INDIGENOUS KNOWLEDGE SYSTEM AND PRACTICES AMONG SELECTED PHILIPPINE ETHNIC GROUPS AND THEIR PROMOTION THROUGH COOPERATIVES

COOP INDISCO
INTERNATIONAL LABOUR ORGANIZATION
February, 1995

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FOREWORD

There is a growing worldwide recognition of the indigenous knowledge systems and practices (IKSPs) of the less privileged sector of society – the Indigenous Cultural Communities. The continuous advancement of civilization and subsequent introduction of modern technologies have pushed aside these knowledge system and practices. Despite these developments a significant number of IKSPs still remain. Thanks to the resistance to change of some segments of the indigenous people. It is high time these IKSPs are documented and preserved for development.

The program of the Philippine government towards "Philippines 2000" focuses on sustainable development. The government has formally recognized the Indigenous People as partner in nation building. Along with their collective efforts, the most potent contribution of the Indigenous People is their IKSPs. The indigenous farm and forest management system of the Ifugaos in Northern Luzon for instance point to bright alternatives for the conservation of our remaining forest resources.

Community based cooperatives and indigenous self-help organizations are emerging as effective agents in restoring and preserving IKSPs. Aside from being bearers of IKSPs these groups command the respect and exercise some degree of leadership over the community. Recognizing this, the International Labour Organisation (ILO) tapped the Philippine Resource Center for Sustainable Development and Indigenous Knowledge (PHIRCSDIK) and the Cooperative Development Authority (CDA) to undertake a pilot survey among the selected major ethnic tribes in the Philippines. This report is the result of that survey covering the Ifugaos of Cordillera, the Atis of Panay and the Badjaos of Tawi-Tawi. The study was conducted under the supervision of the Inter-Regional Programme to Support Self-Reliance of Indigenous and Tribal Communities through Cooperatives and Other Self-Help Organizations (INDISCO).

ILO is glad to release this publication as contribution to promoting the role of the indigenous people to sustainable development. It is hoped that this volume will be a helpful reference to development workers, researchers, policy-makers and other parties committed to the application of indigenous knowledge and practices to the current times along with modern practices and technologies.

KRISHNAN NATARAJAN
Deputy Director, ILO-Manila

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BSCCI	Banaue Savings Credit Cooperative Incorporated
BFMPCI	Banaue Farmers Multi Purpose Cooperative Incorporated
CAR	Cordillera Autonomous 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
ILO	International Labour Organization
IKSTP	Indigenous Knowledge System Technologies 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

Indigenous Knowledge System and Practices Among Selected Philippine Ethnic Groups and their Promotion Through Cooperatives

CHAPTER 1
INTRODUCTION TO THE SURVEY

As an archipelagic country, the Philippines is composed of sixty two (62) Indigenous Cultural Communities (ICCs) distributed in different islands of the country. Through the years, the Philippine government has maintained series of agencies that looked into their welfare. Only lately, however that the need to document and promote their indigenous knowledge system , and practices (IKSP) has been seen.

The declaration of 1993 as the "Year of Indigenous People" served as impetus in recognizing the role of the world's indigenous people (IP's) to sustainable development. To sustain such emphasis on the IP's on a longer term, the UN General Assembly declared 1995 to 2005 as the "Decade of the Indigenous People". Their IKSP is their most potent contribution.

In harnessing the ICCs IKSP, it is also realized that they themselves are the most effective promoters and replicators of their own technologies. In so doing, they need to bind themselves and work together. Hence the need for community organizing. It is recognized that through the years, there have been in one way or the other existing indigenous organizational and leadership patterns among these ICCs. Some of these may have faded through the years while others have remained intact. Government's intervention through establishment of cooperatives may yet strengthen these indigenous organizations so that the ICCs are better able to become partner for development.

To pave the way to tapping ICCs as partners for development, the International Labour Organization (ILO) through the Interregional Programme to Support Self Reliance of Indigenous and Tribal Communities through Cooperatives and Other Self-Help Organization (COOP INDISCO) has contracted the Philippine Resource Center for Sustainable Development and Indigenous Knowledge (PHIRCSDIK) and the Cooperative Development Authority (CDA) to undertake this Philippine Study.

Objectives of the Survey

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.

Methodology

Considering time and resource constraints, this pilot survey covered three (3) major ICCs 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 location from uplands to lowland to 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 non government organizations who have had earlier contact or work 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 (48) respondents were interviewed for each of these three ICCs, or a total of one hundred forty four (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.

Limitation of the Survey

The conduct of this survey was constrained by both time and resources. Only four (4) months (October 1994 to January 1995) was granted for the survey with a corresponding limited budget. The survey team went as thorough, as possible in the interviews. There could have been more details gathered had there been longer time for its conduct. The inaccessible nature of some of the communities visited required longer time for travel.

CHAPTER 2

The Ifugaos of the Cordillera

INTRODUCTION

Who are the Ifugaos

The Ifugaos are inhabitants of the eastern and Northeastern portions of the Cordillera mountain ranges of Central - Northern Luzon (Diaz 1985).

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 Luzon shores pushing the Negritos higher into 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 (Diaz 1985), the third group of settlers to inhabit the country arrived. They were another sea migrating people called Malay. They are believed to be the ancestor of the Ifugaos. The Ifugaos resemble the Malays in being short and having Mongoloid feature (Diaz 1985). 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 have their own version of their origin. Their version is 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 (Dulawan 1978).

Ifugaos are tall, brown, with dark eyes, straight hair and thin lips. An industrious people, they depend 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, using the simplest handtools, the Ifugaos have managed to extract sustenance from their rugged environment.

Major livelihood

The major livelihood of the Ifugaos are farming, handicraft making and wood carving. These livelihoods are very essential to them as they augment both their socio-economic and environmental condition. From these livelihood, they are able to support their children's education and acquire basic necessities of life. While their farming practices have greatly altered the environment, it is recognized as one of the most productive, stable and sustainable system worldwide.

Affinity of their Livelihood to their Culture and Environment

The Ifugao way of life is highly dependent on the products of the environment. The Ifugao culture is harmoniously knit with the mountain ecosystem. Their rice culture and private natural forests, wood carving and associated indigenous knowledge systems are highly dependent on the sustainability of the natural resources ecosystem. Their livelihood and associated traditional knowledge system distinguish the Ifugaos from their neighboring lowland communities.

ORIGIN AND HISTORICAL PERSPECTIVE

The indigenous knowledge system and practices of the Ifugaos have started and evolved since time immemorial. These originated from their great great grand parents. These were handed down by their forefathers through oral communication and actual experience. Parents bring with them their children to work in the field. Subsequently, their children internalize the what, how and why's of their indigenous knowledge system and practices.

The strong cultural identity of the Ifugaos contributed to the preservation of their IKSTP's and its passing on from one generation to another.

INDIGENOUS KNOWLEDGE SYSTEM TECHNOLOGIES AND PRACTICES

FARMING SYSTEM

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

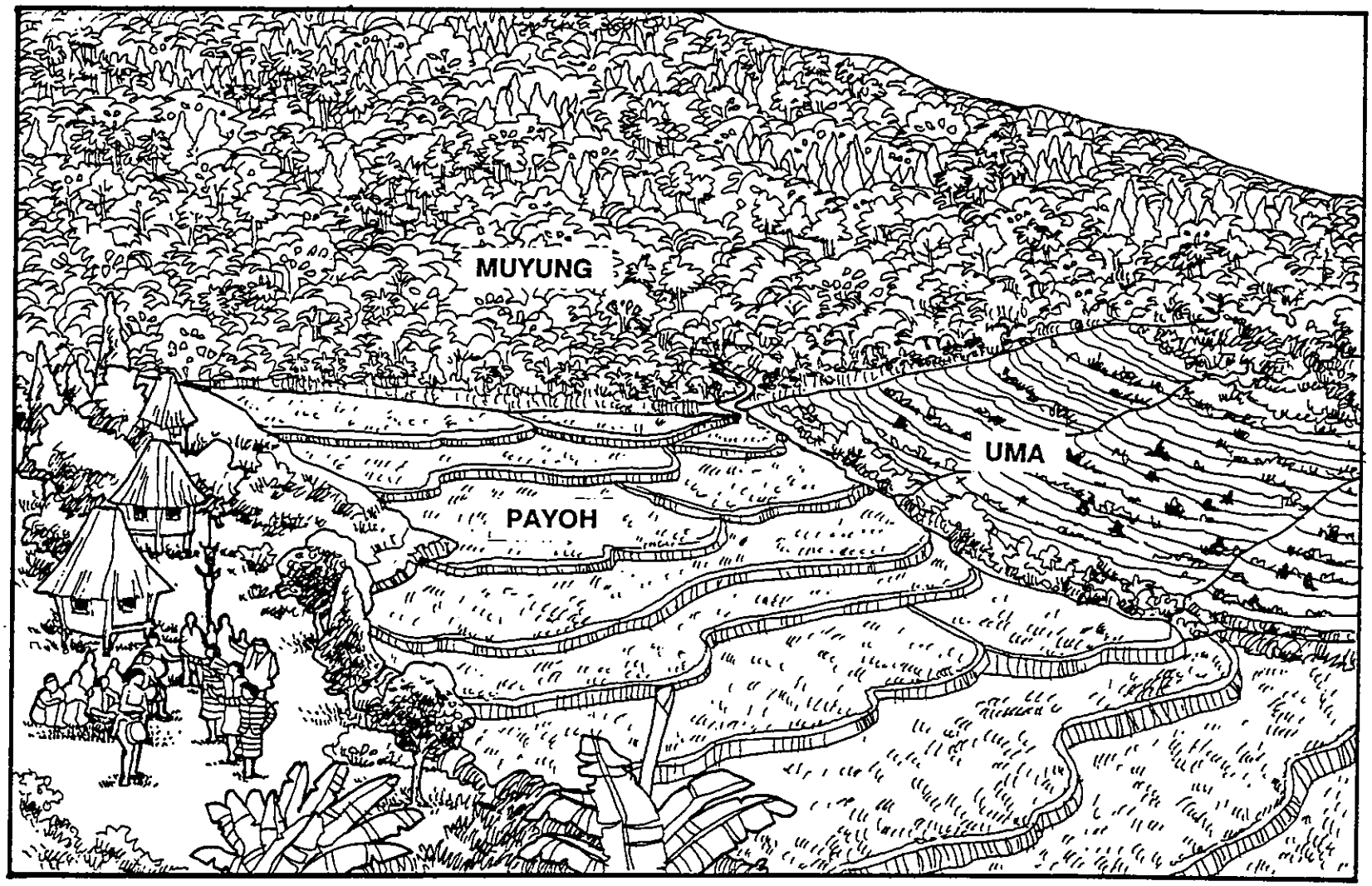

Fig. 1. The Agroforestry farming system of the Ifugaos with its components, namely the Muyung (Woodlot), Payoh (Rice terraces), and Uma (Swidden)

Payoh

Construction of pond field considers many factors. The utmost consideration is water sources or the availability of water (Conklin 1980). The terrace to be constructed must have continuous supply of water to avoid drying up of the pond field. It should have excellent drainage to prevent water logging. There should also be abundant rock materials for walling for easy construction and repair of damage (Mc. Eloy 1977). 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 (Conklin 1980).

