SOCIAL FORESTRY FOR ECONOMIC AND ECOLOGICAL SUSTAINABILITY

by

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ABSTRACT

This study looked into the prospects of state and other agency-sponsored social forestry project in addressing poverty and abating environmental degradation in the uplands. Forest destruction is rooted both on poverty condition of the swiddeners and their traditional farming practices. The social forestry's participatory component, scientific cropping modules and incentive schemes are viewed as effective measures to these problems.

The social forestry project which is jointly implemented by the New Zealand government and the Philippine National Oil Company (PNOC) in the three geothermal reservations managed by PNOC was chosen as the study areas due to the presence of the above-mentioned social forestry components in the project.

The research findings supported the strength of the monetary incentive scheme in eliciting farmers' participation in development projects which subsequently controlled their destructive *kaingin*-making practices. This, however, must be coupled with extensive social, economic and environmental training of the *kaingineros*. The attractiveness of the project scheme to both project and non-project beneficiaries was also established. This study also demonstrates some successes of participation in terms of the development of the farmers' potentials and capabilities in self-management and realization of individual rights.

The financial analysis in the study determined the economy of scale of the combination of cropping modules while the economic analysis has established the project's beneficial effects on the environment. It justifies financial allocation to projects of this nature.

The natural and social problems in the implementation of the social forestry project could be addressed locally through the joint effort of project staff and the farmers-participants. The donor and proponent agencies, on the other hand, showed their sincere intention to minimize the occurrence of administrative problems.

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GLOSSARY

Abaca	A banana-like plant whose fibers are used in the manufacture of rope and handicrafts
Ayanguile	A leguminous tree primarily used for soil protection and watershed conservation
Barangay	Village
BAS	Bureau of Agricultural Statistics
Bayanihan	Free and voluntary group work
BPI	Bureau of Plant Industry
CBCR	Community-Based Contract Reforestation
CBU	Capital Build-Up
CSC	Certificate of Stewardship Contract
CTF	Communal Tree Farm
DA	Department of Agriculture
DBP	Development Bank of the Philippines
DENR	Department of Environment and Natural Resources
FAR	Family Approach to Reforestation
FIDA	Fiber Industry Development Authority
FMB	Forest Management Bureau
FOM	Forest Occupancy Management
Gabi	A variety of root crop
Guiron	Commonly called tiger grass whose flower stalks are used in making soft broom
ISFP	Integrated Social Forestry Programme
Kaingin	Area cleared through slash-and-burn shifting agriculture

Kainginero	Upland farmer engage in slash-and-burn shifting agriculture, swiddener
Kakawate	A deciduous leguminous tree
LFA	Logical Framework Approach
LFC	Logical Framework Chart
LOI	Letter of Instruction
MFAT	Ministry of Foreign Affairs and Trade
NGO's	Non-governmental Organizations
NPV	Net Present Value
Palasan	A species of rattan (*Calamus maximus*)
Peso	Philippine currency (approximately 29 pesos = US $1 in 1993)
PNOC	Philippine National Oil Company
PRA	Participatory Rural Appraissal
Province	Political unit composed of towns and cities
Sari-sari	Variety
Sitio	Cluster of residential houses in a village
Town	Political unit composed of group of villages

CHAPTER I - INTRODUCTION

1.1 Statement of the Problem

In the 1980's, the alarming rate of tropical forest degradation in the Philippines brought about by a combination of logging and swidden agriculture had alerted government planners and forestry policy makers. From 1950-1980, more than 10 million hectares had been affected by deforestation, representing about 1000 million cubic meters of tropical hardwoods removed from the forest (Villanueva 1989: 130). Besides, the population pressure on the uplands estimated at a high of 11 million, continued to increase. The punitive measures by incarceration or ejection of upland farmers from forest lands were ineffective and were considered an inhuman approach to addressing the problem. In the light of this disturbing situation, the concept of social forestry emerged and was passed into law in 1980 through Letter of Instruction (LOI) 1260, otherwise known as the Integrated Social Forestry Program (ISFP). The programme is subdivided into three categories: namely, Community Tree Farms (CTF), Family Approach to Reforestation (FAR) and Forest Occupancy Management (FOM). CTF is designed to develop a community-owned plantation of fuelwood as a long term source of income. Family Approach to Reforestation involves contracting out of reforestation activities to families under piece rate terms

over a designated area of three to five hectares for a three year period. Afterwards, the area will be returned to the concerned government agency. Forestry Occupancy Management, on the other hand, is designed to keep and manage the upland farmers or *kaingineros* on the present area they are using for cultivation. CTF and FOM qualified farmer-beneficiaries or groups of beneficiaries are entitled to receive a lease or Stewardship Contract Certificate (CSC) over a period of twenty-five years, renewable for another twenty-five years. The New Zealand-Philippine National Oil Company Social Forestry Project falls within this category.

In general, the Integrated Social Forestry Programme aims to develop self-sufficient and self-reliant upland communities through land-based and forest-based income-generating activities with the ultimate goal of forest preservation and conservation. Harold Olofson provides a comprehensive definition of social forestry which he stated as:

> Any activity such as the purposive growing of trees, certain technique in crop production, soil conservation, improved use of wild forest products, and others, of a culture-bearing and symbol-sharing social group, which has as its ultimate effect a movement in that group towards self-sufficiency in forest resources while at the same time lessening of the pressure which that population is applying to the resources of the natural forest through more efficient and more intensive use of land (Olofson, 1986: 1).

Parallel to the above definition, a Participatory Approach

Social Forestry Model was conceptualized by Fujisaka (1983: 82) which states that:

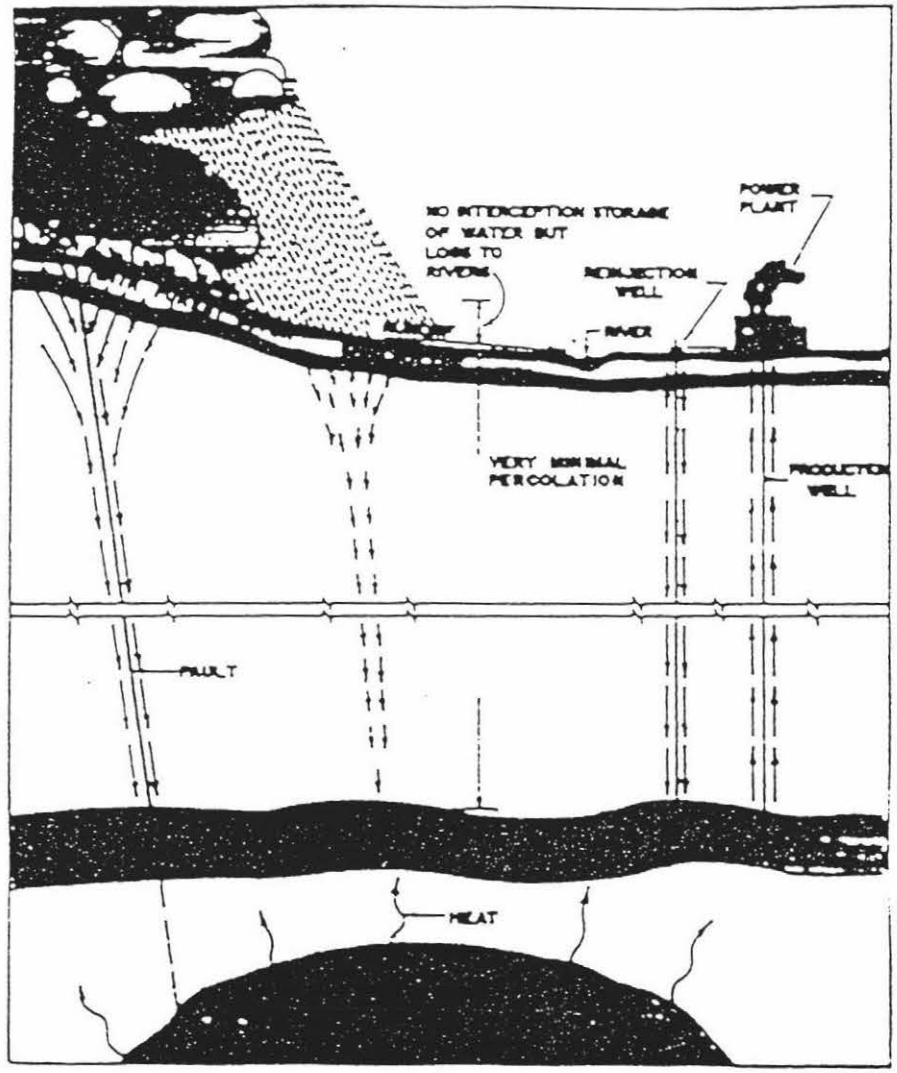
1) While problems in the upland are varied and complex and while project strategies are necessarily similarly varied, social forestry projects will be more successful if a participatory approach is utilized.

2) Such needed participation can be facilitated through community organizing which, in turn, should develop mechanisms allowing for participation in project decision-making.

3) Project input strategies should be responsive to the people's felt needs.

A recent inventory of social forestry projects in the Philippines noted that both the private and public sectors have embarked on projects designed to curb the alarming rate of forest degradation. Such projects have been tagged as social forestry projects (Bernales, et.al. 1982: 3). The most recent addition to these projects is the Social Forestry Project being implemented by the Philippine National Oil Company (PNOC), a government-owned and controlled corporation which has been mandated by the Philippine government to protect and preserve three geothermal reservations where it operates geothermal energy generation projects. The geothermal resource supporting the geothermal power plants is meteoric or water-based in nature, hence there is an urgency to protect and preserve the watershed area of the reserves in order to perpetuate and sustain the life of the underground geothermal reservoir (Figure 1). The present research study,

FIGURE 1. GEOTHERMAL RESERVOIR RECHARGE MODEL



therefore, examines the PNOC's Social Forestry Project in the context of a) the Olofson's definition and Fujisaka's Participatory Approach Social Forestry Conceptual Model, b) the project's present and future impacts on the socio-economic condition of the upland farmers; and c) the project's contribution to the ecological stability of the geothermal reservation.

1.2 Purpose of the Research

1.2.1 Specific Objectives

Specifically, this study aims to assess the following:

a) The upland farmers' initial acceptance of and participation in the project.

b) The extent of participation of the upland farmers in:

   i) Design, implementation, monitoring and appraisal of the agroforestry and rattan plantation projects;
   ii) Organization of the farmers' associations;
   iii) Association's decision-making process;
   iv) Distribution of project benefits.

c) Changes in income level and socio-economic activities of the project participants.

d) The environmental awareness level of project participants.

e) Replicability of the project scheme in other communities.

f) Trends in the incidence of *kaingin*-making and illegal logging in the vicinities of the project areas.

g) The financial and economic viability of the agroforestry and rattan plantations.

1.2.2 Research Hypotheses

The general area of questioning in the study focuses on:

a) Different aspects of community participation (such as purposes in initial participation, demographic factors affecting participation and farmers' participation in different phases of the project cycle).

b) Project impact indicators (such as improvement of farmers' economic condition, increased environmental awareness, decrease in environmental degradation, project sustainability and project replicability). These are discussed in the following sub-sections.

1.2.2.1 Initial Participation and Enlistment in Development Projects

Most of the literature indicates that soliciting maximum local participation in upland development projects is usually

influenced by economic rather than environmental considerations.

Concern for the ecosystem has not been a strong motivation for project enlistment even among those who have undergone training seminars (Aguilar, 1986: 205). Basic subsistence, cash income, remunerable employment, land security and better sharing arrangements with landlords emerge as more pressing needs. By joining projects, participants inevitably expect immediate and tangible rewards. Since the environmental benefits from labour-intensive land development activities can be enjoyed only in the longer term, they fail to draw the immediate interest of participants. Incentive schemes, on the other hand, become major points of attraction because they have the potential to address the community's felt needs more directly. Experiences to date indicate that forestry project components involving local participation should involve some subsidy element (Cernea, 1981: 26).

There are two important reasons why subsidies are legitimate. First, many small farmers are unable to provide the total inputs needed, given the relatively long-term (6-12 years) before harvesting. Long term investment in trees competes with farm activities and resource uses that give more immediate results. Second, environmental stability benefits both local and off-site residents. The level of subsidy being provided in different forestry programmes should

therefore vary according to the degree of farmer participation and the government policy towards subsidies. A sound developmental approach would require, however, that the cost of re-planting in future years would be financed from revenues generated by the initial investment.

Segura-de los Angeles investigated farmers in an upland development project in Pantabangan, Nueva Ecija (Segura-de los Angeles, 1986: 179). She was especially interested in different forms of terracing to control soil erosion. Her study showed the following relationship:

a) Larger farm areas implied lower adoption rates,
b) The larger the initial income of the farmer, the less likely the adopted terracing. Those with smaller farms and lower incomes tended to adopt soil conservation practices more easily. The effect of income was explained further by the fact that those with higher income tended to be those with other income sources besides farming,
c) More knowledge on conservation resulted in better chances of adoption. Farmers therefore appeared to be responsive to changes in the environment and become even more responsive with knowledge gained through project implementation,
d) The larger the pool of household labour, the more likely it was that the farmer practised terracing.

In the Pantabangan Family Approach to Reforestation (FAR) project, reluctance to join the upland development project stemmed from the frustration and mistrust acquired from past experiences with government agencies. The people displaced by the dam project had been promised new housing and farm lots, but the houses were built haphazardly and the farms were located some 13 kilometers away from the resettlement area causing most of them to abandon rice farming (Aguilar 1986: 205).

Based on the above experiences, this study will examine the initial participation of the project beneficiaries by testing the hypotheses below.

Hypothesis 1. There is a positive relationship between participation and direct tangible benefits from the project.

1.2.2.2 Demographic Factors Affecting Initial Participation

The demographic characteristics of the farmers-participants considered relevant in this study were household income level, age, sex, educational level and training background. The questions and hypotheses on the topics formulated are discussed in detail in the next sub-sections.

1.2.2.2.1 Household Income Level

In most studies of plantation forestry, farmers of high income farmers tended to be the early and maximum adopters. Mindajao (1978:79), for example, examined the relationship between the sources of project finance and initial participation of project participants to the Paper Industry Corporation of the Philippines (PICOP) tree-farming project in Mindanao. His study revealed that there was no significant difference between the Development Bank of the Philippines (DBP) financed and non-DBP financed tree farmers in terms of the time it took them to decide to participate in the project which was four years on the average. Among non-DBP assisted farmers, participation was positively influenced by income but negatively influenced by education and the degree of risk aversion. In the case of DBP-assisted farmers, only land use at the time of joining the project appeared to be a significant explanatory variable for participation. Such cooperators already had an adequate income from agricultural production and land clearing was not a problem. On the other hand, the non-participants interviewed were hampered by such constraints as lack of suitable land, insufficient labour time and impatience over long gestation period (Segura-de los Angeles, 1986: 177). A similar study in Indian villages conducted by Singh (1992: 167) revealed that high income farmers were also the maximum initial adopters of farm-forestry.

However, in the Philippine upland social forestry projects whose target beneficiaries are mostly the low income and less privilege groups, new sources of income aimed at alleviating them from poverty are considered by the farmers as the immediate and felt needs. The low level of farmers income is thought to be a sufficient ground for their participation in development projects. This study therefore, will test the hypothesis below.

Hypothesis 2. The lower the income of an upland farmer, the earlier is his date of enlistment in the social forestry project.

1.2.2.2.2 Age Of Farmers-Participants

Age of farmers is one of the important factors considered in analyzing the acceptability of programme. Traditional farmers are often referred to as "the last try the new and not the first to cast the old aside" (Yokota 1983: 9). A study on adoption of farm-forestry in Indian villages conducted by Singh (1992: 179) revealed that age is an important factor in its adoption. The younger farmers were more inclined to adopt new techniques, whereas the older farmers were resistant to change from age old traditions. However, I believe that the low income level of upland farmers can overcome these passive responses of the older farmers towards development project. This study, therefore,

will test the hypothesis below.

Hypothesis 3. There is no direct relationship between upland farmers' age and their date of enlistment in the project.

The hypothesis implies that young, medium age and old farmers will not differ on the date of their enlistment to the project.

1.2.2.2.3 Sex of Farmers-Participants

In every culture, in every age, women and men relate to each other in culturally specified ways in a manner of interaction called a 'sex-gender system' (Eviota 1992: 4) which allocates specific tasks and roles to women and men on the basis of gender. In development projects as well, the gender of project participants is one of the factors considered in the implementation of project activities. This study, therefore, will examine the extent of participation of male and female farmers by testing the hypothesis below.

Hypothesis 4. Male upland farmers will enlist to the project earlier than female farmers.

1.2.2.2.4 Educational Level And Training Background

The low level of upland farmers' education usually results in

low adoption levels in rural development projects. This problem is particularly serious in many developing countries and continues to be a major impediment in national development efforts. This was confirmed by Singh's (1992: 186) study of Indian villages which revealed that farmers with higher education posted higher adoption rate of farm-forestry. Similarly, Shevasunt's (1981: 46) study on multiple cropping in Northern Thailand pointed out the low education level of farmers that caused difficulties in the adoption of the technology. He observed that farmers had no stimulus to seek and examine new planting technology. The low level of education of farmers, therefore, requires their extensive training by the project implementing bodies on farming technologies and social development. These new trainings can give helpful ideas to the farmers. In relation to the social forestry project's training and education programme for all farmers-participants, this study will test the hypothesis below.

Hypothesis 5. Farmers with and without previous training/ seminars attended will find the project training programme of equal helpfulness.

1.2.2.3 People's Participation in Development Projects

Some of United Nations' publications take the view that poor communities have little potential for participation' (Midgley

1986b: 27). One report cited by Midgley (1986b: 27) referred to the 'backward state' of rural communities pointing out that 'it is difficult to arouse the poor from their apathy and indifference to development issues'. Another stated that although people will collaborate to harvest crops, prepare for festivals and ceremonies and even contribute towards community projects, these efforts do not form the basis for a continued involvement in community affairs (Midgley, 1986b: 27). To address this problem, 'people's participation and appropriate institutional support are now recognized as necessary for forestry development' (FAO, 1988:25). Participation has a dual aim of providing material results and raising the capacity of the community to enable them to play an active role in development (Kusumohadi 1976: 153). In social forestry, 'substantive community participation consists of people being empowered with a degree of control over the course of project operations beginning with its formulation and design, through its implementation, and to its monitoring and evaluation (Okamura 1986: 107).

1.2.2.3.1 Project Design, Formulation, Monitoring and Evaluation

Rural people have many things to contribute in programme formulation and design. They have a substantial capacity for learning and change but they have also good reason to be

skeptical of the stranger bearing untested ideas for improving their lives. One of the numerous weaknesses of centrally designed programme is that planners proceed as if they were writing on a clean slate who possess all the knowledge relevant to improving the villagers' lives (Korten 1980: 19). A more realistic design of projects therefore calls for the involvement of the people at the grassroot level to make the programme implementable in actual field situations. In the recent years, new aid projects usually have accepted this idea but they are rarely explicitly designed to use the potential production capability of the community to meet their perceived needs (Bollard 1979: 209). This results in popular involvement becoming so limited as to virtually defy use of the term "participation". In effect, the concept becomes purely instrumental, useful to government for pursuing pre-established goals. In the Philippine setting, most social forestry projects were formulated and initiated by the government primarily in response to environmental problems such as deforestation, soil erosion, and the prevalence of forest fires and landslides (Okamura 1986: 108). Likewise, a study by Shevasunt (1981: 30) in Northern Thailand about multiple cropping noted that all agricultural policies were formulated and decided by high ranking officials above local levels.

One of the primary lessons already learned in social forestry is that it cannot be imposed from the top down. Community

residents must be involved in every stage of project planning (Kirchhofer and Mercer 1984: 14). Consultation with people proved to be an effective approach in dealing with rural problems as exemplified by Kesmanee's (1991: 225) development work experiences in Pattana Village of Northern Thailand. The development works he organized were more in direct responses to needs as they came up rather than being planned.

Most Philippine social forestry projects are initiated by the government, and the implementation and decision-making process in the project also rarely involves the project participants. Project participants' associations are involved in project implementation, but only to facilitate the work of the project staff and not explicitly for the benefit of the people themselves (Okamura 1986: 110). Hence, instead of empowering the participants with some degree of control over the conduct of project activities, they often merely become employees of the project staff.

The monitoring and evaluation of social forestry project activities have also been controlled by project personnel eventhough most project provisions explicitly state that farmers' associations should be responsible for monitoring and evaluation of the progress of different project strategies.

1.2.2.3.2 Organization of Farmers' Associations

Community organization is considered one of the means to facilitate popular participation, and the manner by which the upland farmers' associations are organized by the project proponent may be one of the determinants of the association's success or failure. It is considered by most social scientists that associations set up and managed by the people themselves, to articulate their needs or coordinate their actions in pursuance of their collective interests, are more stable than participants' associations initiated and organized by project staff for the purpose of project implementation. Not surprisingly, the project staff-initiated associations are intended to last only for the duration of the project and participants leadership and organizational skills remained undeveloped within the community (Okamura, 1986: 113). Aguilar's (1986: 208) findings in his case studies indicate that participation in the social forestry project associations was low since they were established to comply with prescriptions made by project proponents.

Even if a community can be said to be organized by virtue of various encompassing modes of social organization, their nature and extent may not necessarily foster significant community participation. According to Okamura (1986: 114), substantive popular participation of upland communities

should be organized to the extent that they can mobilize themselves and their social and material resources for corporate action towards attaining their collective interests. As a minimum condition, community organization should be initiated and controlled by upland people themselves and should be directed to furtherance of their needs and interests, not those of project proponents.

1.2.2.3.3 Participation in the Decision-making Process

The social scientists believe that rural people's participation in decision-making helps develop their self-esteem. Hence decentralization of decision-making to the lowest level of the society has been a major means of improving awareness. The discussion on this issue has been actively fostered by the United Nations which has called for the establishment and strengthening of local decision-making bodies in developing countries (Midgley, 1986: 32).

In Philippine social forestry, Aguilar's studies has shown that projects are directly implemented by government entities with the project staff acting as the prime decision-makers and hence are inconsistent with the participatory approach of social forestry (Okamura, 1986: 110). Project participants felt that consultation prior to decision-making was of utmost important. They value

participation in decision-making because it gives them a sense of being part of the project. However, direct and effective channels for such participation have been generally absent. The only area in which participants enjoyed some leeway was in the choice of crops to plant. The result has been feelings of resentment and antagonism and the belief that they are not really part of the project (Aguilar, 1982:209).

1.2.2.3.4 Project Benefits

Philippine case studies revealed that income and other benefits derived from social forestry projects have not resulted in any significant material improvement for upland farmers. The extent of social forestry project contributions to the *kainginero's* household income was discussed by Aguilar (1986: 209) and Fujisaka (1986: 112).

This study will look into the involvement of the people in the different phases of project cycle, organization of upland farmers' associations, decision-making process and project benefits. I belive that increased involvement of the farmers contributes to the realization of their potentials and capabilities in managing projects and preserving natural resources in their localities. Participation should also enhance their awareness about their individual rights and

privileges as members of the community organization. The study will test these views by the following hypotheses:

Hypothesis 6. Upland farmers will realise their potentials and capabilities to manage their associations' affairs and will understand their individual rights as members if they participate in the project.

Hypothesis 7. Upland farmers will cease *kaingin*-making practices when offered community-based livelihood projects capable of surpassing the returns they can get from *Kaingin*-making.

1.2.2.4 Project Impact Indicators

Questions and hypotheses about the extent of fulfillment or realization of the social forestry project's general and specific objectives were formulated as bases for evaluation.

1.2.2.4.1 Improvement of Farmers' Economic Condition

Philippine case studies revealed that income and other benefits derived from social forestry projects have not resulted in any significant material improvement for upland farmers. The extent of social forestry project contributions to the *kainginero's* household income was discussed by Aguilar (1986: 209) and Fujisaka (1986: 112). The impact of the NZ-PNOC Social Forestry Project on the economic conditions of the farmers-participants will be tested by the hypotheses

below.

Hypothesis 8. Participation in the project improves the economic condition of the upland farmers.

Farmers' participation in the project includes involvement in the different income-generating activities such as paid nursery and plantation labour, agroforestry farms, consumer store, mini-theater, handicraft-making, marketing cooperative and loan and savings scheme. These activities are foreseen to give significant financial returns to the farmers.

1.2.2.4.2 Increased Environmental Awareness Among Upland Farmers

The project's training programme and working experiences of the upland farmers on project activities were envisaged to increase environmental awareness of the upland farmers. While formal training is aimed to provide initial information, project activities are designed to accelerate the farmers' learning process. These are often better than acquiring secondary information from another person or from mass media. The study will test the hypothesis below.

Hypothesis 9. Participation in the project increases upland farmers' environmental awareness.

Increased environmental awareness is in terms of farmers' understanding about the effects of *kaingin*-making and illegal logging to the environment that led them to initiate environmental protection programme.

1.2.2.4.3 Decreasing Environmental Degradation

Environmental protection and preservation is a major aim of the social forestry project. With all the elements (such as finance, technical assistance, equipment, training programmes, project staff support and participatory approach project management) in place, project sponsor and proponent agencies hope the project will meet its environmental goal. This study will attempt to answering this question by testing the hypotheses below.

