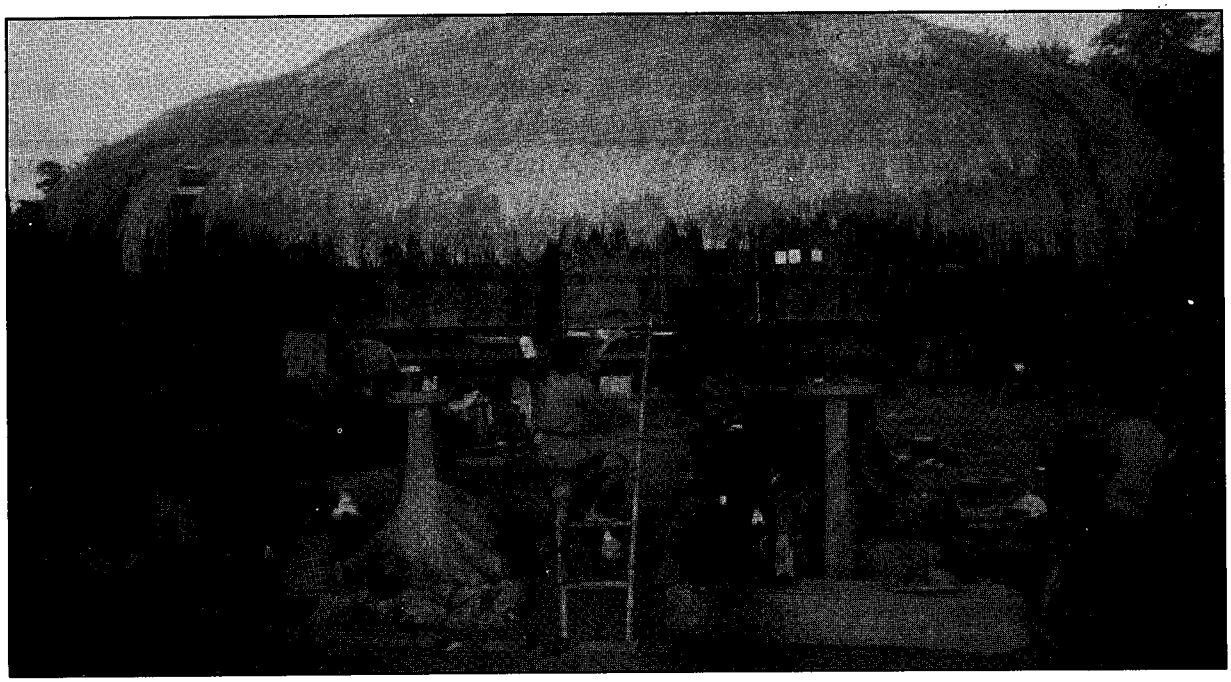
- **Affinity of their livelihood to their culture and environment**

The Ifugao way of life is highly dependent on natural resources. The Ifugao culture is harmoniously interwoven with the mountain ecosystem. Their rice culture and natural forests, wood carving and associated indigenous knowledge systems are highly dependent on the sustainability of the natural resources ecosystem. Their livelihoods and associated traditional knowledge systems, distinguish the Ifugaos from the neighbouring lowland communities.

2.2 Origin and historical perspective

The indigenous knowledge system and practices (IKSP) of the Ifugaos have started and evolved since time immemorial. They have been handed down from generation to generation through oral communication and actual experience. When parents take their children with them to work in the fields, the children automatically pick up the knowledge and practices of their parents.

The strong cultural identity of the Ifugaos has contributed to the preservation of their IKSPs and its passing down from one generation to another.



Typical house of the Ifugao

2.3 Indigenous knowledge systems and practices (IKSP)

2.3.1 Farming system

Seen from a wider perspective, the farming system of the Ifugaos consists of the *payoh* (rice terraces), *muyung* (woodlot) and the *uma* (swidden). These are illustrated in Figure 1. Each of these components are presented and discussed below:

- **Payoh**

The construction of pond fields considers many factors. Of utmost importance is the availability of water.[5] The terrace to be constructed must have a continuous supply of water to avoid the drying up of the pond field. It should also have excellent drainage to prevent water-logging. There should also be abundant rock materials for walling for easy construction and the repair of damage.[6] The shape of the valley is another consideration. It should have a deep concave slope and the soil must be fertile to ensure continuous supply of nutrients. The terraces should not be adjacent to settlements to minimize trampling and damage from astray animals. In u-shaped valleys, terrace building invariably begins at the lower elevation near the main channel of the drainage basin. In V-shaped valleys initial development may take place on more gradually sloped shoulders high above the steeper bottom slopes.[7]

Figure 1 overleaf, illustrates the agroforestry system of the Ifugaos with its components, *muyung*, *payoh* and *uma*.

Terrace formation takes the longest time in field preparation. It starts from late July and extends to late November. Heavy work in mud soil, rock and stone, are activities carried out during this period.[8]

An initial agricultural rite is performed by each family. Pigs and chickens are sacrificed. Weeding and patching of holes is done to minimize water leakages and extensive weeding, treading and wet mulching are undertaken. The decaying vegetation is trodden deeply into the muddy soil.[9] *Bagiao* (water weeds) are piled in mounds on top of dikes. These are later planted with vegetables such as string beans. *Bagiao* also enhances the fertility of the terrace soil. Treading and mulching is done regularly to control new weeds

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[5] Conklin, Harold C.: *Ethnographic Atlas of the Ifugao. A Study of Environment, Culture and Society in Northern Luzon*, Yale University Press (New Haven, 1980).

[6] Mc.Eloy, Barton: *The Ifugao Terrace Builders of North Luzon.* The Filipino Heritage, Vol. 3 (Manila, 1977).

[7] Conklin, op. cit.

[8] Daluping, Velma C.: *An Ethnography of Selected Beliefs and Practices of the Hanglulo (Yattuka), Keby I and Kangangaya Subtribe.* Kiangan Ifugao, OSCC (Quezon City, 1993).

[9] Omengan, E. A.: *Nitrogen and Phosphorus Cycles in a Bontoc Rice Paddy System.* (M.S. thesis, unpublished). Laguna College, University of the Philippines (Los Baños, 1981).

Kalanguya

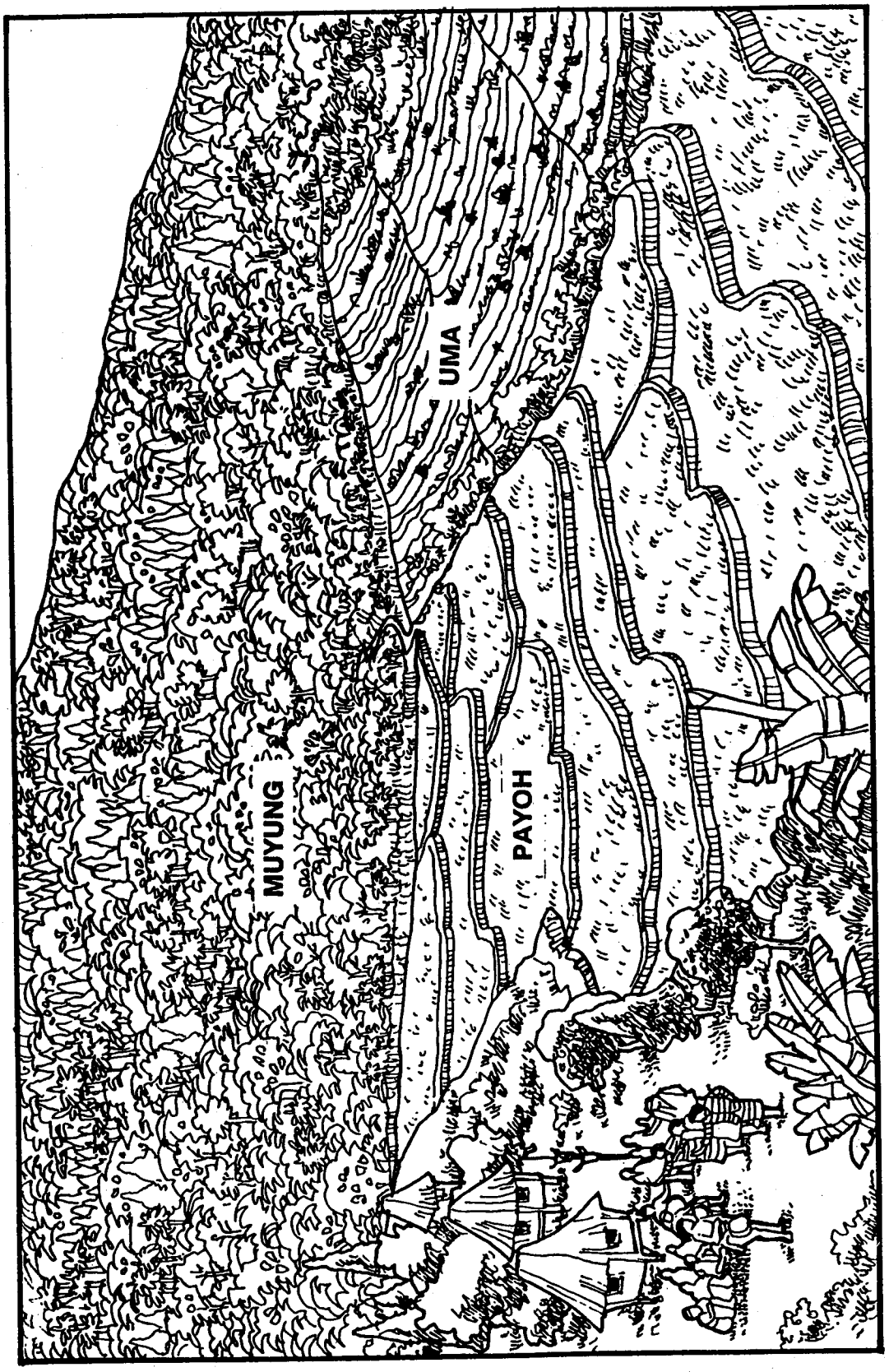


Figure 1: The indigenous farming systems of the Ifugaos

and replenish the decaying mulch. *Ugbu (bayanihan)* or shared labour system is also employed in this activity[10] otherwise, hired labour is employed.

Spading takes five to six weeks within the period of October to November. It involves the maintenance and reshaping of the slopes. Large quantities of soil and rocks are moved. Paddle spade *(gaud)* is used specifically for delving, pitching, sluicing, digging, packing and walling.

Terrace building, walling and repair work is done during November and December. Terrace wall cleaning is also done at this time. The embankment walls are given a thorough check to prevent seepage. Weeds are uprooted by hand or with the use of weeding knives. The heavy growth of vigorous weeds and their root systems may otherwise cause the walls to loosen and fall.[11]

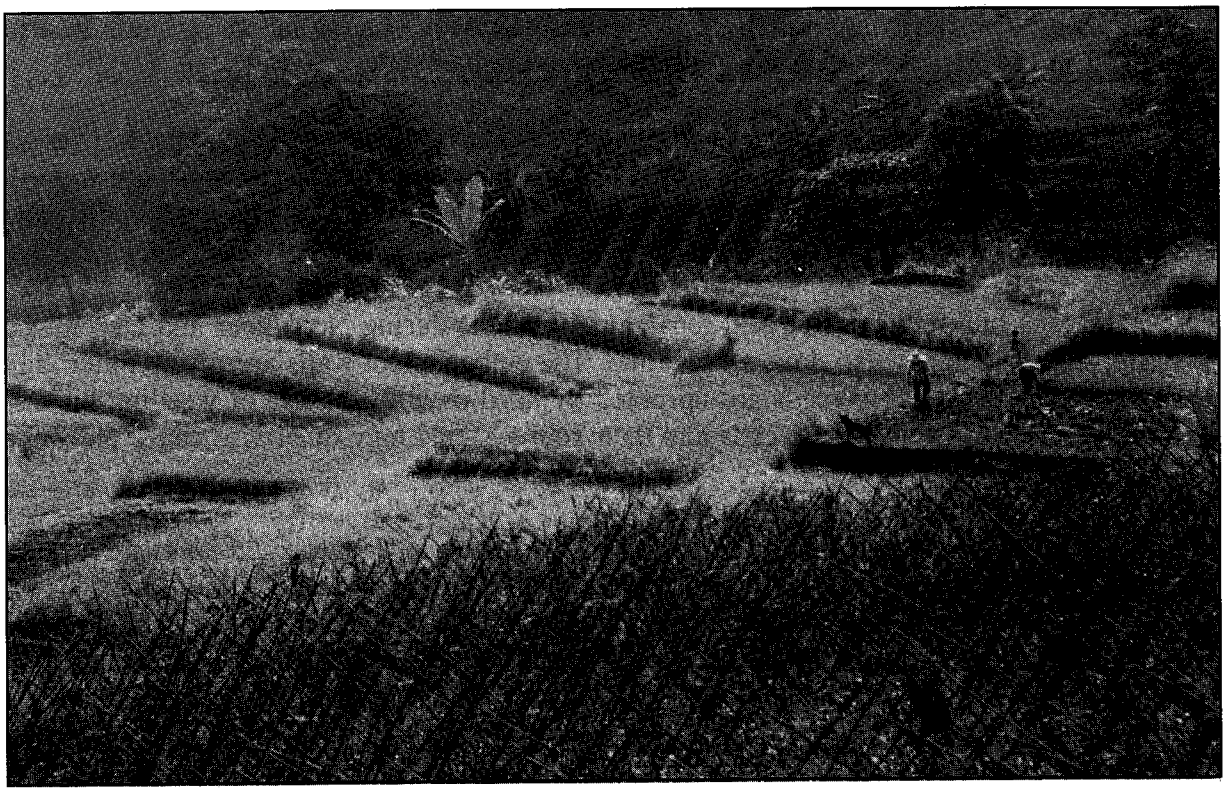
Sowing takes place during the period of December to January. *Lo-ah* is performed during this time. Two chickens are offered to the gods to safeguard the seeds in the nurseries. Sowing is done by the women using rice panicles with seeds intact. The panicles are evenly distributed on top of the seed bed. The water level is thoroughly checked and a ritual is performed to prevent rats from reaching the seeds. Water is let in to cover the seeded areas as soon as the nursery has been sown.

The planting season (*lawang*) takes place from late November to March. Activities in this period include rice seeding, transplanting and wall terracing. Second weeding and wet mulching also takes place during this time. The Ifugao women do the weeding and again tread the weeded materials deeply into the muddy soil.[12] The herbaceous undergrowth is removed to minimize the danger of rat intrusion. Soil preparation consists of readying the wet terraces for planting. Seedlings are planted in selected sections of the wet terrace. Meanwhile green manuring is carried out. When the site is ready, the water is drained off and nurseries are marked out. Temporary dikes are constructed to irrigate particular sections of the terrace.

[10] Daluping, op. cit.

[11] Masferre: *People of the Philippine Cordillera.* Devcom/PINC. Makati (Manila, 1988).

[12] Lleva, Emmanuel M.: *The Contribution of Women in an Upland Rice Based Ecosystem in Kiangan Ifugao,* M.S. thesis, unpublished, College Laguna, University of the Philippines, (Los Baños, 1989).