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 done during this period (Daluping 1993).

Initial agricultural rite is performed by each family. Pigs and chickens are sacrificed. Weeding and patching of holes is done to minimize water leakage. Extensive weeding, treading and wet mulching are undertaken. The decaying vegetation is treaded deeply into the muddy soil (Omengan 1981). *Bagiao* (water weeds) are piled as mounds on top of dikes which are later planted to vegetables like string beans. It also enhances the fertility of the terrace soil. Treading and mulching is done regularly to control new weeds and replenish the decaying mulch. *Ugbu* (bayanihan) system is also employed in this activity (Daluping 1993) otherwise, hired labor is employed.

Spading takes five (5) to six (6) weeks within the period of October to November. It involves the maintenance and reshaping of the slopes. Large quantities of earth, soil, rocks and 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 thorough check to prevent seepage. Weeds are uprooted by hands or with the use of weeding knives. Heavy growth of vigorous weeds whose root system may later cause loosening and falling away of the walls is eliminated (Masferee 1988).

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 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 ritual is performed to prevent rats from reaching the seeds. Water is let in to cover the seeded areas as soon as the nursery is seeded.

Planting season (*lawang*) takes place from late November to March. Activities in this period includes rice seeding, transplanting and wall terracing. Second weeding and wet mulching also takes place during this time. Ifugao women do weeding, treading again the weeded materials deeply into the muddy soil (Lleva 1989). The herbaceous undergrowth is removed and cleaned to keep down rats. Soil preparation consist of readying wet terraces for planting. Seedlings for planting are sown and raised in selected section of the wet terrace. Meanwhile green manuring is done. When site is ready, the water is drained off and nurseries are marked out. Temporary dike is constructed to irrigate particular sections of the terrace.

Rice varieties planted are *tinawen* or *tiniyalgo* and *pinidwa* or *linawang*. *Tinawen* is a dry season rice planted yearly. *Pinidwa*, on the other hand, are wet season varieties. *Tinawen* is sturdy and tall and with long growing season thus allowing only one cropping per year (Conklin 1980). *Pinidua* varieties includes *ipugo* (non glutinous) and *dayaot* (glutinous). These are mostly lowland Philippine indica. It is smaller than those with *tinawen* and having a short growing season. *Diket* is another rice variety planted. *Diket* is a red variety which is best for making suman (rice cakes) (Guthrie 1964). Varieties of *diket* are *inalinnawan* variety which is best for rice wine, *umbangul* (white variety) and *ingkitan*. In Halimutok Ifugao, farmers plant IR64, IR36, IR60 and other new varieties.

Soil working activities involve spading, plowing and harrowing or by the use of hands and foot to turn the soil. Soil are redistributed and levelled off such that it is mud puddled in the process. 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 (Omengan 1981). Dike is improved with coating to reduce seepage, retard weed growth and to attain 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 keeping it from cracking. One chicken is sacrificed.

Rice planting takes place from February to March. Transplanting of seedling begins with the offering of two chickens. Bundles of seedling are carried by men to the transplanting site . The *Tomona*, a rich man and tribal leader of the community, decides when the first transplanting takes place. Seedlings are pulled, raised straightened, and trimmed then transferred to non-seeded fields. Transplanting is done usually by women. A bunch of seedlings is held by the left hand from which two (2) to three (3) 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 (5) inches to seven (7) inches. Wider spacing is adopted for fertile soil to accommodate growth and expansion of every plant hill.

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

The planted paddies are inspected everyday and replanting of dead and damaged hills is done right away. *Hagophop* is the last ritual performed in the pond field which requires two to three chickens. This ritual signifies the terrace completion.

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 planted rice plants are uprooted and treaded 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 chicken for offering. The farmers gather forest plants known to have extremely bitter, astringent and other strong qualities. The medicine plants are distributed in all affected wet fields during moon less night. The *Bongwang* plant is soaked at the source of water or irrigation and it is allowed to rot. When rotten, it gives off a bad smell and the effect is carried to the other rice plants by water. This plant 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 flow and distribution to different terraces. Weeds and other debris are removed.

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

Harvesting season lasts only for about a month towards the end of June or at the beginning of July. 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 houses. 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. Animals consisting of eight chickens and at least one pig are sacrificed during good harvest. Ample rice beer, betel and areca nuts are readied for participants. Cañao 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 they proceed harvesting otherwise harvesting is not continued.

Each harvester carries an angled 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 it is dried and stored. In good weather condition, the bundles are set down on the open house terrace. Otherwise, they are temporarily stocked under the house or granary . All rice are thoroughly sundried before they are stored to prevent spoilage. The bundles are dried in 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 last for four days. 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 against the neatly stacked bundles of rice. The figure is bathed with blood of sacrificed pig. It is believed to be able miraculously increase the volume of their stored rice. Cleaning of utensil 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. Slope of the area should not be steeper than forty (40) per cent (%) to minimize 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 have long period of 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 fèll trees and other vegetation. The slashed vegetation are allowed to dry for about a week then burned. *Runo* grass dries thoroughly and burns completely, leaving a thick blanket of ash. Fire break is constructed along the sides and upper margin of the new or extended plots. Firing is usually done at the middle of the day. Preparation of the soil for planting begins after burning. It is a task done together by the household members.

The Ifugaos look at burning as practical, inexpensive way to prepare the *uma* for planting. As far as they are concerned, burning gives beneficial effects to the soil. It helps improve soil fertility through the ashes produced. Burning helps regulate the growth of the undesired weeds. The Ifugaos also set fire to drive away destructive animals that might invade and damage crop (Codamon 1979). Land cultivation is done employing *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 produce holes for dropping the seeds.

The most common crop planted in the *uma* is sweet potato or camote. After soil cultivation, trowel is used to dig planting holes. Cuttings are planted along contour ridges supported by *runo* to prevent erosion. Weeding is done before the first tuber is harvested. From the fifth month on, tubers can be dug. Cleaning, weeding and replanting can continue for several years. (Conklin 1980).

The *uma* is fenced with *Miscanthus* cane and poles to protect the area from astray animals. Wild pigs are kept away from the area with heavy temporary barriers of *runos* and other debris. Spot digging is employed to have a continuous supply of camote for staple food. A small digging implement known as *bu'a* or *foh-a* is used. It resembles a small craw bar. This metal instrument is pointed at one end for sensing camote tuber and blade at the

other end for actual digging of tubers. The sweet potato tubers are cleaned before they are stored in a corner of the house preferably for a period of about a week before it is cooked as staple food. According to some Ifugao respondents, camote tuber should be stored at least a week to render its taste sweeter. Some families expose the tubers under the sun for two (2) to three (3) days to enhance sweeter taste. Sporadic harvesting is done for a camote plot in the *uma* for about two years, after which the area is planted to a new batch of camote again.

After two (2) to four (4) years of cropping, the Ifugao farmer shift to adjacent area of his swidden subdividing the *uma* into rotational crops. In some cases, a portion of the swidden is planted to more longer term crops like banana or the whole *uma* is planted with banana once the productivity of the area has declined. Fallow period is five (5) to six (6) years depending on the presence of cogon in the area. Fallowing is done to replenish and revert back the fertility of the soil.

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

Muyung

The *muyung* is also referred to by the Ifugaos as *pinugo* with an area ranging from point five (0.5) to three (3) hectares per family (Serrano 1990). It consists of second growth forest dominated by dipterocarps with associated commercial and miscellaneous species. In Lamut, coffee are planted underneath to maximize the use of the wood lots. Girdling and thinning of trees are done to regulate the intensity of light reaching the coffee plants. Adequate number of seedlings and saplings are left to regenerate for the subsequent batch of harvestable timber. Cultural practices such as weeding, topping and branch bending are done to favor the growth of coffee plants. The coffee plants bear fruit in four (4) to five (5) years.

The *pinugos* in Bananue, Ifugao are not underplanted with coffee. Coffee is not favorable in this area due to much cooler temperature but weeding is undertaken underneath to allow the favored 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 to trees both to maximize use of growing space and to protect 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 influence of lowlanders, education, Christianity, modern technologies, and impact of cash crop economy. Before, coffee was the main crop bartered with salt, tools and farm implements from the lowland. Communal forest resources such as timber and rattan were enough for home use (Serrano 1990). But today, due to increasing needs for cash, there is increased exploitation of forest products such as timber for construction and for 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 insufficient supply of water for upper rice terraces. Drained upper rice terraces are converted into bean gardens due to lack of irrigation.

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

Some farmers have abandoned their *payoh* because the income from it is insufficient to supply the needs of the household members. They instead draw financial resource from various livelihood like carving, handicrafts making and weaving. Substantial *payoh* areas are not well maintained and attended because of work diversification, and high demand for labor (₱100/day/person) which some farm owners can not afford to pay.

The other case is that of the educated Ifugao youth who no longer returns to the farm to work. Some of the respondents commented that the young Ifugao generation today does not know how to maintain the *pinugo, uma* and the *payoh*. It is also observed at present, that some of the *payoh* are becoming residential due to expanding urban population.

In Lamut Ifugao, high yielding varieties of rice are becoming popular. These high yielding varieties are used in lieu of the native variety because of their short cropping period of three (3) to five (5) months. Harvesting is possible twice a year. The adoption of this technology has led to the use of inorganic fertilizer and pesticides for the maintenance of such varieties. These practices may, however, alter the environment in its productive state. Contrary to the case in Lamut Ifugao, the Banaue farmers still stick to their traditional rice varieties because they are best for making rice wine. Also, they 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 most prevalent factors that continue to diminish these rituals. Today religious ceremonies associated with Ifugao rituals and beliefs are essentially similar to lowland cultivation. The belief in the *Bolul* (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 cause while others are man-induced. 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 significantly reducing yield of rice, coffee and other crops in the *uma*. Earlier attempted solution proved to be ineffective.

Cracking of soil during dry season and 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 done so, it takes a long period of time. This is aggravated by the lack of manpower for terrace maintenance. Today, the younger Ifugao are no longer as available to work in the *payoh* because of other interest and other professional commitments.

The golden *kuhol* which is a dreaded pest in lowland rice paddies has found its way up to the rice terraces. The snail eats the rice plants specially at 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 reemphasize 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.