Hypothesis 10. The incidence of *kaingin*-making and illegal logging will decrease resulting from project implementation in the area.

1.2.2.4.4 Project Replicability

The present pilot social forestry project areas represents a very small portion of the three geothermal reservations which the project proponents hope to replicate in other areas of the reservations. A major project characteristic is its

communal and participatory nature. This may be incompatible with Cagampang's (1982: 7) assertion that "rural-upland farmers are by their nature possessively individualistic". Fujisaka (1983: 10) also maintains that upland people are "not organized". These assumptions which would make replicability difficult are tested by the hypotheses below.

Hypothesis 11. Upland farmers prefer communal or group farming over individual farming in public land.

Hypothesis 12. Other neighboring communities will adopt similar project scheme in their respective places.

A question and hypothesis summary table is provided in Table 1.

1.3 Significance of the Study

Several case studies on social forestry projects have been conducted in the Philippines. Some having a participatory aspect which specifically called for a project design with participant involvement (Aguilar 1982: 6) have been considered by foresters to be "successful" exercises in social forestry, although the specific criteria for their selection as successes were not specified (Okamura, 1986: 103). This study tests this assumptions.

Economic aspects also tend to be have been neglected. Segura-de los Angeles (1986: 182), for example, noted that

Table 1. Hypothesis Summary Table

NO.	AREA OF CONCERNS	H Y P O T H E S E S	OPERATIONALISED HYPOTHESES
1	Relationship between farmers' participation in the project and foreseen benefits from the project.	There is a positive relationship between participation and direct tangible benefits from the project.	Participation is in terms of initial enlistment to the project. Direct tangible benefits include monetary returns. Farmers participate in the project due to foreseen monetary returns.
2	Relationship between farmers' income level and date of enlistment in the social forestry project.	The lower the farmers' income, the earlier is his date of enlistment in the social forestry project.	Income below the poverty is considered as the average income of the farmers. Date of enlistment is the length of time farmers took before joining the project.
3	Relationship between farmers' age and their date of enlistment in the project.	There is no direct relationship between farmers' age and their initial enlistment in the project.	Working age is between 18 to 60 years old. It is thought that age is not a significant factor that influence farmers' initial enlistment in the project.
4	Relationship between sex the farmers and date of their enlistment in the project.	Male upland farmers will enlist to the project earlier than female farmers.	The roles played by both genders in a household influence farmers' initial enlistment in the project.
5	Helpfulness of the project's training programme to farmers with different training backgrounds.	Farmers with and without previous training will find the project's training programme helpful to both of them.	The project's training programme is new to all farmers-participants, hence, considered helpful to all of them.
6	Relationship between participation and farmers' realization of their potentials and capabilities for self-management and individual rights as association members.	Upland farmers will realize their potentials and capabilities for self-management if they participate in the project.	Participation in the project will provide farmers training on decision-making processes, sharing scheme and proper conduct of meetings.

Table 1. Continued . . . .

NO.	AREA OF CONCERNS	H Y P O T H E S E S	OPERATIONALISED HYPOTHESES
7	Relationship between *kaingin*-making practices and introduction of community-based livelihood projects.	Upland farmers will cease *kaingin*-making practices when offered community-based livelihood project capable of surpassing the returns they can get from kaingin-making.	Reduction in the incidence will occur if upland farmers are offered alternative sources of livelihood.
8	Effects of project participation on the economic condition of the upland farmers?	Participation in the project improves the economic condition of the upland farmers.	Participation in the project raises the farmers above poverty level, increases their economic activities, which results to better education and nutrition
9	Effect of project participation on environmental awareness of the upland farmers.	Participation in the project increases upland farmers environmental awareness.	Increased environmental awareness in terms of new knowledge learned from the project's training programme, farmers' environmental protection initiatives and stopping *kaingin*-making practices.
10	Effects of project implementation on the trends of *kaingin*-making and illegal logging.	The incidence of *kaingin*-making and illegal logging will decrease resulting from project implementation in the area.	Reduction in the incidence of destructive forest activities due to attention given by the upland farmers in the project activities.
11	Upland farmers' preference between communal or group farming and individual farming.	Upland farmers prefer communal or group farming over individual farming in public land.	Majority of the project beneficiaries prefer communal or group farming based on their experiences in the project.
12	Project replicability.	Other neighboring communities will adopt similar project scheme in their respective areas.	Increasing number of communities adopting the same project scheme is an indication of attractive project.

looked at the economic impacts (in terms of direct effects such as cooperators' income, labour use and productivity) and the economic impacts of social forestry projects on society have not been studied. None of the previous studies which ecological effects (as measured by biophysical indicators) attempted to value, in economic terms, the environmental costs and benefits of upland cropping systems, and social development interventions. Such studies would have been of great help to project implementors because social forestry is still at an early stage of development in the country.

Studies are still needed to determine specific areas of improvements for more successful project implementation. It is hoped the present study will assist project planners, implementors and donor agencies in project review, modification and/or formulation of present and future community-based income-generating projects. It may also serve as a basis in assessing the allocation of agency or donor funds to future projects. Such studies should also help to improve the socio-economic conditions of the upland farmers who are the intended project beneficiaries. Ultimately, successful implementation of community-based projects should also result in the effective protection, conservation and preservation of the geothermal reservations' surface resources and underground reserves which will sustain power generation so vital to the country's economic endeavour.

1.4 Researcher's Stance

I have been directly associated with the project as Project Coordinator since its inception. Questions might therefore be raised about the degree of objectivity I have exercised in examining the project. It might, however, be equally argued that my "inside knowledge" of the Project is a research strength, and is in this respect not dissimilar from that of Chupinit Kesmanee (Kesmanee, 1991) when he conducted a most useful investigation of Hill Country villages in Thailand. Tripodi (1983: 14) is not the only one to claim that inside staff are more appropriate to conduct this sort of evaluation because they are in a good position to understand the programme in great detail, facilitate feedback, and enhance the use of evaluation results. One might also note den Hollander's observation on the supposed objectivity of scientific investigations when he writes:

> ...unbiased, open-minded observation does not exist. Whatever we see or otherwise perceive is a function of something that we saw or that was otherwise planted in our minds before... A highly rated quality is 'objectivity', but complete objectivity can be ignorant or totally indifferent. In social description prejudice and preference are attitudes that should be kept in hand but they need not be shunned and it is absurd either to pretend or to demand their absence (Hollander, 1967: 8-9).

In the absence of complete objectivity or unbiased observations, I have attempted to define the boundaries between objectivity and subjectivity. To have done

otherwise, this study would have been jeopardized and my intention to help the upland farmers, proponent and donor agencies would have been defeated.

I was a member of the New Zealand government's party which identified the project areas in 1987, and have been identified with their problems ever since. Their concerns with the proponent agency were channelled through me and other local project staff, oftenly with favourable results. Knowing the Filipino values of *utang na loob* or 'sense of indebtedness', their cooperation and sincerity to help me in this study is unquestionable. Although most of the upland farmers have little education they know that I went to New Zealand to undertake further study and that I will write a book about our experiences in the project. They were very willing participants in my research enquiries. I believe I have good rapport with and trust from the upland farmers. I am sincere in helping them to help themselves.

CHAPTER II - RESEARCH METHODOLOGY

2.1 Research Design

A combination of *ex-post facto* evaluation research design and case study design was adopted in this study. The former was employed primarily to measure quantifiable effects of the social forestry project to different sectors while the latter was employed to obtain information that could appropriately describe the project and its impacts which are more qualitative in nature.

Information in the case study design was collected through the participatory rural appraisal (PRA) method, non-participant observation and from secondary data such as project monthly and annual reports, project evaluation reports and unstructured interview of some project beneficiaries and representatives of the proponent agency. Information obtained through the *ex-post facto* design was collected mainly through person-to-person or interviewer-administered questionnaires, tree inventory data and secondary data such as census and statistics handbooks, project management plans, accomplishment and evaluation reports.

2.2 Selection and Description of the Study Area

2.2.1 Selection of Study Area

The presence of joint New Zealand government and PNOC implemented social forestry project was the primary consideration in the selection of the study area. Four project areas were selected by the joint New Zealand and PNOC team in 1987 as sites of the pilot social forestry project on the basis of the critical condition of the watershed areas and presence of informal organizations of upland farmers. The areas selected were:

a) *Barangay* Baslay and *Sitio* Bediao, *Barangay* Magsaysay, Municipality of Dauin, Province of Negros Oriental, situated inside the Palinpinon Geothermal Reservation.

b) *Barangay* Tongonan, City of Ormoc, Province of Leyte, situated inside the Tongonan Geothermal Reservation.

c) *Sitio* Azupre, *Barangay* Tublijon, Municipality of Sorsogon, Province of Sorsogon, situated inside the Bacon-Manito Geothermal Reservation.

The location of the four project areas is illustrated in Figure 2.

2.2.2 Description of the Study Areas Before the Implementation of the Social Forestry Project

It is necessary to briefly describe the physical and socio-economic characteristics of the areas before the interventions were introduced as a basis for evaluating the extent of their effects on the subject areas.

2.2.2.1 The Baslay and Bediao Project Areas

2.2.2.1.1 Physical Features

The study areas are adjacent mountain *barangay* in the municipality of Dauin, Negros Oriental, which are located about 22 kilometers south of the provincial capital city of Dumaguete. The main access to Baslay and Bediao consisted of 14 and 13 kilometers of asphalted national road and eight to nine kilometers of rough roads. The two areas are separated by a one hundred meters deep ravine. There is a two kilometer road connecting the two areas about three kilometers downhill from the center of both *barangay*. The topography is generally gently rolling with an average slope of twenty degrees. Both areas have similar elevation that ranges from 600 to 900 meters above sea level.

There are three main types of vegetation in the area, namely;

a) Natural woodland of relatively dense secondary growth resulting from past logging operations.

b) Planted woodland of Acacia confusa established in early 1950's by the then Bureau of Forest Development. It has patches or open areas cleared for *kaingin* purposes.

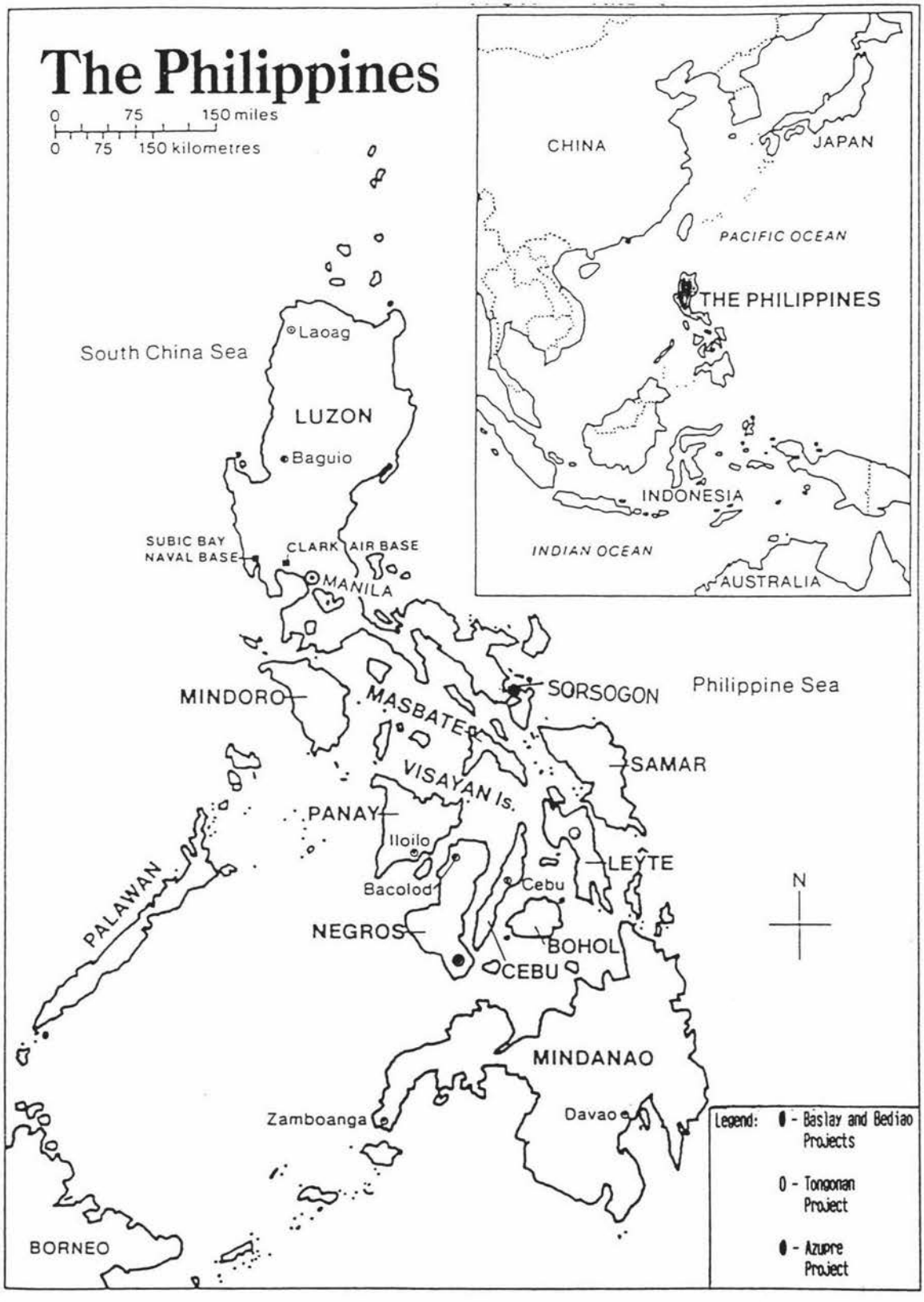
c) Open grassland.

The project areas are approximately one to two kilometers from the centre of the *barangay*. There were no well-defined cluster of residential houses in the area. Single or cluster of two or three houses were normally half to one kilometer away from each. Figure 3 shows the approximate location of the Baslay and Bediao project areas.

2.2.2.1.2 Socio-economic Condition

Over 75 percent of around one hundred households in Baslay and 30 households in Bediao depended on the land resources of the reserve for their living in the form of subsistence farming through *kaingin*-making, farming of private farm lots and livestock raising. Corn, the staple food, was planted on the farms in most periods of the year. Some farms had other crops such as peanuts and onion inter-planted with corn.

Figure 2. Location Of The Four Social Forestry Project Areas



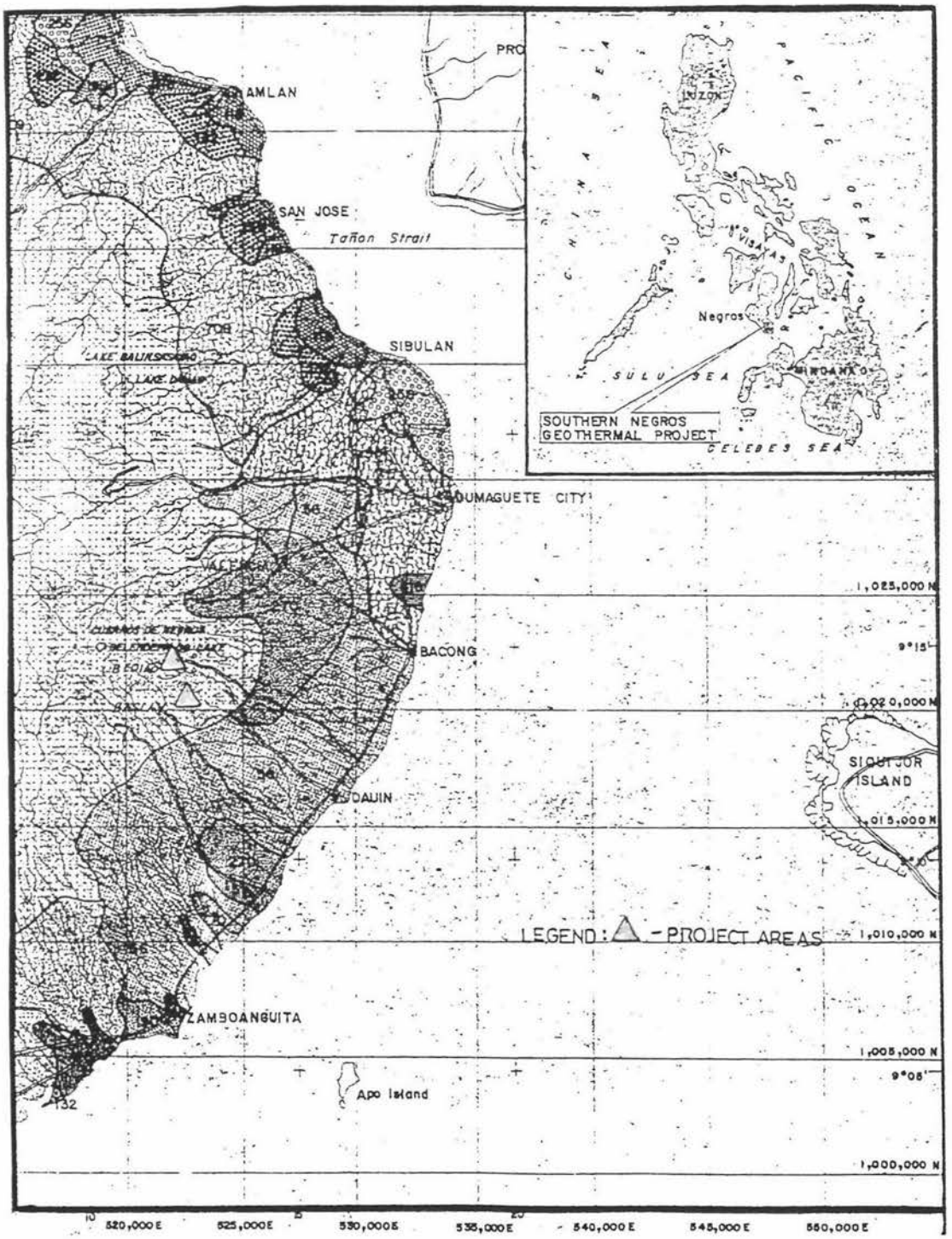
There were two chapels in Baslay, Roman Catholic and Baptist, and one Roman Catholic Chapel in Bediao. Most people in the community are Roman Catholic and were fond of celebrating an annual *barangay* "fiesta" in honour of their respective patron saints. There is a centrally located primary school in Baslay which conducted classes three times a week. There is also a primary school building in Bediao but it did not conduct classes at the time of the survey due to lack of teachers. As a result, the children walked three to five kilometers to reach the nearest primary school in the *barangay* of Magaso. There was no health clinic in either *barangay*. Instead, the Dauin Rural Health Clinic (DRHU) visited both areas at least once a month to conduct consultation and medication of common and seasonal illnesses. The nearest store in Baslay was about a kilometer from the *barangay* centre and in Bediao, about three kilometers.

2.2.2.2 The Tongonan Project Area

2.2.2.2.1 Physical Features

The study area was located in the mountain barangay of Ormoc City. It is situated approximately 23 kilometers northeast of Ormoc City with excellent access of 21 kilometers of cemented road and two kilometers rough road. The topography

Figure 3. Location of the Baslay and Bediao Social Forestry Project Areas



is hilly with an average slope of about 25 degrees. Elevation ranges from 300 to 1000 meters above sea level.

Vegetation consists of secondary forest with a well formed canopy. It has patches of open areas cleared for *kaingin* purposes. There are three major river tributaries in the area which were used by the residents for domestic purposes such as laundry, dish washing and bathing. Water used for drinking and cooking was sourced from springs which were never subjected to potability tests.

The project area was about three to four kilometers away from the *barangay* centre where the majority of the participants lived. Figure 4 shows the approximate location of Tongonan project area.

2.2.2.2 Socio-economic Condition

As with Baslay and Bediao, most households in Tongonan depend on the land resources of the reserve for their living in the form of subsistence farming through *kaingin*-making, farming of private farm lots and livestock raising. Corn was also planted for most periods of the year. There were several other cash crops (cassava, sweet potato, onion, bell pepper, beans, eggplant, tomato, etc.) and fruit trees (jackfruit, guava) planted in most farms. A Roman Catholic

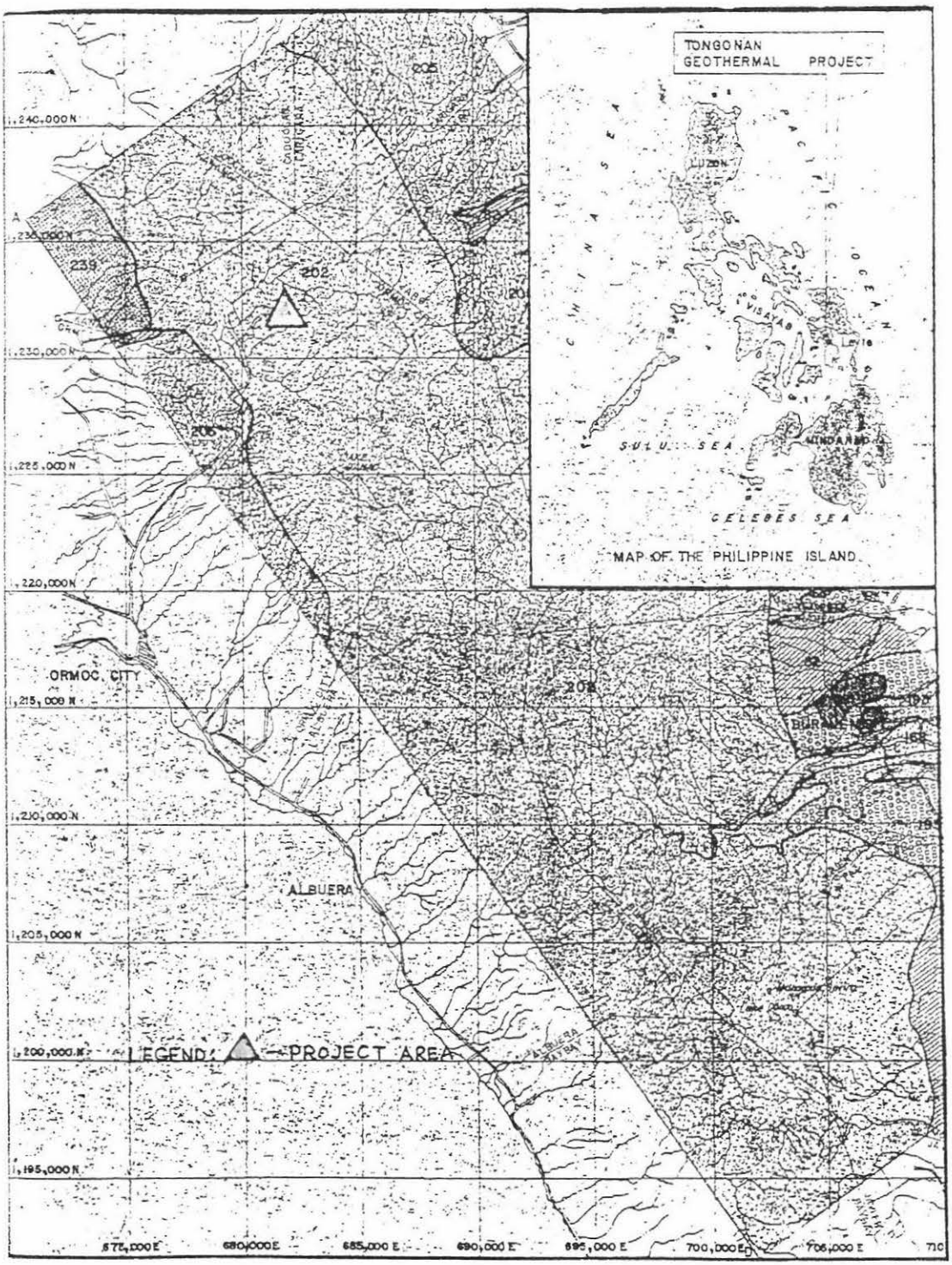
chapel and a small primary school which conducted classes five times a week are located at the centre of the *barangay*. The children normally take their secondary education in the city. The *barangay* fiesta was being celebrated annually. Unlike Baslay and Bediao, there was no health clinic and regular schedule of rural health worker visits to Tongonan. The people usually undertook self-medication in case of sickness in the family or proceed to the city or sought treatment at the nearby PNOC Infirmary if illness had become severe. There were three *sari-sari* or variety stores that sold basic household goods to *barangay* residents.

2.2.2.3 The Azupre Project Area

2.2.2.3.1 Physical Features

The study area was located in the mountain area of Sitio Azupre, Barangay Tublijon, Sorsogon, Sorsogon. Unlike the previous three areas, the participants in the Azupre Agroforestry Project live some distance from the agroforestry area. The residential area is situated along the national highway and is easily accessible by public transport to the Sorsogon town proper while the agroforestry area is about nine kilometers from the residential area. The main access to the project area is through rough road constructed by PNOC for its geothermal project operations. The topography is

Figure 4. Location Of The Tongonan Social Forestry Project Area



generally flat to slightly rolling with slope ranging from 15 to 20 degrees and elevation ranging from 700 to 800 meters above sea level.