Payoh with rice ready for harvest

The rice varieties planted are *tinawen,* or *tiniyalgo,* and *pinidwa,* or *linawang. Tinawen* is a dry season rice planted yearly. *Tinawen* is sturdy and tall with a long growing season thus allowing only one cropping per year.[13] *Pinidwa*, on the other hand, are wet season varieties. *Pinidua* varieties include *ipugo* (non glutinous) and *dayaot* (glutinous). These are mostly lowland Philippine indica and are smaller than *tinawen* varieties. *Diket* is another rice variety planted. *Diket* is a red variety which is best for making *suman* (rice cakes)[14] Among the *diket* varieties are the *inalinnawan* variety, which is best for rice wine; the *umbangul* (white variety) and the *ingkitan.* In Halimutok, the Ifugao, farmers plant IR64, IR36, IR60 and other new varieties.

Soil working activities involve spading, plowing and harrowing or the use of hands and feet to turn the soil. The soil is redistributed and levelled off so that it is mud puddled, or wrapped with mud, in the process. The diversion of drainage is necessary if rainfall is insufficient. Drag sledge is used to excavate and transport soil to lower portion of the terrace before levelling follows. Green manuring is done to enrich the soil by adding leafy branches and other succulent wild plants to the pond field.[15] The dike is improved with a coating to

[13] Conklin, op. cit.

[14] Guthrie, George M.: *Impression of Ifugao Health and Social Activities,* University Park Penn., Dept. of Psychology, Pennsylvania State University (USA, 1964).

[15] Omengan, op.cit.

reduce seepage, impede weed growth and to attain the desired water-level. Nurseries are maintained daily to make sure that animal pests have not eaten the seeds. A ritual (*ulpin di-pa aggaud*) is performed upon dike completion to ensure its permanence and safety. *Tsongla*,an ornamental with reddish leaves, is planted along dike. Ifugaos believe that this plant will make the dike strong and keep it from cracking. One chicken is sacrificed.

Rice planting takes place from February to March. The transplanting of seedlings begins with the offering of two chickens. Bundles of seedlings are carried by men to the transplanting site. The *Tomona*, a rich man and tribal leader of the community, decides when the first transplanting will take place. Seedlings are pulled, raised straightened, and trimmed then transferred to non-seeded fields. Transplanting is usually done by women. A bunch of seedlings is held in the left hand from which two to three stalks are taken at a time by the right hand and stuck firmly to the mud following an alignment pattern. Spacing between hills range from five inches to seven inches (13-15 cm.). Wider spacing is adopted for fertile soil to accommodate for the growth and expansion of every plant hill.

Culpi is performed in late March indicating the completion of the field work. Five chickens are offered at the district granary and in the individually owned pond field.

The planted paddies are inspected everyday and dead and damaged plant hills are replanted right away. *Hagophop*, a ritual which requires two to three chickens, is the last to be performed in the pond field. *Hagohop* signifies the completion of the terrace.

After all the works at the *payoh*, the Ifugaos shift to working in their swidden (*uma*) as they await for the rice to produce grains for harvest. Swidden farming takes place from March to June, along with the maintenance of the growing rice crops.

Maintenance in wet terrace includes rice weeding of the pond field surface. Weeds and grasses between the rice plants are uprooted and trodden into the deep mud soil. *Tinungul* is held first by the *Tomona*. *Tinungul* is a ritual for the main rice crop weeding. This rite calls for at least one chicken. If crop disease or insect infestation spread widely, the *Tomona* calls for a pond field medicine rite (*tamal*), which requires the offering of a chicken. The farmers gather forest plants known to have extremely bitter, astringent and other strong qualities. The medicine plants are distributed in all the affected wet fields on a moonless night. The *Bongwang* plant is soaked at the water source and allowed to rot. When rotten, it gives off a bad smell and the effect is carried to the other rice plants by the water. This method is reported to be effective against attack of insects and worms.

The terraces are always kept wet to avoid the occurrence of cracks specially at the embankments and dike. Irrigation channels are maintained regularly to ensure efficient water distribution to different terraces. Weeds and other debris are removed.

Weeds growing on terrace walls are removed to prevent a further build up of the rat population. Small bolos and cutting blades are used to slash the undergrowth.

The harvesting season, which starts towards the end of June or at the beginning of July, lasts for about one month. It is a time of beer brewing and drinking, feasting and intense ritual and agricultural activity. *Hanglang,* a pre-harvest rite, is performed in all homes. Prior to this, chickens are sacrificed and a few panicles of rice are used. *Lodah* is performed during partial reaping of ripened grains. Three chickens are offered in each participating household.

Rice harvesting takes two to three weeks involving many rituals. This period is devoted to continuous religious observances. Rice beer and feast foods are prepared. Eight chickens and at least one pig are sacrificed during good harvest. Ample rice beer, betel and areca nuts are readied for participants. *Cañao* (a thanksgiving feast) is performed with gongs and drums. The ritualist calls on the *maamo* (spirit of jealousy) and *puwak* (typhoon), not to interfere with the harvest operation. Chicken bile reading determines the good harvesting time. If the condition of the bile is good then harvesting can proceed, otherwise it is discontinued.

Each harvester carries an angle-bladed reaping knife (*uwah*), or a transverse-blade cutter (*gamulang*), and binding strips taken from the inner bark of a forest tree, *lino*. The bundles of rice are carried to the granary or houses, where they are dried and stored. In good weather conditions, the bundles are placed on open house terraces. If not, they are temporarily stocked under the house or granary. All rice is thoroughly sundried before being stored in order to prevent spoilage. The bundles are dried in an upright position The women twist the bundles to expose more panicles and spread the stems to speed up the drying process.

When the harvest from the main field has been completely sundried, the *Tomona* sets in motion the concluding harvest, which lasts for four days. A pig is sacrificed at the district granary headed or sponsored by the *Tomona*. The wooden figure of their rice granary god called, *Bulol,* is placed inside the granary next to the neatly stacked bundles of rice. The figure is bathed in the blood of the sacrificed pig. It is believed to be able to increase the volume of stored rice. The cleaning of utensils follows after the ritual which symbolically marks the end of the agricultural operation.

- **Uma**

The *uma* or swidden is that part of the Ifugao landscape devoted to agricultural production. Site selection for *uma* involves different considerations. The slope of the area should not be steeper than 40 per cent to minimize the occurrence of soil erosion and landslide. The area should not be rocky to maximize the use of the swidden. Lastly, the area should be fertile to enhance production.

Preparation and planting of the *uma* takes about three months from late March to late June. It is a period where the maintenance of the growing crop in the *payoh* is lightest.

In site clearing, implements such as bolos and axes are used to fell trees and other vegetation. The slashed vegetation is allowed to dry for about a week and is then burned.

Runo grass dries thoroughly and burns completely, leaving a thick blanket of ash. A fire break is constructed along the sides and upper margin of the new or extended plots. Firing is usually done in the middle of the day. Preparation of the soil for planting begins after burning and is carried out by all the household members.

The Ifugaos regard burning as a practical, inexpensive way of preparing the *uma* for planting. In their opinion burning is good for the soil as the ashes help improve soil fertility. Burning also helps regulate the growth of the undesired weeds and drives away animals that might invade and damage the crop. Land cultivation is done by employing a *bahuyang*, a long heavy sharpened wooden bar. The tool is used to dig and pulverize the soil. Planting is done with the use of dibble stick (*usad*), which is drilled into the ground to make holes for dropping the seeds into.

The most common crop planted in the *uma* is sweet potato or camote. After soil cultivation, a trowel is used to dig planting holes. Cuttings are planted along the contour ridges supported by *runo* to prevent erosion. Weeding is carried out before the first tuber is harvested. From the fifth month on, tubers can be dug. Cleaning, weeding and replanting can continue for several years.[16]

The *uma* is fenced with *miscanthus* cane and poles to protect the area from stray animals. Wild pigs are kept away from the area with heavy temporary barriers of *runos* and other debris. Spot digging is employed in order to have a continuous supply of camote for staple food. A small digging implement, which resembles a small crow bar is used. This metal instrument, known as *bu'a* or *foh-a,* is pointed at one end for sensing camote tubers, and bladed at the other end for digging out the tubers. The sweet potato tubers, which constitute the staple food of the Ifugaos, are cooked after they have been cleaned and stored in a corner of the house, preferably for a period of about a week. According to some Ifugao respondents, camote tubers should be stored at least one week to render a sweeter taste. Some families leave the tubers in the sun for 2 to 3 days to improve the sweetness. Sporadic harvesting is carried out on a camote plot in the *uma* for about two years, after which the area is replanted with a new batch of camote.

After 2 to 4 years of cropping, the Ifugao farmer shifts to an adjacent area of the swidden subdividing the *uma* for crop rotation. In some cases, a portion of the swidden is planted with longer term crops like bananas or, if the productivity of the area has declined, the whole *uma* may be planted with banana plants. The fallow period is 5 to 6 years depending on the presence of cogon in the area. Fallowing enables the soil to regain its fertility.

Apart from camote, the Ifugaos also plant their *uma* with beans, corn, onion, taro, roots and tubers (yam, cassava), squash, leafy vegetables such as mustard, cabbage and pechay and other vegetables.

[16] Conklin op. cit.

■ **Muyung**

The *muyung,* also referred to by the Ifugaos as *pinugo,* consists of second growth forest with an area ranging from 0.5 to 3 hectares per family, dominated by dipterocarps with associated commercial and miscellaneous species.[17] In Lamut, coffee is planted in the forests to maximize the use of the wood lots. Trees are girdled and thinned to regulate the intensity of light reaching the coffee plants, but an adequate number of seedlings and saplings are left to regenerate and to provide harvestable timber later on. Agricultural practices such as weeding, topping and branch bending are done to enhance the growth of coffee plants. The coffee plants start to bear fruit after 4 to 5 years.

The *pinugos* in Banaue, Ifugao are not underplanted with coffee as the cooler climate is not favourable to coffee growing. Instead weeding is undertaken to allow the favoured tree species to grow.

Enrichment planting is done in the *pinugo* to diversify the system. Trees planted include pine trees *(Pinus kiseya),* Alnus *(Alnus japonica),* Raintree *(Samanea saman),* Narra *(Pterocarpus indicus),* and other fuelwood species. As a private indigenous woodlot, the *muyung* serves as backyard source for the timber needs of the family. Wood for house construction and repair and for wood carving comes from the *pinugo.*

The Ifugaos have their own indigenous system to protect their forest against the mounting pressure for timber in their *pinugo.* For a single tree cut, they replant two or more trees as replacement. Openings in the *pinugo* are intensively planted with trees, both to maximize the use of growing space and to protect the soil from erosion.

■ **Evolutionary changes**

Through the years, significant changes have taken place in the life and livelihood practices of the Ifugaos. Causal factors include the influence of lowlanders, education, Christianity, modern technologies and the impact of a cash crop economy. Earlier on, coffee was the main crop bartered with salt, tools and farm implements from the lowland. Communal forest resources such as timber and *rattan* (*Calamus* sp.) were enough for home use.[18] But today, due to the increasing need for cash, there is increased exploitation of forest products such as timber for construction and wood carving. The expansion of pasture lands has also significantly changed the traditional land uses.

The water shortage for *payoh* production is a result of the continuous cutting down of timber. There is an insufficient water supply for upper rice terraces. Drained upper rice terraces are converted into bean gardens due to lack of irrigation.

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[17] Serrano, Rogelio C.: *Environmental and Socio-Economic Impact Assessment of the Ifugao Indigenous and an Introduced Agroforestry System in Luzon,* Ph.D Thesis, unpublished. University of the Philippines, Los Baños College (Laguna, 1990).

[18] ibid.

Modern technologies such as the use of chemical fertilizers and pesticides have become popular to some Ifugaos, particularly in Halimutok Lamut town. The introduction of these modern technologies has significantly reduced the biodiversity of the *payoh*, affecting, for example, fish species and edible shells. The farmers in Halimutok adopted the use of chemicals to improve their harvest and to overcome soil fertility problems. In Banaue, however, farmers still rely on local compost.

Some farmers have abandoned their *payoh* because the income from it is insufficient to supply the needs of the household members. They instead try to earn an income from additional activities such as carving, handicrafts or weaving. Many *payoh* areas are not well attended and maintained owing to work diversification and a high demand for labour, which some farm owners can not afford to pay. Average cost per hired labour would be 100 pesos per day.

Another factor is that many educated Ifugao youth no longer return to the farm to work after completing thier education. Some of the respondents commented that the young Ifugao generation today does not know how to maintain the *pinugo, uma* and the *payoh.* It has also been observed that some of the *payoh* are turning into residential sites as a result of the expanding urban population.

In Lamut Ifugao, high yielding varieties of rice are becoming increasingly popular. These high yielding varieties are used instead of the native variety because of their short cropping period of 3 to 5 months. Harvesting is possible twice a year. The adoption of this technology has led to the use of inorganic fertilizers and pesticides for the maintenance of such varieties. These practices may, however, have a negative effect on the environment. Contrary to Lamut Ifugao, the Banaue farmers still stick to their traditional rice varieties because they are better for making rice wine and are fertilized with organic fertilizer.

Planting of rice among the Ifugaos used to be associated with many rituals. The introduction of modern technologies, modern varieties of rice, education and Christianity, are the main factors contributing to the gradual disappearance of these rituals. Today religious ceremonies associated with Ifugao rituals and beliefs are similar those of the lowland cultivators. The belief in the *Bolul*, the Ifugao God (for bountiful rice), is also fading.

- **Problems**

A number of problems have emerged in the farming system of the Ifugaos. Some have natural causes, while others are man-made. Drought, soil erosion, occurrence of pests and diseases are the most prevalent problems in Halimutok Lamut, Ifugao and to some extent in Banaue.

Crop infestation by rats has become more frequent and leads to a significant reduction in yields of rice, coffee and other crops in the *uma*. Earlier attempted solutions proved to be ineffective.

The cracking of soil during the dry season and the massive flow of water and soil during rainy season are key factors in the breakdown of the terrace walls. At present, walls are seldom repaired, and if they are, the work is time consuming. This is aggravated by the lack of available manpower for terrace maintenance. Today, the younger Ifugaos are no longer available to work in the *payoh* because of other interests and other professional commitments.

The golden *kuhol* (snail), which is a dreaded pest in lowland rice paddies, has found its way up to the rice terraces. The snail eats the rice plants especially during the plant's tender stage. Earthworms, on the other hand, cause leaks to the terrace walls through their burrowing.

Realizing the growing shortage of wood both for carving and house construction, there is now a greater resolve among the Ifugaos to re-emphasize the planting and maintenance of trees, particularly in the context of the *pinugo*. A growing movement organized along this line is the *Bayon de Pinugo* (Friends of the Forest). The group is committed to intensifying reforestation of private and communal woodlot for Ifugao communities.

2.3.2 Natural resources management

The Ifugaos have always maintained a high regard for their *muyung* or *pinugo*. This land use method has significantly helped in maintaining the ecological balance of their overall farming system. The woodlot arrests soil erosion while providing a sustained supply of irrigation water to the adjoining *payoh*.[19] Coffee is underplanted in the *muyung* and provides an additional as source of income. Decaying coffee leaves, which have fallen from the plant, help enrich soil fertility.

The Ifugaos practice leaving younger logs and residual (seedling or sapling) for future tree crops. Planting of supplementary tree species and *rattan*, is proof of their desire to keep their *muyung* and their whole farming system sustainable. In addition they plant fruit trees around their homes.

The value of the forest is ingrained in the minds of the Ifugaos and hence they take from it no more than what they need. The trees that are felled, are replaced by planting during the rainy season. The pressure in communal forest due to wood working may result to the disappearance of such forests.