NATURAL RESOURCES MANAGEMENT

The Ifugaos have high regard for their *muyung* or *pinugo*. This land use has significantly helped in maintaining the ecological balance of their overall farming system .The woodlot arrests soil erosion while providing sustained supply of irrigation water to the adjoining *payoh (Serrano 1992).* Coffee is underplanted with the *muyung* as source of income. Decaying litter from fallen coffee leaves 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 attests to 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 mind of the Ifugaos such that they maintain well and take from it no more than what they need. The trees that are felled for basic requirement are replaced by planting during rainy season. The pressure in communal forest due to wood working may result to the disappearance of such forests.

The five to six years fallow system for the *uma* is meant to maintain productivity and sustainability of its natural resource base. During the fallow period, secondary plant succession and soil fertility restoration takes place. Through time, vegetational succession progresses from cogon to reappearance

of talahib, *runo,* ferns, 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 by the elders to the *pinugo* or *muyung* violators. Punishment are 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 or he can simply buy it from those who have (Dacawi 1984). But this seldom happens because most of them 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 only to the members of the community.

WOOD CARVING

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

The Ifugao wood carvers have only with their hands the simplest hand tool for carving such as saws, bolos, chisel, *escuala,* and others that would help to form a figure. Sand paper is used to smoothen the surface of the carvings. There are many kinds of products that the Ifugao carvers form and produce out from a small piece of wood. They carve decorative house beams, food containers, utensils and many other wooden objects. They also carve the figures of their different gods. *Bolul* is carved out from Narra (*Pterocarpus indicus*) wood (Hartendrop 1951). Different designs of the various products is based on the carvers knowledge on what he can see and imitate from the environment.

Given the design of a particular object, the carvers secure wood materials from the communal forest, from his *pinugo* or he can obtain it by buying from others. Laying out of the wood to be carved is necessary to minimize the occurrence of defects during product formation and to attain the desired figure. The main carving is done by men, while women are responsible for the finishing activities like fine chiselling, sand papering and varnishing. Application of glue is necessary once cracks occur in the hand, feet or any part of the figure. Some species need drying before carving while others do not.

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.

Species that do not need drying are carved immediately. Most of them prefer raintree for carving. It does not produce irregularity like cracks 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. These include birds (eagles, maya), human (babies, and even figures of their different gods). They also carve animals like carabaos, frogs etc.

Marketing Scheme

The different wood carvings are regularly sold in stores in downtown Banaue and in Baguio City. These products are also displayed and sold in fairs and provincial, regional and even national exhibits. Their products are also on regular display and sale at Megamall and Rustans shopping center in Manila. Their produce are also exported to other countries. One fourth to one half of the total produce are retailed in Banaue and the rest are sold in Manila and some are 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 problem in their wood carving. These problems and the solutions initiated ,if any, are presented below.

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

On the other hand, the carvers recommended that the DENR should not be very strict in regards to wood materials secured from the *pinugo*. They say that, the practice of this livelihood would not alter the productive state of their privately owned woodlot. This is considering that they themselves take the species as a initiative to replant after cutting.

Difficulty in securing permit and registration of tools. The wood carvers could not easily get a permit and register their tools with the DENR. The DENR regulate this with the notion that the wood carvers may deplete the forest.

Wood deterioration. Termites and other wood beetles attack the wood materials and the finished products. This results in the lowering of quality among the products and subsequent decrease in prices. Price and market condition is very erratic. Products are bought at rather low price.

Harassment of Traders on travel. The wood carvers complain that in a number of cases, DENR personnel in checkpoints confiscate their products even if complete documents are presented to them. They recommended that a law should be passed recognizing and providing due protection to this industry.

Lack of capital. This has hampered the progress of many enterprising wood carvers. This problem limits the purchase of raw wood materials and tools for carving. This problem is somehow remedied through borrowing of 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).

LIVESTOCK FARMING

The Ifugaos also raise livestocks including swine, pigs, chickens and carabao. Their main reason for raising animals specially chicken and pig, relate to their tradition of performing *cañao* during harvest. It also serves as source of additional income.

Livestock are also bartered for palay. Large varieties of pigs are kept in pens grown exclusively for their meat. Native pigs are also raised in confinement but sometimes they roam around the vicinity of the homelot. Native pigs are reserved for sacrificial purposes.

Chickens are confined in *hoklong*, a bamboo basket cage with a pyramidal form . *Hoklongs* are hang and kept under the house . They are let loose occasionally to forage during the day.

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

The Ifugaos also hunt animals. Wild pigs are hunted using spear. They usually pursue the animal until it is cornered. One of the men aiming a spear approaches the animal while shouting. This stirs the pig to attack the hunter. The hunter then stands still holding his spear firmly against the attacking animal (Guthrie 1964).

Birds are captured by stretching a net between two mountain peaks. They hold up torches to attract the birds which migrate at night. Wild cat are captured also at night with spear.

The Ifugaos also practice ethnoveterenary medicine using plants. Some of the practices are presented in Table 1.

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

Animal	Plant	Illness/ Disease Cured	Preparation/method/ application
Carabao pig cow	petroleum + screw tobacco leaves	wound	an ample amount of tobacco leaves is heated over hot charcoal until these can be crumpled. These are then crushed into pieces and wetted with petroleum. The mixture is applied directly on the screw wound at regular interval until all screw worm have come out of the wound or died. In the absence of tobacco, petroleum can still be applied
pig dog	betel nut fruit	worms	five to ten betel nut fruits are pounded into fine particles. Extract is squeezed from the pounded materials then mixed with the food before it is served to the animal.
pig	young shoot of starapple or guava	scouring	an ample amount of shoots are crushed either by hand or a stone then squeezed off to produce sap. Application follows.
pig	banana leaves	loose bowel movement	The pig is deprived of food for 6 hours then when it is hungry, it is fed with raw leaves chopped into pieces

FISHING

Fish is produced by the Ifugaos in a very limited scale in their *payoh* system. A separate terrace with higher dike is used for the purpose. Fishes are raised along with rice and *gabi*. Fish such as *yoyo* (Japanese fish), *tilapia, tampipi* (million fish) and variety of snails are raised. (Serrano 1992 and Scott 1969).

Small fishes like million fish (*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 screen are sometimes used also. *Tilapia* is also raised in the *payoh*. When the fish stock is ready for harvest, the paddy is drained of water then the fishes are caught by hand. Fishes less than an inch long and crustaceans can be caught anytime using funnel shaped basket traps in flowing streams or even in rice field (Scott 1969). Shells like *bisocol* (native kuhol), *leddeg,* and *agurong* are collected occasionally from the wet terrace.

Marketing Scheme

Fish caught are consumed at home. They are 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 project was tilapia dispersal. The family beneficiaries in Lamut Ifugao each received five hundred (500) pieces of *tilapia* fingerlings for release in their terrace fishpond. During one strong typhoon , however,their fishpond overflowed carrying away most of the fishes.

WEAVING

Another homebased livelihood among the Ifugao is weaving. Their woven produce include placemats, bags, purses, wallet, bed sheet, chaleco and pencil case to name a few.

Raw materials used for these products are obtained locally and from Manila. Thread is the primary material. A locally designed wooden apparatus called *potolan* is used to weave (saluktok) crosswise the threads. It is plated with a very simple half meter wooden or bamboo rod to support the strands and serve as beater. Primary products from the woven threads by the Ifugaos are *tapis*, G-string and *ikat*.

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

Natural dyes are extracted and obtained from wood, bark, flower and leaves of various local plants. Dye from narra (*Pterocarpus indicus*) sawdust can be extracted by boiling it in water for one hour (Proposal on Natural Dye Research and Development 1991). The extract is filtered and boiled again for another hour. This time, lime is added to produce red dye. Dye extraction for Alnus (*Alnus japonica*) is similar. It produces blue black color. For Hawili (*Caediaeum variegatum*) it produces navy blue color. Luya (*ginger*) is pounded to get its juice. It is mixed with Hawili (*Caediaeum variegatum*) to extract black gray or navy blue color. After weaving, the cloth is cut into specific sizes for use to form particular products.

Marketing Scheme

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

Evolutionary Changes

In the past, weaving is done only during vacant hours after farm work. The products were for home use only. In the course of time, weaving became a primary livelihood among some sectors of the Ifugaos. One contributory factor is the availability of institutions like cooperatives who are willing to lend money for the continuity of the operation.

Problems

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

TRADITIONAL MEDICINE AND HEALTH CARE

In the early days, treatment of illness among Ifugaos revolved around diff rituals. Ifugaos believed that every illness which befalls every human ha corresponding ritual-based cure. Locally speaking, illness of children and adult the same, differentiated only in the way it is called. It is called *minuyung* for ba *nabwakan* for adult females and *natalban* for adult males (Daluping 1993).

Baki is performed inside the house 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. It is placed beside the betel nuts and leaves. The chickens to be used for the rituals are set 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 offered with chicken separately. The condition of the bile determines whose ancestor are causing the illness. The three other chickens are offered separately to the god of darkness, god of mountains and god of health. All these chickens are butchered 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. Prayer is said by the *mobaki* addressed to different god begging them to cure the illness. Afterwards, a meat is distributed to those present and a cup of soup is given to the sick person as medicine (Daluping 1993).

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

Table 2. Herbal Medicines of the Ifugaos.

Plant Used	Illness Cured	Preparation and Application
Avocado (*Persea americana)*	stomach ache	the leaves are boiled in thr four glasses of water for fi minutes then allowed to co drinking by the sick persor
Tamarind (*Tamarindus indica)*	cough and cold	young leaves are boiled ir (2) glasses of water for a thirty minutes then drink.
Ampi	skin disease caused by fungi	the leaves are cho into small pieces rubbed into the affected body parts.
Ooko shoots	wound	the shoots are chopped small pieces, then squeez produce the desired sap. S applied to the wounded ski

IMPACT OF THE INDIGENOUS KNOWLEDGE SYSTEM AND PRACT

Economic

The major livelihood and the sorrounding indigenous knowledge systen practices of the Ifugaos have significantly contributed to their survival. Income their farming system is adequately supplemented by their income from su livelihood such as woodcarving, weaving and handicraft manufacture. B producing their basic food need, the income they have generated enabled th send their children to school, if not to improve literacy , to obtain a degree.

Ecological

The environmentally friendly practices of the Ifugaos in farming syster wall terracing, dike construction, composting and enrichment planting attes sustainability of the system. Dike construction controls soil erosion and overfl water. Corollarily, it also prevents landslide and maintain soil fertility.

Intensive cultivation of the *uma* is prone to soil erosion and lowering of soil fertility . But then , their 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 livelihood like wood carving, weaving and handicraft manufacture have helped in the preservation of the Ifugao culture. Through these art works they are able to express themselves and are recognized by others as a unique culture.

ORGANIZATIONAL ASPECT

The *Kadangyan* or *Tomona* is the respected leader of the community. Being rich, he has the biggest *payoh* area (Dumia 1979). He is active, and outstanding in the community. The *Kadangyan* is responsible for any operation in the pond field. He determines the best time of planting as well as to where the first planting should be started. Rituals to be undertaken associated with the *payoh* lies on his decision. The community could not just proceed with the activities without his consent. However, today the *kadangyan* set up is weakening due to the presence of local government units. The duties of a *kadangyan* has been transferred to the Barangay captain.