The vegetation consisted of secondary forest characterized by a dense ground cover of herbs, ferns and low shrubs, and a sparse over-canopy of mainly *Group IV* tree species. Illegal logging by upland farmers was prevalent in the area as an immediate source of cash. Figure 5 shows the approximate location of Azupre project area and location of residences and the community centre.

2.2.2.3.2 Socio-economic Condition

Ninety percent of the households in Azupre depended on the land resources of the reserve for their living, through farming of private farm lots, copra-making, handicrafts and livestock raising. However, most farms cultivated by the farmers were usually privately-owned lands. Upland and lowland rice varieties, and not corn were commonly planted. Other species of cash crops planted on a rotational basis included cassava, beans and sweet potato. Common perennial plants in the area included coconut and banana.

A Roman Catholic chapel and a small primary school which conducted classes five times a week were located at the

barangay centre. The children normally took their secondary education in the Sorsogon town proper. As with the other three project areas, the residents celebrate an annual *barangay* fiesta to honour their patron saints. There was no health clinic in the *barangay*. The people normally sought local herbal and self medication or treatment at the town clinics when sickness was more severe. There were four *sari-sari* or variety stores almost ten houses away from each other that sold basic household goods to residents.

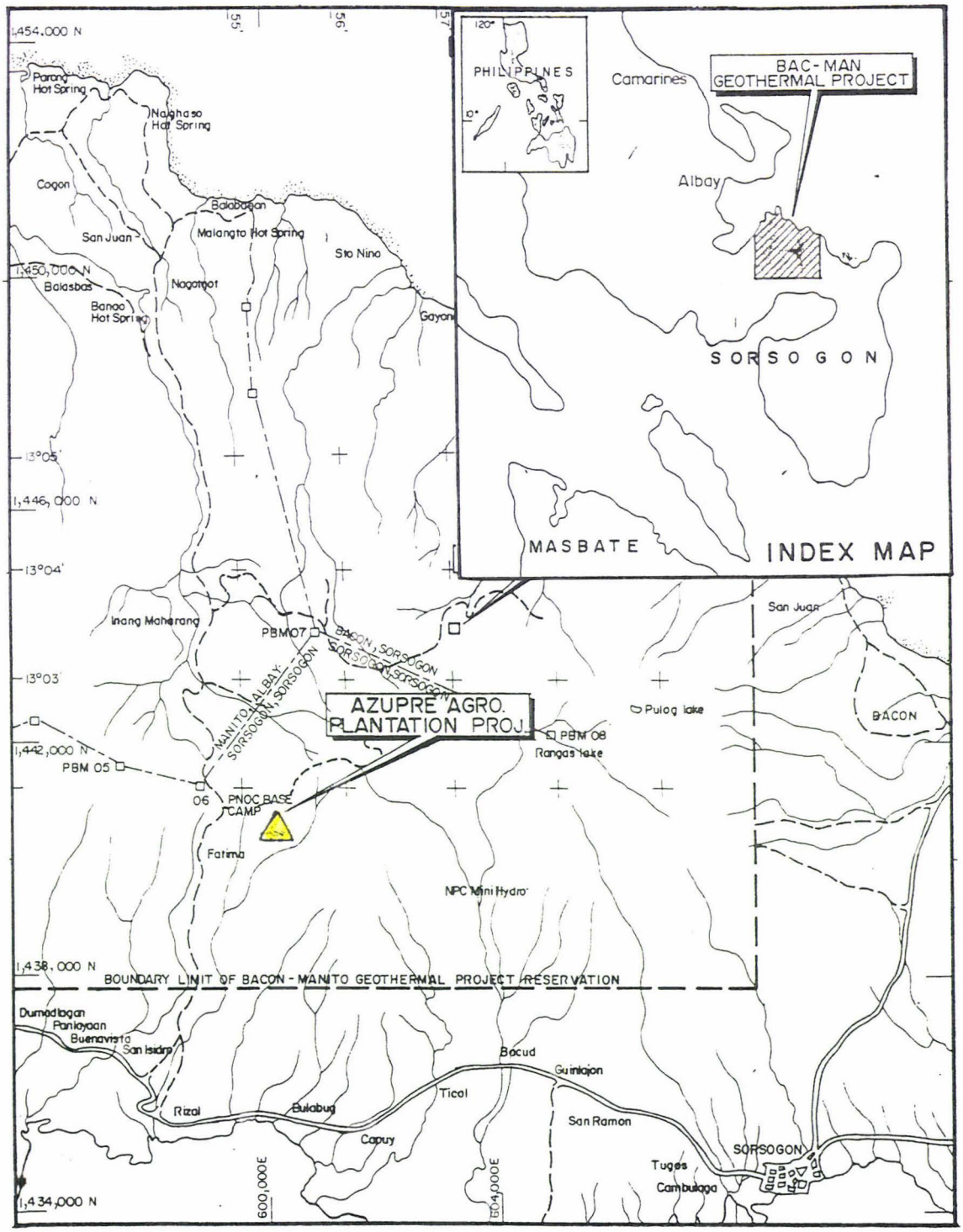
2.2.3 PNOC Social Forestry Project Background

2.2.3.1 Major Elements

The project was composed of the following major elements:

a) Training and education of the project participants on social development and management skills (includes value re-orientation, self-awareness, group building and leadership skills, participatory rural appraisal, cooperative practices, simplified book-keeping and development of on-farm and off-farm income generating projects); and technical training (nursery and plantation activities and environmentally compatible farming methods). The details of the training and education programme is presented in Appendix 1.

Figure 5. Location of the Azupre Social Forestry Project Area



b) Organization of the respective groups of upland farmers into associations which were duly registered with the country's authorized accrediting agency. The copies of their registration certificates is shown in Appendix 2.

c) Provision of the necessary administrative, technical and continued training assistance to the project participants by PNOC during the five-year period of the project.

d) Establishment of agroforestry plantations in Baslay, Bediao and Azupre, and rattan plantation in Tongonan. The details of target plantation areas is shown in Appendix 3.

e) Project participants through their respective associations provide labour and receive compensation (wages) during nursery activities and establishment and maintenance of the agroforestry and rattan plantations during the five-year period of project implementation.

f) Issuance of community forest lease agreement or stewardship certificates by the government to the upland farmers' associations.

g) Turn-over of plantations to the respective associations after five-years, the management of which shall adopt the principle and practices of a producer cooperative.

h) PNOC to act as monitoring and advisory body of the projects after five years.

3.2.3.2 Description of the Physical Interventions

As briefly described above, the project physical interventions include the establishment of agroforestry and rattan plantations. Agroforestry plantations were established in Baslay, Bediao and Azupre while rattan plantation was established in Tongonan. The detailed descriptions of the project module are discussed in the next three sub-sections.

2.2.3.2.1 The Baslay and Bediao Agroforestry Project Modules

The Baslay and Bediao project areas had similar agroforestry module which involved the establishment of agroforestry plantation using three major plantation crop species, such as coffee (Coffea robusta and Coffea arabica), cacao (Theobroma cacao) and black pepper. Coffee and cacao were planted underneath the ayanguile stand which served as nurse or shade trees for the shade-loving crops. Farmers also planted short-term root crops for subsistence. The main rationale for the planting of these crops was their dependency on shade and nitrogenous litters or biomass provided by the ayanguile.

In this manner, the ayanguile stand was protected from being cut while providing excellent condition for the growth of coffee and cacao (Figure 6). The crop mixture therefore was both physiologically and ecologically sound. The upland farmers were made aware of the situation and this prompted them to refrain from cutting the trees for *kaingin* purposes.

Unlike coffee and cacao, black pepper was planted in open grass land using *kakawate* or *Madre de cacao* (*Gliricidia sepium*) as the nurse or support tree which was planted at least one year ahead of the black pepper (Figure 7). Black pepper needs partial shade and support trees for twining. Besides serving as support and tree to black pepper, *kakawate* trees provide nitrogenous litters on soil and an excellent crop for soil erosion control. Black pepper served as cash crops. The main rationale in the planting of these crops was to successfully reforest the grassland area which was historically burned several times after reforestation tree species were planted. There was a lack of concern on the part of the upland farmers on reforestation species as they can not get something tangible from them in a short span of time. With black pepper foreseen as source of cash, it was expected that upland farmers will protect the plantation from being burned. The total area of the plantation planted to healthy crops as of July 1992 is shown in Table 2.

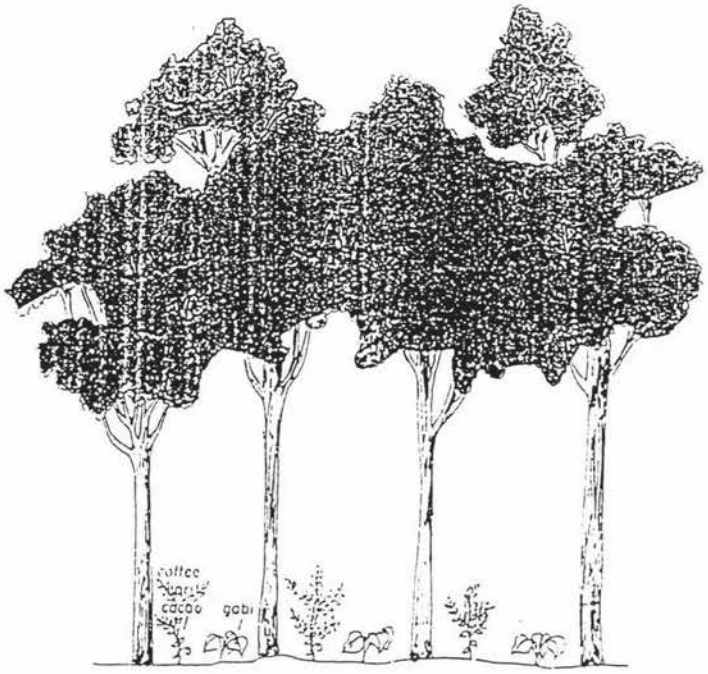


Figure 6 : Baslay and Bediao Agroforestry Projects Cropping Module 1

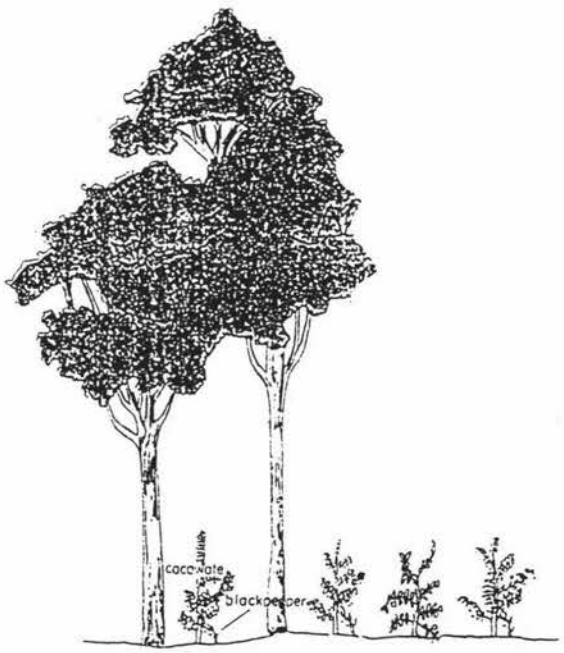


Figure 7 : Baslay and Bediao Agroforestry Projects Cropping Module 2

2.2.3.2.2 The Tongonan Rattan Plantation Project Module

The Tongonan rattan plantation module involved the planting of indigenous species of rattan called *palasan* (*Calamus maximus*) underneath second growth forest (Figure 8). This rattan species needs shade and support of tall trees for twining. The dependency of rattan to trees was envisioned to control project participants from cutting trees and clearing the area for *kaingin* purposes. Besides, the cropping mix is aimed at protecting the forest by the farmers-participants themselves since they are looking after the rattan canes as their legitimate and major source of cash in the future. The total area of the plantation planted to healthy crops as of July 1992 is shown in Table 2.

2.2.3.2.2 The Azupre Agroforestry Project Module

The Azupre agroforestry module involved the establishment of mix plantation of long-term crops, such as abaca (*Musa textiles*), coffee, cacao, mangium (*Acacia mangium*) and yemane (*Gmelina arborea*) with inter-cropping of short-term crops, such as root crops, upland rice and tiger grass (Figure 9).

The main rationale for the establishment of the long term crops was for timber stand improvement. Indirectly, the plantation was established to deter illegal logging

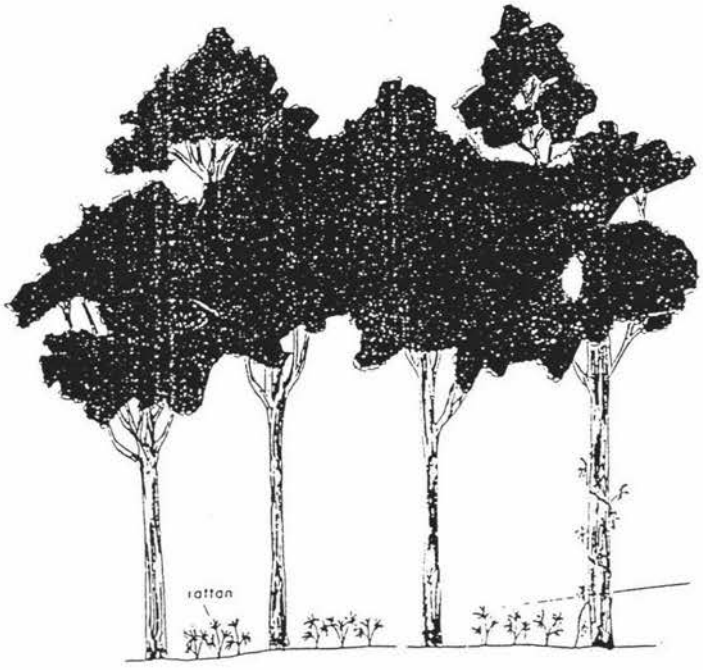


Figure 8 : Tongonan Rattan Plantation Project
Cropping Module

Figure 9 : Azupre Agroforestry Project
Cropping Module

activities in the area and vicinities. The plantation area was previously illegally logged and was identified as the transporting route of illegally cut lumbers. The total area of the plantation planted to healthy crops as of July 1992 is shown in Table 2.

Table 2. Area of Plantations with Healthy Crops

CROPS	PROJECT AREAS			
	Baslay	Bediao	Azupre	Tongonan
1) Coffee	12.9	6.0	-	-
2) Cacao	1.0	8.3	-	-
3) Black pepper	6.2	4.3	-	-
4) Abaca	-	-	3.5	-
5) Rattan	-	-	-	325.0
6) Acacia mangium	-	-	1.5	-
7) Yemane	-	-	5.0	-
Total	20.1	18.6	10.0	325.0

Source: Figures from July 1992 Inventory.

The above plantation areas are subjected to changes annually as recommended by the review consultant (Appendix 4 and 5).

2.2.3.3 Funding Components

The pilot social forestry project was jointly funded by the New Zealand government through the Ministry of Foreign Affairs and Trade (MFAT) and the government of the Philippines through the Philippine National Oil Company (PNOC). The New Zealand government provided an annual (1990-1995) contribution of NZ$200,000 which was allocated to the four project sites for payment of the following:

a) Direct inputs such as nursery and plantation labor, planting materials, fertilizers, pesticides and other farm inputs;

b) Expenses for training of project participants during the first year of the project;

c) Professional fee of foreign consultant who conducts an annual project review; and

d) Expenses for project staff training.

Some capital inputs were also provided by the New Zealand government, including two vehicle units, a computer, an electric generator, a television and a video.

PNOC provided an annual counterpart budget for payment of

administrative expenses including salary of project staff, travelling expenses, office supplies, vehicle maintenance, fuel, oil, tires, batteries and accessories, freight and other administrative costs; and expenses for continuing training and education of project participants and staff. A detailed breakdown of project expenses is shown in Appendix 6.

2.3 Selection of Sample Respondents

At least one respondent from every participating household was chosen as a sample respondent for the interviewer-administered questionnaire. Some households had two or more respondents to increase the population size since there were a limited number of participants in the projects. The selection of respondents was entirely random, regardless of sex, age, educational level and civil status. Seventy four respondents representing 59 households in Baslay; 37 respondents representing 24 households in Bediao; eighty respondents representing eighty households in Tongonan; and 33 respondents representing eighteen households in Azupre. The percentage of respondents in relation to the total number of participants in every project site was as follows; Baslay, 64% (74/116); Bediao, 72% (37/51); Tongonan, 50% (80/159); and Azupre, 97% (33/34).

2.4 Data Collection Methods

2.4.1 Instruments

Questionnaires intended for the project beneficiaries were designed prior to field work (Appendix 7). They included both close and open-ended questions aimed at determining participants' purpose for participating in the project; extent of participation in association and project activities; environmental awareness; and impressions towards the project and economic activities. Comprehensive demographic data were also to be obtained from the questionnaire. Several questions of no direct use in this study were also included to improve existing project data bases which could assist in future project studies.

Another questionnaire was designed for non-project beneficiaries to obtain information about the replicability of the project scheme in other parts of the three geothermal reservation areas (Appendix 8). Data were also obtained to serve as baseline for future expansion projects of this nature.

2.4.2 Orientation of Research Assistants and Testing of Questionnaires

In each of the four study areas, at least three PNOC project staff were assigned to directly supervise and monitor project activities. They were foresters, extension officers, a watershed technician and social forestry aides all of whom had at least five years training and experience in dealing with rural people in the actual field setting. The assistance of these people was solicited during the data gathering phase of the study. They had a "built-in" advantage because of their good rapport with the subject communities. A day briefing of these data-gathering assistants on the content of the questionnaires and approaches to adopt in the collection of information was conducted at each project site. The briefing started with the translation of the research questionnaire to the local dialects spoken by each upland farmer groups. Appendix 9 shows sample questionnaire in Tagalog dialect. Through this process, the different meanings of words, questions and statements were clarified and given exact interpretation. On the following day, the research assistants tested the questionnaire with sample respondents in my presence. Inquiries on some questions were further clarified during the actual administration of questionnaires.

Overall, the responses in the tested questionnaires were very satisfactory, but some questions proved difficult to answer due to the problem of memory recall. No major revision on any section of the questionnaire was considered necessary.

2.4.3 Data Collection Schedule

Interviews coincided with project beneficiaries' scheduled meetings or with their scheduled compulsory work in the plantation. In Baslay, Bediao and Azupre, one or two working groups were scheduled for interview in a pre-specified date, time and venue. In Tongonan, each working group was given their respective interview schedule during the association's one day-a-week *bayanihan* plantation works. Individual interviews took an average duration of twenty minutes, and an average of one group per week. It took four weeks each to complete the interview in Baslay and Bediao, six weeks in Tongonan, and one week in Azupre.

2.4.4 Participatory Rural Appraisal (PRA)

As part of the project's programme of updating the data base, especially on the project and beneficiary association's progress, an annual participatory project appraisal was undertaken by each beneficiary association assisted by the

project staff. The activity included the assessment of the association's accomplishment during the current year, comparing it to the plans they generated in the previous year, identifying problem areas, proposing solutions and planning activities for the succeeding year. The process was done by dividing the members into groups of seven to ten discussants, and the selection of a group chairperson, secretary and presentor. Each group extensively discussed the topics and arrived at a group concensus. Finally, the outputs of each group were integrated in an oral report with the association's secretary recording and summarizing the common points discussed by each group. The whole group kept the final output as their plan of actions for the following year. I was able to obtain information from PRA from each project area. As a supplement, I facilitated a participatory appraisal process during my fieldwork in Tongonan and Azupre. A copy of the appraisal output in Azupre is shown in Appendix 10.

2.4.5 Non-Participant Observation

Primary information about the project was obtained largely through non-participant observation. It was not limited to the period I spent during fieldwork from January to May 1993 but included the whole period of my incumbency as project coordinator since 1988. As part of my task, I had conducted

regular site visits to the four project sites to monitor the progress of implementation; identify problem areas, hold discussions with project site staff, and informal discussions with project beneficiaries, and to observe group dynamics. These aspects made me confident that I could describe the project situation better than anybody else.

2.4.6 Secondary Data

Each project site keeps records of project progress reports and evaluation reports to which I had access. Little effort was needed to obtain these records since I keep separate files of these reports. Copies of the respective association's minutes of meetings, resolutions and working policies and guidelines were obtained from the project field offices as it had been a requisite to keep these for monitoring purposes. A little more time consuming was looking at the individual record of *kaingin*-making and illegal logging incidence of the forest protection file in each project site.

2.4.7 Inventory of Ayanguile Trees

An inventory of Ayanguile trees was conducted in Baslay to determine the volume of trees per hectare of plantation. The

information will be used in the computation of the estimated value of trees damaged by or saved from *kaingin*-making. Subsequently, the values will be used as opportunity costs in the economic analysis. A stand density of 1,111 trees per hectare yielded a total volume of 694.21 cubic meters. The average volume per tree was 0.62 cubic meter. The stand inventory summary sheet is shown in Appendix 11.

2.5 Approaches of Analyses

2.5.1 Logical Framework Approach (LFA)

The logical framework approach (LFA) was extensively used as a guide in this study. Coleman described LFA as 'an aid to logical thinking and a means by which a project may be structured and described for analytical purposes' (Coleman, 1987: 252). It should be noted that it is not an integrated set of procedures nor a set of guidelines for the evaluation of a particular type of project. What LFA seeks to do is to provide a structure which will allow project planners and evaluators to specify the components of their activities and identify the logical linkages between a set of means and a set of ends. The structure of the log frame consists of a 4 x 4 matrix in which the rows represent the levels of project activities, including the means required to achieve them (vertical logic), while the columns indicate how the

achievement of these objectives can be verified (the horizontal logic). The general logical framework matrix is shown in Figure 10.

The hierarchy of project objectives has four levels which consist of the goal, purpose, outputs and inputs. Goal is the primary reason or ultimate objective for undertaking the project. Purpose indicates what the project is expected to achieve in development terms once it is completed within the allocated time. It is the motivation behind the production of the outputs. Outputs are the specific results to be produced by the management of inputs while inputs are the activities to be undertaken and the resources available to produce the outputs (Coleman, 1987: 252).

Based on this descriptions of the logical framework approach, a logical framework chart (LFC) was developed and used during the entire analysis (Appendix 12). It detailed the project's objective levels, and the specific project performance indicators as a basis for measurement of outputs were identified. Different data gathering methods and measurement tools (such as statistics, hypothesis tests, financial analysis and economic analysis) were put in place at each hierarchy level.

Figure 10. The Logical Framework Matrix.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
GOAL	Measures of goal achievement	Sources of information Methods used	Assumptions affecting purpose-goal linkage
PURPOSE	End of project status	Sources of information Methods used	Assumptions affecting output-purpose linkage
OUTPUTS	Magnitudes of outputs Planned completion date	Sources of information Methods used	Assumptions affecting inputs-outputs linkage
INPUTS	Nature and level of resources necessary Cost Planned starting date	Sources of information	Initial assumptions about the

2.5.2 Data Encoding and Summarization

The primary information gathered using the questionnaires underwent two important processes before they were used in the analysis. The first process was the data encoding which was done by assigning a code to all information in a given question or category. These codes were in the form of

letters and/or numbers that could aid in easy identification of responses. After assigning an exclusive code to all information from the questionnaire, the responses to all questions were entered in a matrix using a computer spreadsheet programme. The summary of codes used in data encoding and summarization is shown in Appendix 13.

Responses were then summarized under different categories and headings such as tribal or project groupings, demographic characteristics, household information, participation, environmental awareness and economic activities. Detailed summarization of household income and expenditure was done for households with two or more respondents.

2.5.3 Statistical Tools

The statistical tools used in the analysis include descriptive statistics such as mean, mode and percentages, chi-square test of independence and Spearman rank-order coefficient using a five percent level of significance. The mean was used to measure household income and expenditures, volume of stand of timber per hectare and demographic information; the mode was used to measure demographic characteristics as a basis of comparing the similarities or differences between two groups like tribal or project groups, household size, distribution of household members by sex,

number of children in school and primary and secondary sources of income.

The chi-square test of independence and Spearman rank-order correlation was used to test the research hypotheses. The chi-square test of independence was used to determine whether significant differences exist between categories such as project groups, age, sex, income level, literacy and training background. The Spearman rank-order-coefficient was used to determine whether relationship between variables exist. A positive correlation exists if increase in one variable corresponds to decrease in the other variable. A negative correlation exists if increase in one variable corresponds to decrease in the other.

2.5.4 Financial Analysis

Financial analysis is an economic tool designed to measure financial profitability. This measure was used to measure the profitability of the agroforestry and plantation crops on the part of the upland farmers. It was done by determining the projected stream of cashflows of a given plantation crop, discounted over a specified duration at a certain interest rate. The profitability measures used was the net present value (NPV). The criteria was that the project would be financially feasible if the computed NPV is equal or greater

than zero. The general NPV formula is shown below:

$$NPV = \sum \frac{Cashflows}{(1 + i)^n} - Io$$

Where: Io = Initial investment

i = Discount rate in percent

n = Discount period in years

2.5.5 Economic Analysis

Economic analysis was used to measure the economic, social and environmental feasibility of the project. It measures the profitability of the project on the part of the society and the government as a whole. It involved assigning values to social and environmental costs called opportunity costs. In this study, the opportunity costs of the social forestry project were identified in terms of income foregone from *kaingin*-making and the value of stand of trees saved from or damaged by *kaingin*-making. Economic analyses for both the "without" and "with" project situations over a period of five years at 10 percent discount rate were undertaken for all the project areas.