The 5 to 6 years fallow system for the *uma* is meant to maintain productivity and sustainability of its natural resource base. During the fallow period, secondary plant

[19] Serrano Rogelio C.: *Environmental and Socio-Economic Impact Assessment of the Ifugao Indigenous Agroforestry System*, Proceedings of Workshop on "Indigenous Knowledge and Sustainable Development in the Philippines", IIRR, Silang, Cavite (Philippines, 1992).

succession and soil fertility restoration takes place. Through time, vegetational succession progresses from *cogon (Imperata cylindrica)* to the reappearance of *talahib (Saccharum spontaneum), runo*, ferns, and then shrubs of the *Ficus* and *Naucleaceae* families. By the time the area is overgrown with shrubs and small trees, it is ready again for another bout of swiddening.

Tribal laws also exist among Ifugaos to protect their natural resources. Penalties are imposed on the *pinugo* or *muyung* violators by the elders. Punishment is decided by a council of elders based on the value of the stolen or damaged resources. Tribal laws regulate the use of the forest resources. However, one may ask permission to gather wood and other forest products for free or simply buy it from another's *pinugo* or *muyung*.[20] But this seldom happens because most of the Ifugao have their own *pinugo*. Outsiders are not allowed to cut trees unless they have permission from the barangay leaders. The use of the forest is limited to the members of the community only.

2.3.3 Wood carving

Wood carving is both a livelihood and an art among the Ifugaos. Like the rice terraces, it has an ancient origin. Many Ifugaos in Banaue and surrounding municipalities, are involved in wood carving in combination with farming. This craft is carried out during dry season. For many residents, it is more profitable to remain at home carving than to work for wages in any industry in a far away place.

The Ifugao wood carvers have only the simplest hand tools for carving, such as saws, bolos, chisels and T-squares. Sand paper is used to smoothen the surface of the carvings. The Ifugao carve many different wooden objects, such as decorative house beams, food containers, utensils etc. They also carve the figures of their different gods. *Bolul* is carved from narra wood. The different designs of the various products are taken from the surrounding environment, based on what the carvers can imitate.

The carvers secure wood materials from the communal forest, their *pinugos,* or they purchase the materials from others. The carvers lay the wood out before starting to carve, in order to check for defects and attain the desired figure. When the product has been completed, the women do the finishing, for example, the fine chiselling, sand papering and varnishing. The application of glue is sometimes also necessary if cracks occur. Some types of wood need to be dried before carving can commence.

Wood species used include narra *(Pterocarpus indicus)*, rain tree *(Samanea saman)*, kalantas *(Toona kalantas)*, Hawili *(Caediaeum variegatum)*, Alnus *(Alnus japonica)* and Dalipawen *(Alstonia scholaris)*. Today narra is less often used because its supply has dwindled through the years.

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[20] Dacawi, R.: *Forestry the Ifugao Way*, Tropical Forest Magazine, Vol 1, BFD Diliman (Quezon City, the Philippines, Jan.-March 1984) pp.16-17.

The species that do not need drying are carved immediately. Most Ifugaos prefer using raintree wood for carving as it does not crack during the process. It is very suitable even when freshly cut and the moisture content is very high.

The design and size of the figures carved depend on the need of the buyer. Buyers often request birds like eagles and maya, and human figures like babies or their different gods. Animals like carabaos and frogs etc. are also carved.

■ **Marketing**

Different wood carvings are often sold in stores in Banaue and Baguio City. They are also displayed and sold at fairs and provincial, regional and even national exhibitions. Carvings have also been on regular display and on sale at Megamall and Rustans shopping centres in Manila, and exported to other countries.

One fourth to one half of the total produce is retailed in Banaue and the rest is sold in Manila and some for export. Many of the wood carvers in Banaue are members of a national organization called Philippine Wood Carvers Association.

■ **Problems**

The Ifugaos have encountered a number of problems in their wood carving. These problems and some recommendations are presented below:

(i) *Shortage of wood raw materials*

Through the years the numbers of wood carvers in Ifugao has increased. Thus the pressure on the remaining timber stock, especially in communal forest, has also increased. Continuous cutting of trees for wood carving has contributed to an ecological imbalance in the province. To address the shortage of raw materials, the carvers buy wood from the adjoining provinces.

On the other hand, the carvers recommended that the Department of Environment and Natural Resources (DENR) should be less strict in regards to wood materials harvested from the *pinugo*. The carvers claim that the practice of this livelihood would not alter the productive state of their privately owned woodlot if they ensure that the tree species are replanted after cutting.

(ii) *Difficulty in securing permit and registration of tools*

The wood carvers cannot easily get hold of permits and register their tools with DENR. DENR regulations are based on the need to protect the forest.

(iii) *Wood deterioration*

Termites and other wood beetles often attack the wood materials and finished products. This results in deteriorating quality and subsequent decrease in prices. Market conditions are very erratic and products are often sold at low prices.

(iv) *Harassment of traders on travel*

The wood carvers complain that in a number of cases, DENR personnel confiscate their products at checkpoints, even if valid documents are presented to them. The carvers recommended that a law should be passed recognizing the industry and providing protection against harassment.

(v) *Lack of capital*

The lack of capital limits the purchase of raw wood materials and tools for carving and has thus hampered the progress of many enterprising wood carvers. The carvers have tried to remedy this problem by borrowing money from lending institutions such as the Banaue Savings Credit Cooperative Incorporated (BSCCI), Banaue Farmers Multi-Purpose Cooperative Incorporated (BFMPCI) and Central Cordillera Agricultural Program (CECAP).

2.3.4 Livestock farming

The Ifugaos raise livestock including pigs, chickens and carabao. Their main reason for raising animals, especially chickens and pigs, is to enable them to perform their traditional rites, *cañao,* during harvest. It also serves as source of additional income.

The animals are also bartered for rice. Large varieties of pigs, which are kept in pens, are raised exclusively for their meat. Native pigs are also raised in confinement, but are sometimes allowed to roam around the vicinity of the homelot. Native pigs are reserved for sacrificial purposes.

Camote leaves and tubers are cut and cooked as feeds to pigs. The pigs are fed two to three times a day. Banana fruits and *gallang* are also used as supplement foods for livestock.

Chickens are kept in a *hoklong*, a pyramid-shaped, bamboo basket cage. *Hoklongs* are hung up under the house. The chickens are occasionally let loose to forage during the day.

Birds are captured by stretching a net between two mountain peaks. The Ifugaos hold up torches to attract the birds which migrate at night.

The Ifugaos also hunt animals. Wild pigs are hunted with spears. The Ifugaos usually pursue the animal until it is cornered. One of the men with his spear aimed at the pig, approaches it whilst shouting. This stirs the pig to attack the hunter. The hunter then stands still holding his spear firmly against the attacking animal.[21] Wild cats are hunted with spears at night.

The Ifugaos also practice ethno-veterenary medicine using plants. Some of the practices are presented in Table 1 below.

[21] Guthrie, op. cit.

Table 1. Indigenous practices for livestock health care among the Ifugaos

Animal	Plant	Illness/disease	Preparation/method/application
Carabao pig cow	Petroleum and tobacco leaves	Screw wound	An ample amount of tobacco leaves are heated over hot charcoal until they can be crumpled. They are then crushed into pieces and mixed with petroleum. The mixture is applied directly on the screw wound at regular intervals until all the screw worms have come out of the wound or died. In the absence of tobacco, petroleum can be applied
Pig dog	Betel nut fruit	Worms	5 to 10 betel nut fruits are pounded into fine particles. The extract is squeezed from the pounded materials then mixed with the food before it is served to the animal.
Pig	Young shoot of star apple	Scouring	An ample amount of shoots are crushed either by hand or using a stone, then squeezed off to produce sap. Application follows.
Pig	Banana leaves	Loose bowel movement	The pig is deprived food for 6 hours, then when it is hungry, it is fed with raw banana leaves chopped into pieces.

2.3.5 Fishing

Fish are raised in the Ifugao *payoh* system on a limited scale. A separate terrace with higher dikes is used for this purpose. The fish are raised and rice and taro cultivated at the

same time. Fish such as *yoyo* (Japanese fish), *tilapia, tampipi* (million fish), and a variety of snails are raised.[22]

Small fish, like *tampipi* and *yoyo,* are caught using local, woven bamboo traps called, *bobo*. The traps are installed in narrow waterways at the lower dike of the terrace. Nets and screens are sometimes used also. *Tilapia* are also raised in the *payoh*. When the fish stock is ready for harvest, the paddy is drained of water and the fish are caught by hand.

Fish less than an inch long and crustaceans can be caught anytime using funnel-shaped basket traps in flowing streams or in the rice fields.[23] Shells like *bisocol* (native kuhol), *leddeg,* and *agurong* are occasionally collected from the wet terrace. The fish caught are consumed at home and rarely sold .

- **Problems**

The Central Cordillera Agricultural Program (CECAP) undertook some livelihood projects to uplift the socio-economic condition of the Ifugaos. One of their projects was *tilapia* dispersal. The family beneficiaries in Lamut Ifugao each received 500 pieces of *tilapia* fingerlings to release in their terrace fishponds. During one strong typhoon, however, their fishponds overflowed carrying away most of the fish.

2.3.6 Weaving

Another homebased livelihood among the Ifugao is weaving. The Ifugao weave a variety of products ranging from primary products such as *tapis*, G-strings and *ikat*, to bags, purses, wallets, placemats, bed sheets, chalecos and pencil cases.

The thread used for weaving is obtained locally and from Manila. A locally designed wooden apparatus called, *potolan,* is used to weave the threads (*saluktok*) crosswise. It is plated with a very simple 50 centimetre, wooden or bamboo, rod to support the strands and serve as a beater.

Natural and artificial dyes are used to attain the desired colour and beauty of the product. The threads are dyed before weaving. Dying is done by boiling the thread in water, together with the dye solution, for almost one hour.

Natural dyes are extracted and obtained from wood, bark, flower and the leaves of various local plants. Dye from *narra* sawdust can be extracted by boiling the *narra* in water for one hour. The extract is filtered and boiled again for another hour. This time, lime is added to produce a red dye.

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[22] Serrano, op. cit. and Scott, W. H.: *Growing Rice in Sagada on the Cordillera. A Look at the People and Cultures of the Mountain Provinces,* MSC Enterprises Inc. (Manila, 1969).

[23] Scott, ibid.

Dye extraction from *alnus (Alnus japonica)* is similar. *Alnus* produces a blue black colour. *Hawili (Caediaeum variegatum)* produces a navy blue colour. *Luya* (ginger) is pounded to extract the juice, then mixed with *hawili* to extract a gray or navy blue colour.

- **Marketing**

Woven products are mostly sold in the local market. Some are transported to and marketed in Manila. About 30 to 40 per cent of the woven products are exported to different countries.

- **Evolutionary changes**

In the past, weaving was only carried out during vacant hours after farm work and the products were for home-use only. In the course of time, weaving has become a primary livelihood among some sectors of the Ifugaos. One reason for this is the willingness of institutions, like cooperatives, to lend money to the local weaving industry.

- **Problems**

The most predominant problem in the local weaving industry, is the fluctuating prices of the finished products. When prices are low, the weavers do not get a fair return for their labour. The formation of an indigenous marketing cooperative should help address this problem.

2.3.7 Traditional medicine and health care

In the early days, the treatment of illness among the Ifugaos revolved around different rituals. The Ifugaos believed that every illness, which befalls human beings, has its corresponding ritual-based cure. Locally, it is believed that the illnesses of children and adults are the same, but different in name only. They are called *minuyung* for babies, *nabwakan* for adult females and *natalban* for adult males.[24]

Baki is performed inside the home by a local priest (*mombaki*). A ritual basket is prepared containing two pieces of betel nut and two pieces of betel leaves, which are placed in the middle of the floor. A cup of rice wine is poured in a coconut shell, which is placed beside the betel nuts and leaves. The chickens to be used for the rituals are placed nearby. The priest starts by calling the dead ancestors and relatives of the family. The guardian spirit of the victim is also called. Both of the dead ancestors and relatives of the man and woman of the family are separately offered with chicken. The condition of the bile determines whose ancestors are causing the illness. The three other chickens are offered separately to the god of darkness, the god of mountains and the god of health. All these chickens are butchered

[24] Daluping, op. cit.

by cutting the throat and allowing the blood to flow into a coconut shell. Chicken feathers are burnt and chicken bile is opened up to determine its condition. Good and clean bile indicates that the illness will be cured. Otherwise, additional rituals and prayers are performed. The butchered chicken will then be cooked and the internal organs are cut into small pieces. These are cooked with the blood and soup. The priest must eat first before the members of the family. A prayer is said by the *mombaki* addressed to different gods begging them to cure the illness. Afterwards, the meat is distributed to those presented and a cup of soup is given to the sick person as medicine.[25]

The Ifugaos also rely on some local medicinal plants for their healing. Table 2 below presents some of these herbal medicines, what they cure and how they are prepared and applied.

Table 2: Herbal medicines of the Ifugaos

Plant used	Illness	Preparation and application
Avocado (*Persea americana*)	Stomach ache	The leaves are boiled in three to four glasses of water for fifteen minutes then allowed to cool. The patient then drinks the liquid.
Tamarind (*Tamarindus indica*)	Cough and cold	Young leaves are boiled in 2 glasses of water for about thirty minutes. The patient then drinks the liquid.
Ampi	Fungal skin diseases	The *ampi* leaves are chopped into small pieces and are then rubbed into the affected body parts.
Ooko shoots	Wound healing	The shoots are chopped into small pieces, then squeezed to produce the desired sap. The sap is then applied to the wounded skin.

[25] Daluping, op. cit.

2.4 The impact of indigenous knowledge system and practices (IKSPs)

- **Economic**

The major livelihood and the surrounding indigenous knowledge system and practices (IKSPs) of the Ifugaos have significantly contributed to their survival. Income from their farming system is adequately supplemented by their income from supporting livelihoods, such as woodcarving, weaving and handicraft manufacture. Any excess income generated, enables them to send their children to school.

- **Ecological**

The farming system of the Ifugaos, like wall-terracing, dike construction, composting and enrichment planting, are ecologically sound and sustainable. Dike construction controls soil erosion and overflow of water as well as preventing landslides and maintaining soil fertility.

Intensive cultivation of the *uma* makes it prone to soil erosion and lowers the soil fertility. But the practice of planting camote and harvesting it through spot digging minimizes soil erosion. The natural fallow system promotes biodiversity conservation through secondary succession.

- **Socio-cultural**

Local livelihoods like wood carving, weaving and handicraft production, have helped in the preservation of the Ifugao culture. Through their work, they are able to express themselves artistically and their unique culture is recognized by others.

2.5 Organizational structures

The *Kadangyan* or *Tomona* is the respected leader of the community. Being rich, he has the biggest *payoh* area.[26] He is active and dominant in the community. The *Kadangyan* is responsible for any operation in the pond field. He determines the best time for planting as well as to where the first planting should be started. The rituals to be undertaken in connection with the *payoh* are decided by him. The community cannot proceed with the activities without his consent. However, today the *kadangyan* system is weakening due to the presence of local government units. The duties of a *kadangyan* have been transferred to the village chieftain.

There are a number of organizations in Ifugao. These include the Banaue Savings Credit Cooperative Incorporated (BSCCI), Banaue Farmers Multipurpose Cooperative

[26] Dumia, Mariano A.: *The Ifugao World*, News Day Publisher (Quezon City, 1979).