There are a number of organizations like cooperatives in Ifugao. These include the Banaue Savings Credit Cooperative Incorporated (BSCCI), Banaue Farmers Multi Purpose Cooperative Incorporated and AGAPE Cooperative. Each of these cooperative 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 labor on a counterparting scheme

CECAP farmer beneficiaries received help through dispersal of livestock such as swine, duck, and chicken. Each family was also given five hundred (500) fingerlings of tilapia, and seedlings of fruit bearing trees like mango and citrus. To promote environmental protection, CECAP has provided timber species like Mahogany (*Swietenia macrophylla*), Narra (*Pterocarpus indicus*), and Yemane *(Gmelina arborea)* for reforestation purposes. They also provided technical assistance in agroforestry and identified areas suitable for Sloping Agricultural Land Technology (SALT). CECAP conducted seminars on plant protection and sanitation environmental protection and livelihood management.

Banaue Savings Credit and Cooperative Incorporated (BSCCI) was founded and organized for the people of Banaue. It lends capital for the various livelihoods like wood carving, weaving and handicraft manufacture. They also provide livelihood related seminar and training.

The Banaue Farmers Multi Purpose Cooperative is still in its infancy stage with constituency of one hundred ninety two (192) members and capital build up of one hundred seven thousand (₱107,000.00) pesos. The coop started operation last 1992. The coop is beginning to create impact among its members. Capital is lent to the members for the continuous operation of their livelihood (wood carving, weaving) and for the maintenance of the *payoh*. They also conduct livelihood trainings and seminars to their members.

CHAPTER 3

The Atis of Panay

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 (1986) wrote that this ethnic group must have travelled overland from India crossing the Malay Peninsula, Indonesia and Borneo towards the Philippine Island. He claims that they must have entered the Philippines through Palawan and Sulu chains. There is another view by Dickerson (1928) 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.

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

The Atis are by nature nomadic. They keep on shifting from one place to another. Their abode ranges from seashore to lowland to upland. They were among the first cultural group to practice slash and burn agriculture (Barrato 1978). Their movements are highly influenced by their search for food. They constantly move from one place to another wherever the prospects of obtaining sustenance is promising. Their nomadism is further aggravated by the fact that they do not own land to cultivate or to settle over. In lean months, some Ati families eat just one meal a day. Through the years, the Atis of Panay were 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. It is usually constructed with temporary materials apparently due to their nomadic or shifting lifestyle.

Fig. 2 Typical hut of the modern day Atis of Panay.

Major Livelihood

The major livelihood of the Atis highly depend on their immediate environment and resources at their disposal. In Nagpana, Barotac Viejo, Iloilo, their main livelihood is farming. On the other hand, in Igcabagti and Igcaputol Dao, Antique, their source of living consists of making nipa shingles and fishing, respectively. In all the sites visited, their year - round produce or earning from their main livelihood is insufficient so that they have to earn further by working as laborer in rice and sugarcane farms in as far away places as Passi and Negros Province.

ORIGIN AND HISTORICAL PERSPECTIVE

The indigenous knowledge systems and practices of the Ati have started and evolved since time immemorial. Livestock raising was introduced by the government in its desire to uplift the socio-economic condition of the tribe. The IKSP was passed on through generations of Atis in the context of their culture, traditions and customs. It was taught by the parents to their children up to present generation. In Nagpana Barotac Viejo, the traditional kaingin practices of the Ati has been modified to become more sustainable with the technological intervention of the Department of Environment and Natural Resources (DENR).

INDIGENOUS KNOWLEDGE SYSTEMS AND PRACTICES

FARMING

The Atis were probably the first to practice slash and burn system in the country (Barrato 1978). Those who live in upland areas engage in swidden farming - such as the case of the Atis in Nagpana Barotac, Viejo, Iloilo.

Preparatory to planting, the area is cleaned and the grasses are removed with the use of bolos. The cleared site is cultivated with the aid of a carabao and plow. Areas with steeper slope are tilled using hoes and bolos. They employ small pieces of wood or stick to pulverize the soil prior to planting. *Guna* - a kind of sharp knife - is used to till hard mountain soil while a pointed stick, *pisaw*, is used to create hole for corn seeds, beans, etc. (Bolante 1993).

Planting starts at the onset of the rainy season. Carabao manure is used to fertilize plants. While crops are growing, weeding and fertilization are done using organic and inorganic fertilizers. Planted crops are ready for harvest in

three (3) to four (4) months . Rice varieties planted are *asucena, malido,* and *kutsiyan.* These varieties are planted and harvested once a year. Vegetables like beans, *mongo, gabi* are also planted. Bundles of harvested rice are manually transported using two meter bamboo poles for carriage. Two rice bundles hang at both ends of the pole while it is carried on shoulder. Threshing is done manually by trampling the panicles laid on the floor with the two feet.

Marketing Scheme

Most of the products are for home use or consumption. Excess products are bartered with the other Atis and their Bisayan contemporaries. Fruits like starapple, 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 increasing number of families sending their children to school, although only few manage to finish elementary, much less high school.

Knowledge of modern technologies and impact of Bisayan culture have significantly changed the farm life of the Atis. In the past, the Atis were nomadic people, migrating from one place to another. With the passing of years, they shifted to building permanent houses. Parallel to this , they focused on intensive land cultivation to raise their sustenance. Subsequently, pressure on limited occupied land intensified. The use of fertilizer and pesticide are becoming more popular among the Ati farmers.

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 hedgerows of leguminous shrub which serves as safeguard against erosion and source of inorganic fertilizer and firewood. For every three alleys planted to annual crops, adjoining alleys are planted to perennial crops like coffee, kalamansi or banana. With SALT, productivity of their upland farms has increased through the years.

Problems

Infertile soil. Forest denudation and continuous cultivation of sloped farms have marginalized the land and brought down its productivity. While the SALT has proven to be promising, the improvement of soil fertility takes time so that supplemental fertilization has to be done especially in poor sites.

The farmers are applying manure and compost materials to improve soil fertility.

Insufficient capital. The income of the Atis from various livelihoods can not support the capital needs for farming. Farming input like inorganic fertilizer and pesticides are at times costly for them to afford. Some Atis attempt to solve this through borrowing from some Bisayan friends.

Lack of farm implements and farm animals. Many Ati farmers can not acquire farm implements like plow. They rely on their indigenous implements like *guna*, dibble stick and hoe. Only few of the Atis have benefitted from carabao dispersal given by the Department of Agriculture.

Occurrence of pest and diseases. Pest like rats and worms have been attacking their crops resulting to low yield or harvest. Some of them employ agricultural chemicals to control the pest.

Insufficient water for the farm. At one hand, this problem was brought about by continuous removal of the vegetation. During summer, water in the soil is not available for plant use. This is aggravated by pronounced dry season in the area from December to April. As a result, only one short term cropping of agricultural crops is possible year round. This result to food shortage. Thus the Atis have to augment their income during dry months by going to other places to do paid labor.

Fire occurrence. Some remaining kaingin areas are prone to fire occurrence specially during summer, thus affecting adjoining farms and tree plantations. The tribe solve this through vigilance in their association and corporate fire fighting effort.

Scarcity of land to cultivate. Farmers have only limited land to cultivate. This prevent them from expansion. Fallow period become shorter (if existing). The Atis in Dao, Antique do not even have their own land to cultivate.

HUNTING

Hunting is a secondary source of subsistence among Atis. In the earlier days, they employed bows and arrows for such activity. Aside from hunting, their bow and arrow are used not only for hunting but also for fishing as well as for defense (Rahmann 1955). Wild chicken (*ilahas*), rail bird (*tikling*), owl (*bukaw*) and quail are captured through trapping. *Tigsuhot* (simple snare) is employed for trapping. Bolante (1993) describes *tigsuhot* as being made up of *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 opening is trapped by the snare.

The following are methods employed by the Atis to capture particular species of wildlife.

Wildcat (*Singgarong*) - captured by shooting the head with arrow.

iguana (*ibid*) - a bolo is used to inflict wound on the animals purposely to immobilize it after which it is seized manually (Rahmann 1958).

Monitor lizard (*akyaw*) - hunting for the animal is best after rain. Hunters search for monitor lizard among the branches as well as on the forest floor. *Akyaw* is captured by grasping at the tail and slamming it on the ground or against a tree to immobilize it (Bolante 1986). *Tigsuhot* is also used. The hunter is usually accompanied by a dog who can easily sense the presence of *akyaw*.

field rat (*balabaw*) - these are trapped or caught in the field anytime throughout the year.

turtle (*bao*) - These are captured along riverbanks. The hunter digs the suspected habitat of the animal. Indicative clues include the presence of boring at the river bank and foot prints. Turtles found nearby settlements are not captured and should not be eaten because they are not clean. The eggs of the *bao* also edible. It is boiled in water for twenty to thirty minutes.

Monitor lizards and turtle are delicacies among the Atis. They are found in the forest, banana clumps and in open fields.

Evolutionary Changes

Hunting is seldom done by the Atis today. Very few of the younger generation of the tribe 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 they chance upon a monitor lizard after much thorough search.

Intensive hunting in the past resulted to rapid decline of wildlife population. Continuous deforestation also led to such changes. The use of bow and arrows has also faded away.

Problems

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

HANDICRAFTS

Handicraft making is a secondary livelihood among the Atis. It is done during rest period (Cadeliña 1983). Indigenous materials like *biribid* (*kenaf*), black vine (*nitu*), *bolo* (*Gigantochloa levis*), *hu-ag* (vine) are used. Products are woven following a geometric design (Bolante 1986). *Nitu* vine with either black or brownish skin are used to embellish some of their works such as *buon-buon* (wallet). Wallets are manufactured from buri (*Corypha elata*) leaves 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 with the same materials. Mats, on the other hand are woven using buri (*Corypha elata*) 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 for free from nearby areas with the owner's permission. Leaves obtained are soaked in water for one day to make them smooth and pliable. Bamboo slots are used to hold folded coconut leaves in place. These are tied with buri strips. The finished products are one and one half meters long and are used as roofing materials for new houses or those under renovation.

Marketing Schemes

The wallets (*buon-buon*) are sold at the market at fifteen (₱15) to twenty (₱20) pesos each. They also barter with their Bisayan neighbors for basic necessities like foods and salt. Nipa shingles are either sold at their farm gate or at the market for one hundred thirty (₱130.00) pesos per one hundred (100) pieces.

Problems

Low price and limited market for nipa shingles. The income derived from nipa shingles production is not enough to support a family because of its low price (₱130 per 100 pieces of nipa shingles). On top of this , the product has limited market since only a limited number of household owners use this as roofing material. Most buyers belong to the poor sector who can not afford to buy costlier materials.