CHAPTER III - RESULTS AND DISCUSSIONS

3.0 Chapter Organization

The results of this study will be presented in six major sections. In the first section, the demographic and social characteristics of the sample respondents will be discussed. It includes relevant information such as distribution of sample respondents by project area, sex, age, educational level, training background, household size, sex of household members, and number of children in school before and after the project implementation.

The economic characteristics of the sample respondents will be discussed in the second section, and it include among other matters, the primary and secondary sources of income, and specific sources of income such as kaingin-making. farming of private land, livestock production and other sources.

In the third section, results of the research hypotheses tests using chi-square, Spearman rho and financial analyses will be discussed.

The results of economic analyses will be given utmost consideration in the fourth section.

In the fifth section, historical data on the involvement of the farmers in the different phases of project cycle will be given attention and in the sixth section, the different problems encountered in the implementation of the social forestry project will be examined.

3.1 Demographic and Social Characteristics of the Sample Respondents

The demographic and social characteristics of the respondents considered relevant in this study include tribal grouping, sex, age, educational level or literacy, training background, household size, sex of household members and number of children in school. These are discussed in detail in the next sections.

3.1.1 Distribution of Sample Respondents by Project Area

The total number of respondents from all project areas was two hundred twenty four (224) representing one hundred eighty one (181) households. The percentage ratio of respondents over the total active membership in each project area was (74/116) in Baslay, 72% (37/51) in Bediao, 50% (80/159) in Tongonan, and 97% (33/34) in Azupre. The overall percentage

ratio was 62% (224/360). The details of the distribution of respondents by project area is presented below.

Table 3. Distribution of Sample Respondents by Project Area.

Project Area	Number of Respondents	Total Active Members	Respondents/ Total Active Members
1) Baslay	74	116	64%
2) Bediao	37	51	72%
3) Tongonan	80	159	50%
4) Azupre	33	34	97%
Total	224	360	62%

3.1.2 Distribution of Sample Respondents by Sex

In development projects, the gender of project participants is one of the factors being considered in the implementation of project activities. In the subject groups of participants in particular, there were more male than female respondents in Baslay, Bediao and Tongonan. There were slight differences in gender representation between projects but these were not statistically significant (Table 4).

Table 4. Distribution of Sample Respondents by Sex

Sex	Baslay	Bediao	Tongonan	Azupre	Total
Male	40 (54)	21 (57)	53 (66)	15 (44)	129 (58)
Female	34 (46)	16 (43)	27 (34)	18 (53)	95 (42)
Total	74 (100)	37 (100)	80 (100)	33 (100)	224 (100)

Note: Figures in parentheses represent percentages to their respective column totals.

Chi-square test revealed that there was no significant difference between project sites ($X^2 = 4.392$, df = 3, $p = \leq 0.05$)

3.1.3 Distribution of Sample Respondents by Age

Age is one of the important characteristics and basic to the socio-economic factors, which largely demarcated the working and non-working population (Singh 1992: 42), and it could also affect the speed by which a development project is implemented. In most countries, ages between eighteen and sixty years are usually the demarcation line between working and non-working groups. In the Philippine setting, however, especially among those families who are in the poverty line and below, family members below eighteen years old are

encouraged by their parents to look for extra sources of income, like vending food items along the street or working as servants to rich families. This was especially true in all the subject groups of this study. Upland farmers over sixty years old are still working for their living, and comprised an important part (13%) of the study communities. Azupre and Bediao were satisfactory older than Tongonan and Baslay (Table 5) which implies lower work efficiency in the first two project areas. Figure 12 shows the total composition of from all project areas respondents by age.

Table 5. Distribution of Sample Respondents by Age

Age Bracket	Baslay	Bediao	Tongonan	Azupre	Total
18-45 (Young)	56 (76)	22 (59)	49 (61)	15 (45)	142 (63)
46-60 (Middle)	12 (16)	9 (24)	23 (29)	10 (30)	54 (24)
60-Up (Old)	6 (8)	6 (16)	8 (10)	8 (24)	28 (13)
Total	74 (100)	37 (100)	80 (100)	33 (100)	224 (100)

Note: Figures in parentheses represent percentages to their respective column totals.

Chi-square test revealed that there was no significant difference between project areas ($X^2 = 12.328$, $df = 6$, $p = \leq 0.05$)

3.1.4 Distribution of Sample Respondents by Educational Level

The low level of upland farmers' education usually results in low adoption level of rural development projects. This problem is particularly serious in many developing countries and continues to be a major impediment in national development efforts. Traditional farmers are often referred to as "the last try the new and not the first to cast the old aside" (Yokota 1983: 9). For this reason, it is necessary to examine the educational levels of target beneficiaries so that appropriate training and education programme can be designed and implemented. The educational level of respondents of the subject communities in this study varied from each others (Table 6). However, all project areas had common mode educational level which was the primary education. The project training and education programme should be suitable to this educational background.

3.1.5 Distribution of Sample Respondents by Training Background

The number and type of training or seminars the farmers-participants had previously attended can supplement their knowledge and experiences as well as affect their responsiveness to development projects. Illiterate farmers

usually obtain informal education through community training,

Table 6. Distribution of Sample Respondents by Educational Level

Educational Level	Baslay	Bediao	Tongonan	Azupre	Total
Illiterate	8 (11)	9 (24)	5 (6)	2 (6)	24 (11)
Primary to Tertiary	66 (89)	28 (76)	75 (94)	31 (94)	200 (89)
Total	74 (100)	37 (100)	80 (100)	33 (100)	224 (100)

Note: Figures in parentheses represent percentages to their respective column totals.

Chi-square test revealed that there were significant differences between project areas ($X^2 = 9.579$, df = 3 $p = \leq 0.05$).

even become more active and responsive than those who had their formal education. The respondents in this study were classified between those who had attended training or seminars and those who had not. The respondents from all areas did not differ significantly in training background (Table 7). The total composition of respondents by educational level is shown in Figure 13. The type of training previously attended by participants is presented in Table 8. In chronological order, these include topics such as health and nutrition, local government, religion, farming techniques and cooperative organization. Other types of

training were rarely mentioned including youth training, women's training, handicraft-making, animal care and job orientation.

Table 7. Distribution Of Sample Respondents by Training Background

Training Level	Baslay	Bediao	Tongonan	Azupre	Total
Attended training/s before	24 (32)	11 (31)	18 (23)	11 (32)	64 (29)
Never attended training/s before	50 (68)	26 (69)	62 (77)	22 (67)	160 (71)
Total	74 (100)	37 (100)	80 (100)	33 (100)	224 (100)

Note: Figures in parentheses represent percentages to their respective column totals.

Chi-square test revealed that there was no significant difference between project sites ($X^2 = 2.377$, df = 3, $p = \leq 0.05$).

3.1.6 Distribution of Respondents Households by Household Size

The household size is one of the factors that could influence the extent of economic activities of a certain household. The larger the household size the higher would be the number of their manpower resources, earning capability and spending

Table 8. Type of Training Attended by the Sample Respondents

Type of Training/Seminars	Frequency	Percentage
Health and Nutrition	18	22
Local Government	16	19
Religious/Sect	15	18
Cooperative Organization	14	17
Farming Techniques	9	11
Youth Training	4	5
Handicrafts Making	3	4
Women's Training	2	2
Animal Care	1	1
Work Application	1	1
Total	83	100

rate. The large household size, however, is usually a hindrance to the enjoyment of better education, nutrition and amenities. Azupre had the largest mean household size (6.11) while Baslay had the smallest mean household size. There were two mode household sizes in Baslay (5.0 and 7.0). Azupre had the smallest mode household size. Overall, the mean and mode household sizes in all project areas were five members.

3.1.7 Distribution of Respondents Households by Sex of Household Members

As discussed earlier, the gender of respondents largely determines the type of work he or she is likely to participate. In the rural Philippine setting, women normally do lighter income generating activities and

household chores while men do the farm activities requiring high physical effort. Thus, the greater the number of either gender in a household, the lesser would be the physical

Table 9. Distribution of Respondents Households by Household Size

Household Size	Baslay	Bediao	Tongonan	Azupre	Total
1	3 (3)	1 (1)	0 (0)	1 (1)	5 (5)
2	2 (4)	1 (2)	7 (14)	0 (0)	10 (20)
3	4 (12)	3 (9)	13 (39)	0 (0)	20 (60)
4	10 (40)	2 (8)	9 (36)	4 (16)	25 (100)
5	12 (60)	5 (25)	18 (90)	3 (15)	38 (190)
6	10 (60)	6 (36)	10 (60)	2 (12)	28 (168)
7	12 (84)	2 (14)	9 (63)	3 (21)	26 (182)
8	3 (24)	3 (24)	4 (32)	1 (8)	11 (88)
9	1 (9)	1 (9)	6 (54)	3 (27)	11 (99)
10	0 (0)	0 (0)	1 (10)	1 (10)	2 (20)
11	0 (0)	0 (0)	2 (22)	0 (0)	2 (22)
12	0 (0)	0 (0)	1 (12)	0 (0)	1 (12)
Total	59 (296)	24 (128)	80 (432)	18 (110)	181 (966)
Mean	5.02	5.33	5.40	6.11	5.34
Mode	12 [5,7]	6 [6]	18 [5]	4 [4]	38 [5]

Note: Figures in parentheses represent actual number of household members in a particular group.

Figures in brackets represent mode household sizes of their respective column headings.

pressure on either member, and the greater would be the extra time that could be allocated to other activities. In Baslay, Bediao and Tongonan, the composition of male household members were slightly greater than female. In Azupre, there was an equal distribution of male and female household

members. Overall, the percentage of male and female members were 52% and 48%, respectively (Table 10).

Table 10. Distribution of Respondents Households by Sex of Household Members

Sex	Baslay	Bediao	Tongonan	Azupre	Total
Male	167 (53)	68 (53)	220 (51)	55 (50)	510 (52)
Female	150 (47)	60 (47)	212 (49)	55 (50)	477 (48)
Total	317 (100)	128 (100)	432 (100)	110 (100)	987 (100)
Mean male members per household	2.8	2.8	2.8	3.1	2.8
Mean female members per household	2.5	2.5	2.7	3.1	2.6

Note: Figures in parentheses represent percentages to their respective column totals.

Chi-square test revealed that there was no significant difference between project sites ($X^2 = 0.457$, df = 3, $p = \leq 0.05$)

3.1.8 Distribution of Respondents Households by Number of Children in School Before Joining the Project

The number of children in school is a good indicator whether there has been a change in the aspirations and attitudes of the farmers towards education. Singh (1992) noted in his

study of social forestry in villages in India that 'lack of awareness about education and lack of financial resources' resulted to low level of education in the rural areas. The situation is also true to both urban and rural Philippine settings. In the present study, the mean number of children in school before project implementation were 1.44, 1.00, 2.04 and 3.08 in Baslay, Bediao, Tongonan and Azupre, respectively. The mode were 0, 0, 2 and 3.5 in Baslay, Bediao, Tongonan and Azupre, respectively. The overall mean and mode were 1.77 and 2, respectively (Table 11).

Table 11. Distribution of Respondents Households by Number of Children in School Before Project Implementation

Household Size	Baslay	Bediao	Tongonan	Azupre	Total
0	14 (0)	10 (0)	6 (0)	0 (0)	30 (0)
1	5 (5)	4 (4)	11 (11)	1 (1)	21 (21)
2	13 (26)	5 (10)	12 (24)	2 (4)	32 (64)
3	5 (15)	1 (3)	9 (27)	5 (15)	20 (60)
4	1 (4)	1 (4)	6 (24)	5 (20)	13 (52)
5	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
6	1 (6)	0 (0)	1 (6)	0 (0)	2 (12)
Total	39 (56)	21 (21)	45 (92)	13 (40)	118 (209)
Mean	1.44	1.00	2.04	3.08	1.77
Mode	13 (0)	10 (0)	12 (2)	5 (3.5)	38 (2)

Note: Figures in parentheses represent actual number of children in school in a particular group.

Figures in brackets represent mode household sizes of their respective column headings.

Note: Figures in parentheses represent mode household sizes of their respective column headings.

3.2 Economic Characteristics of the Sample Respondents Before Project Implementation

The economic characteristics of the sample respondents considered relevant in this study include primary and secondary sources of income, household income from different sources and household income level. These will be discussed in detail in the subsequent sections.

3.2.1 Distribution of Respondent Households According to Primary Sources of Income

The respondent households' primary sources of income differs significantly between project sites (Table 12). However, farming of private land was cited by majority of the households in all project areas as the primary source of income. *Kaingin*-making ranked second in Baslay, Bediao and Tongonan while other income sources ranked second in Azupre. Livestock production ranked third in Baslay, Bediao and Azupre while other income sources ranked third in Tongonan. Other income sources ranked fourth in Baslay and Bediao, while livestock production ranked fourth in Tongonan. *Kaingin*-making was not a livelihood activity of farmers-participants in Azupre. It was very noticeable that Baslay and Bediao had similar primary sources of income. It was because the two areas are adjacent to each other and situated

within the same municipality.

Table 12. Distribution of Respondents Households According to Primary Sources of Income

Sources of Income	Baslay	Bediao	Tongonan	Azupre	Total
Kaingin-making	15 (15)	19 (44)	40 (47)	0 (0)	74 (29)
Farming of private land	71 (70)	22 (51)	42 (50)	25 (86)	160 (62)
Livestock production	14 (14)	2 (5)	1 (1)	1 (3)	18 (7)
Other Sources	1 (1)	0 (0)	2 (2)	3 (11)	6 (2)
Total	101 (100)	43 (100)	85 (100)	29 (100)	258 (100)
Mode	71 {F}	22 {F}	42 {F}	25 {F}	160 {F}

Note: Figures in parentheses represent percentages of their respective column totals.

Letter in brackets represent mode primary source of income which is farming of private land.

Chi-square test revealed that there were significant differences between project sites ($X^2 = 57.118$, df= 9, $p = \leq 0.05$).

3.2.2 Distribution of Respondents Households According to Secondary Sources of Income

The respondent households' secondary sources of income also differs significantly between project areas. Livestock production was cited by majority of the households in Baslay and Bediao as the secondary source of income while farming of private land and other source were cited by majority of the households in Tongonan and Azupre, respectively. Other sources of income ranked second in Baslay, Bediao and Tongonan while livestock production ranked second in Azupre. Farming of private land ranked third in Baslay and Bediao while livestock raising ranked third in Tongonan. As in primary sources of income, Baslay and Bediao had identical secondary sources of income.

3.2.3 Respondents Households Income from Different Sources Before and After Project Implementation

The respondent households' income from primary and secondary sources and the number of households engage in the particular income sources were integrated in the succeeding sections to determine the contribution of the particular source to the mean annual income. The period of analysis for before project income covered the years 1984 to 1988 while the after project income analysis covered the years 1989 to 1993.

Table 13. Distribution of Respondents Households According to Secondary Sources of Income

Sources of Income	Baslay	Bediao	Tongonan	Azupre	Total
Kaingin-making	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Farming of private land	3 (4)	6 (13)	6 (67)	0 (0)	15 (10)
Livestocks production	51 (61)	32 (71)	1 (11)	7 (39)	91 (58)
Other Sources	30 (36)	7 (16)	2 (22)	11 (61)	50 (32)
Total	84 (100)	45 (100)	9 (100)	18 (100)	156 (100)
Mode	71 [LP]	22 [LP]	42 [F]	25 [OS]	160 [LP]

Note: Figures in parentheses represent percentages to their respective column totals.

Letter in brackets represent mode primary sources of income in the respective project areas which were livestocks production (LP), farming of private land (F) and other sources (OS).

Chi-square test revealed that there were significant differences between project sites ($X^2 = 51.168$, df= 9, $p = \leq 0.05$).

3.2.3.1 Household Income from *Kaingin*-making

The mean annual household income from kaingin-making was highest in Tongonan (P18,227) and lowest in Baslay (P723). The magnitude of income was directly related to the mean area of kaingin farm per household which was also highest in

Tongonan at 1.97 hectares and lowest in Baslay at 0.65 hectare (Table 14). It was noted that the mean household income from this source was either unchanged or decreased after project implementation (Table 15). The majority of the farmers cited that the activities of the PNOC Social Forestry Project caused them to give little attention to their *kaingin* farms (Table 16).

Table 14. Area of Kaingin Farms In Each Project Area

Project Area	Number of Households	Mean Area of Kaingin per Household*	Total Area of Kaingin*
1. Baslay	57	0.65	37.00
2. Bediao	19	0.79	15.01
3. Tongonan	40	1.97	78.80
Total	116	1.13	130.81

Note: * - Unit in hectares

3.2.3.2 Mean Household Income From Farming of Private Land

The mean annual household income from farming of private land is highest in Tongonan and lowest in Bediao before project implementation. It was highest in Azupre and also lowest in Bediao after project implementation. The income from this

Table 15. Mean Annual Household Income from *Kaingin*-making Before and After Project Implementation

Project Areas	Before Project		After Project		Changes	
	No. of H-holds	Mean Income	No. of H-holds	Mean Income	No. of H-holds	Mean Income
1. Baslay	57	723	57	723	0 (0)	0 (0)
2. Bediao	24	1001	13	941	-11 (-46)	-60 (-6)
3. Tongonan	40	18227	25	13408	-15 (-38)	-4819 (-26)

Note: Figures in parentheses represent percentages of change.

Table 16. Reasons Cited by Upland Farmers for the Decrease in their Mean Annual Income from *Kaingin*-making and Farming of Private Land

	Reasons For The Decrease In Mean Income	Number of Farmers
1.	Busy in the NZ-PNOC Social Forestry Project as an alternative source of household income	43 (63)
2.	Crops were damaged by natural calamities (drought, typhoon, wind and pests)	14 (21)
3.	Decreasing soil fertility	5 (7)
4.	Stopped farming	4 (6)
5.	Relatives died	2 (3)
	Total	68 (100)

Note: Figures in parentheses represent percentage responses.

source decreased slightly in Baslay and Bediao while a very significant decreased (39%) was noted in Tongonan resulting from little attention given to their farms due to the activities of the social forestry project and occurrence of natural calamities (Table 16). On the other hand, income from this source increased significantly in Azupre. Majority (87%) of the farmers in this area cited the adoption of better farming technology of crop production as the reason for this improvement. The detailed comparison between income from this source before and after project implementation is presented in Table 17.

3.2.3.3 Mean Household Income from Livestock Production

The mean annual household income from livestock production was highest in Baslay and lowest in Azupre before and after project implementation. Although, this income source was cited by Baslay and Bediao farmers as secondary source, the income derived from this appeared higher than their primary income source which was farming of private lands. This was because most of the farmers' time was devoted in their farms. Although they had little cash returns from farm crops, food for their daily subsistence normally comes from farming. Income from livestock were usually allotted to celebration of *barangay* fiesta. So, even when income from this source was relatively large, it could be easily spent in a short period

of time.

Income from this source increased in Baslay, Bediao and Azupre and slightly decreased in Tongonan (Table 16). The majority (69%) of the farmers cited the increase in the quantity of livestocks raised due to income from the social forestry project as the primary reason for this increase (Table 19). Other reasons stated include better technology of livestock production, sufficient feeds given to livestocks due to income from the social forestry project and increase in livestocks prices.

Table 17. Mean Annual Household Income from Farming of Private Land Before and After Project Implementation

Project Areas	Before Project		After Project		Changes	
	No. of H-holds	Mean Income	No. of H-holds	Mean Income	No. of H-holds	Mean Income
1. Baslay	57	2389	56	2206	-1 (-2)	-183 (8)
2. Bediao	20	1296	19	1270	-1 (-5)	-26 (-2)
3. Tongonan	18	16238	16	9963	-2 (-11)	-6276 (-39)
4. Azupre	13	9489	15	12509	2 (15)	3020 (32)

Note: Figures in parentheses represent percentages of change.

Table 18. Mean Annual Household Income from Livestock Production Before and After Project Implementation

Project Areas	Before Project		After Project		Changes	
	No. of H-holds	Mean Income	No. of H-holds	Mean Income	No. of H-holds	Mean Income
1. Baslay	51	4863	44	5611	-7 (-2)	748 (15)
2. Bediao	23	4142	19	5537	-4 (-5)	1395 (34)
3. Tongonan	15	4647	15	4547	0 (0)	-100 (-2)
4. Azupre	4	672	4	731	0 (0)	59 (9)

Note: Figures in parentheses represent percentages of change.

3.2.3.4 Mean Household Income from Other Sources

The mean annual household income from other sources was highest in Tongonan and lowest in Bediao before and after project implementation. Income from this source increased by at least 7% in all project areas with Azupre recording a high of 54%. The farmers cited new sources of income, wage imposition for *barangay* official and increase in contract works in PNOC geothermal project operation as the reasons for such increase. The comparison between mean annual household income from other sources before and after the social forestry project implementation is shown in Table 20.

Table 19. Reasons Cited by the Respondents for the Increase in Mean Annual Income from Livestock Production

Reasons For Increase In Mean Income	Number of Farmers
1. Increase in the quantity of livestocks being raised	27 (69)
2. Learned better technology of livestocks production	5 (13)
3. Increase in prices of livestocks	4 (10)
4. Able to give sufficient feeds to livestocks due to income from the social forestry project	3 (8)
Total	39 (100)

Note: Figures in parentheses represent percentage responses.

Table 20. Mean Annual Household Income from Other Sources Before and After Project Implementation

Project Areas	Before Project		After Project		Changes	
	No. of H-holds	Mean Income	No. of H-holds	Mean Income	No. of H-holds	Mean Income
1. Baslay	20	1775	12	1897	-8 (-40)	122 (7)
2. Bediao	15	985	11	1186	-4 (-27)	201 (20)
3. Tongonan	6	9792	4	11050	-2 (-33)	1258 (13)
4. Azupre	9	4655	13	7158	4 (44)	2503 (54)

Note: Figures in parentheses represent percentages of changes.

3.2.3.5 Household Income from Original Sources and Project Activities

The overall mean household income from original sources decreased slightly in Baslay (-6%) and Bediao (-3%) and decreased considerably in Tongonan (-59%). In contrast, it increased significantly in Azupre (Table 21). Decreases are mainly attributable to reduced income from *kaingin*-making and farming of private land, the increase in Azupre was due to added sources of income and increased income from livestock production. Notwithstanding the decreased income from original sources, income from social forestry project was able to compensate for lost income (Table 22). The mean annual household income after the project increased by at least 42% in Tongonan and 172% in Baslay. This means that in terms of direct and immediate benefits, the social forestry project was able to satisfy the needs of the *kaingineros*

Table 21. Mean Annual Household Income from Original Sources After Project Implementation

Project Areas	Mean Income Before Project (Pesos)	Mean Income After Project (Pesos)	Changes in Mean Income	
			(Pesos)	(%)
1. Baslay	7812	7363	-448	-6
2. Bediao	6666	6442	-224	-3
3. Tongonan	12094	7588	-4507	-59
4. Azupre	9330	17467	8137	87

thereby reducing their destructive *kaingin*-making activities in the agroforestry and rattan plantation project areas.

Table 22. Mean Annual Household Income from Original Sources and Project Activities

Project Areas	Mean Income Before Project (Pesos)	Mean Income After Project (Pesos)	Changes in Mean Income (Pesos)	(%)
1. Baslay	7812	21255	13444	172
2. Bediao	6666	17506	10840	162
3. Tongonan	12094	20704	8609	42
4. Azupre	9330	21713	12383	133

3.3 Test of the Research Hypotheses

3.3.1 Hypothesis 1

Hypothesis. There is a positive relationship between participation and direct tangible benefits from the project.

Three relevant sets of information were used to test this hypothesis. The first set was the farmers' purposes for joining the social forestry project categorized as follows:

1) To earn a living from employment and harvests from plantations (EMP).
2) To receive material assistance, like planting stocks and

other farm inputs (ASS).

3) To help protect and preserve the environment (ENV).

4) To gain knowledge from training/seminars (KNO).

The farmers' responses were summarized in Table 23.

Table 23. Respondents' Purposes for Joining the Social Forestry Project

	Project Sites	P U R P O S E S				Total
		EMP	ASS	ENV	KNO	
1)	Baslay	43 (58)	2 (3)	16 (22)	13 (17)	74 (100)
2)	Bediao	33 (89)	0 (0)	0 (0)	4 (11)	37 (100)
3)	Tongonan	39 (49)	0 (0)	12 (15)	29 (36)	80 (100)
4)	Azupre	24 (73)	1 (3)	5 (15)	3 (3)	33 (100)
	Total	139 (62)	3 (1)	33 (15)	49 (22)	224 (100)

Notes: 1. EMP, ASS, ENV, KNO, See text above.

2. Figures in parentheses represent percentages to their respective row totals.

Conclusion: Chi-square test revealed that there were significant differences between project sites ($X^2 = 28.016$, df = 3, $p = \leq 0.05$).