Incorporated and Agape Cooperative. Each of these cooperatives has provided help to their members. The Central Cordillera Agricultural Program (CECAP), has also formed organizations among their farmer beneficiaries, who match CECAP's support with farmer labour on a counterparting scheme

CECAP farmer beneficiaries received help with livestock development. Each family was also given 500 fingerlings of tilapia, and mango and citrus seedlings. In order to promote environmental protection, CECAP has provided timber species like mahogany *(Swietenia macrophylla), narra (Pterocarpus indicus),* and *yemane (Gmelina arborea)* for reforestation purposes. They have also provided technical assistance in agroforestry and identified areas suitable or Sloping Agricultural Land Technology (SALT). CECAP conducted seminars on plant protection and sanitation, environmental protection and livelihood management.

The BSCCI was founded and organized for the people of Banaue. It provides loans for the various small-scale industries, such as wood carving, weaving and handicraft production. It also organizes livelihood-related seminars and training.

The Banaue Farmers Multipurpose Cooperative is still in its infancy stage. It is the smallest of the local cooperatives with a membership of 192 and a capital of 107,000 pesos. The cooperative started operation last 1992. The cooperative is beginning to create an impact among its members. Capital has been lent to the members for the continuous operation of their livelihoods (wood carving, weaving), and for the maintenance of the *payoh.* The cooperative also conducts livelihood training programmes and seminars for their members.

3. The Atis of Panay

3.1 Introduction

■ Who are the Atis?

A number of postulates have been formulated by different historians and authors on the origin of the Atis in Panay. Bolante wrote that this ethnic group must have travelled overland from India crossing the Malay Peninsula, Indonesia and Borneo towards the Philippine Island.[27] He claims that they must have entered the Philippines through the Palawan and Sulu chains. There is another view by Dickerson[28], stating that the race did not settle permanently in the southern parts of the island when they traversed the land bridges, but further spread across the land connection between the Camarines Peninsula, Ticao, Masbate, Panay, Negros - Sibuyan and Tablas that existed during the early Pleistocene time.

The Atis can be found in the different provinces of Panay (Iloilo, Antique, Capiz). They are also found in other places but with different names. For Negros (Ata), Zambales, Tarlac, Pampanga (Ita), Isabela (Agta), Cagayan (Pugot), (NCCP-PACT 1988).

The Atis are by nature nomadic. Their abodes range from the coast to the lowlands and the uplands. The Atis were among the first cultural group to practice slash and burn agriculture.[29] Their search for food influences their movements. They move from one place to another wherever the prospects of obtaining sustenance is promising. Their nomadism is, however, aggravated by the fact that they do not own land to cultivate or to settle on. In lean months, some Ati families eat just one meal a day. Through the years, the Atis of Panay have transformed into sedentary or settled communities. Factors that brought this about include the influence of major cultural groups, cash or market economy and education.

The typical hut of the modern day Atis is illustrated in Figure 2 below. It is usually constructed with temporary materials owing to their nomadic lifestyle.

■ Major livelihood

The livelihoods of the Atis highly depend on their immediate environment and resources at their disposal. In Nagpana, Barotac Viejo, Iloilo, the Atis' main livelihood is farming. In Igcabagti and Igcaputol Dao, Antique, the Atis make a livings from *nipa* shingles

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[27] Bolante, Jose B.: *The Atis of Panay: A Glimpse into their Indigenous World,* Published by Office for Muslim Affairs and Communities, National Capital Region, (Manila, 1986).

[28] Dickersen, Roy E.: *Distribution of Life in the Philippines*, Bureau of Printing (Manila, 1928).

[29] Barrato Calixto L. Jr. and Benasing Marvyn N.: *Pinatubo Negritos*, Field report series No. 5, Philippines Center for Advanced Studies Museum, University of the Philippines, Diliman (Quezon City, 1978).

and fishing. In all the sites visited, their anual income from these occupations is insufficient so that they have to earn additional income by working as labourers in rice and sugarcane farms in far away places like Passi and Negros Province.

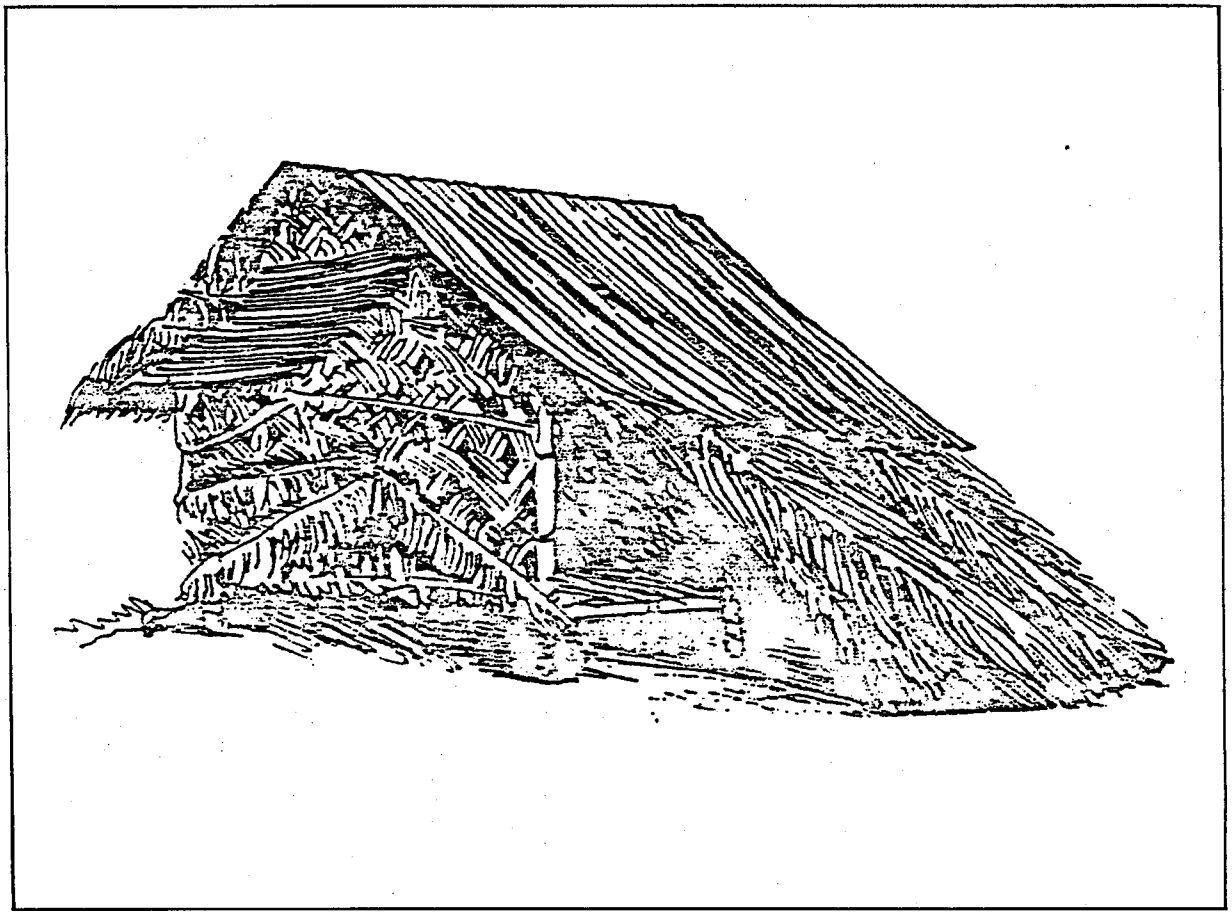

Figure 2: Typical hut of the modern day Atis of Panay

3.2 Origin and historical perspective

The indigenous knowledge systems and practices of the Atis have existed and evolved since time immemorial. They were passed down by parents to their children, up to the present generation. Livestock raising was, however, introduced by the Government in its desire to uplift the socio-economic condition of the tribe. In Nagpana Barotac Viejo, the traditional *kaingin* (swidden) practices of the Atis have been modified to become more sustainable with the technological intervention of the Department of Environment and Natural Resources (DENR).

3.3 Indigenous knowledge systems and practices (IKSPs)

3.3.1 Farming

The Atis were probably the first to practice swidden farming, or slash and burn system, in the country.[30] Those who live in the upland areas, such as the Atis in Nagpana Barotac, Viejo, Iloilo, engage in swidden farming.

Preparatory to planting, the area is cleared and grass removed using bolos. The area is then tilled with the help of water buffalo-driven plows. Areas with steeper slopes are tilled with hoes and bolos. The Atis use small pieces of wood or sticks to pulverize the soil prior to planting. *Guna*, a type of sharp knife, is used to till hard mountain soil, while a pointed stick, *pisaw*, is used to create holes for corn seeds, beans, etc.[31]

Planting starts at the onset of the rainy season. Water buffalo manure is used to fertilize plants. While crops are growing, weeding and fertilization are carried out, using organic and inorganic fertilizers. Planted crops are ready for harvest after 3 to 4 months. The rice varieties planted are *asucena, malido,* and *kutsiyan*. These varieties are planted and harvested once a year. Vegetables like beans, mungbean and taro are also planted. Bundles of harvested rice are transported manually, using two metre long bamboo poles to carry them. Two rice bundles hang at both ends of the pole, which is carried on the shoulders. Threshing is done manually by trampling the panicles placed on the floor with both feet.

- **Marketing**

Most of the products are for home consumption. Excess products are used for bartering with the other Atis and their Bisayan contemporaries. Fruits like star apple, coffee, and banana are sold at the market to buy basic necessities like rice and salt.

- **Evolutionary changes**

While the Atis have been traditionally illiterate, there has been an increasing number of families sending their children to school, although only few manage to finish elementary school or high school.

The introduction of modern technologies and the influence of Bisayan culture, have significantly changed the way of life of the Atis. In the past, the Atis were nomadic, migrating from one place to another. With the passing of years, they have shifted to building permanent houses and have focused on intensive land cultivation. Subsequently, the pressure on available land has intensified. The use of fertilizers and pesticides are becoming more popular among the Ati farmers.

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[30] Barrato, op. cit.

[31] Bolante, J. B.: *The Atis of Western Visayas*, The Panaynon Studies Group, OSCC Region VI (Iloilo City, Philippines, 1993).

Their current upland farming practices revolve around the Sloping Agricultural Land Technologies (SALT), as introduced by the Department of Environment and Natural Resources (DENR). SALT consists of crop production in alleys that are lined with hedge rows of leguminous shrubs, which serve as a source of inorganic fertilizer and firewood and as a safeguard against erosion. For every three alleys planted with annual crops, adjoining alleys are planted with perennial crops, like coffee, *kalamansi* (local citrus) or banana. With SALT, the productivity of their upland farms has increased through the years.

■ **Problems**

(i) *Infertile soil*

Forest denudation and the continuous cultivation of sloped farms, have destroyed the land's productivity. While SALT has proven to be promising, the improvement of soil fertility takes time. The application of supplementary fertilizers is necessary. The farmers are applying manure and compost materials to improve soil fertility.

(ii) *Insufficient capital*

The income of the Atis from various livelihoods cannot support the capital needs of farming. Farming inputs, like inorganic fertilizers and pesticides, are usually too costly for the Ati famers. Some Atis attempt to solve this problem by borrowing money from their Bisayan neighbours.

(iii) *Lack of farm implements and farm animals*

Many Ati farmers cannot afford to buy farm implements such as plows. They rely on their indigenous implements, *guna*, dibble stick and hoe. Only a few Atis have benefitted from the Department of Agriculture's carabao distribution programme.

(iv) *Occurrence of pest and diseases*

Pest, like rats and worms, have been attacking their crops resulting in low yields. Some Atis use agricultural chemicals to control the pest.

(v) *Insufficient water for irrigation*

This problem was brought about by the continuous removal of vegetation. During the summer, water in the soil is not available for plant use. This is aggravated by the long dry season from December to April. As a result, only one short-term crop is possible per year. This results in food shortage. Thus the Atis have to supplement their income during the dry months by going to other places to work as casual labourers.

(vi) *Fire occurrence*

Some remaining *kaingin* (swidden) areas are prone to fire, especially during the summer, thus puting adjoining farms and tree plantations at risk. The tribals solve this problem through their vigilance and corporate fire-fighting efforts.

(vii) *Scarcity of land to cultivate*

Farmers have only limited land to cultivate. The fallow period, if existing, becomes shorter as the Atis have no additional land to cultivate. The Atis in Dao, Antique do not even have their own land to cultivate.

3.3.2 Hunting

Hunting is a secondary source of subsistence among the Atis. In the earlier days, the Atis hunted with bows and arrows. These bows and arrows were also used for fishing and for defense purposes.[32] Wild chicken (*ilahas*), rail bird (*tikling*), owl (*bukaw*) and quail, are captured in traps. A *tigsuhot* (simple snare) is employed for trapping. Bolante[33] describes *tigsuhot* as being made up of a *binitlag* (slot) encircling a dead frog. Two spring traps are attached on two places near the encirclement. A monitor lizard or bird, attempting to get the bait through one of the openings, is trapped by the snare.

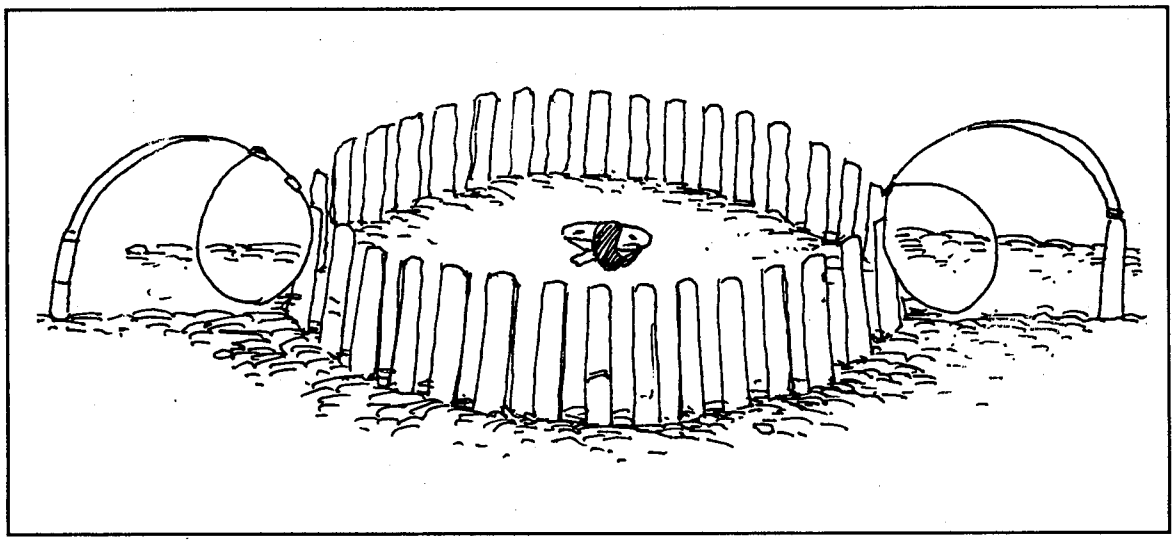

Figure 3: A *tigsuhot* (simple snare) used for trapping wildlife

[32] Rahmann, Rudolf and Marcelina N. Maceda: *Bow and Arrow of the Visayan Negritos*. Anthropos, Vol. 84, No. 3, Institute of Science and Technology (Manila, Sept. 1955).

[33] Bolante: *The Atis of Western Visayas*, op.cit.