Insecure land tenure. The Atis of Sitio Igcabagti in Dao, Antique consist of forty (43) household who are currently staying in a fifteen (15) to twenty (20) hectares privately owned land. They were given permission by the land owner to stay there on a transient basis. They fear that anytime, they might be asked to leave. Each family dream of having a land of their own.

FOOD PREPARATION

Atis staple food are mainly rice and root crops (Oracion 1983). Root crops are gathered from the forest or from the hills with the use of rough tools like wooden dibble stick (*tagad*) or iron tipped dibble stick (*pitala*).

Banayan and *kayos* (yam) are favorite root crops of the Ati. *Kayos* contains some toxic substances which needs proper preparation to remove its lethal effect. Removal of the toxic substances is done by cutting the tubers into thin slices and submerging it overnight in a stream with clean running water. Cooking is done after this.

Cassava is also eaten by Atis as staple food. It is prepared by first peeling the tubers and shredding it with a locally fabricated tin can shredder. The shredded materials are then sundried to remove the moisture content. Further pounding in stone mortar is done to pulverize the materials. Cooking follows afterwards.

FISHING

Fishing is done individually or in group by men. Atis in Igcaputol Dao, Antique employ the simplest method to catch fish like hook and line (*bonit*) method, use of *lagtang* vine to poison fish and different kinds of fishing net. In narrow creeks fish traps (net or bamboo) are used (Rahmann 1962 and Bolante 1993).

Fish poisoning is also employed. Fruit of *lagtang* ,a baneful plant, are broadcasted into the water to lure the fishes into the surface. When the fishes eat the fruits they get dizzy and afloat for sometime (Bolante 1986).

Net fishing is done in seawater. It needs at most fourteen persons to conduct this operation. The net is laid in suspension accross the waters for few hours after which it is pulled back and landed to the boat. Fish are selectively caught in this method. Small fishes are not caught because of the relatively bigger spaces in the mesh. Two sharing systems exist between the boat owner and the fishing crew. One half (1/2) of the catch will go to the boat owner who also provided them with fishing paraphernalia. The rest are shared equally among the members of the group. On the other hand, only one third (1/3) of the catch will be shared to the owner who lent a boat without fishing equipments.

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

Ati fishermen do their fishing at night and land back to shore early in the morning.

Evolutionary Changes

The traditional fishing systems among the Atis have changed through time. They have slowly adopted the modern technologies of fishing as used by their neighbor Bisayas. The use of bow and arrow and *lagtang* vine is now fading. During the olden times, the Atis did their fishing along rivers and seashores. With the dwindling fish stock, they are forced to go further offshore as far as fifteen kilometers.

Problems

The following are problems encountered by the Atis in fishing

Lack of capital. The high cost of securing fishing boat and fishing gears greatly hamper the Atis from having bigger catch. Thus, they are edged by other Bisayan fishermen who get bigger catch because of more powerful and modern fishing gears.

Low price of fish. Market price for fish is rather low at twenty (20) to twenty five (25) pesos a kilo. Thus the families end up with income barely sufficient for their needs.

Low/poor harvest. Aside from over fishing, this problem arises from the use of modern and destructive fishing methods like the use of dynamite. The increasing number of fishermen in the area is causing greater and greater pressure on limited fish resources.

LIVESTOCK FARMING

Livestock raising is becoming popular among Atis in Nagpana Barotac Viejo, Iloilo and Igcaputol Dao, Antique. Animals like chicken, pigs, goats, carabao and cow are raised in the area. Chickens are placed in a inverted cone shaped bamboo enclosure (*kurong*) with a diameter of about one meter. As much as fifteen (15) to twenty (20) chickens are accommodated inside. The animals are confined specially during growing and harvesting time to minimize damage to the crops. Dogs , fowls and swine 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 with cooked gabi leaves, banana stalks and cassava. They are fed two to three times a day. Occasional bathing of the pigs is done to cool them. They say this helps the pigs to grow healthier and fatter.

Carabaos and cows are brought to nearby grass covered areas to graze. Children are assigned to watch the animals from time to time to keep them from damaging and eating planted crops.

Marketing Scheme

Full size pigs are sold at the market. Sometimes direct buyers themselves go to the area. The price of pigs ranges from three thousand (₱ 3,000.00) to four thousand (₱4,000.00) 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 to the Atis. This is promoted by government programs aimed at uplifting the Atis living condition. Some of them raise exotic breed like land race.

Problems

The only problem raised by the Atis in this livestock raising is the stealing of animals. Cases like these are referred to and resolved by their 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 he has stolen.

TRADITIONAL HEALTH CARE AND MEDICINE

The Atis of Panay possess superstitious beliefs connected to illnesses. They use charms and amulet to detect the presence of evil spirits causing illness. They believe in the existence of *kalanasin* (spirit of the forest) and *aswang* (witches). *Panagang*, a charm, is used against witches (Bolante 1986). It consists of a vessel, filled with oil, shoots of *tagahusay, tagahumok; lapuy chips, panuli and hu-ag* vine. Some twines of *manunggal* vine are hang 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 charm against forest spirit which inflict *bulaw* (malaria). The stone is soaked in water for one day, then the sick is given the liquid for drinking. They also use *diamante-negra-* a mineral stone soaked in water along with the *tektite*. This is effective against *himit* (evil spirit).

Bite of snakes, dogs or catfishes can be cured through *mirku* using the *abara* to absorb the venom from the wound. *Mirku* and *abara* are a piece of deer's porous anter found among burnt trees in the **kaingin** site

Turtle bile (*ipro*) is boiled in water and is taken by the patient who has asthmatic problem. It is also effective in curing tuberculosis. Table 3 shows the different herbal medicine used by the Atis.

Table 3. Some Herbal Medicines Used by the Atis

Plant Used	Illness Cured	Preparation and Application
Alibutia *(Menispermum flavium)*	Stomach ache, any sickness caused by over exposure to rain and sunshine	For stomach ache, the vine is cut and split into pieces then boiled in water for ten to fifteen minutes. The sick person drinks the from the liquid
Tagolaway	Bruises and wounds	The root is powdered then applied to the infected parts.

Duguan *(Myristica discolor)*	Vomiting and diarrhea Obstructed menstrual flow	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 at 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 under the sun to release off the moisture content. the sundried bark is pulverized then pounded and stirred into a glass of hot water. The sick person drinks from mixture.
Banana	Fever	The leaves are placed on the forehead and on the belly of the patient and bandaged with cloth
Coconut oils mixed with Anagos leaves	Rashes	The Anagos leaves are first dried then powdered. The powdered materials are mixed with coconut oil and applied to the affected parts.
Garlic	snake bite	the victim chews garlic continuously. A small amount of the chewed garlic is applied over the wound and the rest is swallowed by the victim

Evolutionary Changes

In the past, sickness has been perceived by the Atis as work of environmental spirits. However, through continuous education and 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 are some logic and effectiveness in the traditional medicine employed by the Atis. However the indifference of the succeeding generations is causing these to fade and be forgotten. It is high time that knowledge and practices be documented and evaluated in detail for reapplication.

IMPACT OF THEIR LIVELIHOOD AND SURROUNDING INDIGENOUS KNOWLEDGE SYSTEM

The indigenous knowledge systems and practices (farming, livestock raising, fishing) of the Atis in Panay help to augment the socio-economic situation of the community. The families in Igcabagti were the most depressed among the Atis communities studied. They are dependent on their wages as laborer for Bisayan landlords. Their wage of only thirty (₱30.00) pesos per day is not sufficient to support their daily needs. In addition, the Atis in Igcabagti do not have land to cultivate.

The Atis in Nagpana Barotac Viejo, Iloilo are better off. Livestock farming and farming system are most helpful in augmenting 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 net in fishing 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 environmental friendliness of the fishing method of the Ati, there is threat to marine ecological imbalance due to the modern fishing method of the Bisayan fishermen.

The Atis adoption and practice of contour farming and SALT are paying off in terms of improved farm production and restoring forest cover. It is also instrumental in ensuring other amenities like fuelwood and availability of water for domestic use because of maintained springs.

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

ORGANIZATIONAL ASPECT

The settlement areas (Nagpana, Igcabagti, Igcaputol) where the study were conducted have their respective organization. These are the Nagpana Minority Association (NAMIAS), Igcabagti Tribal Council (ITC) and *Kaugpungan Kaati Dao* (KMKD) respectively. The head of these organizations are called as Tribal Leader. The duties of a tribal leader include maintenance of peace and order, enforcement of tribal laws, settlement of disputes among the different Ati group and individuals, and livelihood promotion and assistance (Rahmann 1958). He also serves as emissary or representative of the tribe to the government or other missions. He is also responsible to disperse whatever assistance (clothes, livestock etc.) given by any organization.

The tribal leader also serves as channel for learning and experiences that might contribute to the development of their community as well as for value formation among their constituents. He is accountable to link and to tap other agencies to uplift their living condition.

NAMIAS was organized by a Peace Corps volunteer named Mary Fieldberg in 1982 to unite the Atis in Nagpana. The
formation of this organization served as stepping stone for the application and eventual awarding of a nine hundred forty six (946) hectare reservation for the tribe.

Earlier in 1967, the Commission on National Integration (CNI) provided help to the Atis through survey and delineation of an area for them. This did not prosper accordingly because of the absence of necessary support documents. During the administration of the Philippine Assistance for National Minorities (PANAMIN) in 1982, Mary Fieldberg initiated the survey of eighty eight (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 ICCs. In line with this, on December 19, 1986, the 88

hectares awarded to them was expanded to nine hundred forty six (946) hectares. The declaration provides 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 Multi Purpose Cooperative (NTCMPC). At this writing, the cooperative is still gearing up to start operation. The members are hoping that the Coop will serve as spring board for income generating project and as a venue to tapping and networking 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) also trains Ati mothers (in Nagpana) on dress making. DSWD provided them with fifteen (15) sewing machines. The Department of Agriculture (DA) on the other hand, implemented carabao dispersal, pig raising and fattening, duck, goat and swine raising. On the other hand, the Department of Environment and Natural Resources (DENR) taught them environment friendly technologies on upland farming like the Sloping Agricultural Land Technology (SALT). The 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. It was only organized for identity purposes. There was no progress observed in the community. The tribal leader in Igcabagti is always out working as factory employee in another town. Violations and disputes in the community remain unresolved.

The Office for Southern Cultural Communities has provided assistance through lending money to them. Each family received three hundred (₱300.00) pesos for nipa shingles making but the money was not paid back.

CHAPTER 4

The Badjaos of Tawi-Tawi

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. Otherwise known as boat dwelling people, they are called as sea gypsies or Badjaos. The Badjaos can be 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 (Savalbaro,Jundam 1978).

The origin of the Badjaos is unknown but some historians and anthropologist believe that the Badjaos are migrant from Malaysia. According to Nimno Harry (1965), the boat dwelling habit of the Badjaos evolved independently in the eastern seas. His claim on the origin of the Badjaos was not clear.