Although the test reflected significant differences between project areas, the data show that the majority of farmers-

participants in all areas joined the social forestry project to earn a living. Most farmers were expecting the project to be a good source of income. Gaining knowledge from training and seminars ranked second among the purposes. It implied that despite the farmers' low educational level, a significant percentage (22%) aspired to learn from non-formal education. As with other studies (Aguilar, 1986 and Bernales, 1982), environmental consideration was not a strong motivation for upland farmers' participation. Only 15 percent of the farmers-participants indicated conservation and protection of the environment as their purpose for joining the project. Planting stocks and other farm inputs were the least attractive incentives in soliciting farmers' participation in the social forestry project. This is because of the time element and risks involved growing the plants before they could harvest. There was no doubt the farmers desired immediate monetary returns to meet daily basic needs.

The second set of information used to test the first hypothesis was the relationship between annual mean household income before project involvement and the percentage of farmers in every project area who selected income generation as their primary purpose for joining. Azupre and Bediao had lower income levels but higher income generation percentage responses than Baslay and Tongonan. The relationship suggested that the lower the income of the farmers, the

higher the probability that their primary purpose for joining the project was income or livelihood generation (Table 24).

Table 24. Respondents' Mean Annual Household Income and Percentage of Farmers That Selected Income Generation as Primary Purpose for Joining the Project.

	Project Areas	Mean Annual Household Income Before Project	% Income Generation as Primary Purpose
1)	Baslay	6780	58 (43/74)
2)	Bediao	6450	89 (33/37)
3)	Tongonan	13116	49 (39/80)
4)	Azupre	4246	73 (24/33)

Note: Spearman rho test revealed that the correlation between the mean annual household income and income generation purpose was significantly different from zero. The correlation was high and statistically significant. (Spearman rho = −0.80, df = 2, $p = \leq 0.05$).

The correlation between income levels and income generation purpose registered similar result. Farmers who belonged to the lowest income bracket (59%) overwhelmingly selected income generation purpose compared with only nine percent of high income farmers (Table 25).

The three sets of data established the reality that farmers can be easily motivated to participate in development projects if financial incentives rather than non-tangible components are offered. The research hypothesis therefore

was well supported.

Table 25. Respondents' by Income Level and Percentage of Respondents That Selected Income Generation as Primary Purpose for Joining the Project.

	Project Areas	Income Bracket	% Income Generation as Primary Purpose
1)	Baslay	10000 - down	59 (82/139)
2)	Bediao	10001 - 20000	19 (27/139)
3)	Tongonan	20001 - 30000	13 (18/139)
4)	Azupre	30001 - 40000	9 (12/139)
	Total		100 (139/139)

Note: Spearman rho test revealed that the correlation between farmers' income level and income generation purpose was significantly different from zero. The correlation was high and statistically significant. (Spearman rho = −1.00, df = 2, $p = \leq 0.05$).

3.3.2 Hypothesis 2

Hypothesis. The lower the income of an upland farmer, the earlier is his date of enlistment in the social forestry project.

The Philippine 1988 Family Income and Expenditures Survey (FIES) revealed that average poverty level in the three areas of this study was P 20,334 (Table 26). Using this data, the farmers-participants' households were classified into two

groups namely, those who were below or above this poverty level. The respective group's date of enlistment was then examined and used to test the above hypothesis. The test revealed that farmers-participants with annual household income below and above the poverty level did not differ on the length of time it took them to decide joining the project (Table 27). Seventy-seven percent of the respondents with annual household income below poverty level and 64% of the respondents with annual household income above poverty level joined the project during its start in 1989. The rest of the farmers joined the project between 1990 and 1993.

Table 26. 1988 Poverty Levels at the Study Areas

	Project Area/ Provinces	POVERTY LEVEL (Annual Income in Pesos)
1)	Baslay and Bediao/ Negros Oriental	19360
2)	Tongonan/Leyte	20596
3)	Azupre/Sorsogon	21045
	Mean	20334

3.3.3 Hypothesis 3

Hypothesis. There is no direct relationship between upland farmers' age and their date of enlistment in the project.

As cited by Yokota (1983: 9) and Singh (1992: 171),

Table 27. Respondents by Income Level and Date of Enlistment to the Project

Income Level	Date of Enlistment		Total
	1989	1990-1993	
1) 20334 & Below	92 (77)	23 (23)	120 (100)
2) 20334 - Up	14 (64)	8 (36)	22 (100)

Note: Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there was no significant difference between project sites ($X^2 = 1.106$, df = 1, $p = \leq 0.05$).

traditional and old-aged farmers have the tendency to be unreceptive to development projects. In this study however, the test indicated that the reverse was true. Old age farmers had the highest participation percentage (97%) while the young farmers had the least (58%) participation percentage at the start of the social forestry project in 1989 (Table 28). This can be explained by the fact that older farmers were mostly the breadwinner of the family. Young farmers usually had lighter household responsibilities and are partially dependent on their parents, especially when they lived under one roof. Some young farmers also had the tendency to shy away from farming by looking for non-agricultural jobs in the cities.

Table 28. Respondents by Age Level and Date of Enlistment to the Project

Age Bracket	Date of Enlistment		Total
	1989	1990–1993	
1) 18–35 (Young)	33 (58)	24 (42)	57 (100)
2) 35–55 (Middle)	35 (80)	9 (20)	44 (100)
3) 56–75 (Old)	28 (97)	1 (3)	29 (100)

Note: Figures in parentheses represent percentages to their respective rows total.

Conclusion: Chi-square test revealed that there were significant differences between age levels ($X^2 = 15.990$, df = 2, $p = \leq 0.05$).

3.3.4 Hypothesis 4

Hypothesis. Male upland farmers will enlist to the project earlier than female.

In the Philippine setting, husbands are usually the breadwinner of the family while the wives normally do domestic jobs and rearing of children. This was confirmed by this study which revealed that male farmers enlisted in the project earlier that female farmers (Table 29).

Table 29. Respondents by Sex and Date of Enlistment to the Project

Sex	Date of Enlistment		Total
	1989	1990-1993	
1) Male	62 (84)	12 (16)	74 (100)
2) Female	44 (66)	23 (34)	67 (100)

Note: Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there were significant differences between sexes. ($X^2 = 6.181$, df = 1, $p = \leq 0.05$)

3.3.5 Hypothesis 5

Hypothesis. Farmers with and without previous training will find the project's training programme helpful to both of them.

The test of this hypothesis indicated that the project's training programme had equal degree of helpfulness to both farmers with and without training background (Table 30). This was because it was their first time to undergo these kind of seminars. The seminars previously attended by the farmers do not include this type of training. Besides, the farmers did not differ very much on their educational background.

Table 30. Helpfulness of the Project Training Programme to the Respondents

	Training Background	Degree of Helpfulness			Total
		VH	H	MH	
1)	Without previous training	59 (37)	93 (58	8 (5)	160 (100)
2)	With previous training	28 (46)	32 (52)	1 (2)	61 (100)

Note: VH - Very helpful, H - Helpful, MH - Moderately helpful

Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there was no significant difference between farmers-participants of different training background. ($X^2 = 2.390$, df = 2, $p = \leq 0.05$).

3.3.6 Hypothesis 6

Hypothesis. Upland farmers will realize their potentials, capabilities and privileges if they participate in the project.

This hypothesis was tested by examining the farmers-participants knowledge of their respective associations decision-making processes and sharing scheme. Our groups dynamics observations were also used to determine their self-management potentials and capabilities.

All farmers' groups were trained in making decisions through

the general assembly wherein decisions are made during a meeting attended by the majority (over 50% of total active members) association members. Our observations revealed that all farmers groups had been following the process. The test however, indicated that farmers from different areas differed markedly in their awareness about their decision-making processes from a high 97% in Azupre to low 58% in Baslay (Table 31).

Table 31. Association's Decision-making Processes Cited by the Respondents

Project Areas	Decision-making Process		Total
	General Assembly	Others	
1) Baslay	58 (58)	16 (42)	74 (100)
2) Bediao	31 (80)	6 (20)	37 (100)
3) Tongonan	62 (97)	18 (3)	80 (100)
4) Azupre	33 (100)	0 (0)	33 (100)

Note: Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there were significant differences between project areas. ($X^2 = 9.132$, df = 3, $p = \leq 0.05$).

Knowledge on the associations' sharing scheme exemplified the farmers' realization of their individual rights as members.

The analysis demonstrated the differences on awareness level between project areas (Table 32). Farmers from Bediao and Azupre had a keen knowledge about their sharing scheme while Tongonan farmers had the least.

Table 32. Association's Sharing Scheme Cited by the Respondents

Project Areas	Sharing Scheme		Total
	Equitable	Others	
1) Baslay	70 (95)	4 (5)	74 (100)
2) Bediao	37 (100)	0 (0)	37 (100)
3) Tongonan	57 (71)	23 (29)	80 (100)
4) Azupre	33 (100)	0 (0)	33 (100)

Note: Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there were significant differences between project areas. (X^2 = 33.717, df = 3, p = $\leq$ 0.05).

3.3.7 Hypothesis 7

Hypothesis. Upland farmers will cease *kaingin*-making practices when offered community-based livelihood project capable of generating direct tangible benefits.

In all project areas, *kaingineros* had a positive attitude towards stopping *kaingin*-making practices. Ninety-one percent of all *kaingineros* signified stopping their practices when offered involvement in this social forestry project (Table 33). In effect, this attitude became an important factor leading to the very low incidence of kaingin-making during project implementation.

Table 33. *Kaingineros'* Attitude Towards Stopping Kaingin-Making Practices

Project Areas	Willing To Stop		Total
	Yes	No	
1) Baslay	53 (93)	4 (7)	57 (100)
2) Bediao	17 (87)	2 (13)	19 (100)
3) Tongonan	35 (88)	5 (12)	40 (100)
Total	105 (91)	11 (9)	116 (100)

Note: Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there was no significant difference between project areas. ($X^2 = 0.852$, df = 2, $p = \leq 0.05$).

3.3.8 Hypothesis 8

Hypothesis. Participation in the project improves the economic condition of the upland farmers.

The test of this hypothesis was carried out by looking through the changes in economic and social activities of the farmers-participants before and after their participation in the project and by conducting financial analyses of the agroforestry and rattan plantation projects.

A very significant increase in the mean annual household income after the project was noted in all project areas (Table 34). This increase in household income resulted in notable upward changes in their social activities such as increased number of children in school, improvement of food served in households and improvement in personal outfit. The increase in number of children in school was highest in Baslay and lowest in Tongonan. The drop in Azupre was due to five students graduating from tertiary education and four from from secondary education. The parents of the four students who graduated from the secondary level indicated that at present, they were still not capable of sending them to college due to financial constraints. Overall, the number of children in school in all project areas increased by 15% (Table 35).

Table 34. Respondents' Mean Annual Household Income Before and After Project Implementation

	Project Area	Before Project	After Project	Changes	
				Amount	%
1.	Baslay	7812	21255	13444	172
2.	Bediao	6666	17506	10840	163
3.	Tongonan	12094	20704	8609	42
4.	Azupre	9330	21713	12383	133
	Mean	8976	20295	5723	64

Table 35. Comparison Between the Number of Children in School Before and After Project Implementation

	Project Area	Before Project	After Project	Changes	
				Number	%
1.	Baslay	56	88	32	57
2.	Bediao	21	28	7	33
3.	Tongonan	92	94	2	2
4.	Azupre	40	31	-9	23
	Mean	209	241	32	15

The accumulation of association funds enabled the different groups of farmers-participants to indulge in other livelihood generation activities, such as the consumer store, the loan

and savings' mobilization scheme, film showing, *guiron* production and handicrafts making. As of June 1992, the Tongonan Farmers' Association had the highest cash capital amounting to P275,538. Baslay Farmers' Association had P85,288, Kapunungan ng mga Mag-uuma sa Bediao had P40,697 and Tulungan had P32,121 (Table 36). The amount was derived from the capital build-up (CBU) fund each farmer-participant is contributing to their respective associations. The CBU represents 10% of all the farmers-participants' wages.

Table 36. Capital Stock of the Associations in Pesos (As of June 1992)

Particulars	BFA	KAMABE	TOFA	TULUNGAN
1) Cash on Hand	15013		17300	4208
2) Cash in Bank				
Time Deposit			207561	
Savings Deposit	70275	40697	50677	27913
Total	85288	40697	275538	32121

As part of the requirements in the implementation of different livelihood activities, the associations acquired some tools, equipments and electrical appliances (Table 37). Tongonan had the most number of assets which were also used in income-generating activities. They have regular film showing, occasional rental of the amplifiers, and the

refrigerator was being used in the consumer store.

Table 37. Equipment Acquired by the Associations (in Pesos)

Particulars	BFA	KAMABE	TOFA	TULUNGAN
Typewriter			3989	
Refrigerator			9500	
Colored TV, 25"			23000	
Video			14000	
Video rewinder			600	
Amplifier			3000	
Calculator	753	131	2040	375
Weighing scale	420		420	420
Stapler	108	35		27
Wall clock	240			
Hand Counter	335			
Total	1856	166	56549	822

Financial analyses of the agroforestry project modules for a ten-year period at discount rate of 10% were conducted for Baslay, Bediao and Azupre. Financial analysis for the rattan plantation was for a period of twenty-two years at 10% discount rate. The durations of the analysis were chosen based on the expected period whereby the plantation crops are already providing significant returns. The crop yield and crop prices data used in the analyses were obtained from the Bureau of Agricultural Statistics (BAS), Bureau of Plant Industry (BPI), Forest Management Bureau (FMB) and Fiber Industry Development Authority (FIDA) (Appendix 14 and 15). It is acknowledged that the analyses could be affected by

crop yield and crop prices. Climatic and soil conditions are very important factors that could influence the magnitude of annual harvest. The data suggest the volatility of crop prices particularly of coffee, cacao and abaca. Black pepper price is relatively stable as compared to other crops. For this reason, the analyses can be very much affected by price changes.

The financial analyses for all project areas yielded positive net present values. Baslay had the highest NPV at P10,752,000, Bediao, P1,677,000, Tongonan, P329,000 and Azupre, P23,000 (Table 38). Despite the changes in the project cropping combinations and the decrease in total plantation area, the financial analyses indicated that project modules will be financially feasible and expected to give substantial returns to the farmers-participants for the next seven years. The expected average annual net return per farmer is highest in Tongonan at P21,400 and lowest in Azupre at P1,040. The expected average annual net return per household is also highest in Tongonan at P106,600 and lowest in Azupre at P5,200 (Table 38). The size of the plantation and the number of farmers-participants were the important factors for these values. Except in Azupre, the agroforestry and rattan plantation projects can displace the farmers from poverty level. The Azupre agroforestry project, however, will only serve as additional source of income for the farmers. The details of financial analyses for Baslay,

Bediao, Tongonan and Azupre are shown in Appendix 16 to 19, respectively.

Table 38. Summary of Project Net Present Values and Average Annual Net Returns

Project Areas	Project Net Present Value	Total Project Net Returns	Total Net Returns per Farmer	Mean Annual Return per Farmer	Mean Annual Return per Household
1. Baslay	10,752	31,553	187.8	18.8	93.9
2. Bediao	1,677	9,059	120.8	12.8	64.0
3. Tongonan	329	83,669	470.1	21.4	106.8
4. Azupre	23	35	10.4	1.0	5.2

Note: Figures in thousand pesos.

3.3.9 Hypothesis 9

Hypothesis. Participation in the project increases upland farmers' environmental awareness.

This hypothesis was tested by examining the means by which the upland farmers gained their knowledge about the environment, examining their attitudes towards stopping *kaingin*-making activities, and through the presence of farmers-initiated activities towards the protection and conservation of the environment and natural resources.

The farmers-participants from different project areas did not differ on the means environmental awareness was acquired (Table 39). Forty-eight percent of the farmers-participants learned about the environment through personal observations and experiences, thirty eight percent through the social forestry project training/seminars and fourteen

Table 39. Respondents' Means of Acquiring Knowledge About the Environment

Project Area	Means of Acquiring (1)	(2)	(3)	Total
1. Baslay	20	12	22	54
2. Bediao	10	1	8	19
3. Tongonan	9	2	20	31
Mean	39 (38%)	15 (14%)	50 (48%)	104 (100%)

Note: (1) PNOC Social Forestry Project Seminars
(2) Mass media
(3) Upland Farmers' Personal Observation/Experiences

Conclusion: Chi-square test revealed that there was no significant difference between project areas. ($X^2 = 8.990$, df = 4, $p = \leq 0.05$).

percent through mass media such as radio, pamphlets and magazines. The thirty eight percent of the farmers that indicated social forestry project's training programme as source of their environmental knowledge can be translated as the percentage of the increase in environmental awareness

among upland farmers-participants.

The presence of farmers-initiated environmental conservation programme after project participation is a clear indicator of increased environmental awareness and farmers' sincerity to avoid destructive practices and preserve the environment. Table 40 shows some of the environmental initiatives implemented by the farmers-participants.

Table 40. List of Environmental Protection and Conservation Activities Initiated by the Respondents

1. Report forestry law violations (*kaingin*-making, illegal logging and gathering of minor forest products) to PNOC.
2. Investigate and advise violators to desist from doing said illegal activities.
3. Protection of plantations from fire and stray animals.
4. Adhere to and obey forestry rules and regulations, and association's policies and guidelines towards forest conservation.

In Baslay, for example, members of the Baslay Farmers Association (BFA) initiated the investigation and filing of appropriate criminal case against the owner of a newly opened kaingin area in the Baslay project area in 1990.

Both Baslay and Bediao farmers' associations adopt strict measures against grazing in the plantation area. If owners of farm animals (cattle, water buffalo and horses) caught

grazing and damaging the plantation are non-project members, they are to be sued in the office of the *Barangay* Chairman to oblige him to pay the damages or face court cases. If the owner of the animal is an association member, he will be fined an additional P50.00 and will be obliged to pay the corresponding amount of damage to the plantation.

Most farmers-participants in all project areas had been very cooperative with PNOC in reporting forestry violations so that appropriate actions were promptly undertaken by its forest protection crews. The Baslay, Bediao and Tongonan beneficiary associations declared their respective project areas and vicinity as no hunting zone for wild boar and birds.

3.3.10 Hypothesis 10

Hypothesis. The incidence of *kaingin*-making and illegal logging will decrease resulting from social forestry project implementation in the area.

To test this hypothesis, a five-year statistics on forestry violations in the respective areas before and after project implementation was obtained from PNOC's watershed management group (Table 41). In general, *kaingin*-making incidence after project implementation decreased significantly at an average of 85%. In Baslay, there was a single incidence after

project implementation. Tongonan had the highest occurrence of five cases.

Table 41. *Kaingin*-making Incidence Before And After Project Implementation

	Project Area	Before Project (1983-87)	After Project (1988-92)	10-Years Total	Changes	
					Number	%
1.	Baslay	37 (97)	1 (3)	38 (100)	-36	-97
2.	Bediao	17 (89)	2 (11)	19 (100)	-15	-88
3.	Tongonan	16 (76)	5 (24)	21 (100)	-11	-69
	Total	70	8	78	-62	-88

Note: Figures in parentheses represent percentages to their respective rows total.

3.3.11 Hypothesis 11

Hypothesis. Upland farmers prefer communal or group farming over individual farming in public land.

This hypothesis was formulated to determine the farming scheme that will most likely attract farmers' attention. Subsequently, the result will serve as a basis in the design of future projects. The test revealed that majority of the farmers preferred communal or group farming (Table 42). The

reasons cited by the farmers for selecting communal farming include the following:

a) Fast completion of farm work.

b) Working in groups was more enjoyable.

c) Working in groups develops camaraderie and good relationships.

d) Enhances cooperation among members of the family, the association and the community.

e) Develops leadership skills.

Table 42. Farming Scheme Preferred by the Respondents

Project Areas	Farming Scheme Preferred		Total
	Group	Individual	
1) Baslay	54 (95)	3 (5)	57 (100)
2) Bediao	33 (89)	4 (11)	37 (100)
3) Azupre	27 (96)	1 (4)	28 (100)
Total	114 (93)	8 (7)	122 (100)

Note: Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there was no significant difference between project areas. ($X^2 = 1.656$, df = 2, $p = \leq 0.05$).

3.3.12 Hypothesis 12

Hypothesis. Other neighboring communities will adopt the same project scheme.

This hypothesis was formulated to determine the extent of replicability of the project module in other communities. The data on the number of communities presently adopting the same project module and the knowledge of the farmers about the PNOC's pilot social forestry project were used to test the hypothesis. As of June 1992, there were already 31 farmer groups in the three geothermal reservations adopting the same project module and principles (Table 43) The beneficiaries of these projects acknowledged that their projects were patterned with the pilot social forestry project (Table 44).

3.4 Economic Analyses of the Social Forestry Project

Economic analyses of the social forestry project for all the project areas were conducted to determine the economic and environmental feasibility of the project scheme. An analysis each for "without project" and "with project situations were conducted in each project area. The five-year period analysis for the "without" project situation covered the years 1984 to 1988 while the analysis period for the "with"

Table 43. List of Farmers' Groups Adopting the PNOC Pilot Social Forestry Project Scheme

Name of Farmers' Association	Location (Town)
A. Southern Negros Geothermal Reservation (SNGR)	
1. Latap Farmers Association	Zamboanguita
2. Domanon Farmers Association	Zamboanguita
3. Nagpantao Farmers Association	Dauin
4. Pagang Farmers Association	Siaton
5. Puhagan Farmers Association	Valencia
6. Balili Farmers Association	Valencia
7. Nasuji Farmers Association	Valencia
8. Apolong Farmers Association	Valencia
9 Sagbang Farmers Association	Valencia
10. Lunga Farmers Association	Valencia
11. San Antonio Farmers Association	Sibulan
B. Tongonan Geothermal Reservation (TGR)	
1. Matinao-Abucayan Farmers Association	Kananga
2. Lim-ao Farmers Association	Kananga
3. Rizal Airstrip Farmers Group	Kananga
4. Lake Danao Farmers group	Ormoc City
5. Caghalo Farmers Group	Carigara
6. Cabingtan Farmers Group	Ormoc City
7. Rubas Farmers group	Ormoc City
8. Maglahog Farmers Group	Ormoc City
9. Liberty Farmers Group	Ormoc City
C. Bacon-Manito Geothermal Reservation (BMGR)	
1. Milagrosa Farmers Group	Sorsogon
2. Inang Maharang Farmers Group	Sorsogon
3. Osiao Farmers Group	Sorsogon
4. Tiris Farmers Group	Sorsogon
5. Pangpang Farmers Group	Sorsogon
6. Sto. Nino Farmers Group	Sorsogon
7. La Union Farmers Group	Castilla
8. Cabarbuhan Farmers Group	Sorsogon
9. San Isidro Farmers Group	Castilla
10. Balasbas Farmers Group	Sorsogon
11. Guilajon Farmers Group	Sorsogon

Table 44. Acknowledgment of the Farmers from Other Communities That Their Projects was Patterned with the Pilot Social Forestry Project

Project Area	Project Patterned With PNOC's Pilot Social Forestry		Total
	Yes	No	
1. Baslay/Bediao	34 (100)	0 (0)	34 (100)
2. Tongonan	13 (100)	0 (0)	13 (100)
3. Azupre	46 (96)	2 (4)	48 (100)
Total	93 (98)	2 (2)	95 (100)

Note: Figures in parentheses represent percentages to their respective row total.

Conclusion: Chi-square test revealed that there was no significant difference between project areas. ($X^2 = 2.000$, df = 2, $p = \leq 0.05$).

project situation covered the years 1989 to 1993. A discount rate of 10% was used. The stream of benefits used in the analyses included the following:

a) Mean annual household income from different sources such as kaingin-making, farming of private land, livestock raising;

b) Project income in terms of wages, compensation and harvests from plantation;

c) Income from other activities initiated by the farmers' associations such as consumer stores and handicrafts; and
d) Value of the stand of trees saved from *kaingin*-making and illegal logging.

The stream of costs on the other hand included the following:

a) Farmers labour input to their own farms;
b) Farmers labor input to the agroforestry and rattan plantation projects; and
c) Value of the stand of trees damaged by kaingin-making and illegal logging.

It must be noted that the environmental costs in this study were measured only in terms of damage of *kaingin*-making and illegal logging to the stand of trees. A higher environmental cost could have been attributed to these destructive activities if appropriate measures for evaluating the costs of other environmental impacts such as loss of species diversity, soil erosion, surface run-off and change in micro-climate condition had been possible. This study acknowledges these limitations.

It must also be noted that data on shadow prices of project inputs and outputs and shadow wage rates were not considered in the economic analysis, but these could not affect the result of the analysis which was focused on the significant

effect of the project on reducing destructive forest activities. Nevertheless, this study also acknowleges these shortcomings.

The "without" project economic analyses conducted for the different areas all yielded negative net present values. It was lowest in Baslay having an NPV of -13,003,724 and highest in Azupre with an NPV of -58,934 (Table 45). The low NPV reflects the high intensity of *kaingin*-making activities in the respective areas and the non-profitability of their livelihood generation activities. The incidence of *kaingin*-making was highest in Baslay and lowest in Bediao before project implementation. Illegal logging in Azupre registered the lowest environmental damage.