The following methods are employed by the Atis to capture the wildlife species listed below:

Wildcat (*Singgarong*)	-	captured by shooting at the head with an arrow.
Iguana (*ibid*)	-	a bolo is used to inflict a wound on the animal in order to immobilize it, after which it is seized manually.[34]
Monitor lizard (*akyaw*)	-	hunting for monitor lizards is best after rain. Hunters search for monitor lizards on branches and on the forest floor. They are captured by grasping at the tail and slamming them on the ground or against a tree to immobilize them.[35] *Tigsuhot* are also used. The hunter is usually accompanied by a dog, which can easily sense the presence of *akyaw*.
Field rat (*balabaw*)	-	Field rats are trapped or caught in the fields throughout the year. This is done by surrounding the hiding place of the rats (e.g. rice paddy) with a net. The rats become entangled in the net.
Turtle (*bao*)	-	Turtles are captured along riverbanks. The hunter digs up the suspected habitat of the turtle. Signs that indicate the presence of turtles along the river banks, include boring and foot prints. Turtles found near settlements are not captured and should not be eaten because they are not clean. The eggs of the *bao* are also edible. They are boiled in water for twenty to thirty minutes. Turtles and monitor lizards are delicacies among the Atis.

■ **Evolutionary changes**

The Atis seldom hunt today. Very few of the younger generation are familiar with the hunting practices of their forefathers. This is mainly due to the dwindling population of the animals being hunted. Today, for instance, it is very seldom that hunters come across monitor lizards.

Intensive hunting in the past both by the Bisayans and the Atis resulted in the rapid decline of the wildlife population. While the Atis were traditionally protective of their environment, this has gradually changed due to population pressure and competition for the limited wildlife population. Continuous deforestation also led to such changes. The use of bows and arrows has also gradually disappeared.

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[34] Rahmann, Rudolf and Marcelina N. Maceda: *Some Notes on the Negritos of Ilo-Ilo, Island of Panay, Philippines*. Anthropos, Vol. 53, Institute of Science and Technology, (Manila, May 1958).

[35] Bolante: *The Atis of Panay*, op. cit.

■ **Problems**

As stated above, the most pronounced problem is the dwindled population of wildlife to hunt. Many times the Atis have no catch at all on their hunting expeditions. Reforestation should help a lot in bringing back the wildlife population.

3.3.3 Handicrafts

Handicraft production is a secondary occupation among the Atis. Handicrafts are made during the rest period.[36] Indigenous materials like *biribid (kenaf)*, black vine *(nitu)*, *bolo (Gigantochloa levis)*, and *hu-ag* (vine) are used. Products are woven following a geometric design.[37] *Nitu* vine, with either black or brownish skin, are used to embellish some of their works, such as the *buon-buon*, or wallet. Wallets are manufactured from *buri* leaves *(Corypha elata)*, and lavishly decorated with the black *nitu* vine. The vine is split into two and soaked in water before it is woven into wallets. Bracelets are also woven from the same materials. Mats, on the other hand, are woven using *buri* leaves.

Making of *nipa* shingles from coconut leaves is a primary livelihood of the Atis in Dao, Antique. It is usually done during the dry months. Coconut leaves are gathered free of charge from nearby areas with the owner's permission. The leaves are soaked in water for one day to make them smooth and pliable. Bamboo slots are used to hold the folded coconut leaves in place. These are tied with buri strips. The finished products are one and one half metres long and are used as roofing materials for new houses or those under renovation.

[36] Cadeliña, Fred V.: *Negrito Studies on Negros Island. An Introduction. The Ata of Negros Oriental.* Siliman Journal, Vol. 30 No. 3-4, (1983), pp. 111-115.

[37] Bolante, op. cit.

An Ati woman making shingles from coconut leaves

■ **Marketing schemes**

The wallets are sold at the market for 15 to 20 pesos each. The Atis also barter with their Bisayan neighbours for basic necessities, like food and salt. *Nipa* shingles are either sold at the farm gate or at the market for 130 pesos for 100 pieces.

■ **Problems**

(i) *Low price and limited market for nipa shingles*

The income derived from *nipa* shingle production is not enough to support a family because of the low sales value of the shingles. The *nipa* shingle market is also very limited because only a certain amount of households use *nipa* shingles as roofing material, and those who do, are very poor and cannot afford to pay much for them.

(ii) *Insecure land tenure*

The Atis of Sitio Igcabagti in Dao, Antique, comprise 43 households currently residing on 15 to 20 hectares of privately owned land. They were given

permission by the landowner to stay there on a transient basis only. They fear that anytime, they might be asked to leave. Each family dreams of having a land of their own.

3.3.4 Food preparation

The staple food of the Atis consists mainly of rice and root crops.[38] Root crops are gathered from the forest or from the hills using rough tools, such as a wooden dibble stick (*tagad*), or an iron-tipped, dibble stick (*pitala*).

Banayan and *kayos* (yam) are favorite root crops of the Ati. *Kayos* contains some toxic substances and therefore need proper preparation to remove these. This is done by cutting the tubers into thin slices and submerging them overnight in a stream with clean running water. After this, they are cooked.

Cassava is also one of the Atis' staple foods. It is prepared by first peeling the tubers and shredding them with a locally fabricated, tin can shredder. The shredded cassava is then sundried. When the moisture has been completely removed, it is pounded in a stone mortar till it is pulverized, and then cooked.

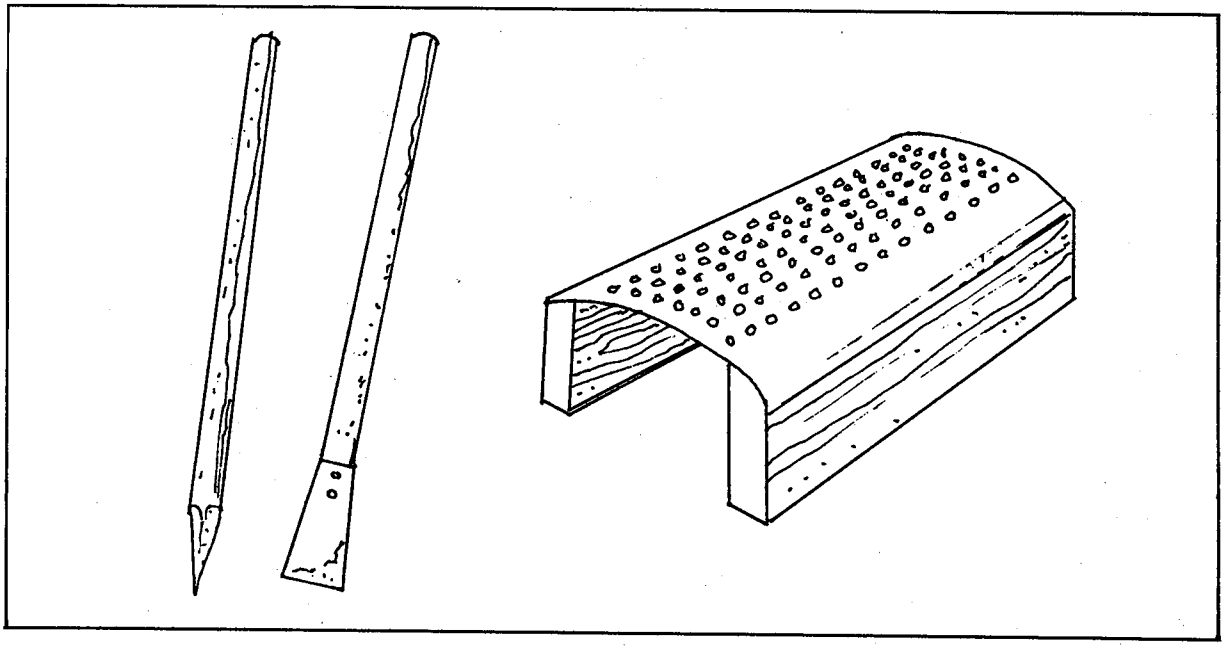

Figure 4: ***Tagad* and *pitala*: digging tools for root crops** **Tin can shredder for cassava tubers**

[38] Oracion, Enrique G.: *Negrito Subsistence Strategies in a Changing Upland Ecosystem in Southern Negros,* Siliman Journal, Vol. 30, No. 3-4 (Philippines, June-Dec. 1983) pp. 116-126.

3.3.5 Fishing

Fishing is carried out by men, individually or in groups, at night. The fishermen then return to shore early in the morning. The Atis in Igcaputol Dao, Antique, employ simple methods to catch fish, for example, the hook and line (*bonit*), different kinds of fishing nets and the *lagtang* vine to poison the fish. In narrow creeks, fish traps (nets or bamboo) are used.[39]

With the fish poisoning method, the fruit of *lagtang*, a baneful plant, are strewn in the water to lure the fish into the surface. When the fish eat the fruits they become dizzy and float for a while.[40]

Fishing nets are used in the ocean. At the most fourteen people are needed to conduct this operation. The net is laid in suspension across the waters for few hours, after which it is pulled back and the catch is landed in the boat. Small fish are not caught by this method, because of the relatively large holes in the net.

Buldos, fishnet used by the Atis

[39] Rahmann, Rudolf and Maceda, Marcelina N.: *Notes on the Negritos of the Antique, Island of Panay, Philippines*. Anthropos, Vol. 57, Institute of Science and Technology (Manila, 1962).

[40] Bolante, op. cit.

Two sharing systems exist between the boat owner and the fishing crew. The first applies when the boat owner provides the fishing equipment. Then half of the catch goes to the boat owner and the rest is shared equally among the members of the crew. The second system applies when the boat owner has not supplied the fishing equipment. Then only one third of the catch is given to the owner and the rest is shared amongst the crew.

Spear guns are also used for fishing along with locally devised, water goggles to observe the fish under water. Fish caught include *bulaw*, *pugaw*, *bisugo*, *alimasag*, *silayan*, and *malasugi*.

■ **Evolutionary changes**

The traditional fishing methods of the Atis have changed through time. The Atis have slowly adopted the modern fishing technologies used by their neighbours, the Bisayas. The use of bow and arrow and *lagtang* vine is now fading. In the olden days, the Atis fished along rivers and the seashore. With the present dwindling fish stocks, they are forced to go far as fifteen kilometres offshore.

■ **Problems**

(i) *Lack of capital and modern fishing equipment*

The high cost of securing fishing boats and fishing equipment, greatly hampers the Atis from catching more fish. The Bisayan fishermen use powerful and modern fishing equipment and therefore catch more. Impressed by the bigger catch of the Bisayans, a few Atis, who have the means, have bought powerful fishing gear while others have opted to work with the Bisayan fishing crews.

(ii) *Low price of fish*

The market price for fish is rather low, between 20-25 pesos a kilo. Families, which rely entirely on fishing, end up with an income barely sufficient for their needs.

(iii) *Poor harvest*

This problem arises from over-fishing and the use of modern and destructive fishing methods such as dynamite. Furthermore, the increase in number of fishermen in the area is causing greater and greater pressure on limited fish resources.

3.3.6 Livestock farming

Livestock raising is becoming popular among the Atis in Nagpana Barotac Viejo, Iloilo and Igcaputol Dao, Antique. Animals like chickens, pigs, goats, carabao and cows are raised in the area. Chickens are placed in a inverted, cone-shaped bamboo enclosure (*kurong*) with a diameter of about one metre. As many as 15 to 20 chickens are accommodated inside. The birds are confined, especially during growing and harvesting time, to minimize the damage to crops. Fowl, pigs and dogs are fed in bamboo troughs held in place by pegs.

Pigs are sheltered underneath a tree within the vicinity of the house and are tied in place using ordinary ropes. Pigs are fed on cooked taro leaves, banana stalks and cassava, two to three times a day. They are occasionally bathed to cool them. The Atis say this helps the pigs grow healthier and fatter.

Carabaos and cows are grazed on grassy areas. Children are assigned to watch them from time to time to keep them from damaging or eating the crops.

- **Marketing scheme**

Full size pigs are sold at the market. Some buyers purchase directly from the farmers. The price of pigs ranges from 3,000 to 4,000 pesos per head. Other livestock, like chicken, ducks and goats, are also sold occasionally to generate cash for household needs.

- **Evolutionary changes**

Livestock raising is becoming popular among the Atis. This is promoted by Government programmes aimed at uplifting the Atis' living conditions. Some Atis raise exotic breeds like Land Race.

- **Problems**

The problem faced by the Atis in livestock rearing, is stealing of animals. When this happens, cases are referred to and resolved by the tribal leader. The complainant and the suspect are brought together to come to peaceful settlement. If proven guilty, the offender is required to replace or pay back what has been stolen.

3.3.7 Traditional health care and medicine

The Atis of Panay are superstitious with regard to illnesses. They use charms and amulets to detect the presence of evil spirits causing the illness. They believe in the existence of *kalanasin* (spirit of the forest) and *aswang* (witches). *Panagang*, a charm, is used against witches.[41] It consists of a vessel, filled with oil, shoots of *tagahusay*, *tagahumok*, *lapuy*

[41] Bolante: *The Atis of Panay*, op. cit.

chips, panuli and hu-ag vine. Some twines of the *manunggal* vine are hung at a corner post of their huts. The bitter sap of the vine is effective against witches. It drives away evil spirits.

The *tektite* is employed as a charm against the forest spirit, which inflicts *bulaw*, or malaria. The stone is soaked in water for one day, then the inflicted person drinks the liquid. The Atis also use a mineral stone, *diamante-negra,* soaked in water along with the *tektite.* This is effective against *himit* (evil spirits).

Mirku and *abara* are pieces of a deer's porous anter found among burnt trees in the swidden site. Snake, dog and catfish bites can be cured through *mirku,* using the *abara* to absorb the venom from the wound.

Turtle bile (*ipro*) is boiled in water and taken by the patient with asthmatic symptoms. It is also effective in curing tuberculosis. Table 3 below shows the different herbal medicines used by the Atis.

Table 3. Some of the herbal medicines used by the Atis

Plant	Illness	Preparation and application
Alibutia (Menispermum flavium)	Stomach ache, any sickness caused by overexposure to rain and sun	For stomach ache the vine is cut and split into pieces, then boiled in water for ten to fifteen minutes. The patient then drinks the liquid.
Tagolaway roots	Bruises and wounds	The root is powdered then applied to the infected parts.
Duguan (Myristica discolor)	Vomiting and diarrhea	The leaves are boiled in water and then drunk by the sick person. It also increases blood flow during menstruation.
Hawili (Lamog) (Caediaeum variegatum)	Headache	Five to seven leaves are placed on the forehead. A strip of cloth is tied around the forehead to hold the leaves in place.
Dita (Bita) (Alstonia scholaris)	Stomach ache	The scraped bark is dried in the sun. The dried bark is then pulverized, pounded and stirred into a glass of hot water. The sick person drinks from the mixture.
Banana	Fever	The leaves are placed on the forehead and stomach of the patient and bandaged with a cloth.
Coconut oils mixed with *Anagos* leaves	Rashes	The *Anagos* leaves are first dried then powdered. The powder is mixed with coconut oil and applied to the affected parts.
Garlic	Snake bite	The patient chews garlic continuously. A small amount of the chewed garlic is applied over the wound and the rest is swallowed by the patient.

■ **Evolutionary changes**

In the past, illnesses have been perceived by the Atis as the work of environmental spirits. However, through continuous education and the introduction of modern technologies, the Atis now believe that diseases, like tuberculosis and dysentery, are caused by germs.