Nimmo, 1978 narrate 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, as was apparently their custom, the other boat dwellers, in turn, tied their houseboats to that of the headman. Unknown to them , however, the headman 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 island and sprawling reefs - the islands of Sulu. Since they did not know the 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 gypsies or sea nomads whom their *Tausug Samal* neighbors sometimes called *Samal luwaan* (out cast) or *Samal laud* or *Pala-u* (people of the ocean). They spend most of their time in the sea environment.

They tend to shy away from groups other than their own. The Badjaos are harmless, peaceful, seemingly contented and happy people (Teo 1989). Certain physical characteristics of the Badjaos are distinctly attributable to their environment and mode of life. They are easily recognizable by their 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 (Cabrera 1976).

Major livelihood

The major livelihood of the Badjaos consist of seaweeds farming and fishing. These livelihood cater their love of the sea. While fishing reflects their cultural inclination to harvest from natures bounty, seaweed farming reveals their diligence to work and improve on natures productivity. Aside from upliftment of socio-economic and enhancement of favorable marine resources. These livelihoods promotes the preservation of their customs and traditions. These livelihood distinguish them from other neighboring tribes.

Affinity of the livelihood to their culture and environment

The Badjaos are boat dwelling people. The sea is a home to them. It is the place where most of their activities are undertaken and where they spend most of their time. Their basic sustenance is from the sea. They love to live, work, sleep and even die by the sea (Diaz 1985).

ORIGIN AND HISTORICAL PERSPECTIVE

The indigenous knowledge system and practices of the Badjaos started and evolved since time immemorial. They learned fishing and mat weaving from their ancestors. However, seaweeds farming was introduced to them by Sarmiento Corporation in the mid 80's.

The Badjaos handed down their IKSPs from one generation to another through communication and practical experiences.

INDIGENOUS KNOWLEDGE SYSTEM AND PRACTICES

FISHING

As boat dwelling people, the Badjaos are by nature, good fishermen. Fishing is their lifeblood and way of life. Before seaweeds farming was introduced to them, their sustenance and survival depended solely on fishing.

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

Linggih is commonly employed today. It consists of interlinked net. *Linggih* is cast into the waters among coral reef where fish usually abound. It must be thrown gently to ensure thorough spread. Fishes are easily trapped with this method. This fishing method however requires bigger capital. The net requires longer time to prepare and to mend when damaged.

Deep Sea Fishing

Big fish like tuna and mackerel are caught by deep sea fishing. The fishermen use a group of vintas to encircle a school of fish with either a fishnet of bamboo slats hung vertically in the sea water under the vintas (Teo 1989). 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 rough.

Other fishing methods

The use of *saubik* or *panah* (spear and arrow) or hook and line are less expensive. They are easy to prepare. *Bubu* and *Panggal* are formed into bamboo fishtrap (Sabalvaro, Jundam 1978). The Badjaos use kerosene lamp called *kulayt* during waning moon (Nimmo 1978). This attracts fish which are then easily caught with a hand net. Poisonous plants like *Lagtang* and *tua* are seldom used. The leaves are crushed then broadcasted into the waters. This makes the fish groggy so that they are easily caught with hand nets.

A Badjao family's fishing exploits is always led by the father. There are times when the whole family goes on fishing trips. They leave home and fish starting at dawn returning at three o'clock in the afternoon. They prefer to fish at bright hours of the day to keep themselves safe from pirates.

Shell Gathering

Sea shell gathering is done by women and the children. This provides them supplemental protein source and income specially when the sea is rough and fishing is not favorable.

Evolutionary Changes

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

This situation led them to consider other promising livelihood like seaweed farming. The growing threat from pirate is another factor that led to the disappearance of their traditional fishing methods. Night fishing with *kulayt* (kerosene lamp) is seldom performed because of night threat from pirates.

Sangkaliya (shark fishing) is not so popular due to absence of market for this fish.

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.

Problems

The Badjaos have encountered a number of problems in carrying out their fishing. These problems are presented below.

Presence of Pirates. Tausog pirates threaten the life ofthe Badjaos when fishing at night. These pirates are warrior people. In view of this, the Badjaos do not do their fishing activity at night for fear of becoming victims of foul play and theft by the pirates. The Badjaos recommend government intervention to apprehend and penalize these lawless elements.

Lack of capital. Equipment used in fishing such as net, pump boat are relatively expensive. The Badjaos recommend that the government provide financial assistance in terms of providing capital to poor fishermen.

Unsatable Market Condition. Market for fish is not stable. Some of their catch are sold rather at very low price.

SEAWEEDS FARMING

Seaweed farming is a very promising livelihood for poor families in coastal. Farmers in some coastal areas like in Sitangkai, Tawi-tawi are involved in this livelihood. Shifting to seaweeds farming also reduces pressure on limited fish stock in nearby marine areas thereby providing adequate time for the fisheries resources to recover. Seaweed *Eucheuma sp* are source of carrageenan, a chemical extract, which serve as essential ingredient in various industrial products (BFAR undated). Seaweeds are exported to other countries like Japan, Indonesia and USA.

Seaweed farming as practiced by the Badjaos is illustrated in figure 3.

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 animals indicate a productive site. The bottom of the site must be firm and sandy with abundant *flora and fauna. Eucheuma* needs a moderate water movement (BFAR undated). The more water movement the better for growth but not to a point where farm supports and seaweeds are washed away. The water depth should be at least one to two feet at the lowest tide. The plants must not be exposed.

Planting

Materials used for *Eucheuma* farming include posts, nylon straw and pump boat. Wooden posts are erected following the design in figure 3. The distance between posts in each row is one (1) meter while distance between rows is ten (10) meters. Nylon strings are tied from one post to another so that they appear like clotheslines that are side by side with each other. The height of the line is about twenty (20) to twenty five (25) centimeters from the ocean floor. A one hectare seaweeds farm would have about one thousand (1,000) units of ten (10) meters line.

Planting is done by tying *Eucheuma* cuttings at the nylon lines at spacing of twenty (20) to twenty five (25) centimeters using straw. At this spacing, about thirty five thousands (35,000) cuttings can be planted using this technique.

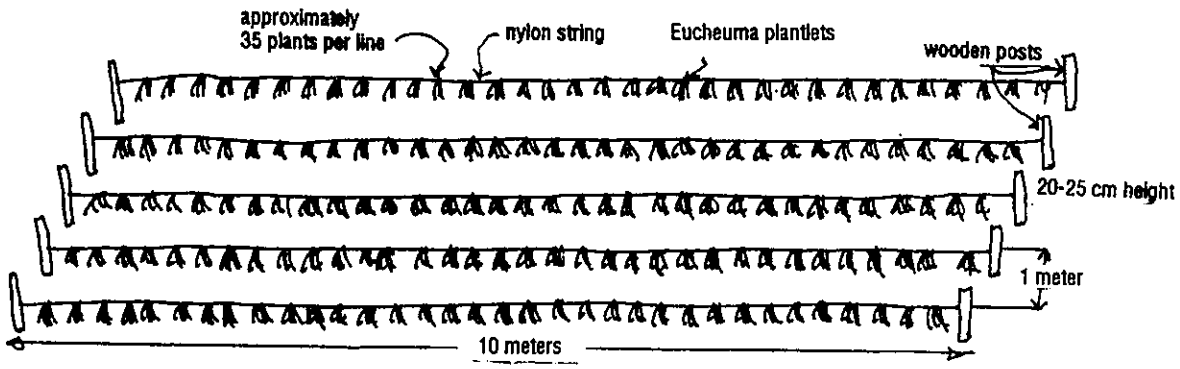

Fig. 3 Seaweed farming set-up as practiced by the Badjaos of Tawi-Tawi.

Maintenance

Cleaning is done by raising the lines at one end, removing 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 fishes grazing on the plantlets are set aside to prevent any damage on the seaweeds. Detached lines are retied and lost plants are replaced. Slow growing species are taken out or harvested then replanted.

Harvesting and Drying

The seaweeds are ready for harvesting three (3) months after planting. Harvesting is done either by pruning the branches and leaving portion of the plant to regrow again for the next harvest, or all the plants are harvested then replaced with new sets of cutting. The harvested seaweeds are sundried for about a week on a cleared land or in drying platform made up of bamboo slats or a concrete cement. The seaweeds are turned from time to time to effect uniform drying. Dirts and foreign materials are removed. The seaweeds are covered at night and during rain. After drying, the seaweeds are packed in sacks then transported to the market.

Marketing

The two way system of marketing is prevalent for seaweeds. The seaweeds produced are bought from the farmers by a capitalist and is exported to Manila and to other countries. *Eucheuma* seaweeds are sold at eight fifty (₱8.50) pesos per kilo. With a total fixed cost of thirty six thousand (₱36,000.00) pesos and a production cost of sixty five thousand (₱65,000.00) pesos, a family earns seventy one thousand four hundred (₱71,400.00) pesos per year for a hectare. A seaweed farmer can harvest twenty thousand (20,000) kilogram of dried *Eucheuma* per hectare per year.

Problems

High capital requirement. *Eucheuma* farming requires quite high initial capital outlay specially if a pump boat has yet to be purchased. The Badjaos income from fishing is not sufficient to support the needed amount for the seaweeds productivity. Some of the farmers remedied this by borrowing money from a capitalist or from the buyer of the products, with the condition that in addition to paying back with interests, the farmers are to sell their produce exclusively to their benefactor.

Limited space for drying. Since the Badjaos reside in a tidal area, space for drying harvested seaweeds is a limiting factor. Adequate drying space is needed for thorough drying. Well dried seaweeds command good price. Thus every seaweed farmer invest considerably for drying platform. The drying platform is also used for drying fishes 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* seaweeds in their neighbors drying platform.

Mortality during low tide. The most common problem encountered by the Badjaos is the drying up of planted *Eucheuma* during low tide. The seaweeds get exposed to the sun. Exposure beyond two (2) hours is detrimental to the growing plants. This requires thorough study of the tidal pattern so that height of the nylon line can be set at a safe level. Sites that are deep enough are chosen as site for seaweed farming to avoid undue exposure of plants to direct sunlight.

MAT WEAVING

The Badjaos are known for their expertise in mat weaving. This homebased livelihood helps augment their family income. Mat weaving is done by Badjao women. It is their pre-occupation in their rest time after fishing and after doing house chores. Female children are also involved in this livelihood.

Materials

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

Strip preparation and drying

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 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 under the sun for a day. When already dry, the leaves are flattened with a bamboo stick (*ambuhut*) (Szanton 1963). This is done by holding firmly the *ambuhut* at one hand while passing through a strip of pandan leaf with the other hand. Then the leaves are transformed into smaller strips by passing it through an equidistant small metal bladed tool (*jangatan*). The margin strips which do not have uniform width are discarded.