The "with" project economic analysis yielded positive NPV for Baslay (P1,286,320) and negative NPV's for Bediao (P-2,477,581), Tongonan (P-4,581,833) and Azupre (P-254,215). Increase in NPV's were noted in Baslay (110%), Bediao (32%) and Tongonan (13%). It can be attributed to the decline in the incidence of *kaingin*-making and increase in farmers' income from different sources. A clear manifestation of the social forestry projects' contribution towards controlling forest degradation was manifested in these areas. In Azupre however, a decrease in NPV (330%) was noted (Table 42). Although there was a visible decline in the incidence of illegal logging in the area, its magnitude was not sufficient

to cover the costs incurred during project implementation. It also reflected the non-profitability of farmers livelihood activities as compared to the amount of time and effort being devoted to their farms.

The details of "without" project economic analyses for Baslay, Bediao, Tongonan and Azupre are shown in Appendices 20 to 23, respectively. The "with" project economic analyses are shown in Appendices 24 to 27.

Table 45. Comparison Between Net Present Values in Pesos ("Without" and "With" Project Situations)

Project Area	"Without" Project (1984-88)	"With" Project (1989-93)	Changes	
			Amount	%
1. Baslay	-13,003,724	1,286,320	14,290,044	110
2. Bediao	-3,668,510	-2,477,581	1,190,929	32
3. Tongonan	-5,236,728	-4,581,833	654,895	13
4. Azupre	-58,934	-254,215	-195,281	-330

In general, the social forestry projects contributed in the preservation of the environment and promoting the welfare of the upland farmers and society.

3.5 Farmers' Involvement in the Different Phases of Project Cycle

Experiences in several development projects suggested that greater involvement of the people would lead to higher chances of project success. Involvement of the people as Fujisaka (1986) emphasized in his social forestry conceptual model should arise from their felt needs, thereby encouraging greater people's participation. In most development projects, lessons to date called for the involvement of the people in all phases of the project cycle. Furthermore, experiences indicated that most development projects were initiated by the government and genuine people's participation was minimal or totally absent. This is the background against which I will examine the extent of people's participation in PNOC's social forestry project in the next four sections.

3.5.1 Project Planning, Formulation and Design

Farmers' participation in formal planning, formulation and design of the PNOC Social Forestry Project was totally absent. The project was conceived as part of the Philippine National Oil Company's (PNOC) responsibility to protect and preserve the geothermal reservation areas where it operates energy development projects. Its primary objective was the

preservation of the watershed area by lessening the impact of *kaingin*-making to the watershed area.

Some participation, however, was eventually encouraged in project implementation. Farmers' participation and initiative in PNOC's watershed rehabilitation demonstration projects became one of the bases in the selection of the social forestry project participants. Specific involvement of the farmers-participants in the different project areas were as follows:

a) In Baslay, the farmers were able to establish their own nursery building and stocking areas in 1985. PNOC provided some materials (lumbers and nails) while the farmers provided local materials and labour. The nursery was used in the production of coffee seedlings. The farmers were able to established five hectares coffee plantation under the ayanguile (*Acacia confusa*) trees in 1985 and 1986.

b) In Bediao, the farmers renovated the old nursery of the then Bureau of Forest Development in 1986 and was also used in the production of coffee seedlings. The farmers were able to establish three hectares coffee plantation under the Ayanguile stand.

c) In Tongonan, the farmers signified their intention to plant rattan under the second growth forest to control

kaingin-making. The forest area was the site of most new *kaingin* clearings.

d) In Azupre, the farmers constructed their own nursery building in 1986 which also functioned as training center. The nursery was located in a lot owned by a farmer-participant which also served as demonstration plot of the Sloping Agricultural Land Technique (SALT) farming method. The farmers were able to establish half hectare of compact multi-cropping farm.

After the selection of project areas and groups of farmers-participants, the preparation of the social forestry project management plan commenced. The New Zealand government provided funds for the hiring of a consultant for an initial period of one year. The consultant assisted PNOC in the preparation of appropriate management plan which would rationalize and coordinate land use systems inside the watershed reservation areas. The five year social forestry project management plan for 1989 to 1993 was completed in 1988 and was approved for funding by the New Zealand's Ministry of Foreign Affairs and Trade starting 1989. Activities undertaken in 1989 involved technical staff training, social preparation of farmers-participants and nursery and plantation trials.

3.5.2 Project Implementation

It was explained to the farmers-participants by the project staff that the farmers' association members must learn and develop management skills in preparation for their final control of the plantations. The farmers virtually became labourers, observer and trainees of the project at the same time during the first year (1989) of project implementation with the project staff acting as lead men. Starting the second year (1990), the project staff started to assign some of the activity planning to the farmers. This was done by giving them the following responsibilities:

a) Maintenance of the nursery facilities and tending of nursery seedlings;
b) Scheduling of nursery and plantation activities; and
c) Manpower allocation to the different activities.

In this manner, the farmers gradually learnt work routines and felt the dynamics of working together.

3.5.3 Project Monitoring

Since the project commenced, the farmers were encouraged to be watchful about abnormalities encountered in the project area such as:

a) Occurrence of pests and diseases and unsatisfactory crop growth;
b) Encroachment in the plantation area by illegal entrees for kaingin-making purposes or other non-governmental organization (NGO) project; and
c) Entry of illegal loggers in the project area and vicinities.

Specific experiences by both project staff and farmers-participants included the following:

a) The unsatisfactory performance of cacao plants in Baslay monitored through the joint efforts of the farmers and project staff led to the reduction of plantation area devoted to this crop.
b) The encroachment of a non-governmental organization's contract reforestation area in Baslay was discovered by the farmers-participants and was reported to PNOC. Proper action was taken by PNOC which prevented the overlapping of the plantation areas.
c) The entry of a new *kainginero* in Baslay was monitored by the farmers. Appropriate cases was filed in court through the initiative of the farmers-participants assisted by project staff.
d) Illegal cutting of first class narra (*Pterocarpus indicus*) and mahogany (*Swietenia macrophyla*) trees in

Bediao by non-project participants was monitored by farmers-participants in Bediao and was reported to PNOC's forest protection crew leading to the apprehension of the violators and filing of appropriate criminal cases in court.

e) In Tongonan, rat infestation in the newly established rattan plantations was monitored by the farmers-participants. Appropriate measures were discussed and implemented by project staff and farmers-participants for the abatement of the infestation.

f) Several illegal entries of *kaingineros* in Tongonan were also monitored by farmers-participants and were reported to PNOC's forest protection crew. Subsequent apprehensions of violators were undertaken and criminal cases were lodged in court.

g) In Azupre, entries of illegal loggers in the vicinity of the project area were monitored and reported by farmers-participants to PNOC forest protection staff. This led to a significant reduction of illegal logging incidence in the project area and its vicinities.

In general, farmers-participants' involvement in project monitoring was a very important factor in controlling natural and man-made problems in the plantations.

3.5.4 Project Evaluation

All the farmers' associations were trained about the process of Participatory Rural Appraisal (PRA). By the second year, farmers could already conduct project appraisal with minimum supervision by project staff. The activity which was undertaken yearly during the month of December enabled the farmers to identify problems and propose appropriate solutions. It also helped develop self-confidence and improve decision-making skills.

The annual project review conducted by the New Zealand-based consultant was not limited to information provided by project staff. The regular dialogue of the consultant during the review period was a good avenue for developing farmers-participants' self-esteem since their observations and suggestions about the project were given due consideration by the consultant.

Summing up, giving the farmers a hand in the evaluation helped develop their capability to decide, self-confidence and self-esteem. The information I gathered from the farmers' associations and my personal observations revealed that group coherence and independence was improving each year.

CHAPTER IV - PROBLEMS IN PROJECT IMPLEMENTATION

4.0 Problems in Social Forestry Project Implementation

The problems in the social forestry project implementation were categorized into administrative, social and natural problems. These will be discussed in the next three sub-sections.

4.1 Administrative Problems

Most of the administrative problems experienced were related to the proponent agency's administrative system. A minor administrative problem on the part of the donor agency office's was noted.

4.1.1 Administrative System

The only problem attributed to the donor agency's office was the untimely release of project fund in 1990. It happened in the last quarter of the year causing delays due to absent of funds for payment of farmers' labour. The problem arose due to the differences in the New Zealand and the Philippine fiscal years. The New Zealand government starts its fiscal

year in July and the Philippines in January. This means that the New Zealand's Ministry of Foreign Affairs and Trade (MFAT) has to wait approval of its official development award (ODA) budget allocation in July before it can release the grant funds to the project. The most critical project activity (plantation establishment), however, was normally scheduled during the third and fourth quarters due to seasonal requirements.

To solve this problem, it was agreed that the annual budget allocation request be submitted by PNOC to NZ-MFAT in June so that the budget requirements could be included in their budget allocation in July. The New Zealand government also fixed the annual grant at NZ$200,000. A memorandum of agreement between NZ-MFat and PNOC was drafted to spell out the specific responsibilities of the two agencies (Appendix 28).

Most administrative problems may be attributed to PNOC's administrative system and documentation requirements. The specific policies that caused problems were:

a) Contract processing.

In 1990, the project experienced a three month period processing of labour contract between PNOC and the farmers' beneficiary associations. This led to delays

and shortfall on seedling requirements and plantation targets. Slow processing was attributed to many internal groups conducting the review of the contract in the proponent's central office. The problem became recurrent despite a waiver of the contract processing procedure (Appendix 29). To resolve the problem, the PNOC's contract processing group suggested a one time processing of all the social forestry project-related activities. In 1992, the contracts between PNOC and the project beneficiary associations were approved covering the period 1992 to 1995.

b) Payment of labour services

Between 1989 and 1990, the farmers-participants were experiencing delays in payment of labour services of about one month. Despite the waiver, the problem also recurred due again to too many groups reviewing the documentation requirements. To meet this problem, PNOC management authorized the Project Coordinator and Site Coordinators to approve payment orders of up to P35,000, and it shortened the normal processing route of payment orders (Appendix 30). Delays from there on were minimal.

c) Procurement of materials and supplies

As required by the purchasing group, a one-time

canvassing of materials required by the project was conducted at the start of the project. Project staff were allowed to purchase the materials directly in the field, provided the unit price of an item did not exceed P300.00 and a single receipt not exceeding P1,000.00. It facilitated fast procurement of materials and supplies in the project sites. However, for items that were not available in the project sites, they were usually purchased in Manila. The delays on these purchases became a perennial problem. For example, the request for the purchase of materials for the construction of a tramway in Baslay was prepared in 1989. In 1993, procurement of materials was still incomplete.

.1.2 Project Staff Assignment

he problems on staff assignment were rooted on the magnitude f work and personal preferences. All project staff assigned n the central and field offices had duties in addition to heir project work. Attention to project work was therefore ot always sufficient.

roject staff assignment preferences based on place of birth r residence can also affect staff concentration on the roject. Staff who have looked after the project since its tart knows the project situation well and generally perform

better than others.

4.1.3 Inter-agency Problems

An inter-agency coordination problem between the local Department of Environment Natural Resources (DENR) office and PNOC occurred in Baslay, particularly regarding the granting of a 50 hectares Community-based Contract Reforestation (CBCR) project by the DENR to a non-governmental organization (NGO) covering a portion of the New Zealand - PNOC Social Forestry Project. After consultation between the two agencies, 23.24 hectares of the original social forestry project plantation area was allotted to the contract reforestation project of the NGO.

The processing of the Stewardship Contract application filed by the respective beneficiary associations had been delayed for about three years already. It seems that there was no uniformity of requirments in the different project areas and the bureaucracy was delaying the process.

4.2 Social Problems

Most of the social problems encountered in the project originated from local norms and values.

4.2.1 Cynicism and Filipino Values Affecting Participation to the Project

Specifically in Baslay and Tongonan, the farmers doubted the social forestry project as a left leaning activity and. to some extent, this affected their initial enlistment. This belief was corrected only when the governor of Negros Oriental personally endorsed the project to the farmers-participants in Baslay in October 1989 and the New Zealand Embassy's First Secretary attended the Inauguration Ceremony of the Tongonan Rattan Nursery in March 1989. From then on, the membership rate of the beneficiary association continued to increase (Appendix 31).

The Filipino's "wait-and-see" attitude may also affect initial project participation. Economic consideration was undoubtedly the prime interest of the farmers. When they realized that the original farmers-participants were receiving considerable income from the project, several farmers subjected themselves to the required pre-membership seminars so that they would be eligible to work in project activities.

4.2.2 Factionalism

Factionalism was clearly exhibited in Baslay and Tongonan at

the start of the project. It was a lesser problem in Bediao and Azupre. Although the presence of factions in the group could facilitate checks and balances in the association, it also hamper the performance of the association officers to the point that the majority of the elected officials wanted to resign. Continued training made them realize the nature and sacrifices needed being an association officer.

4.2.3 Discipline of Association Officers

The discipline of the association's elected officers particularly on financial affairs had been a problem during the first two years of project implementation, and several cases of fund malversation occurred. In Baslay, for example, the first chairman of the Farmers' Association lost an estimated P60,000.00 of association fund in cock-fighting. The amount was intended for payment of the farmers-participants labour services. As a disciplinary action, the farmers-participants expelled the chairman from his post during one of their general assembly sessions and required him to pay back the amount at P900.00 a month. To avoid the recurrence of the same problem, the association authorized two signatories on bank withdrawal slips.

In Tongonan, the former chairperson of the Tongonan Farmers' Association (TOFA) used its marketing cooperative fund for

personal purposes. The association required her to offer her water buffalo as collateral to the disbursed fund while repaying by installment.

In Azupre, a former Treasurer and Storekeeper of the Tublijon Farmers' Association's (Tulungan, Inc.) Consumer Cooperative Store was detected using some of the store's earning for household expenses. The association then adopted a rotational assignment of Storekeepers every one to three months.

4.3 Natural Problems

Natural problems experienced during project implementation included crops infestation, long dry seasons, typhoons and poor soil condition.

4.3.1 Crop Infestation

Major crop infestation was experienced in Tongonan with rodent infestation was prevalent in newly established plantations in 1990 to 1992. A joint monitoring team of PNOC project staff and farmers-participants assessed that newly planted rattan seedlings were very palatable to rodents. Three hectares of plantation were initially affected in 1990.

The infestation decreased in the two succeeding years due to measures employed such as spraying of rodenticides and rat catching. A rat catching contest was even held during the beneficiary association's anniversary in 1992 as part of their effort to control this infestation.

4.3.2 Long Dry Season

The long dry season affected Baslay and Bediao in 1991 and 1992 causing poor performance of black pepper and cacao plants. In 1992, 15 hectares of the black pepper plantation were not spared from a grassland fire that originated from the nearby NGO's contract reforestation project despite the effort of the farmers-participants to extinguish it.

4.3.3 Typhoons

Typhoon occurrence is frequent in Tongonan. In 1990, for example, about 60,000 rattan seedlings stocked in PNOC central nursery were washed away by soil erosion caused by a strong typhoon. In 1991, another typhoon hit Tongonan, damaging thousands of rattan seedlings.

4.3.4 Soil Condition

Soil condition was apparently a problem in the grassland area in Baslay and flat area in Azupre. The soil in Baslay grassland is rocky and has a very low water holding capacity while the soil in Azupre is composed mostly of clay which hardens very much when dried and has low aeration causing hampered growth to the selected horticultural crops.

So, solving problems encountered in the project was not a sole responsibility of the project staff, but the farmers themselves helped to solve them as they have emerged, evidence of success of participation. However, human's capabilities in controlling these natural problems are limited and may not assure plantation success. These natural phenomena, therefore, became the primary determinants of crop productivity.

CHAPTER V - CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

In any development effort, man and his environment must be given primordial consideration. Man is development's ultimate beneficiary and the environment is the recipient of development's destructive effects.

The Philippine National Oil Company (PNOC) is mandated by the government to develop geothermal energy for the country. Such a mandate calls for a united and concerted efforts of our people as the end users of power generation. As geothermal resource is water-based, it needs recharging through the process of percolation. Healthy forest and sufficient ground cover is needed to ensure sustained percolation of rain water into the soil down to the geothermal reservoir. Thus, PNOC stands committed to preserve and conserve the natural resources within the geothermal reservations.

Farmers and migrants have settlements in the geothermal catchment areas. Their livelihood activities such as *kaingin*-making and illegal logging could be harmful to the environment. This socio-economic-cultural factor, if not checked, may account for geothermal development project, to

fail in the not too distant future. The implementation of social forestry projects is therefore one of the strategies being adopted by PNOC to address the socio-economic burden of the upland farmers. Specifically, the New Zealand – PNOC Social Forestry Project was a pilot project designed to determine the potentials of social forestry as a measure towards controlling destructive forest activities. This development aspect involves people's active participation and understanding. A truly beneficial project, therefore, should be able to address the felt needs of the farmers and elicit their active participation.

This study has shown that the very low income level was the most significant factor influencing farmers' participation in the social forestry project. Consequently, financial incentives are necessary to stimulate project involvement. Undoubtedly, money to support daily basic needs was a farmer's first priority. The problems on cynicism or skepticism in joining projects was even overcame in the presence of this financial incentive. Non-monetary incentives, on the other hand, showed a weak attraction to farmers. Despite the *kaingineros'* awareness on harmful environmental effects of *kaingin* activities, they are bound to continue the practice if no alternative sources of livelihood are offered.

Sex and age of the farmers were also shown to be significant demographic characteristics influencing farmers' initial enlistment to the project. Males and older farmers being the breadwinners, tended to participate in the livelihood project earlier than women household heads and younger farmers.

Contrary to expectations, the educational level and training backgrounds of the farmers appeared not significant factors for participation in this study but this was probably due to their similarity on these characteristics.

Induced participation characterized farmers' involvement in the different phases of project cycle, except in the project design and formulation phase. The project's training programme had a very important role in this respect. It helped the farmers to realize and institutionalize the different association and management principles, such as decision-making, sharing of benefits and the conduct of meetings. The results of the present study showed farmers' mastery and familiarity of the organizational principles involved. Although the assistance and sincerity of government and non-governmental organizations are important in the inception of development projects, my opinion is that the respective farmers' association will be able to manage their own affairs after five years.

The tests on the capability of the social forestry project to improve the standard of living of the farmers showed positive results. The initial three years of the project resulted in a 64% increase in the farmers' mean annual household income and widened their social and economic options. Except in Azupre, the corresponding financial analyses of the different social forestry plantation modules indicated significant income gains derived from the project within the next three years. The amount will be sufficient to raise them above the poverty level. In Azupre, however, the project will only serve as a source of additional income for the farmers.

The study also found a considerable decrease (-88%) in the incidence of destructive forest activities during project implementation, the main reasons for which were the livelihood generated by the social forestry project, and increased environmental awareness of the farmers. This is considered to be an important finding.

The economic analyses of the social forestry projects exhibited a very notable increase in the net present value from the "without" project to the "with" project situation. The rise was attributed to the decline in the incidence of destructive forest activities and the increase in farmers' income from the project and other sources. This means that the social forestry project was financially, economically and environmentally feasible.

The present study support the view that the project is replicable in other areas of the geothermal reservation areas. The PNOC Social Forestry farmers-beneficiaries preferred the project's group or communal farming scheme while the non-project beneficiaries acknowledged their desire to replicate the scheme. Presently, several communities in the different geothermal reservations are adopting the same project scheme and principles.

Problems involving project and non-project participants abounded in the course of project implementation. To address these problems, the associations formulated and implemented working policies and guidelines, such as the filing of criminal cases and imposition of fines. This self-reliance bodes well for the future, and is a good example of the effectiveness of participation.

The majority of the problems in the plantations, however, are natural in origin. These were better handled than in the "without" project situation. Infestation and diseases were treated through the use of chemicals and biological measures. Climatic problems such as long dry seasons, typhoons and poor soil condition are critical to crop productivity and subsequent plantation income. They also might be expected to be better handled by the new associations.

Many administrative concerns arose during project implementation. Most were resolved by the associations and the officers but some remain un-resolved.

Overall, the study shows that the adoption of the PNOC Pilot Social Forestry Project principles in other parts of the reservation is worth pursuing.

5.2 Recommendations

The above analysis calls for the customary recommendations as bases for the design and implementation of future projects. They are categorized into administrative, technical, socio-economic and general recommendations as follows:

a) Administrative Recommendations

i) The PNOC management must maintain the assignment of experienced staff to the pilot social forestry project during the rest of the period of its implementation.

ii) PNOC must make extra efforts that its administrative system will not prejudice the remaining years of project implementation. Appropriate measures to address the causes of delays in the purchase of

materials and payments of labour services to farmers-participants must be adopted.

iii) Monitoring and evaluation of the social forestry project must continue to be a responsibility of the PNOC during the rest of the period of project implementation and after the turn-over of the project to the beneficiary associations. As such, evaluation of the project must be conducted after five years of implementation and five years after turn-over.

iv) Proper PNOC representation with the Department of Environment and Natural Resources (DENR) must be undertaken to hasten the processing and issuance of Stewardship Contract or Lease Agreement to the farmers' associations.

b) Technical Recommendations

i) Scientific researches on alternative crops suited in the respective project areas must be conducted. It must include variables such as soil condition (type, texture, water holding capacity, pH, nutrient level), slope, rainfall, exposure and fertilizer requirements.

ii) In depth technical study on the effects of *kaingin*-making on soil (decreasing crop yield, surface run-off, fertility) with variables such as slope and rain intensity as compared to non-*kaingin* farms, grassland and forested area must be conducted. This will serve as excellent baseline data in future project studies.

iii) An in-depth study on financial and economic viability of the replicated social forestry livelihood modules adopted by PNOC in each of its three geothermal reservation areas must be undertaken.

iv) Extensive training of the pilot social forestry project farmers-participants on alternative livelihood sources, such as handicraft-making, livestock production and products marketing must be conducted.

v) The design of future social forestry projects shall encompass the improvement of socio-cultural, financial and economic circumstances of a particular community. This calls for an in-depth analysis of the people's socio-cultural backgrounds and an *ex-ante* financial analysis of proposed module to determine the appropriate number of participants,

financial input and size of a project profitable to all farmers-participants. The project module shall also be environmentally compatible with other existing land uses in the area.

c) Socio-economic Recommendations

i) The participatory approach and financial incentive scheme shall be the basic elements of future forestry and watershed conservation projects.

ii) The demographic characteristics of the target project beneficiaries such as sex, age, educational level, and training background must be carefully examined in the design of participatory projects.

iii) An extensive preparatory social and technical training of the future project farmers-participants must be undertaken. The training design must fit the educational and training background of the intended beneficiaries. The pilot social forestry project's training programme is highly recommended.

iv) The group farming scheme must likewise be adopted in future projects. Farmers training for familiarity of this scheme must be included in the project's training programme.

d) General Recommendation

The Pilot Social Forestry Project scheme and principles must be widely adopted by the project proponent to control the destructive forest activities in all geothermal reservation areas.

APPENDIX 1

PROJECT SOCIAL DEVELOPMENT TRAINING PROGRAMME FOR FARMERS-BENEFICIARIES

The project's training programme adopted the Silliman University - Extension Programme's (SUEP) social development training scheme. The programme consists of five inter-related and graduated phases given to participants of various phases of community work.

Phase I. Self-Awareness and Group Building (SAGB) Session

This phase seeks to orient and provide the community-participant the necessary skills to know oneself better. The training does this by providing opportunities for the individual to make an in-depth examination of his assets and liabilities, to identify his personal strengths and weaknesses, and to equip himself with the social and behavioral skills necessary to effectively relate himself with others in the community.

After the training, the participants are expected to be able to clearly understand the importance of the individual in relation to others in a group; and to appreciate better the various factors needed to promote group sharing as well as active involvement, participation, and cooperation through team building.

This aspect of the training is important for the following reasons:

1) To strengthen group capabilities;
2) To enhance awareness on the benefits and advantages of working with others in a group;
3) To identify the requirements for a successful cooperative endeavour; and
4) To demonstrate effective skills and techniques in establishing rapport with other community residents who are actively participating in the development works of the community.

The training is anchored on respect of human values as a primary ingredient for effective interpersonal relations. Thus, the discussion is highly focused on value identification, clarification, and orientation.

Phase II. Leadership and organizational Development Skills (LODS) Training

Leadership training is important because of the vital role the leaders play in community development, in particular, in enhancing group cohesiveness and motivating individuals to undertake group work. In this respect, the training seeks to develop and promote leadership skills and expertise promotive to community growth.

This phase of the training is given to enable participants to achieve the following:

1) Know and understand basic concepts and principles of leadership;
2) Operationally define what a true leader is; and
3) Identify strong and weak points of a leader.

Discussions are made on the various types and styles of leadership. This is complemented by on-the-job training to provide participants both a working knowledge of what it means to be a leader in the community and an opportunity to actualize their potential leadership skills.

Phase III. Technical and Managerial (T & M) Skills Training

This phase looks into the various community income-generating or livelihood projects that the clientele group will later engage itself in. The training design is thus designed only after the group is able to identify the type and kind of economic project it is going to undertake.

However, some technical and managerial training programme have already been designed by the proponent through its social development consultant. For instance, the proponent has already designed a cooperative programme which involves a continuing process of education and training of participants on the principles and practices of cooperativism like simplified bookkeeping, auditing and accounting.