The knowledge and expertise of their ancestors in identifying and preparing herbal medicine are becoming less observed among the younger generations.

■ **Problems**

There is some useful and unique knowledge in the traditional medicine employed by the Atis. However, the indifference of the younger generations is causing this knowledge to disappear completely. It is high time that the knowledge and practices are documented and evaluated in detail for their usefulness and effectiveness.

3.4 Impact of the livelihood and indigenous knowledge system (IKSP) of the Atis

The IKSPs (farming, livestock raising, fishing), of the Atis in Panay help to augment the socio-economic situation of the community. The Ati families in Igcabagti were the most socially and economically depressed of the Ati communities studied. They are dependent on their wages as labourers for Bisayan landlords. Their average wage of only 30 pesos per day, is not sufficient to support their daily needs. In addition, the Atis in Igcabagti do not have their own land to cultivate.

The Atis in Nagpana Barotac Viejo, Iloilo are better off. Livestock rearing and farming help improve their socio-economic condition. They are able to send their children to school and buy basic necessities like sugar, coffee, salt etc.

The methods of fishing in Igcaputol Dao, Antique are environmentally friendly. The use of bow and arrow (*pana*) and fishing nets do not cause undue stress to the aquatic life and coastal environment. Only bigger-sized fish are caught allowing the small ones to grow and replenish the stock. Despite the traditional fishing methods of the Atis, there is still a threat to the ecological balance due to the modern fishing methods of the Bisayan fishermen.

The Atis' adoption and practice of contour farming and SALT are paying off in terms of improved farm production and restoration of the forest cover. The practices are also instrumental in ensuring other amenities, like the continued supply of firewood, and the availability of water for domestic use as a result of the maintained springs.

It is hoped that in time, with the planting of more trees, some of the wildlife the Atis used to hunt, like monitor lizards and wild boar, will reappear again in greater numbers.

3.5 Organizational structures

The settlement areas (Nagpana, Igcabagti, Igcaputol) where the study was conducted have their respective organizations. These are the Nagpana Minority Association (NAMIAS), Igcabagti Tribal Council (ITC) and *Kaugpungan Kaati Dao* (KMKD). The heads of these organizations are referred to as tribal leaders. The duties of a tribal leader include the maintenance of peace and order; enforcement of tribal laws; settlement of disputes among the different Ati groups and individuals and livelihood promotion and assistance (Rahmann 1958). The tribal leader serves as an emissary or representative of the tribe to the Government or other missions. He is also responsible for the distribution of assistance e.g. clothes, livestock etc., donated by organizations.

The tribal leader, furthermore, serves as a channel for learning and experiences that can contribute to the development of the community, and for value setting. He is responsible for linking up other agencies in an effort to uplift the living conditions of the Atis. There are no female tribal leaders among the Atis.

NAMIAS was organized in 1982 by a Peace Corps volunteer, called Mary Fieldberg, in order to unite the Atis in Nagpana. The formation of this organization served as a stepping stone for the application and eventual awarding of a 946 hectare reservation for the tribe.

Earlier in 1967, the Commission on National Integration (CNI) provided help to the Atis through the survey and delineation of an area for them. This did not prosper accordingly because of the absence of the necessary support documents. During the administration of the Philippine Assistance for National Minorities (PANAMIN) in 1982, Mary Fieldberg initiated the survey of 88 hectares for the Atis in Nagpana. This was granted to the community.

During the administration of President Aquino, greater emphasis was given to the rights of indigenous cultural communities. As a result of this, on 19 December 1986, the 88 hectares awarded to the Atis, was expanded to 946 hectares. The declaration stipulates that only Atis can occupy the area.

In November 1994, the Office for Southern Cultural Communities (OSCC) initiated the formation of the Nagpana Tribal Community Multipurpose Cooperative (NTCMPC). The NTCMPC is still in the process of starting operations. The members are hoping that the cooperative will serve as spring-board for income generating projects and liaise with other development agencies and organizations. The OSCC currently provides medical and health care services for the Ati.

The Department of Social Welfare and Development (DSWD) trains Ati women in Nagpana, in dress-making. The DSWD provided them with 15 sewing machines. The Department of Agriculture has implemented carabao distribution programmes, pig, duck and goat raising projects. DENR has taught the Atis environmentally-friendly technologies on upland farming like the SALT technology. Ati farmers testified that SALT increased their production, minimized soil erosion and conserved soil fertility.

The organizational set-up of the Atis in Dao, Antique, is not as strong as that of the Atis in Barotac Viejo, Iloilo. Organizational structures in the latter deal mainly with cultural identity. There was no economic progress observed in the community. The tribal leader in Igcabagti was always out working as a factory employee in another town. Violations and disputes in the community remained unresolved.

The OSCC has provided some assistance by lending money to the Atis. Each family received 300 pesos for *nipa* shingles-making, but the loans were not paid back.

4. The Badjaos of Tawi-Tawi

4.1 Introduction

■ Who are the Badjaos?

Along the coast of Sulu and Tawi-Tawi archipelago can be found clusters of communities inhabited by highly mobile people who live in stilt houses. They are boat dwelling people and are called sea gypsies or Badjaos. The Badjaos are found along the coast of Jolo, Siasi and Tapul island and further south in Sitangkai and Sibutu. They are also found in far off places such as in Surigao, Davao and Zamboanga.[42]

The origin of the Badjaos is unknown but some historians and anthropologists believe that the Badjaos migrated from Malaysia. According to Nimmo,[43] the boat dwelling habit of the Badjaos evolved independently in the eastern seas, but his claim on their origin is not clear.

Nimmo[44] narrates that the Badjaos originated from Johore, Malaysia. His story states that one evening, an old headman drove his mooring pole into what he thought was the reef floor. He tied his houseboat to the pole for the night, and the other boat dwellers, in turn, tied their houseboats to that of the headman, as was apparently their custom. Unknown to them, however, the headman's mooring pole was actually stuck into a giant sting ray which lay sleeping beneath the boats in the shallow waters.

During the night, the great ray awakened and swam to the open sea, pulling the houseboats with him. When the Badjaos awoke the following morning, they were amazed to find themselves in an oceanic setting of small islands and sprawling reefs. These were the islands of Sulu. Since the Badjaos did not know their way back to Johore and found the new environment amenable to their way of life, they decided to remain in Sulu, where their descendants are still found today.

The Badjaos are sea nomads whom their *Tausug Samal* neighbours sometimes called *Samal luwaan* (outcasts), or *Samal laud*, or *Pala-u* (people of the ocean). The Badjaos tend to shy away from groups other than their own. The Badjaos are peace-loving, seemingly contented and happy people.[45] Certain physical characteristics of the Badjaos are distinctly attributable to their environment and mode of life. They are easily recognizable by their

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[42] Sabalvaro, Jose B. and Jundam, Mashur B-G.: *Field Report Series No. 4*, Philippine Center for Advanced Studies Museum, University of the Philippines (Diliman, Quezon City, 1978).

[43] Nimmo, Harry A.: *The Badjao of Sulu. The story of the people who live between the sea and the sky,* The Filipino Heritage, Vol. 6 (Manila, 1978).

[44] ibid.

[45] Teo, Saladin S.: *The Lifestyle of the Badjao. A Study of Education and Culture.* Centro Escolar University Research and Development Center (Manila, 1989).

sturdy built and dark brown hair. Their manner of walking is affected, to a large extent, by their crooking in boat stern while sailing and fishing.[46]

- **Major livelihood**

The major livelihood of the Badjaos is seaweed farming and fishing. Fishing reflects the Badjaos' cultural inclination to harvest from Nature's bounty, and seaweed farming reveals their diligence to work and improve on Nature's productivity. These livelihoods enhance the preservation of their customs and traditions, and distinguish the Badjaos from other neighbouring tribes.

4.2 Origin and historical perspective

The indigenous knowledge system of the Badjaos has developed over time. Their fishing and mat weaving practices, for example, originated from their ancestors. However, seaweed farming was introduced to the Badjaos by Sarmiento Corporation in the mid 1980s.

The Badjaos handed down their indigenous knowledge system and practices (IKSPs) from one generation to another through oral communication and practical experiences.

A Badjao youth curing his fish boat

[46] Cabrera, Agustin E.: *The Badjao. Cultural Identity and Education* (not published) (1976).

4.3 Indigenous knowledge systems and practices (IKPS)

4.3.1 Fishing

As boat dwelling people, the Badjaos are by nature, good fishermen. Before seaweed farming was introduced, they depended solely on fishing for their survival.

The fishing methods employed by the Badjaos are environmentally friendly. These include *linggih* (net fishing), *pag-ambit* (deep sea fishing), *paubik or panah* (spear and arrow or hook and line), *bubu* (bamboo fish trap), *pitikan* (diving weapon) and *sangkaliyah* or shark fishing.

- ***Linggih* (net-fishing)**

Fishing nets are commonly used by the Badjaos today, as fish are easily trapped this way. To ensure a thorough spread of the interlinked *linggih* net, it is cast gently into the waters among the coral reef, where fish usually abound. This fishing method, however, requires start capital. The *linggih* net takes a long time to make and is therefore not cheap, and it also takes time to repair when damaged.

- **Deep sea fishing**

Big fish like tuna and mackerel are caught by the deep sea fishing method. The fishermen use a group of *vintas* (or sail boats) to encircle a shoal of fish with a fishnet of bamboo slats hung vertically in the sea water under the *vintas*.[47] They paddle the *vintas*, driving the fish under water towards the corals. This method does not always produce a bountiful harvest particularly when sea current is strong.

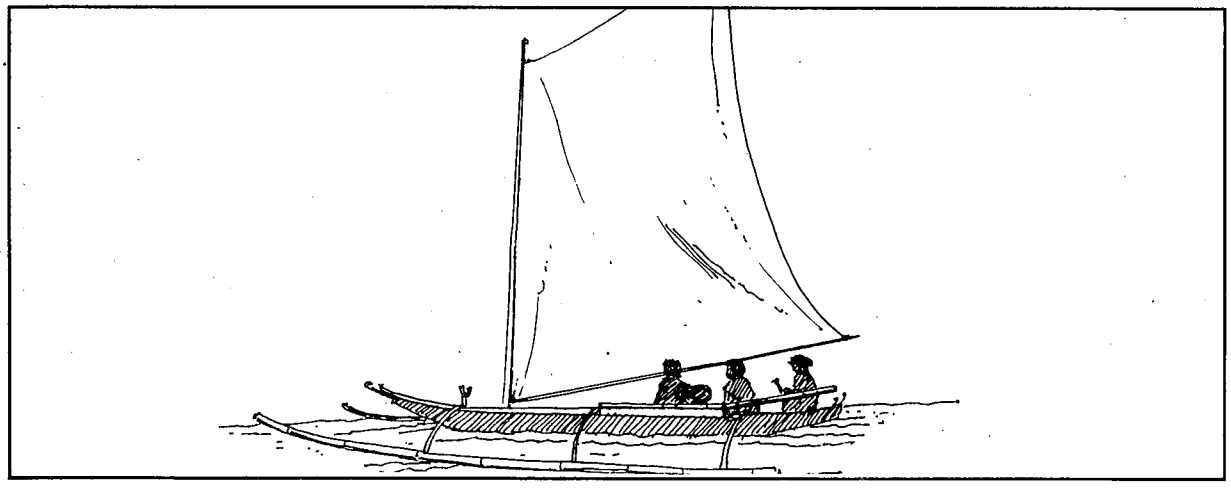

Figure 5: A typical *vinta* or sailboat used by the Badjaos for fishing offshore

[47] Teo, op. cit.,

■ **Other fishing methods**

The use of *saubik* or *panah* (spear and arrow), or hook and line, are less expensive and easy to prepare. *Bubu* and *panggal* (cone-shaped bamboo traps) are formed into fish traps.[48] The Badjaos also use kerosene lamps, called *kulayt,* during waning moon.[49] The light from the kulayt attracts fish, which are then easily caught with a hand net. Fishing at night with the *kulayt* is today, however, seldom done, because of the threat from Tausog pirates. Poisonous plants like *lagtang* and *tua* are seldom used. If used, the leaves are crushed and then broadcast into the waters. This makes the fish groggy so that they are easily caught with hand nets.

A Badjao family's fishing exploits are always led by the male head of household. There are times when the whole family goes on fishing trips. They leave home at dawn and fish until three o'clock in the afternoon. They prefer to fish during daylight because of the danger of piracy.

■ **Shell gathering**

Sea shell gathering is carries out by women and children. This provides the family with a supplementary protein source and income, especially when the sea is rough and fishing unadvisable.

■ **Evolutionary changes**

The growing influence of cash economy has tended to lure the Badjaos to fish more aggressively. This development, plus the increasing number of fishermen, is exerting greater and greater pressure on fish and marine resources. The use of traditional fishing methods like *kulayt* and deep sea fishing, is fading in favour of more powerful methods like net fishing. The Badjaos complain that their traditional method can only catch small fish and sometimes nothing.

This situation led the Badjaos to consider other promising livelihoods, like seaweed farming. The growing threat from pirates is another factor that led to the gradual disappearance of their traditional fishing methods.

Shark fishing, *sangkaliya,* is not so popular among the Badjaos as it is not so marketable.

In the past the Badjaos gathered shells merely as food supplement. Today, considering greater demands, shell gathering and selling is done to earn substantially greater income.

[48] Sabalvaro and Jundam, op. cit.
[49] Nimmo, op. cit.

4.3.2 Seaweed farming

Seaweed farming is a very promising livelihood for poor families in coastal areas. Farmers in some coastal areas like in Sitangkai, Tawi-Tawi, are involved in this livelihood. Shifting to seaweed farming reduces the danger of overharvesting and allows fish resources to recover.

Seaweed (*Eucheuma sp*) is a source of carrageenan, a chemical extract, which serves as an essential ingredient in various industrial products.[50] Seaweed is exported to other countries such as Japan, Indonesia and the USA.

- **Site selection**

One requisite for successful *Eucheuma* farming is the selection of good site. *Eucheuma* should be endemic in the area. The presence of other algae, eel grasses and sea creatures, indicates a productive site. The bottom of the site must be firm and sandy with abundant flora and fauna. *Eucheuma* needs a certain degree of water movement[51], but not to a point where the farm supports and seaweed risk being washed away. The water depth should be at least 30-60 centimetres deep at the lowest tide. The plants must always be covered by water.

- **Planting**

Materials used for *Eucheuma* farming include posts, nylon straw and a motorized boat. Wooden posts are erected as shown in Figure 6. The distance between the posts in each row is one metre while distance between rows is 10 metres. Nylon strings are tied from one post to another in parallel lines. The height of the line is about 20 to 25 centimetres from the ocean floor. A one hectare seaweed farm would have about 1,000 units of 10 metre lines.

Planting is done by tying *Eucheuma* cuttings to the nylon lines with straw at 20-25 cm. intervals. With this spacing, about 35,000 cuttings can be planted. See Figure 6 below.

- **Maintenance**

Cleaning is done by raising the lines at one end, removing the weeds (like eel grasses) and pest in the process. This is done when the grasses tend to overcrowd the planted *Eucheuma*. Sea urchins and herbivorous fish grazing on the plantlets are removed to prevent any damage to the seaweed. Detached lines are retied and any lost plants are replaced. Slow growing plants are taken out, or harvested, and replaced.

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[50] BFAR: *Illustrated Instructions for Private Eucheuma Farmers* (Mimeo, undated) p. 27.
[51] ibid.