The strips are dried under the sun to bleach or to whiten it before resoaking in cold water for twelve hours. Sun drying again follows for two (2) days. By this time the natural color has completely faded and the strip has now turned whitish. The narrow strips are further softened with *ambuhut* (bamboo stick).

Dye (*anggangibi*) application is done by cooking the coiled strip for thirty (30) minutes in dye solution. After cooking, the pandan strips are air dried to prevent fading of the color. Upon complete drying, the strips are gently beaten with the use of *ambuhut* to ensure softness.

Weaving

An exquisite design is first chosen and followed in weaving. Names may also be interwoven into the design (Teo 1989). Since the pandan strips are not long enough to reach from one end to end of the mat, *sugpot* (continuators) are woven in by a technique known as *anugput*. Then the edge are 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 recognized are stripes *(jali),* varicolored square *(tabanas),* a checkered pattern in white and any other color *(kusta)* and zigzag. There seems to be no competition among weavers on the basis of design produced.

Marketing Scheme

Finished products are sold at the local market. In some cases, mats are bought by incoming visitors right at their homes. Mat woven in houses are simply stocked for future use or sale.

Capital needed for this venture comes from the major livelihood of each family (i.e. seaweed farming and fishing).

A closer look at the mat weaving venture shows that it can provide gainful employment to the tribe. A mat measuring five feet by six feet (5' x 6') is sold at six hundred (₱600.00) to eight hundred (₱800.00) pesos and a two and a half feet (2 1/2') by six feet (6') is sold at four hundred (₱400.00) to five hundred (₱500.00) pesos. These sizes are weaved within a period of five (5) to six (6) weeks and three (3) to four (4) weeks respectively. The single size of mat need six (6) bundles of pandan and ten (10) for the big one. Each bundle has a diameter of eight (8) to ten (10) inches and bought at twenty (₱20.00) pesos.

TRADITIONAL HEALTH CARE

Staple food for the Badjaos consists of grated cassava and sometimes rice (Arong undated). 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. (Sabalvaro, Jundam 1978).

Lack of sanitation is observed among Badjao houses in particular, and the community as a whole. Much of their domestic wastes including excreta and solid wastes are disposed into the tidal waters and swept into different direction by the tide. Diseases such as malaria, fever, cholera, ulcers, tuberculosis, malnutrition are recurrent among the members of the community.

The Badjaos believe in the healing power of magic calling on the spirits to cure their diseases. *Pag-jin* is performed to cure such diseases. It is performed at night before the full moon comes out (Sabalvaro, Jundam 1978). The good spirit is asked to cure their illness and diseases, to give them healthy body and to prolong their life. They believe in the power of *ginman* (herbolario) to drive away evil spirit. Table 4 shows some of the herbal medicine used by the Badjaos.

Evolutionary Changes

The influences of Islam and Christianity have invariably changed the outlook and beliefs of the Badjaos. The *pag-jin* is seldom practiced now. From being spirit worshippers, the Badjaos are slowly embracing Islam as religion. Educational advancement has also led them to adopt popular practices including modern medicine. From reliance to the spirit for cure, it is now common among the Badjaos to consult the doctor when they get sick.

Table 4. Some Herbal Medicines of the Badjaos.

Plant Used	Illness Cured	Preparation/Applicatic
sibukaw	loose bowel movement	the leaves are boiled in three (3) to four (4) glas ten (10) to twenty (20) m The liquid is given to the drink.
luya	rheumatism	An ample amount of gi pounded then mixed coconut oil. The mixt wrapped with banana then heated to charcoa Application to the affecte part follows.
Mankono (*Xanthostemum verdogonianus)* guava	lessen the pain of dis-located joint	The leaves are placed around the affected parts tied with a long strip of clothes
Pantili	for extracting pus	The leaves are cr the application follows

IMPACT OF THE LIVELIHOOD AND SORROUNDING INDIGE KNOWLEDGE SYSTEM

The Badjaos derive substantial income from their livelihood (i.e. f seaweed farming and mat weaving). A seaweed farmer can earn seven thousand four hundred (₱71,400.00) pesos per hectare per year. The amc sufficient to support the daily needs of the family. Aside from this, they ear income from fishing and mat weaving. The Badjaos in Bongao, Tawi-Tawi w dependent only on fishing are poorer compared to the Badjaos in Sitang Bongao, the families are dependent on their daily catch. Sometimes catch Supplemental income from mat weaving helps, somehow. In worst cases families eat only once a day.

The situation in Sitangkai is far different, with better income situation the challenge is to spread the seaweed farming technology to Bongao, which, a is part of the same province (Tawi-Tawi).

Seaweed farming helps regreen and improves marine biodiversity. It als helps provide better habitat to associated marine fishes. On the other hand, practic of seaweed farming may pose a threat to marine environment if the nylon string an straws (which are non biodegradable) are not properly handled. Some farmers simpl leave these materials behind by the sea after seaweed harvesting.

For mat weaving, impact is in terms of providing supplemental income an creative use of idle time. No negative impact on environment has been recorded sinc there is enough supply of pandan leaves.

ORGANIZATIONAL ASPECT

The Badjaos have their own system of leadership called *Panglima* (Cabrer 1976, Nimmo 1978). This system still exists in other Badjao villages but no longe as powerful as in the past.

In the past, the *Panglima* system was very strong. The power of the headma or *Panglima* were informally defined but his authority is recognized and respecte The continuity of the tribe's livelihood depended so much on his decision. Activitie related to their livelihood can not be done without his consent. He determines o what, when, where and how should the livelihood be undertaken. The decisions h makes were revered and respected by the members.

However, this system is weakening and fading. The power of the *Panglim* has been transferred to the barangay captain. The introduction of the system of loc government unit has functionally displaced the *Panglima* system. So that while the still have a *Panglima* leader he is simply a symbolic figurehead. Another fact leading to the weakening of this indigenous leadership system is the incapability their *Panglima* leader. His responsibilities are not well attended. Consequentl members of the community become individualistic and family centered.

Intoduction of Coops

There were attempts done by the government and other non governmer organizations to form cooperatives among the community members of Sitangka However, this did not prosper well. The Land Bank of the Philippines (LBP) i cooperation with a certain NGO attempted to form a cooperative called the Seaweed Farming Multi Purpose Cooperative in 1991. But this was also aborted. The budge of the attempted cooperative was cut for unknown reasons. Some local resident registered reservation on their inability to repay back their loan if they would borrov It was found out that the initial fund of the group has been misused.

There were also attempts to form cooperative for deep sea fishing, octopu gathering and mat weaving but there was no agency who could help them financ their projects. Some Badjaos refused to borrow money because of fear that they ca not pay back. They are afraid to wallow in debt. Some are willing to borrow but o individual basis not in a coop set up.

In 1992, there was also a case of an NGO who tried to form cooperative fo seaweed farmers asking for a membership fee of five hundred (₱500.00) pesos Unfortunately, the cooperative was not pursued. The collected money was not eve returned to them. The families affected felt betrayed.

The Office for Southern Cultural Communities attempted in 1993 to forn cooperative but did not continue as well because of the devolution of this function t the local government unit. An Arabian group also rendered assistance to the Badjao through net dispersal for fishing.

Respondents interviewed recommended that if the government should pus through with organizing cooperatives, they must be ready to fund it without chargin interest on borrowed funds. According to some, forming a cooperatives will restor unity and strengthen their livelihood.

CHAPTER 5

Improving Cooperative Set Up and By Laws to Promote IKSTP

DESCRIPTION OF CURRENT SITUATION

Many programs and strategies have been designed and implemented in the countryside to spur or promote development and attain self reliance in rural areas. One such strategy is the establishment of cooperatives. This strategy has been advocated to protect and serve the interest of those who have limited resources like the indigenous cultural communities (ICCs). Cooperative movements have attracted the interest and enthusiasm of many people particularly in rural areas.

The cooperative is a potent tool for stirring up viable livelihoods in the rural areas. For one, it is an effective channel for financing/credit that is badly needed to provide capital to business initiatives like, livestock raising, handicrafts, wood carving and other related livelihoods. A cooperative affords its member the opportunity to save and market their craft at reasonable price. In a good number of cases, cooperatives have contributed greatly to increased productivity of rural communities. Consequently cooperative set ups have brought about greater savings and purchasing power among member families. In Ifugao, one cooperative that started with a humble beginning in 1986 has grown and stabilized supporting about 2000 members in their livelihood on wood carving, weaving, handicrafts and payoh.

As of March 1995 the Cooperative Development Authority (CDA) has in its registry 250 tribal cooperatives all over the country the greatest number (71) being in the Cordillera Administrative Region (CAR) as reflected in Table 5. As to type, 191 or about 75% of the registered tribal coops are agricultural, the smallest being of the Service type (ie only one) as reflected in Table 6.

As to year of registration, CDA records show (Table 7) that formation and registration of tribal coops peaked up in 1991 but was on a downward trend since then. There is a need to look closely at the reason for this and to undertake necessary measures to reverse the trend

Table 5. Distribution of Tribal Cooperatives in the Different Regions of the Philippines as of March 1995.

REGION	NO. OF TRIBAL COOPS
CAR	71
1	23
2	17
3	25
4	12
5	4
6	6
7	1
8	3
9	5
10	20
11	46
12	17
	TOTAL 250

Source: Cooperative Development Authority

Table 6. Distribution of Tribal Cooperatives in the Philippines by Type.

TYPE OF COOPERATIVE :	NO. OF COOPERATIVES
Agricultural	191
Non-Agricultural	33
Credit	12
Consumer	5
Service	1
Producer	7
Marketting	4

TOTAL 253

Source: Cooperative Development Authority

Note: Some tribal cooperatives are categorized under more than one type

Table 7. Distribution of tribal cooperatives in the Philippines by year of registration.

YEAR	NO. OF COOPERATIVES
1986	1
1990	1
1991	68
1992	65
1993	60
1994	55
TOTAL	250

Source: Cooperative Development Authority

SUITABILITY OF COOPERTIVES AMONG INDIGENOUS PEOPLE

Traditionally, cooperative set ups are common among major cultural groups in the Philippines. 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 these minority groups has been and continues to be explored. A number of reasons can be cited for the suitability of cooperatives among indigenous peoples (IPs). Most of these point to the likely openness of IPs to the cooperative organization.

Collective nature of IPs work and life. Good examples of this are the hunting and fishing activities among the Atis where they usually go out as teams and each member of the team has a designated task to perform to achieve their intended goal. On the other hand, the Ifugao's have 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 on from one generation to another.

Traditional (indigenous) practices observed by IPs collectively. 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 IPs. A vivid illustration of this is the existence of Council of Elders that initiate and promote self help as well as mutual support among their constituencies. These Councils of Elders are responsible in the enforcement of laws and regulations, settlement of conflicts and in undertaking steps towards the protection of their domain, their culture and practices.