The training is given to cooperative members and conducted in the form of structured seminar-workshops and on-the-job trainings.

Phase IV. Internalizing Rural Mobilization Experience (IRME)

This training phase seeks to inculcate in the consciousness of participants an understanding of the concepts, principles, and theories of rural development. But this is only given to

communities that have passed the training given in Phases I and II.

The IRME training design is conducted on staggered basis so as not to disrupt the domestic and economic activities of the participants. IRME seeks to develop in the clients a clear and solid grasp of rural development by focusing on the various basic conceptual rural development frameworks such as the ones aggressively propagated by systems approach, the several theories and principles of community development, the diffusion theory.

The process of decision-making and problem-solving are also heavily touched in the training. Concrete community situations and events are relived and portrayed for participants to demonstrate their ability to decide and resolve problems.

The phase is offered on a continuing basis in order to continually build up and enhance group confidence and enthusiasm in community development works.

Participants are introduced to the mechanics and processes of arriving at a common perception or analysis of community problems. In so doing, the training seeks to develop and sharpen participant's skills in viewing the dynamics of the community as part of a bigger social system.

Phase V. Refresher Course Through a Village School System (VSS)

This phase serves as a support training programme in areas that need further training or refreshing. The training design is planned based on the assessment of the people's capability of managing or running a project. Refresher courses are planned by trained community facilitators but under the close supervision and guidance of project extension workers.

The Village School System is also a continuing social education process which includes such subjects as ecology, ecosystem, agroforestry, farming systems, community organization, community development, cooperativism, among others. One important feature of the VSS is the active involvement of the participants in identifying their training needs and then in developing their own training design.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF LABOR AND EMPLOYMENT
Region VII
Registration Number VII-178

Know all men by these presents:

BY VIRTUE of the Provisions of Presidential Decree No. 1396, Article 243 of the Labor Code of the Philippines, as amended, by Pretidential Decree No. 1367 and the approved rules on the registration of Rural Workers Organization dated December 16, 1968, the

BASLAY FARMERS ASS'N.
(Name of Association)

BASLAY, DAUIN, NEGROS OR.
(Address)

has this day been registered as a legitimate Rural Workers Association in the Philippines with all the rights and privileges appurtenant thereto for the purpose of enhancing and defending their interests and for their mutual aid and protection subject to all provisions of existing laws and regulations relating to rural workers associations.

This Certificate of Registration may be cancelled automatically or after due notice and hearing for cause, as provided by law.

In Witness Whereof, we have hereunto affixed our signatures with the seal of the Department of Labor and Employment at CEBU CITY, Philippines, this 16 th day of January, 19 90.

ADRIAN G. LOMUNTAD
Regional Director

AMELITA M. KING
Director

FRANKLIN M. DRILON
Secretary

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF LABOR AND EMPLOYMENT
Region VII
Registration Number VII-205

Know all men by these presents:

BY VIRTUE of the Provisions of Presidential Decree No. 1365, Article 243 of the Labor Code of the Philippines, as amended, by Presidential Decree No. 1367 and the approved rules on the registration of Rural Workers Organization dated December 15, 1988, the

KAPUNONGANG MAG-UUMA SA BEDIAO
(Name of Association)

BEDIAO, DAUIN, NEG. OR.
(Address)

has this day been registered as a legitimate Rural Workers Association in the Philippines with all the rights and privileges appurtenant thereto for the purpose of enhancing and defending their interests and for their mutual aid and protection, subject to all provisions of existing laws and regulations relating to rural workers associations.

This Certificate of Registration may be cancelled automatically or after due notice and hearing for cause, as provided by law.

In Witness Whereof, we have hereunto affixed our signatures with the seal of the Department of Labor and Employment at CEBU CITY, Philippines, this 14th day of March, 19 90.

RUBEN D. TORRES
Secretary

JOSEFINO I. TORRES
Director

BERNARDINO B. SILVE
Regional Director

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF LABOR AND EMPLOYMENT
Region VIII

Registration Number VIII-159

Know all men by these presents:

BY VIRTUE of the Provisions of Presidential Decree No. 1365, Article 243 of the Labor Code of the Philippines, as amended, by Presidential Decree No. 1367 and the approved rules on the registration of Rural Workers Organization dated December 15, 1988, the

TONGONAN FARMERS ASSOCIATION
(Name of Association)

TONGONAN, ORMOC CITY, LEYTE
(Address)

has this day been registered as a legitimate Rural Workers Association in the Philippines with all the rights and privileges appurtenant thereto for the purpose of enhancing and affording their interests and for their mutual aid and protection, subject to all provisions of existing laws and regulations relating to rural workers organizations.

This Certificate of Registration may be cancelled automatically or after due notice and hearing for cause as provided by law.

In Witness Whereof, we have hereunto affixed our signatures, with the seal of the Department of Labor and Employment at TACLOBAN CITY, *Philippines, this* 30th *day of* NOVEMBER *of* 89

ATTY. TERRY S. CABELTES
Regional Director

Director

Secretary

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF LABOR AND EMPLOYMENT

Region ..X..

Registration Number ..048..

Know all men by these presents:

BY VIRTUE of the Provisions of Presidential Decree No. 1355, Article 243 of the Labor Code of the Philippines, as amended, by Presidential Decree No. 1367 and the approved rules on the registration of Rural Workers Organization dated December 15, 1988, the

TUBLIJON FARMERS ASSOCIATION, INCORPORATED (TULUNGAN, INC.)
(Name of Association)

TUBLIJON, RIZAL, SORSOGON
(Address)

has this day been registered as a legitimate Rural Workers Association in the Philippines with all the rights and privileges appurtenant thereto for the purpose of enhancing and defending their interests and for their mutual aid and protection, subject to all provisions of existing laws and regulations relating to rural workers associations.

This Certificate of Registration may be cancelled automatically or after due notice and hearing for cause, as provided by law.

In Witness Whereof, we have hereunto affixed our signatures with the seal of the Department of Labor and Employment at LEGAZPI CITY, Philippines, this 26TH day of DECEMBER IN 90.

RUBEN D. TORRES
Secretary

JOSEFINO I. TORRES
Director

TEDDY S. CASELTES
Regional Director IV

APPENDIX 3

ORIGINAL TARGET PLANTATION AREA BY PROJECT AREA (1989 MANAGEMENT PLAN)

CROPS	PROJECT AREAS			
	Baslay	Bediao	Tongonan	Azupre
1) Coffee	94.80	36.84	-	-
2) Cacao	50.44	14.72	-	-
3) B. pepper/ Kakawate	124.96	14.24	-	-
4) Rattan	-	-	1000.00	-
5) Abaca/ Yemane	-	-	-	7.00
6) Coffee/ Mangium	-	-	-	1.50
7) Cacao/ Mangium	-	-	-	1.50
8) Rice				1.00
Total	270.20	65.80	1000.00	11.00

Note: Figures in hectares

APPENDIX 4

TARGET PLANTATION AREA BY PROJECT AREA (AFTER 1990 MISSION REVIEW)

CROPS	PROJECT AREAS			
	Baslay	Bediao	Tongonan	Azupre
1) Coffee	94.80	36.84	-	-
2) Cacao	50.44	14.72	-	-
3) B. pepper/ Kakawate	101.72	14.24	-	-
4) Rattan	-	-	525.00	-
5) Abaca/ Yemane	-	-	-	7.00
6) Coffee/ Mangium	-	-	-	1.50
7) Cacao/ Mangium	-	-	-	1.50
8) Rice	-	-	-	1.00
Total	246.96	65.80	525.00	11.00

Note: Figures in hectares

APPENDIX 5

TARGET PLANTATION AREA BY PROJECT AREA (AFTER 1991 MISSION REVIEW)

CROPS	PROJECT AREAS			
	Baslay	Bediao	Tongonan	Azupre
1) Coffee	42.70	15.40	-	-
2) Cacao	28.60	8.10	-	-
3) B. pepper/ Kakawate	38.50	12.50	-	-
4) Rattan	-	-	525.00	-
5) Abaca/ Yemane	-	-	-	7.00
6) Coffee/ Mangium	-	-	-	1.50
7) Cacao/ Mangium	-	-	-	1.50
8) Rice	-	-	-	1.00
Total	109.80	36.00	525.00	11.00

Note: Figures in hectares

APPENDIX 6

BREAKDOWN OF PROJECT FUNDING BETWEEN THE PHILIPPINE NATIONAL OIL COMPANY (PNOC) AND THE NEW ZEALAND GOVERNMENT

NATURE OF EXPENSES	PROJECT AREAS				TOTAL
	Baslay	Bediao	Tongonan	Azupre	
1989					
A) PNOC					
Capital costs (Potting shed, toolhouse, tramway)	380	–	81	–	461
Operational expenses	132	90	202	133	557
Salary of project staff	116	79	177	117	489
Sub-total	628	169	460	250	1507
B) NEW ZEALAND					
Labour, materials and training costs	79	53	113	89	334
Vehicle	–	–	401	–	401
Computer	21	–	–	–	21
Sub-total	100	53	514	89	756
Total	728	222	974	339	2263

APPENDIX 6: Continued ....

NATURE OF EXPENSES	PROJECT AREAS				TOTAL
	Baslay	Bediao	Tongonan	Azupre	
1990					
A) PNOC					
Capital costs (Cloning shed)	20	-	-	-	20
Operational expenses	179	122	273	181	755
Salary of project staff	134	91	204	135	564
Sub-total	333	213	477	316	1339
B) NEW ZEALAND					
Vehicle	425	-	-	-	425
Labour,materials and training costs	998	512	927	195	2632
Annual review	38	38	38	38	152
Sub-total	1461	550	965	233	3209
Total	1794	763	1442	549	4548
1991					
A) PNOC					
Capital costs (Clonin bed/shed water tank)	15	-	-	-	15
Operational expenses	223	152	340	225	940
Salary of project staff	154	105	234	155	648
Sub-total	392	257	574	380	1603

APPENDIX 6: Continued .....

NATURE OF EXPENSES	PROJECT AREAS				TOTAL
	Baslay	Bediao	Tongonan	Azupre	
B) NEW ZEALAND					
Labour and material costs	1130	380	1630	196	3336
Training costs	40	40	40	40	160
Annual review	38	38	38	38	152
Sub-total	1208	458	1708	274	3648
Total	1600	715	2282	654	5251
1992					
A) PNOC					
Operational expenses	736	502	1125	-	2363
Salary of project staff	177	120	270	78	645
Sub-total	913	622	1395	78	3008
B) NEW ZEALAND					
Labour and material costs	1270	473	1302	-	3045
Training costs	53	53	53	-	159
Annual review	50	50	50	-	150
Sub-total	1373	576	1405	-	3354
Total	2286	1198	2800	78	6362

APPENDIX 6: Continued .....

NATURE OF EXPENSES	PROJECT AREAS				TOTAL
	Baslay	Bediao	Tongonan	Azupre	
1993					
A) PNOC					
Capital costs (Bunkhouse)	-	60	-	-	60
Operational expenses	806	550	1232	-	2588
Salary of project staff	203	139	310	86	738
Sub-total	1009	749	1542	86	3386
B) NEW ZEALAND					
Labour and material costs	1206	486	1302	-	2994
Training costs	53	53	53	-	159
Annual review	50	50	50	-	150
Sub-total	1309	589	1405	-	3303
Total	2318	1338	2947	86	6689
1994					
A) PNOC					
Operational expenses	775	529	1185	-	2489
Salary of project staff	223	153	341	95	812
Sub-total	998	682	1526	95	3301

APPENDIX 6: Continued .....

NATURE OF EXPENSES	PROJECT AREAS				TOTAL
	Baslay	Bediao	Tongonan	Azupre	
B) NEW ZEALAND					
Labour and material costs	925	530	1302	-	2757
Training costs	53	53	53	-	159
Annual review	50	50	50	-	150
Sub-total	1028	633	1405	-	3066
Total	2026	1315	2931	95	6367
Total NZ Grant Fund	6479 (57%)	2859 (52%)	7402 (55%)	596 (33%)	17336 (55%)
Total PNOC Counterpart	4273 (43%)	2692 (48%)	5974 (45%)	1205 (67%)	14144 (45%)
Total Funds	11380 (100%)	5551 (100%)	13376 (100%)	1801 (100%)	31480 (100%)

Note: Figures in thousand pesos

APPENDIX 7

QUESTIONNAIRE FOR NZ-PNOC SOCIAL FORESTRY PROJECT BENEFICIARIES

Code: ___ ___ ___ ◯

A. Personal Information and Project Participation

Name:_____ Sex:_____ Age_____
Educational level:_____ Occupation:_____
Address:_____ Civil Status:_____
_____ Spouse's Name:_____

1) Are you a participant in the PNOC Social Forestry Project? Yes___ No___. If yes, when did you became member of the beneficiary association? _____

2) Please give the name of your family members living with you in the same house. Kindly indicate whether he/she is also a participant in the PNOC Social Forestry Project.

Name	Relationship/ Age	Participant
a)_____	_____	Yes___ No___
b)_____	_____	Yes___ No___
c)_____	_____	Yes___ No___
d)_____	_____	Yes___ No___
e)_____	_____	Yes___ No___
f)_____	_____	Yes___ No___
g)_____	_____	Yes___ No___

3) What is your main reason for joining the Project? Please check one.

( ) - to earn a living from employment and harvests from the plantation
( ) - to receive material assistance (planting stocks and other farm inputs
( ) - to help protect and preserve the environment
( ) - to gain knowledge from training and seminars

4) Did the Project able to satisfy your purposes in joining the Project? Yes___ No___ If yes, please rate your satisfaction by checking one below:

( ) - Very satisfactory
( ) - Satisfactory
( ) - Moderately satisfactory

Sources of Income

1) What is/are your main source/s of income? Please check.

a) "Kaingin" making - ( ) Refer to Item C.
b) Logging - ( ) Refer to Item D.
c) Farming (private lot) - ( ) Refer to Item E.
d) Livestock raising - ( ) Refer to Item F.
e) Employment - ( ) Refer to Item G.

2) What is/are your secondary source/s of income? Pls. check.

a) "Kaingin" making - ( ) Refer to Item C.
b) Logging - ( ) Refer to Item D.
c) Farming (private lot) - ( ) Refer to Item E.
d) Livestock raising - ( ) Refer to Item F.
e) Employment - ( ) Refer to Item G.
f) Other sources - ( ) Refer to Item H.

"Kaingin" making

1) Do you practice "kaingin" before joining the Project? Yes ____ No ____ If yes, what is the total area of your "kaingin" farm? _____ hectares

2) What year did you clear your "kaingin"? _____

3) What is your average annual income from "kaingin" making before joining the project? _____

4) After joining the Project, do you still open new "kaingin" areas? Yes ____ No ____ If yes, what is your average annual income from your "kaingin" farm? _____

5) Do you still make new "kaingin"? Yes ____ No ____
If yes, what year did you clear your last kaingin?_____

If no, why did you stop making new "kaingin"?
_____
_____
_____

6) Are you willing to permanently stop from logging if offered another income generating project capable of equating or surpassing your income from logging? Yes ____ No ____

7) Do you know the effects of "kaingin" making to the environment? Yes ____ No ____ If yes, please enumerate.

_____
_____
_____
_____

8) How did you know/learn the above effects?

_____
_____
_____
_____

Illegal Logging

1) Do you practice logging before joining the Project?
Yes ____ No ____ If yes, what was your average annual income from logging? _____

2) After joining the Project, do you still practice logging
Yes ____ No ____ If yes, what is your average annual income from logging? _____

If no, why did you stop from illegal logging?

_____
_____
_____

3) Are you willing to permanently stop from logging if offered another income generating project capable of equating or surpassing your income from logging? Yes ____ No ____

4) Other than as source of income, what other reasons prompted you to practice logging?

( ) - high return or income in a short period of time
( ) - presence of buyer
( ) - no other source of income

5) Do you know the effects of logging to the environment?
Yes ____ No ____ If yes, please enumerate.

_____
_____
_____

6) How did you know/learn the above effects?

_____
_____
_____
_____

Farming of Private Land

1) Do you own the land you are farming? Yes ____ No ____
If no, what proportion of total harvest do you receive?

_____

2) How much is your annual average income from the farm?

a) Before joining the Project - _____
b) After joining the Project - _____

3) What is/are the reason/s in the change in your average annual income from farming? _____
_____
_____

Livestock Raising

1) How much is your annual average income from livestock raising?

a) Before joining the Project - _____
b) After joining the Project - _____

2) What is/are the reason/s in the change in your average annual income from livestock raising? _____
_____
_____

Employment

1) What type of work are you employed? _____

2) How much is your average annual income from employment?

a) Before joining the Project - _____
b) After joining the Project - _____

2) What is/are the reason/s in the change in your average annual income from employment? _____
_____
_____

Other Sources of Income

1) What are the other sources of your income?

Before Joining the Project	After Joining the Project
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2) How much is your average annual income from said sources?

a) Before joining the Project - _____
b) After joining the Project - _____

3) What is/are the reason/s in the change in your average annual income from other sources? _____
_____
_____

Income from the Project

What is your annual average income from the Project?

a) Wages/compensation - _____
b) Annual harvest - _____
c) Consumers' store - _____
d) Handicrafts - _____
e) Mini-theater - _____
f) Other projects - _____

Total - _____

Household Information

1) What is your average annual personal expenses? (Note: The personal expenses of family members will be added together to obtain the total household expenses)

Before joining the Project - _____
After joining the Project - _____

2) Do you send your children to school? Yes ____ No _____
If yes, how many of your children are in school?

Before Joining the Project - _____
After Joining the Project - _____

3) Do you go to school? Applicable ( ) Not applicable ( )

Before Joining the Project : Yes ____ No ____ If no, what is/are the reasons why you did not go to school?
_____
_____
_____

After Joining the Project : Yes ____ No ____ Please state the reasons why you go or do not go to school?

_____
_____
_____

4) How do you seek treatment when somebody in the family is sick?

Ask treatment from	Before Project	After Project
Quack doctor	_____	_____
Medical doctor	_____	_____
Self-medication (through herbal medicines)	_____	_____

Training Programme

1) What are the seminar/training sessions you have attended?

a) Before Joining the Project

_____
_____
_____
_____

b) After Joining the Project

_____
_____
_____
_____

2) Do you think the Project's training programme helped in your social, economic and environmental activities as a member of the Project beneficiary association? Yes ____ No ____ If yes, please rate its helpfulness by checking one below:

( ) - Very helpful
( ) - Helpful
( ) - Moderately helpful

If no, state your reasons below.

_____
_____
_____

Association and Participation

1) Do you think the formation of your group as an association contributes significantly in the social, economic and environmental objectives of your group and the Project as a whole? Yes ___ No ___ If no why?

_____
_____
_____
_____

If yes, in what way?

_____
_____
_____
_____

2) How are decisions in your association made?

( ) - Chairman of the Board alone
( ) - Board of Directors
( ) - General Meeting
( ) - PNOC Staff

3) How are the benefits (wages and harvests) of the associatio divided among the members?

( ) - Equitable distribution (payment based on work done/performed)
( ) - Daily basis regardless of performance
( ) - Equally among all members

4) Do you have activities in the association towards the protection and conservation of natural resources?
Yes ____ No ____. If yes please name some.

_____
_____
_____
_____

e: Information and data in this questionnaire will be treated with strict confidentiality. Thank you very much for your cooperation.

Date : _____
Time Started : _____
Time Finished : _____
Interviewer : _____

APPENDIX 8

QUESTIONNAIRE FOR NON-PROJECT BENEFICIARIES

Code: /__/ /__/ /__/ ◯

Personal Information

Name:_____ Sex:_____ Age_____
Educational level:_____ Occupation:_____
Address:_____ Civil Status:_____
_____ Spouse's Name:_____

Sources of Income

1) What is/are your main source/s of income? Please check.

a) "Kaingin" making - ( ) Refer to Item C.
b) Logging - ( ) Refer to Item D.
c) Farming (private lot) - ( )
d) Livestock raising - ( )
e) Employment - ( )

2) What is/are your secondary source/s of income? Pls. check.

a) "Kaingin" making - ( ) Refer to Item C.
b) Logging - ( ) Refer to Item D.
c) Farming (private lot) - ( )
d) Livestock raising - ( )
e) Employment - ( )
f) Other sources - ( )

"Kaingin" making

1) What is the total area of your kaingin farm? _____has.

2) What year did you clear your "kaingin"? _____

3) What is your average annual income from "kaingin" making?
_____

4) Are you willing to stop permanently from making new kaingin if offered an income generating project capable of equating or surpassing your income from kaingin making?
Yes ____ No _____

5) Do you know the effects of "kaingin" making to the environment? Yes ____ No ____ If yes, please enumerate.

_____
_____

6) How did you know/learn the above effects?

_____
_____
_____

Illegal Logging

1) Other than as source of income, what other reasons prompted you to practice logging?

( ) - high return or income in a short period of time
( ) - presence of buyer
( ) - no other source of income

2) What is your annual average income from logging? _____

3) Are you willing to permanently stop from logging if offered an income generating project capable of equating or surpassing your income from logging? Yes ____ No ____

4) Do you know the effects of logging to the environment? Yes ____ No ____ If yes, please enumerate.

_____
_____

5) How did you know/learn the above effects?

_____
_____

Household Information

1) What is your average annual household expenses?

2) Do you send your children to school? Yes ____ No _____
If yes, how many of your children are in school? _____

3) Do you go to school? Yes ___ No ___. If no, why are you not going to school?

_____
_____
_____

4) How do you seek treatment when somebody in the family is sick?

( ) - Quack doctor
( ) - Medical doctor
( ) - Self-medication
(through herbal medicines)

Knowledge about the Pilot Social Forestry Project

1) Have you heard of the Baslay and Bediao Agroforestry Projects? Yes ____ No ____. If yes, how did you learn the existence of the said project?

( ) - From PNOC Extension Staff
( ) - From friends/neighbors
( ) - From local government officials
( ) - From radio

2) Do you have similar project in your community? Yes ____ No ____. If yes, how did you start your project?

( ) - Through local government office
( ) - Through PNOC Exension Workers
( ) - Through an non-governmental organization (NGO)

3) Is your project patterned with the Baslay and Bediao Social Forestry Project? Yes ____ No ____

4) Are you willing to participate in similar project in the future? Yes ____ No ____ If yes, what will be your reason in joining?

( ) - to earn a living
( ) - to receive material assistance (planting stocks and other farm inputs)
( ) - to help protect and preserve the environment
( ) - to gain knowledge from training and seminars

5) Do you think the project could improve your living condition Yes ____ No ____

e: Information and data in this questionnaire will be treated with strict confidentiality. Thank you very much for your cooperation.

Date : _____

Time Started : _____

Time Finished : _____

Interviewer : _____

APPENDIX 9

QUESTIONNAIRE FOR NZ-PNOC SOCIAL FORESTRY PROJECT BENEFICIARIES IN TAGALOG DIALECT

Code: /___/___/___/___/◯

Personal Information and Project Participation

Ngalan: _____ Kasariaan: ___ Edad: _____
Edukasyon na natapos: _____ Trabaho: _____
Tirahan: _____ Katayuang sibil: _____
_____ Ngalan ng Asawa: _____

1) Miyembro ka ba ng PNOC Social Forestry Project?
Oo __ Hindi__ Kung miyembro ka, kailan ka naging miyembro ng asosasyon? _____

2) Ilista and ngalan ng iyong mga kasama sa bahay. Sabihin kung miyembro siya ng PNOC Social Forestry Project.

Ngalan	Relasyon/Edad	Miyembro
a) _____	_____	Oo__ Hindi__
b) _____	_____	Oo__ Hindi__
c) _____	_____	Oo__ Hindi__
d) _____	_____	Oo__ Hindi__
e) _____	_____	Oo__ Hindi__
f) _____	_____	Oo__ Hindi__
g) _____	_____	Oo__ Hindi__
h) _____	_____	Oo__ Hindi__

3) Ano ang iyong pangunahing dahilan sa pagsali sa proyekto? Pumili ng isa.

( ) – para mapagkunan ng ikabubuhay
( ) – para makatanggap ng mga pananim at iba pang gamit sa pagsasaka
( ) – para makatulong sa pangangalaga ng kapaligiran
( ) – para matuto sa mga seminar

4) Nakamit mo ba ang iyong pakay sa pagsali sa proyekto?
Oo ___ Hindi ___ Kung oo, gaano ito nakatulong sa iyo?