■ Harvesting and drying

Three months after planting, the seaweed is ready for harvesting. Harvesting is done either by pruning the branches and leaving a portion of the plant to regrow again for the next harvest, or by harvesting all the plants and then replacing them with new cuttings. The harvested seaweed is sundried for about a week on cleared land or on a drying platform made of bamboo slats or concrete. The seaweed is turned from time to time to ensure even drying. Dirt and foreign materials are removed. The seaweed is covered at night and during rain. After drying, the seaweed is packed in sacks and transported to the market.

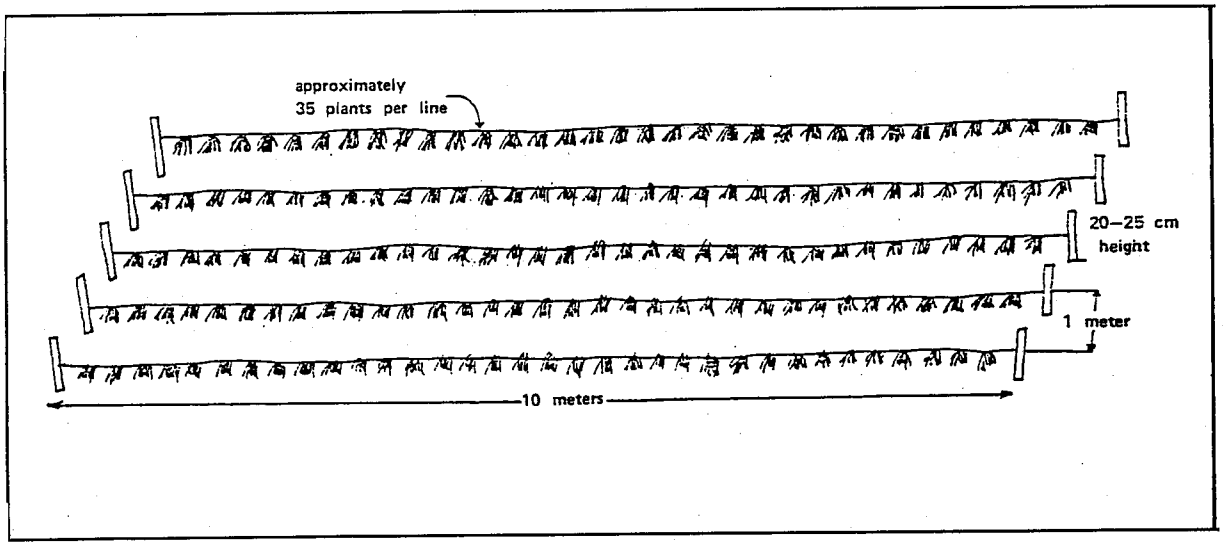

Figure 6: Seaweed farming set-up as practiced by the Badjaos of Tawi-Tawi

■ Marketing

Seaweed buyers purchase the seaweed from the farmers and export it to Manila or other countries. *Eucheuma* seaweed is sold at 8.50 pesos per kilo. A seaweed farmer can harvest 20,000 kilos of dried *Eucheuma* per hectare per year.

■ Problems

(i) *High capital requirement*

Eucheuma farming requires quite a high initial investment, especially if a motorized boat has to be purchased. The Badjaos' income from fishing alone, does not enable them to save up enough money to start seaweed production. Some of the farmers have remedied this by borrowing money from the seaweed buyer, on the condition that they not only pay back the loan with interest, but sell their produce exclusively to the money-lender.

(ii) *Limited space for drying*

Since the Badjaos reside in tidal areas, adequate space for drying the harvested seaweed is a problem. Well-dried seaweed fetch a good price and every farmer, therefore, endeavours to dry the seaweed sufficiently on the drying platforms. The drying platforms are also used for drying fish and as a venue for other functions. With the community spirit among the Badjaos, farmers with limited drying space are allowed, to dry their harvested *Eucheuma* seaweed on their neighbour's drying platform.

(iii) *Mortality during low tide*

The most common problem encountered by the Badjaos, is the drying up of the *Eucheuma* during low tide, when the seaweed is exposed to the sun. Exposure beyond two hours is detrimental to the growing plants. A thorough study of the tidal pattern is therefore required, so that height of the nylon line can be set at a safe level. Sites that are deep enough are chosen for seaweed farming to avoid the plant exposure problem.

4.3.3 Mat weaving

The Badjaos are known for their expertise in mat weaving. This home based activity helps augment the family income. Mat weaving is done by the Badjao women in their spare time. Female children are also involved in this activity.

- **Materials and method**

Materials used include *pandan* leaves, *jangatan* (an equidistant metal-bladed tool) for stripping *pandan* leaves, an *ambuhut* (bamboo stick) for flattening the leaves, and *anggangibi* (dye) for colouring the strips for weaving.

The thick *pandan* leaves are cut and the *legets* (spine) and central portion are removed. The two halves are separated, rolled (*angalikid*) and tied into coils with about one foot (30 cm.) diameter. The coils are soaked in water for one day. After soaking, the coil is cooked in boiling water for one night. The coil is then spread and dried in the sun for a day. When already dry, the leaves are flattened with a bamboo stick (*ambuhut*).[52] This is done by holding the *ambuhut* firmly in one hand, while passing through a strip of *pandan* leaf with the other hand. Then the leaves are transformed into smaller strips by passing them through an *jangatan*. The margin strips which do not have uniform width are discarded.

[52] Szanton, David: *Art in Sulu*, Philippines Studies, Vol. 11 (July, 1963), pp. 463-502.

The strips are dried in the sun, which bleaches or whitens them before being resoaked in cold water for twelve hours. Sun drying again follows for 2 days. By this time the natural colour completely fades and the strip turns whitish. The narrow strips are further softened with the *ambuhut*.

Dye (*anggangibi*) application is done by cooking the coiled strip for 30 minutes in dye solution. After cooking, the pandan strips are air dried to prevent fading of the colour. When completely dry, the strips are beaten gently with the *ambuhut* to make them soft.

Before starting to weave an exquisite design is chosen. Names may also be woven into the design.[53] Since the *pandan* strips are not long enough to reach from one end to the other of the mat, continuators (*sugpot*) are woven in by a technique, known as *anugput*. The edges are then knotted to prevent unravelling. The completed mat is sewn into a larger undyed mat so that the final product is a two-layered mat.

The four patterns or designs commonly used are stripes *(jali),* vari-coloured squares *(tabanas),* a checkered pattern, white with another colour *(kusta),* and zigzag. There seems to be no competition among weavers in mat designing.

■ **Marketing**

The finished products are sold at the local market. In some cases, mats are purchased directly from the Badjaos' homes by visitors to the area. The initial investment needed for mat weaving is acquired from surplus from seaweed farming and fishing.

Mat weaving can provide gainful employment to the Badjao tribe. A mat measuring 5 x 6 feet (150 x 180 cm.), takes approximately 5-6 weeks to make and is sold for 600-800 pesos. A mat measuring 2.5 x 6 feet, takes 3-4 weeks to make and is sold for 400-500 pesos. The small-sized mat requires 6 bundles of *pandan*, and the big one needs 10 bundles. Each bundle has a diameter of eight 8-10 inches (20-25 cm.) and costs 20 pesos.

[53] Teo, op. cit.

Badjao woman weaving a mat

4.3.4 Traditional health care

The staple food of the Badjaos consists of grated cassava and sometimes rice.[54] Their regular dish consists of boiled seaweed, shark meat, ray fish, octopus, urchins, sea shells and other crustaceans, gathered from the reef during low tide.[55]

The Badjao houses lack proper sanitation. Much of their domestic waste, including excreta and rubbish, are thrown into the water and swept in different directions by the tide. Diseases such as fever, cholera, ulcers, tuberculosis, maleria and malnutrition are recurrent among in the community.

The Badjaos believe in the healing power of magic and call on the spirits to cure their diseases. A ritual called, *pag-jin* is performed to cure such diseases. It is performed at night before the full moon is out.[56] The good spirit is asked to cure the illnesses and diseases, to give them healthy bodies and to prolong their lives. The Badjaos believe in the power of the *ginman* (herbolario) to drive away evil spirit. Table 4 shows some of the herbal medicine used by the Badjaos.

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[54] Arong, Jose R.: *The Badjao of Sulu, Tongcalang, Luuk Banca*, OSCC (Quezon City, undated)
[55] Sabalvaro, Jose B. and Jundum, Mashur G-B., op. cit.
[56] ibid.

■ **Evolutionary changes**

The influences of Islam and Christianity have invariably changed the outlook and beliefs of the Badjaos. The *pag-jin*, for example, is seldom practiced today. From being spirit worshippers, the Badjaos are slowly embracing the Islam religion. Educational advancement has also led to the adoption of modern practices and the use of modern medicine. From reliance on the spirits, it is now common among the Badjaos to consult the medical doctor when they are sick.

Table 4. Some herbal medicines of the Badjaos

Plant	Illness	Preparation/application
Sibukaw leaves	Loose bowel movement	The leaves are boiled in 3-4 glasses of water for 10-20 minutes. The liquid is then given to the patient to drink.
Luya and coconut oil	Rheumatism	An ample amount of ginger is pounded then mixed with coconut oil. The mixture is wrapped in banana leaves, then heated in the charcoal fire. Application to the affected body part follows.
Mankono (*Xanthostemum verdogonianus*) guava leaves	Dislocated joints (to lessen the pain)	The leaves are placed around the affected parts and tied with a long strip of cloth.
Pantili	Infections (for extracting pus)	The leaves are crushed and then applied to the infected area.

4.4 Impact of the livelihood and the surrounding indigenous knowledge system

The Badjaos derive substantial income from fishing, seaweed farming and mat weaving. A seaweed farmer can, for example, earn 71,400 pesos per hectare per year, which is sufficient to support the daily needs of the family. In addition to this, the Badjaos can earn extra income from fishing and mat weaving.

The Badjaos in Bongao, Tawi-Tawi, who depend only on fishing, are poorer than the Badjaos in Sitangkai. In Bongao, the families depend on their daily catch, which is sometimes low. Some can supplement their income with mat weaving, but for some families they can only afford to eat once a day.

In Sitangkai the situation is better owing to seaweed farming. Thus, the challenge is to spread the seaweed farming industry to Bongao, which is also part of Tawi-Tawi Province.

Seaweed farming improves marine biodiversity, thus providing a better habitat for the fish. However, seaweed farming can be harmful to the environment if the non-degradable, nylon string and straws are not properly handled. Some farmers pollute the sea by leaving these materials behind in the sea after harvesting the seaweed.

As for the *pandan* leaves used in mat weaving, there is an unlimited supply and therefore no threat to the environment.

4.5 Organizational structures

The Badjaos have their own system of leadership called *Panglima.*[57] This system still exists in the Badjao villages, but is no longer as powerful as before. In the past, the power of the *Panglima,* or headman, was informally defined, but his authority was unquestioned. All tribal activities depended on him and his decisions were revered and respected by the tribals.

Today the power of the *Panglima* has been transferred to the barangay captain and the local Government. The *Panglima* headman functions only as a symbolic figurehead. Another factor that has led to the gradual weakening of this indigenous leadership system, has been the insufficient leadership qualities of the *Panglima* headmen, which have unfortunately resulted in community members becoming individualistic and family centred.

4.6 Introduction of cooperatives

There were attempts by the Government and some NGOs to form cooperatives among the community members of Sitangkai. However, these attempts were not successful. For example, a bank in cooperation with an NGO, attempted to form a cooperative in 1991 called, the Seaweed Farming Multi-Purpose Cooperative, but this was aborted. The budget of the attempted cooperative was cut for unknown reasons. Some local residents registered reservations as to their ability to repay their loans, if they were to borrow. It was later discovered that the initial fund of the group was misused. There were also attempts to form

[57] Cabrera, A. op. cit. and Nimmo, H.: The Filipino Heritage, Vol. 6, op. cit.

a cooperative for deep sea fishing, octopus gathering and mat weaving, but no agency was able to finance the Badjao projects.

Some Badjaos refuse to borrow money because they fear they will not be able to pay it back. Others are willing to borrow, but on individual not cooperative basis, for then they alone are responsible. In 1992, a certain NGO tried to form a cooperative for seaweed farmers and demanded a fee of 500 pesos from the farmers. Unfortunately, the cooperative was not pursued and the collected money was never returned to the farmers.

The Office for Southern Cultural Communities (OSCC) attempted in 1993 to form a cooperative but did not continue because of the devolution of this function to the local Government Unit. An Arabian group also rendered assistance to the Badjaos by distributing fishing nets.

According to some Badjaos, forming indigenous cooperatives would help restore unity and strengthen their socio-economic condition.

5. Indigenous peoples' cooperatives

5.1 Current situation of cooperatives

Many programmes and strategies have been designed and implemented in the rural areas to promote development and attain self-reliance. One such strategy is the establishment of cooperatives. This strategy has been advocated to protect and serve the interests of those who have limited resources, like indigenous cultural communities (ICCs).

Cooperatives can provide members with the opportunity to work together towards a common goal. Thrift and credit societies afford an excellent opportunity for members to pool resources and gain access to much needed credit facilities. Marketing cooperatives can provide production and technical inputs for members and access to marketing channels for members' produce. In a good number of cases in the Philippines, cooperatives have contributed to the increased productivity of rural communities, and have increased the savings and purchasing power of member families. In Ifugao, for example, the Banawe Savings & Credit Cooperative Inc. that started humbly in 1986, has since grown considerably. Today this cooperative supports about 2,000 members in various occupations such as in wood carving, weaving, handicrafts and in the *payoh.*

In March 1995, the Cooperative Development Authority (CDA) had in its registry 250 tribal cooperatives all over the country, the largest concentration being in the Cordillera Administrative Region with 71 societies. Seventy-five per cent of the registered tribal cooperatives are agricultural. CDA records also show that the formation and registration of tribal cooperatives reached its speak in 1991, but has been on a downward trend since then.

5.2 Suitability of cooperatives for indigenous peoples

Cooperatives are widespread among the major cultural groups in the Philippines but not so common among minority groups. Through time, however, with the increasing recognition of the Government's role in uplifting the condition of ICCs, the use of cooperative form of organization for minority groups has been, and continues to be explored. A number of reasons can be cited for the suitability of cooperatives for indigenous peoples and their interest in forming cooperatives. These are as follows:

- *Collective nature of indigenous peoples' work and life*

Good examples of this are the hunting and fishing activities among the Atis, who usually go out in teams. Each member of the team has a designated task to perform. The Ifugaos also have a collective set up in the ownership, management and use of their communal ancestral land. This is governed by a set of laws and informal agreements that are passed down from one generation to another.

- *Traditional practices observed by indigenous peoples*

This is evident in the case of the Ifugaos in performance of group rituals connected with their cropping practices, as well as in local work groups among ICCs like the *hugpong* among the Talaandigs of Bukidnon.

- *Existence of traditional institutions among indigenous peoples*

A good example of this is the existence of the councils of elders, which initiate and promote self-help and mutual support among their constituencies. The councils of elders are responsible for the enforcement of laws and regulations; the settlement of conflicts and for undertaking steps towards the protection of their domain, their culture and practices.

5.3 Challenges for cooperative development

There are a number of problems related to the formation of cooperatives among ICCs. Some have to do with the working relationship between ICCs and the Government, while others are related to the different culture and physical setting of ICCs. These problems are presented and discussed below:

- *Model by-laws for cooperatives*

There is a consensus among ICCs, that while there is some degree of freedom in modifying cooperative by-laws, in general, the cooperative rules and regulations do not correspond to their own organizational traditions and hence do not adequately reflect their socio-cultural needs.