PROBLEMS

There are a number of problems attendant to the formation of cooperatives among ICCs and their use to promote IKSTP. Some are inherent to the different culture and physical setting of ICCs while the others have to do with the working relationship between ICCs and the government. These problems are presented and discussed below.

Inappropriateness of the model cooperative by laws to the ICCs. There is a consensus among ICCs that while there are some degree of freedom in modifying the model by laws for cooperatives, it is nonetheless restricting and does not truly represent their sentiments and culture. At one hand, it comes as an imposition on the ICCs and fails to recognize the context and capabilities of the local tribe.

Unsuitability of Coops to some ICCs. In a closer look, considering the inherent cultural uniqueness of some ICCs, it may not be the cooperative set up that is applicable to them but some other indigenous form or set up. To a number of ICCs the rules and regulations of formal coops are too bureaucratic.

Government Intervention. With the completely different set-up of rules and operating procedures of the government the introduction of cooperatives among some ICCs comes as threat to their own lifestyle and ways of doing things.

Low level of literacy among ICCs. Considering the far flung location of many ICCs, they are often left behind in terms of education and literacy compared to other "educated" sectors of the society. To many ICCs a cooperative is an organization intended for educated people. True enough, the documents on cooperatives and the current administrative procedures require substantial degree of education (at least primary or secondary level) among the clienteles, thus there is a need to adjust the language and procedures for cooperatives to the literacy level of the indigenous people.

Lack of access to credit and market. Both the far flung distance and low literacy level of ICCs come into play in this problem. Their inability to comprehend and comply with the requirements of formal lending institutions (eg banks) drive them to resort to usurers and urban capitalists from whom they can easily draw cash but with exorbitant interest rates. On the other hand some 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 the ICCs from producing surplus crops for sale. They just produce enough for their family consumption.

INTERRELATIONSHIP BETWEEN INDIGENOUS COOPERATIVES AND THEIR TRADITIONAL SOCIAL INSTITUTIONS

There are a good number of social/cultural institutions and indigenous expression of cooperation which can contextually be integrated and reinforced with indigenous cooperatives. Some of these are discussed below.

Mutual help and labor sharing system. The most typical of this is the *bayanihan* among the Tagalogs or *Hugpongs* (or *Hunglos*) among the Bukidnon tribes or *Ubbo* among the Cordilleras. Here, the community folks form into manageable workgroups and take turns in helping each other in farm works .One example also is where neighborhoods band together to do

farmwork and household chores for a family whose father or mother gets sick. No monetary wages are paid except for food served to those who came to help. This sharing system may also be in the form of material sharing as in the case of the Mangyans where they share seeds and planting materials to be paid also with the same material at harvest time, with some extra measures. This age old institution could very well be adopted in the cooperative setting to get things done among the members and to achieve the coop's goals.

Tribal Leadership Setting. Practically all tribal groups in the Philippines have their leadership setting or structure which consist of the Chieftain with or without an advisory Council of Elders. It is called among the Badjaos as *Panglima, Datu* among other Mindanao tribes, and *Panglakayen* among the Cordillerans. The recognized leader(s) weild substantial power and vested with authority to make decisions in regards to communal properties, settlements of conflicts, provision of materials and technical assistance and representation of the tribe to initiatives or concerns that affect their welfare. Such indigenous leadership system may be adapted to indigenous coops. 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 the affinity of many tribes, most are related to each other by blood or consanguinity. This should be a plus factor for an established cooperative in the community. Kinship setting is usually an effective venue for sharing of information, 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 adjoining Ilongot tribes. Seen in the light of cooperatives , this institution could go a step further not only in promoting rapport among different indigenous coops but in working for mutual interests and goals. This can be foundational step in federating neighboring coops within a geographical setting.

COOPERATIVE ACT AND BY-LAWS: WEAKNESSES AND RESTRICTION

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 (IPs) 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, which for expidiency, a model version has been put out by CDA for consideration and as pattern for newly organized cooperatives.

However, while there is sufficient formal recognition for IPs 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 to cooperatives. Corollarily there are other sections that need to be improved or amended to adequately reflect the concerns for IPs. These are briefly discussed below.

Unaffordability of the required ₱2,000 minimum paid up 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 require the annual preparation and publication of financial statements that are audited according to generally accepted auditing standard principles 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 the ICC resorts to have the survey and the bond accomplished by an expert, they are incapable of paying the amount charge a service fee.

Liability for the Advisory Council. Section 23 of Article 3 of the model by-laws provide for the liabilities of Directors, Officers Advisory Council and Committee Members. Note that the Advisory Council are just in an advisory capacity, meaning their advise or (suggestion) after evaluation by the coop officers may either be adopted or set aside. As such the ICCs argue that the Advisory Council need not be as heavily liable as the Coop Directors Officers and Committee Members.

RECOMMENDED ELEMENTS FOR MODEL BY-LAWS FOR INDIGENOUS COOPS

Last 6-10 March 1995, the ILO-INDISCO sponsored a National Workshop on Legal and Policy Framework for Indigenous Cooperatives in the Philippines in Baguio City. During this workshop, a concensus was reached between tribal leaders and representatives of concerned GOs 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 favor 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, an intersectoral committee was formed to evolve a primer that serve as guide for ICCs in coming up with their own coop by-laws. The primer is targetted to come out at the end of the year. The primer shall list necessary guidelines and considerations for coming up with individual coop by-laws.

Nevertheless during the Baguio Workshop, the following preliminary recommendations related to the Coop Code and Model By-laws were given as for consideration by the Committee. They are the following:

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

2. In lieu of complicated-standard accounting and auditing system consider the use of simplified indigenous accounting and auditing system 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 coops, a document stating the area of operation, membership coverage, capitalization mode of management and plans and programs for a certain number of years may be enough

5. Structure of the indigenous coop 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 (BOD) at least 30% must be female, regardless of educational attainment

7. The leadership of the coop 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 Coop Code which mandates the CDA to register self-help organizations side by side with formal cooperatives

9. In article 121 of the Coop Code, arbitrations must be amended to accommodate indigenous way of settling disputes through 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.

CHAPTER 6

DISTILLATIONS AND RECOMMENDATIONS

The Ifugaos, Atis and Badjaos repersent a microcosm of Indigenous Cultural Communities (ICCs) in the Philippines. Their problems, their struggles and the survival issues that effect them very well speak of their counterpart tribes in different islands of the country. This chapter seeks to synthesize the distillations from the three tribes surveyed in respect to their IKSP and the necessary organizational set-up (coop or coop like) for its promotion.

DISTILLATIONS

1. **Some ICCs are being taken advantage of by their counterpart major groups.** An example of this is the case of the Atis who are paid by the Bisayans only ₱35.00 for a day's farm labor when the minimal labor wage rate set by law is ₱90 per day.

2. **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 their ecosystem/habitat.

3. **There could be a harmonious blend between ICCs IKSP and modern technology.** This is demonstrated in the SALT integration in the Atis' upland farming and the complementation of fishing and seaweed farming among the Badjaos.

4. **ICCs are receptive to innovations.** This is as long as these innovations are beneficial to them and complements their IKSP (e.g. seaweed farming for Badjaos, SALT for Atis).

5. **Indigenous organizational and leadership set ups exist among many ICCs.** These should be considered and as much as possible incorporated into or built upon in the coop organizing process. Result would be an organizational set up culturally acceptable to them.

6. **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 simply need to be trained and guided in this regard. Cooperatives could help a lot.

7. **External facilitation helps a lot in getting ICCs organized.** Assistance like this can come from government agencies like CDA, ONCC, OSCC and OMA and from other NGOs and social institutions.

RECOMMENDED PROGRAMS AND ACTIVITIES

1. **Recognition and award of claims for ancestral land and ancestral domains.** A stable permanent land base for the ICCs also serve as base for their IKSP. Otherwise their being eased out from one place to another could result to degeneration and loss of their IKSP. 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 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.

2. **Stabilization of ICCs resource base.** The livelihood and associated IKSP of the ICCs can only be stable as 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.

3. **Intellectual property rights for ICCs.** This includes protection and preservation of their IKSP and to ensure that they gain exclusive or preferential benefit from their local resources and biodiversity. Local coops and self help organizations can serve as lobby or pressure groups to put this property right into effect. A good example of this is the Executive Order on bioprospecting which will be signed shortly by President Ramos.

4. **ICC-initiated or participatory IKSP Documentation.** The best documentors of IKSP are the very people who possess them. Theirs is also the most appropriate perspective in assessing the value and use of such IKSP. Such documentation can be pushed by local coops and self help organizations with the facilitation as needed by concerned GOs or NGOs. The documentation may come in the form of folk stories, sketches, ethnovideography, etc.

5. **Pilot projects on management of ancestral land domain by ICCs.** The main purpose for this is to highlight the role of indigenous organizations (POs, coops or other self help organizations) and the application of IKSP in the sustainable management and utilization of resources. This can be spearheaded by the DENR with partnership of concerned GOs and NGOs as needed.

6. **For indigenous coops, self help organizations and tribal leaders to champion IKSP revival and application.** As visible groups in the community they could be effective advocates for IKSP protection and promotion.

7. **Cross-ICC sharing of IKSPs**. Considering the relatedness in practices and knowledge system among Filipino ICCs, it would be easier for them to understand and adopt each other's IKSP. Thus, IKSP database should be enhanced.

8. **Inculcating in the youth the value and application of IKSP** . To revive and perpetuate these IKSPs the parents should do them with their children again. The youth could also be involved in the IKSP documentation and evaluation.

9. **More intensified piloting and promotion of ICC-managed farm tourism and ecotourism.** This helps promote enjoyment and appreciation of nature and the farm while respecting environmental integrity and the unique culture of the community.

10. **Institutionalization of continuing training and education for ICCs.** This should incorporate IKSP in the curriculum to be used.

11. **Promote acceptance of IKSP among general public.** This is through the aid of all forms of media (print, broadcast, TV, etc.).

12. **Promote awareness and advocacy of IKSP among government officials and policy makers**. This will help them understand more the indigenous people and incorporate their welfare in running the government.

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P L A T E S

Opening up of new rice terraces

Payoh with planted rice ready for harvest

Typical house of the Ifugao

Muyung underplanted with coffee

Transport of bananas harvested from the uma

An Ifugao woman doing finishing touches on an acacia wood carving

PART II - THE ATIS OF PANAY

An Ati Family

A fish net used by the Atis called Buldos

An Ati tribal leader Gregorio Elosendo and a placard indicating their ownership of the Ati reservation in Nagpana, Barotac Viejo, Iloilo

An Ati woman making shingles from coconut leaves

Ati men doing paid agricultural labor for a Bisayan

Sloping Agricultural Land Technology as practiced by the Atis

A Badjao community in Sitangkai Island of Tawi-tawi

A Badjao woman doing mat weaving

A Badjao youth curing his fishing boat

Fish drying among the Badjaos

Drying of Eucheuma Seaweeds

Dried Eucheuma seaweeds ready for shipping to the market