Cooperatives have at times been imposed on ICCs and have failed to adapt to the socio-cultural environment and recognize the capabilities of the local tribe. However, with a new approach, this problem can be effectively addressed. Experience has shown that cooperatives function best if they develop from the grassroots. It is therefore important that tribal capacities are strengthened to enable the ICCs to establish their own indigenous cooperatives and develop by-laws to suit the socio-cultural and economic environment. In the past, the Government has had a completely different set-up of rules and operating procedures for the introduction of cooperatives and this has often represented a threat to the ICCs' lifestyle and ways of doing things.

- *Low level of literacy among ICCs*

Both the far flung distance and low literacy level of ICCs come into play in the lack of access to credit and markets. ICCs' inability to comprehend and comply with the requirements of formal lending institutions (e.g. banks) drives them to resort to money-lenders, from whom they can easily draw cash but at exorbitant interest rates. Other ICCs

never resort to borrowing for fear that they may wallow in debt. Thus they do not invest at all and remain content with subsistence level of living.

The inaccessibility of commercial markets also discourage ICCs from producing surplus crops for sale. They just produce enough for their family consumption.

It is clear that cooperatives have an important and challenging role to play here, but the first step is to make people aware of the risks involved in borrowing money privately, and the advantages of working and saving together in order to increase productivity and gain access to credit facilities.

5.4 Interrelationship between indigenous cooperatives and their traditional social institutions

These are a good number of social and cultural institutions and indigenous expressions of cooperation, which can be integrated and reinforced with indigenous cooperatives. Some of these are discussed below.

- *Mutual help and labour sharing system*

The most typical of labour sharing systems is the *bayanihan* among the Tagalogs, or *hugpongs* (or *hunglos*) among the Bukidnon tribes, or *Ubbo* among the Cordilleras. Here, the community members form manageable workgroups and take turns in helping each other in farm work. A good example is where neighbourhoods join together to do farmwork and household chores for a family whose father or mother gets sick. No money is paid for the work, but food is provided for the helpers. This sharing system also applies to material goods. For example, the Mangyans share seeds and production inputs. This age-old social system could very well be adapted to a cooperative system, where members work together for the common benefit of all members.

- *Tribal leadership system*

Practically all tribal groups in the Philippines have their leadership system or structure, which consists of a chieftain with or without an advisory council of elders. Among the Badjaos it is called *panglima*, among other Mindanao tribes, a *datu*, and among the Cordillerans, *panglakayen*. The leaders wield substantial power and authority to make decisions in regard to communal properties; the settlement of conflicts; provision of materials and technical assistance and the representation of the tribe in initiatives or concerns that affect their welfare. Such an indigenous leadership system may be adapted to indigenous cooperatives. Or, since most tribal council leaders are respected by the community, they may assume advisory or leadership role in any cooperative established within their tribe.

- *Kinship system*

Considering the smallness in number and geographical proximity, most tribes are related to each other by blood or consanguinity. This could be an advantage for the establishment of a cooperative in a community. Kinship usually enhances the sharing of information, the promotion of cooperation and working together towards a common goal.

- *Peace pacts*

This system is called *bodong* among the Cordillerans, where members of adjoining tribes come to terms with each other and adapt measures to avoid disputes and to preserve overall peace. In Aurora Province, this peace pact system has been instrumental in eliminating headhunting among neighbouring Ilongot tribes. Seen in the light of cooperatives, this institution could go a step further not only in promoting a good relationship between different indigenous groups, but also in working for mutual interests and goals. Peace pacts can form the basis for the establishment of cooperative apex organizations within a geographical area.

5.5 Cooperative Act and by-laws: weaknesses and restrictions

The main legislation governing the establishment, operation and management of cooperatives in the country is the Cooperative Code of the Philippines, otherwise known as Republic Act Nos. 6938 and 6939. Recognition and respect for indigenous peoples is captured in Article 4 of the Code as it provides that "every cooperative shall conduct its affairs in accordance with Filipino culture and experience". Over and above this, the 1987 Constitution of the Philippines recognizes the rights and values of indigenous cultural communities (ICCs). The specific form and operational character of each cooperative is manifested in the Articles of Cooperation and by-laws of each cooperative. For expediency, a model version of these by-laws has been developed by the CDA to assist in the establishment of new cooperatives.

However, while there is sufficient formal recognition for indigenous peoples in the Philippines, there are some provisions of the Code and the model by-laws that restrict such recognitions. These tend to discourage indigenous communities from converting their informal self-help organizations into cooperatives. Corollarily, there are other sections that need to be improved or amended to adequately reflect the concerns for indigenous peoples. These are briefly discussed below.

- *Unaffordability of the required 2,000 pesos minimum share capital*

This provision under Article 14 Section 5 of the Code is considered burdensome by poor tribal communities.

- *Complicated and highly technical accounting and auditing requirements*

Article 53 of the Code requires the annual preparation and publication of financial statements that are audited according to generally accepted auditing standards and practices. The ICCs find this provision difficult considering their low level of education and their being averse to lengthy and complicated numerical computations.

- *Stringent registration requirements*

Constrained by their limited resources and technical capability, ICCs find the registration requirements for cooperatives rather stringent. This includes the requirement for bonds and economic surveys (Article 8 of the Code). If a ICC resorts to have the survey and the bond accomplished by an expert, it is incapable of paying for the service.

- *Liability for the advisory council*

Section 23 of Article 3 of the model by-laws provides for the liabilities of directors, officers advisory council and committee members. Note that the advisory council is just an advisory capacity, meaning their advice or suggestions, after having been evaluated by the cooperative officers, may either be adopted or dropped. As such, the ICCs argue that the advisory council need not be as heavily liable as the cooperative directors, officers and committee members.

5.6 Recommended elements for model by-laws for small indigenous cooperatives

From 6 to 10 March 1995, the ILO-INDISCO organized a national workshop on "Legal and Policy Framework for Indigenous Cooperatives in the Philippines", held in Baguio City. During this workshop, a concensus was reached between tribal leaders and representatives of concerned Government offices and NGOs, that what is needed is not a further fine-tuning of the existing model by-laws to suit the need of the ICCs. Thus the model by-laws has been set aside in favour of coming up with a completely new by-laws drafted and worked out by the ICCs themselves. It was felt that no amount of revision or fine tuning of the model by-laws can make it reflective of the sentiments of the ICCs. Instead, and intersectoral committee was formed to evolve a primer that can serve as a guide for ICCs in developing their own cooperative by-laws.

During the INDISCO workshop in Baguio, the following preliminary recommendations related to the Cooperative Code and model by-laws were presented by the Committee:

(1) The requirement for 2,000 pesos minimum paid up share capital should consider not just cash but also its equivalent in labour, material and time.

(2) In lieu of complicated standard accounting and auditing system consider the use of simplified indigenous accounting and auditing systems as practiced by some ICCs, with due certification by the chieftain.

(3) Simplification of registration requirements such that in lieu of bonds, the following may serve as substitutes:

(a) Tax declaration/title of a cultivated area recognized by the community as property of that person.

(b) Certificate of transfer of large animals.

(c) Contribution to a cash bond by the members in the custody of the person other than those who are going to be bonded as identified by the general assembly.

(4) In lieu of an economic survey for existing cooperatives, a document stating the area of operation; membership coverage, capitalization mode of management and plans and programmes for a certain number of years may be enough.

(5) Structure of the indigenous cooperative should be in consonance with existing community structures and ensures that:

(a) there is check and balance/internal control;
(b) collective leadership;
(c) consensual democracy.

(6) As to the composition of the board of directors at least 30 percent must be female, regardless of educational attainment.

(7) The leadership of the cooperative should be made suitable to the existing tribal structure to lessen the pressure on the question of obedience and cooperativism.

(8) There must be a provision in the Cooperative Code which mandated the CDA to register self-help organizations side by side with formal cooperatives.

(9) In Article 121 of the Cooperative Code, arbitrations must be amended to accommodate indigenous way of settling disputes though the chieftain.

(10) Under Article II of the Article of Cooperation, add the following items:

(a) For mutual assistance in time of crisis/disaster/emergency like tribal wars, epidemics, dislocation, death, legal problems, etc. especially to assist the poor, deprived and marginalized members.

(b) To fight for the recognition of indigenous people's rights like ancestral land/domains.

(c) To propagate the positive aspects of our culture.

(d) To promote environmental awareness and sustainable development in accordance with the priorities of ICCs.

(11) Under Article VI (Common Bond of Membership) common bond of membership may be sectoral, tribal, clan, kinship-based or interest groups.

6. Conclusions and recommendations

The Ifugaos, Atis and Badjaos represent a microcosm of indigenous cultural communities (ICCs) in the Philippines. Their problems, their struggles and the survival issues that effect them, are similar to those of the tribes in different islands of the country. This chapter seeks to sum up the main points regarding the three tribes, their IKSPs and appropriate organizational form.

6.1 Conclusions

- Some ICCs are being taken advantage of by their dominant ethnic groups. An example of this is the case of the Atis who are paid by the Bisayans only 35 pesos for a day's farm labour when the minimal labour wage is, by law, 90 pesos per day.

- Ecosystems and natural resources in ICCs are in varying stages of degradation. This is primarily due to the tragedy of the commons, the pressure of increasing ICC population and encroachment of outsiders. This results to lower carrying capacity of the ecosystem/habitat.

- There could be a harmonious blend between indigenous peoples' IKSPs and modern technology. This is demonstrated, for example, in the SALT integration in the Atis' upland farming, and the symbiotic combination of fishing and seaweed farming among the Badjaos.

- ICCs are receptive to innovations. As long as innovations are beneficial to them and complement their IKSPs. Again, the examples of seaweed farming among the Badjaos, and SALT, illustrate this.

- Indigenous organizational and leadership set ups exist among many ICCs, and these should be considered, and incorporated into or built upon, in any organization process in order to be culturally acceptable to ICCs.

- There are enterpreneural potentials among ICCs. This is demonstrated in the case of seaweed farming among Badjaos, and handicraft making and weaving among the Ifugaos. The ICCs need, however, access to training and credit facilities, and it is in this respect, that cooperatives can play a major role.

- External organizations can facilitate the organization of ICCs. External assistance can come from Government agencies, such as CDA, ONCC, OSCC and OMA and from other NGOs and social institutions.

6.2 Recommendations

- *Recognition and award of claims for ancestral land and ancestral domains*

A stable permanent land base for the ICCs also serves as base for their IKSP. Constant migration could result in the loss of their IKSPs. A good example of this are the Atis of Nagpana Barotac Viejo (Iloilo), the Ikalahans of Imugan (Nueva Viscaya) and the Bugkalots in Nagtipunan (Quirino), who have secured from the Government, the exclusive right and ownership of their own ancestral domain. The intention of the DENR Adm. Order No. 2 on Ancestral Land Domain claim, should be pursued vigorously for as many ICC's as possible.

- *Stabilization of ICCs resource base*

The livelihood and associated IKSPs of the ICCs, can only be stable if their resource base is also sustained. This requires both individual and group efforts at rehabilitating and conserving remaining resources. Local self-help organizations and cooperatives can contribute greatly to this cause.

- *Intellectual property rights for ICCs*

Intellectual property rights include the protection and preservation of indigenous knowledge systems, ensuring that indigenous people gain exclusive or preferential benefit from their local resources and biodiversity. Local cooperatives and self-help organizations can serve as lobby or pressure groups in property rights issues. A good example of this is the Executive Order on Bioprospecting, which was signed by President Ramos in April 1995. The Executive Order prescribes guidelines and establishes a regulatory framework for the prospecting of biological and genetic resources, their products and derivatives, for scientific, commercial and other purposes. It provides for prior informed consent of indigenous cultural communities in any bioprospecting by any party. This means that any material or specimen cannot be taken out without their permission and that the resulting benefits must shared with the indigenous communities.

- *Participatory IKSP documentation*

The best documentors and evaluators of IKSPs are the very people who possess them. Such documentation can be promoted by local cooperatives and self-help organizations with the facilitation as needed by concerned Government offices or NGOs. The documentation may come in the form of folk stories, sketches, ethnovideography, etc.

- *Pilot projects on the management of ancestral land by ICCs*

The main purpose for this is to highlight the role of indigenous organizations and the application of IKSPs in the sustainable management and utilization of resources. This

can be spearheaded by the DENR in partnership with concerned Government offices and NGOs.

- *Indigenous cooperatives, self-help organizations and tribal leaders to champion the revival and application of IKSPs*

As visible groups in the community local organizations, groups and leaders could be effective advocates for IKSP protection and promotion.

- *Cross-ICC sharing of IKSPs*

Considering the similarities in practices and knowledge systems among Filipino ICCs, it would be easier for indigenous peoples to understand and adopt each other's IKSPs where appropriate. Thus, IKSP databases should be promoted.

- *Inculcating in the youth the value and application of IKSPs*

Indigenous youth should also be involved in IKSP documentation and evaluation, and parents should be encouraged to teach their children and thus revive old traditional practices.

- *More intensified piloting and promotion of ICC-managed farm tourism and ecotourism*

Ecotourism helps promote enjoyment and appreciation of nature and the farm while respecting environmental integrity and the unique culture of the community.

- *Training and education programmes for ICCs*

Indigenous knowledge systems should be integrated into the curriculum of training and education programmes for ICCs.

- *Promote acceptance of IKSP among the general public*

This promotion can be done through the media.

- *Promote awareness and advocacy of IKSP among Government officials and policy makers*

Government officials need to be made more aware of the plight of indigenous peoples and hence address their needs more adequately.

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The INDISCO Concept

During the International Year of the World's Indigenous People in 1993, the Cooperative Branch of the ILO, taking into account the ILO's past experience, developed a new interregional programme for indigenous and tribal peoples funded by DANIDA. The INDISCO Programme (Interregional Programme to Support Self-Reliance of Indigenous and Tribal Communities through Cooperatives and other Self-Help Organizations) was conceptualized on the basis of the following criteria:

1. Indigenous and tribal groups should be targeted separately, not together with other mixed groups, to avoid fears of assimilation and exploitation, and to safeguard their distinct values, traditional systems and practices.

2. Coordination should be established among pilot projects in various countries and regions to enable indigenous and tribal groups to share their experiences and learn from each other.

3. Instead of taking the traditional "top-down" approach, all pilot projects should be prepared at the grassroots level with full participation of the targeted indigenous and tribal communities, taking into account their priority needs, and should be implemented by local organizations established by, or working for, these communities.

4. Emphasis should be placed on human resource development among these communities, which would result in more efficient management of their own development, and which would make them self-reliant.

5. As cooperative-type self-help organizations have been found suitable to their traditional way of life and therefore are widespread among indigenous and tribal peoples all over the world, indigenous and tribal communities should be assisted in strengthening these organizations through management training, extension services and revolving loan funds. It is believed that with the development of indigenous and tribal cooperatives, their practices, many of which are disappearing due to lack of support and recognition, will be preserved and further promoted for the benefit of mankind.

6. Development partners should be made aware of the needs and priorities of indigenous and tribal communities so that funds can be channelled in a coordinated manner to finance initiatives to meet these needs.

7. A more favourable climate is needed for the development of indigenous and tribal peoples, and this should be pursued with attempts aimed at strengthening and networking their own organizations, creating awareness among these communities and ILO member States about ILO Convention No. 169 and promoting its ratification and application.