( ) – Napakalaki ang naitulong
( ) – Eksakto lang ang naitulong
( ) – Hindi masyadong nakatulong

B. Pinanggagalingan ng Ikinabubuhay

1) Anu-ano ang pangunahing pinanggagalingan ng iyong kita?

a) Kaingin - ( ) Sagutin ang Letrang C
b) Pagputol ng kahoy - ( ) Sagutin ang Letrang D
c) Pagsasaka - ( ) Sagutin ang Letrang E
d) Pag-aalaga ng hayop - ( ) Sagutin ang Letrang F
e) Pamamasukan - ( ) Sagutin ang Letrang G

2) What is/are your secondary source/s of income? Pls. check.

a) Kaingin - ( ) Sagutin ang Letrang C
b) Pagputol ng kahoy - ( ) Sagutin ang Letrang D
c) Pagsasaka - ( ) Sagutin ang Letrang E
d) Pag-aalaga ng hayop - ( ) Sagutin ang Letrang F
e) Pamamasukan - ( ) Sagutin ang Letrang G
f) Ibang pinanggagalingan - ( ) Sagutin ang Letrang H

C. Kaingin

1) Nagkakaingin ka ba bago ka sumali sa proyekto?
Oo ____ Hindi ___ Kung oo, gaano kalawak ang iyong kaingin? _____ ektarya

2) Kailan mo hinawan ang iyong kaingin? _____

3) Magkano ang iyong kita sa kaingin sa isang taon bago ka sumali sa proyekto? _____

4) Nang miyembro ka na ng proyekto, naghahawan ka pa ba ng bagong kaingin? OO ___ Hindi ___ Kung oo, magkano ang iyong kita sa iying kaingin? _____

Kung hindi na, bakit ka tumigil sa pagkakaingin?
_____
_____
_____

5) Titigil ka ba sa pagkakaingin kung magkakaroon ng ibang paggagalingan ng ikabubuhay na magbibigay ng mas matataas na kita sa pagkakaingin? Oo ____ Hindi ____

6) Alam mo ba ang epekto ng pagkakaingin sa ating kapaligiran? Oo ____ Hindi ____ Kung alam mo, magsabi ng ilan.
_____
_____
_____
_____

7) Paano mo nalaman ang mga epektong iyon?

_____
_____
_____
_____

D. Labag sa batas na pagputol ng kahoy

1) Nagpuputol ka ba ng kahoy bago ka sumali sa proyekto? Oo _____ Hindi ___ Kung oo, gaano kalawak ang iyong

2) Magkano ang iyong kita sa paputol at pagbebenta ng kahoy isang taon bago ka sumali sa proyekto?_____

3) Nang miyembro ka na ng proyekto, nagpuputol ka pa ba ng kahoy? Oo ___ Hindi ___ Kung oo, magkano ang iyong kita sa isang taon? _____

Kung hindi na, bakit ka tumigil sa pagputol ng kahoy?

_____
_____
_____

4) Titigil ka ba sa pagputol ng kahoy kung magkakaroon ng ibang paggagalingan ng ikabubuhay na magbibigay ng mas matataas na kita sa pagkakaingin? Oo _____ Hindi _____

5) Alam mo ba ang epekto ng pagputol ng kahoy sa ating kapaligiran? Oo _____ Hindi _____ Kung alam mo, magsabi ng ilan.

_____
_____
_____
_____

6) Paano mo nalaman ang mga epektong iyon?

_____
_____
_____
_____

E. Pagsasaka

1) Pag-aari mo ba ang lupang iyong sinansaka? Oo __ Hindi___ Kung hindi, paano ang hatian ninyo sa ani?

_____

2) Magkano ang iyong kita sa pagsasaka sa isang taon?

a) Bago ka sumali sa proyekto - _____
b) Nang kasali ka na sa proyekto - _____

3) Anu-ano ang mag dahilan sa pagbabago sa iyong taunang kita sa pagsasaka? _____
_____
_____

F. Pag-aalaga ng mga Hayop

1) Magkano ang iyong taunang kita sa pag-aalaga ng mga hayop?

a) Bago ka sumali sa proyekto - _____
b) Nang kasali ka na sa proyekto - _____

3) Anu-ano ang mag dahilan sa pagbabago sa iyong taunang kita sa pag-aalaga ng mga hayop?_____
_____
_____

G. Pamamasukan

1) Anong klase ang iyong pamamasukan? _____

2) Magkano ang iyong kita sa pamamasukan sa isang taon?

a) Bago ka sumali sa proyekto - _____
b) Nang kasali ka na sa proyekto - _____

3) Anu-ano ang mag dahilan sa pagbabago sa iyong taunang kita sa pamamasukan? _____
_____
_____

H. Ibang pang Pinanggagalingan ng Ikinabubuhay

1) Anu-ano ang ibang pinangagalingan ng iyong ikinabu-buhay?

Bago ka sumali sa proyekto	Nang kasali ka na sa proyekto
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2) Magkano ang iying taunang kita sa mga iyon?

a) Bago ka sumali sa proyekto - _____
b) Nang kasali ka na sa proyekto - _____

3) Anu-ano ang mag dahilan sa pagbabago sa iyong taunang kita sa mga iyon? _____
_____
_____

I. Kita Galing sa Proyekto

Magkano ang iyong taunang kita galing sa Proyekto?

a) Suweldo - _____
b) Taunang ani - _____
c) Tindahan - _____
d) Handicrafts - _____
e) Pagpapalabas sa TV - _____
f) Iba pang mga proyekto- _____

Suma - _____

J. Inpormasyon sa Pamamahay

1) Magkano ang inyong taunang gastos sa pamamahay?

a) Bago ka sumali sa proye - _____
b) Nang kasali ka na sa pr - _____

2) Pinag-aaral mo ba ang inyong mga anak? OO ____ Hindi ____
Kung oo, ilan sa iyong mga anak ang nag-aaral?

a) Bago ka sumali sa proyekto - _____
b) Nang kasali ka na sa proyekto - _____

3) Nak-aaral ka pa ba? Puwede ( ) Hindi puwede ( )

Bago ka sumali sa proyekto : Oo ____ Hindi ____ Kung hindi ano ang dahilan?
_____
_____
_____

Nang kasali ka na sa proyekto Oo ___ Hindi____ Sabihin ang mga dahilan. _____

_____
_____

4) Kung may sakit sa inyong pamilya paano kayo nagpapagamot?

Nagpapagamot sa ____	(Pumili ng kahit ilan)
Hilot	_____
Doktor	_____
Sariling paggagamot	_____

K. Training/Seminar

1) Anu-ano ang mga seminar na iyong nadaluhan?

a) Bago ka sumali sa proyekto

_____
_____
_____
_____

b) Nang kasali ka na sa proyekto

_____
_____
_____
_____

2) Nakatulong ba ang programa sa seminar ng proyekto sa sosyal, ekonomiya at pang-kapaligirang hangarin ng inyong asosasyon? Oo ____ Hindi _____ Gaano ito nakatulong Pumili ng isa.

( ) - Malaki ang naitulong
( ) - Eksakto lang ang naitulong
( ) - Hindi masyadong nakatulong

Kung hindi, sa anong mga dahilan?

_____
_____
_____

L. Asosasyon at Partisipasyon

1) Nakatulong ba ang pagkabuo ng inyong grupo bilang isang asosasyon sa sosyal, ekonomiya and pang-kapaligirang hangarin ng iyong grupo at sa buong proyekto?
Oo ____ Hindi _____ Kung hindi, bakit?

_____
_____
_____
_____

Kung oo, sa anong paraan?

_____
_____
_____
_____

2) Paano kayo gumagawa ng desisyon sa inyong asosasyon?

( ) - Ang Pangulo lamang ang gumagawa ng desisyon
( ) - Ang lahat ng miyembro ang bokal
( ) - Sa pangkalahatang pulong
( ) - And mga empleyado ng PNOC ang gumagawa ng desisyon

3) Paano ninyo hinahati ang kita ng asosasyon?

( ) - Equitable (depended sa nagawa ng kada miyembro)
( ) - Arawan kahit na hindi pare-pareho ang trabaho
( ) - Pare-pareho ang hatian sa lahat ng miyembro

4) Mayroon ba kayong mga programa para sa pangangalaga ng kapaligiran at mga likas na yaman?
Oo _____ Wala _____ Kung mayroon, anu-ano ang mga iyon?

_____
_____
_____
_____

Paalala: Ang mga inpormasyon sa mga katanungan ay sekreto po lamang. Maraming salamat sa inyong pagtulong.

Petsa : _____
Oras Nagsimula : _____
Oras Natapos : _____
Tagapagtanong : _____

APPENDIX 10

PARTICIPATORY RURAL ASSESSMENT RESULT
BY TULUNGAN FARMERS' ASSOCIATION
(Azupre Agroforestry Project)

Question 1: What are the accomplishments of your association from 1988 to 1992?

Answers :
a) Constructed a satellite nursery in the Azupre plantation area.
b) Surveyed the plantation area
c) Undergone training on contour farming
d) Established a Consumer Cooperative Store
e) Able to operate Loan and Savings project
f) Organized the Women's Club
g) Established the Azupre agroforestry plantation
h) Able to maintain good relationship among members

Question 2: What are the problems you have encountered in your projects?

Answers :
a) Lack of pesticides
b) Safety measures at work
c) Lack of seedlings
d) Incomplete attendance during group work
e) Attack of wild boar to crops
f) Poor performance of coffee and cacao due to presence of sulphur in the project area
g) Illegal cutting of trees in the project vicinity by outsiders

Question 3: What are the solutions you undertook to solve the said problems?

Answers :
a) Seek assistance from PNOC management since our crops are not yet harvestable
b) Scheduled regular meeting to remind all members to attend group work in the plantation
c) The association agreed to advise violators to stop their destructive activities
d) Report prospective violators to PNOC

Question 4: What are your plans for 1993?

Answers :
a) Expansion of the abaca plantation
b) Construction of a Multi-purpose Center
c) To purchase a lot for the construction and transfer of the Consumer Cooperative Store
d) Will ask assistance from PNOC for the provision of additional abaca seedlings for the planned expansion

Question 5: How did the NZ-PNOC Social Forestry Project help the individual farmer-participant? Your family? Your community?

Answers : Individual farmer-participant

a) Increased income
b) Source of subsistence
c) Gained several additional knowledge/learning from training/seminars
d) Improved self-discipline

To the family

a) Additional source of livelihood
b) Able to send children in school
c) Able to share knowledge from seminars to family members

To the community

a) Trees planted in the Azupre Agroforestry Project will help preserve the watershed area which is beneficial to the community
b) The plantation will provide income to the community in the future
c) Will be able to help other communities from the 10% reserve fund allocated by the association
d) The Multipurpose Center will serve as Day Care Center of the barangay
e) Able to share the knowledge learned from seminars to other residents of the barangay
f) The Consumer Store sells basic household goods at low prices

APPENDIX 11

BASLAY AGROFORESTRY PROJECT
Ayanguile Stand Inventory

Spacing	:	3 m. x 3 m.
Number of trees per hectare	:	1111
Volume per hectare (cu.m.)	:	694.21
Mean branch diameter (m.)	:	.26
Mean branch length (m.)	:	3.53
Mean volume per branch (cu.m.)	:	.20
Mean volume per tree (cu.m.)	:	.62

Tree No.	Branch No.	Diameter (m.)	Length (m.)	Volume (cu.m.)	Volume per tree (cu.m.)
1	1	.25	3	.15	.36
	2	.20	2	.06	
	3	.25	3	.15	
2	1	.30	3	.21	.60
	2	.25	3	.15	
	3	.25	3	.15	
	4	.20	3	.09	
3	1	.25	4	.20	.57
	2	.30	4	.28	
	3	.20	3	.09	
4	1	.30	4	.28	.48
	2	.25	4	.20	
5	1	.20	3	.09	.63
	2	.25	4	.20	
	3	.25	4	.20	
	4	.25	3	.15	
6	1	.35	4	.38	.72
	2	.30	3	.21	
	3	.20	4	.13	
7	1	.25	3	.15	.63
	2	.30	4	.28	
	3	.25	4	.20	
8	1	.30	4	.28	.72
	2	.25	3	.15	
	3	.20	3	.09	
	4	.25	4	.20	
9	1	.30	4	.28	.76
	2	.35	5	.48	
10	1	.25	4	.20	.77
	2	.30	4	.28	
	3	.20	3	.09	
	4	.25	4	.20	

APPENDIX 12

LOGICAL FRAMEWORK CHART

HIERARCHY LEVEL	PERFORMANCE INDICATORS	MEANS/TOOLS OF VERIFICATION	ASSUMPTIONS	RISK MANAGEMENT
GOALS				
Protection and preservation of geothermal reservation areas	Decrease in the incidence of kaingin-making and illegal logging	Statistics from PNOC's annual forest protection records Economic analysis Hypotheses 9/10	Kaingin-making and illegal logging are the primary causes of forest destruction in the reservation	Identify other agents of forest destruction
Improvement of the standard of living of the upland farmers	Increase in farmers' income, generation of alternative livelihood, increase in number of children in school, improvement of food served, outfit improved.	Statistics and field observations, annual participatory rural appraisal Hypotheses 8	The project will provide sufficient income for increased economic activities of the farmers	Identify other alternative sources of income suited in the area
OBJECTIVES				
Demonstrate and adopt better farming practices	Adoption of soil conservation measures, project module being replicated by other communities	Statistics, regular field visits and progress reports Hypotheses 7, 11 and 12	Climatic and soil condition do not differ significantly	Adopts flexibility for changes or introduction of other crops
Improvement of agricultural production	Increase in yield	Statistic, regular field visits and progress reports Hypothesis 8	Market for all crops exists,	Conducts detailed study on local and international market situation for all crops

APPENDIX 12: Continued .....

HIERARCHY LEVEL	PERFORMANCE INDICATORS	MEANS/TOOLS OF VERIFICATION	ASSUMPTIONS	RISK MANAGEMENT
Develop the communities into well-organized and self-reliant groups	Legitimate farmers' associations effectively functioning, enhanced participation of majority of the farmers'	Regular field observation, progress reports, Hypotheses 1,2,3,4,5 and 6	Farmers' were socially and technically prepared.	Amendment of associations' Constitution and By-laws as needed, formulation of new policies and guidelines as necessary
OUTPUTS				
Community nurseries Community agro-forestry and rattan plantations	Existing nurseries fully operational Agroforestry and rattan plantations with healthy crops	Regular field visits and progress reports Annual survey of plantations	Labour is paid during the five years of plantation establishment and maintenance Community support is solicited.	Gather farmers' impressions on the project
INPUTS				
Land Seedlings Labour Tools/equipment Technical expertise Training/ seminars	Land designated by PNOC for the project. Material inputs are available from NZ/PNOC. PNOC technical men assisting in the project implementation.	Regular field visits and progress reports. New Zealand Embassy's correspondences to PNOC	Land is available, accessible and suited to the project. Labour, fuel, equipments, planting stocks fertilizer and other inputs are readily available.	Technical assessment of the suitability of all crops in terms of soil and climatic condition. Assessment of Labour availability. Identify farmers' off-project activities.

APPENDIX 13

SUMMARY OF CODES USED ENCODING AND SUMMARIZATION OF DATA

A) Respondent Code Number : /__/ /__/ /__/ ◯

First Box : Project Area Code
- (1) Baslay
- (2) Bediao
- (3) Tongonan
- (4) Azupre

Second Box : Household Type
- (1) With only one project participant in the household
- (2) With two or more project participants

Third Box : Household number in numerical order

Circle : Respondent Number

B) Codes for Questions and Responses

Codes	Description
A1	Name
A2	Sex
A3	Age
A4	Educational Level
A5	Occupation
A6	Present Address
A7	Civil Status
A8	Spouse's Name
A9	Birthplace of Respondent
A10	Tribal/Ethnic Group
A11	Household Number
A12	Number of Persons in the Household
A13	Number of Male Members in the Household
A14	Number of Female Members in the Household
A15	Number of Project Participants in the Household
A16	Number of Children Borne from 1988-1992
A17	Main Reason for Joining the Project (1) To earn a living (2) To receive material assistance (3) To help protect/preserve the environment (4) To gain knowledge from training/seminars

A18	Question A4a (Y) Yes (N) No
A19	Question A4b (1) Very satisfactory (2) Satisfactory (3) Moderately satisfactory
B1	Question B1 (1) "kaingin" making (2) Illegal Logging (3) Farming (4) Livestock Raising (5) Employment
B2	Question B2 (1) "kaingin" making (2) Illegal Logging (3) Farming (4) Livestock Raising (5) Employment (6) Other Sources
C1	Question C1 (Y) Yes (N) No
C2	Question C2 Year
C3	Question C3 Number
C4	Question C4 Number
C5	Question C5a (Y) Yes (N) No
C6	Question C5b Year
C7	Question C5c Open-ended
C8	Question C6 (Y) Yes (N) No
C9	Question C7a (Y) Yes (N) No
C10	Question C7b Open-ended
C11	Question C8 Open-ended
D1	Question D1a (Y) Yes (N) No
D2	Question D1b Number
D3	Question D2a (Y) Yes (N) No

D4	Question D2b Number
D5	Question D2c Open-ended
D6	Question D3 (Y) Yes (N) No
D7	Question D4 (1) High return or income in a short period (2) Presence of buyer (3) No other source of income
D8	Question D5a (Y) Yes (N) No
D9	Question D5b Open-ended
D10	Question D6 Open-ended
E1	Question E1a (Y) Yes (N) No
E2	Question E1b Ratio
E3	Question E2a Number
E4	Question E2b Number
E5	Question E3 Open-ended
F1	Question F1a Number
F2	Question F1b Number
F3	Question F2 Number
G1	Question G1 Open-ended
G2	Question G2a Number
G3	Question G2b Number
G4	Question G3 Open-ended
H1	Question H1a Open-ended
H2	Question H1b Open-ended
H3	Question H2a Number
H4	Question H2b Number
H5	Question H3 Open-ended

I1-I6	Question I1 to I6 Number
J1	Question J1a Number
J2	Question J1b Number
J3	Question J2a (Y) Yes (N) No
J4	Question J2b Number
J5	Question J2c Number
J6	Question J3a (A) Applicabale (N/A) Not Applicable
J7	Question J3b (Y) Yes (N) No
J8	Question J3c Open-ended
J9	Question J3d (Y) Yes (N) No
J10	Question J3e Open-ended
J11	Question J4 (1) Traditional Doctor (2) Medical Doctor (3) Self-medication
K1	Question K1a Open-ended
K2	Question K1b Open-ended
K3	Question K2a (Y) Yes (N) No
K4	Question K2b (1) Very helpful (2) Helpful (3) Moderately helpful
K5	Question K2c Open-ended
L1	Question L1a (Y) Yes (N) No
L2	Question L1b Open-ended
L3	Question L1c Open-ended

L4	Question L2 (1) Chairman of the Board (2) Board of Directors (3) Feneral Assembly (4) PNOC Staff
L5	Question L3 (1) Equitable distribution (Payment based on work done (2) Daily basis (regardless of performance) (3) Equally among members
L6	Question L4a (Y) Yes (N) No
L7	Question L4b Open-ended
L8	Question L5 (1) Group or Communal Farming (2) Individual Farming

APPENDIX 14

CROP YIELD DATA
(per hectare)

YEAR	Coffee (Kg)	Cacao (Kg)	B. pepper (Kg)	Rattan (Poles)	Abaca (Kg)
Year 1					
Year 2					560
Year 3	471		97.50		1679
Year 4	785	374	243.75		2238
Year 5	1099	561	414.38		2238
Year 6	1413	998	731.25		2238
Year 7	2516	1247	731.25		2238
Year 8	2516	2245	731.25		2238
Year 9	2516	2245	731.25	3000	2238
Year 10	1516	2245	731.25		2238
Year 13				6000	
Year 17				5000	
Year 22				6100	

Sources: Bureau of Agricultural Statistics (BAS)
Bureau of Plant Industry (BPI) Forest Management Bureau (FMB)
Fiber Industry Development Authority (FIDA)

APPENDIX 15

CROP PRICES DATA

A. Prices of Dried Coffee Beans

YEAR	FARM PRICE (P/kg)			Growth Rate (%)
	High	Low	Average	
1979	20.0	14.4	16.7	
1980	20.2	14.7	18.2	9.2
1981	13.8	10.1	13.0	-28.4
1982	12.9	10.8	11.9	- 8.5
1983	19.7	6.8	17.1	43.7
1984	22.0	14.6	29.5	72.0
1985	20.8	13.2	34.7	17.8
1986	27.5	18.7	34.2	- 1.5
1987	21.9	13.3	27.5	-19.5
1988	10.4	16.5	27.5	0.0
1989			21.3	-22.5
Average				6.23

Sources: "Coffee Industry Profile", Agribusiness Investment Service, Department of Agriculture.

B. Prices of Dried Cacao Beans (Peso/kg)

YEAR	PRICE	GROWTH RATE
1984	22.00	
1985	25.41	15.50
1986	31.44	23.73
1987	36.65	16.57
1988	31.63	-13.69
1989	21.16	-33.10
Average		1.80

Source: Bureau of Agricultural Statistics, Department of Agriculture (BAS-DA)

C. Retail Price of Black Pepper (Peso/kg)

MONTH	1988	1989	1990	AVERAGE
Jan		153.31	158.00	
Feb		162.13	163.00	
Mar		162.90	165.00	
Apr	142.75	191.45	188.00	
May	145.74	149.06	149.00	
Jun	159.49	185.00		
Jul	144.48	150.00		
Aug	147.78	175.00		
Sep	151.55	156.00		
Oct	149.49	150.53		
Nov	145.45	166.00		
Dec	156.13	182.00		
Average	149.21	165.28	164.84	
Growth Rate		10.77	- 0.39	5.19

Source: Bureau of Agricultural Statistics, Department of Agriculture (BAS-DA)

D. Rattan Prices

YEAR	WHOLESALE	
	Peso/thousand Poles	Growth Rate (%)
1984	6500	
1985	6500	0.00
1986	6808	4.74
1987	7000	2.82
1988	7194	0.77
1989	7259	0.90
Average		2.25

Source: Forest Management Bureau (FMB)

E. Prices of Ungraded Abaca at the Trader's Level

YEAR	PRICE (P/Kg)	GROWTH RATE (%)
1984	9.97	
1985	6.06	-39.22
1986	5.11	-15.68
1987	6.24	22.11
1988	9.34	49.68
1989	9.60	2.78
Average	7.72	3.29

Source: Statistical Bulletin for the Fiber Industry, 1990 Edition

APPENDIX 16

Financial Analysis for Baslay Agroforestry Project
Covering the Period 1990-1999

Parameters

Discount rate	.10	Annual price increases	
Number of farmers-participants	148	Coffee	.062
Number of households	59	Cacao	.018
		Black pepper	.052

COSTS/BENEFITS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Costs:										
Coffee										
Materials (Year 1)	32	14	14	24	28	32	32	32	32	32
Materials (Year 2)		26	11	11	19	22	25	25	25	25
Materials (Year 3)			22	9	9	17	19	22	22	22
Materials (Year 4)				156	65	65	116	133	151	153
Materials (Year 5)					135	56	57	100	116	131
Sub-total	32	39	47	200	256	192	248	312	346	363
Labour (Year 1)	33	19	18	29	33	35	41	41	35	35
Labour (Year 2)		26	15	14	23	26	27	32	32	28
Labour (Year 3)			23	13	13	20	23	24	28	28
Labour (Year 4)				158	90	87	137	160	166	195
Labour (Year 5)					137	78	76	119	139	144
Sub-total	33	45	56	214	296	246	304	376	400	431
Cacao										
Materials (Year 1)	0	0	0	0	0	0	0	0	0	0
Materials (Year 2)		0	0	0	0	0	0	0	0	0
Materials (Year 3)			7	2	2	3	4	5	6	7
Materials (Year 4)				0	0	0	0	0	0	0
Materials (Year 5)					0	0	0	0	0	0
Sub-total	0	0	7	2	2	3	4	5	6	7

APPENDIX 16: Continued .....

COSTS/BENEFITS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Cacao										
Labour (Year 1)	0	0	0	0	0	0	0	0	0	0
Labour (Year 2)		0	0	0	0	0	0	0	0	0
Labour (Year 3)			6	4	5	6	6	6	8	8
Labour (Year 4)				0	0	0	0	0	0	0
Labour (Year 5)					0	0	0	0	0	0
Sub-total	0	0	6	4	5	6	6	6	8	8
Black pepper										
Materials (Year 1)	51	12	13	13	13	13	13	13	13	13
Materials (Year 2)		16	4	4	4	4	4	4	4	4
Materials (Year 3)			130	31	34	34	34	34	34	34
Materials (Year 4)				632	151	165	166	168	168	168
Materials (Year 5)					663	159	173	174	176	176
Sub-total	51	28	146	680	866	375	391	394	396	396
Labour (Year 1)	19	7	14	14	14	14	14	14	14	14
Labour (Year 2)		6	2	4	4	4	4	4	4	4
Labour (Year 3)			48	18	35	35	35	35	35	35
Labour (Year 4)				235	89	172	172	172	172	172
Labour (Year 5)					247	93	180	180	180	180
Sub-total	19	13	64	272	389	318	405	405	405	405
Total Cost	647	660	743	1255	1511	1328	1531	1668	1729	1776
Benefits (Returns from harvest)										
Coffee										
1st Year Plantation	0	0	56	93	131	168	299	299	299	299
2nd Year Plantation		0	0	44	74	103	132	236	236	236
3rd Year Plantation			0	0	39	65	90	116	207	207
4th Year Plantation				0	0	268	447	626	805	1430
5th Year Plantation					0	0	233	388	543	698
Sub-total+annual inc.	0	0	67	175	328	866	1830	2692	3589	5236

APPENDIX 16: Continued .....

COSTS/BENEFITS	Y E A R									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Cacao										
1st Year Plantation	0	0	0	0	0	0	0	0	0	0
2nd Year Plantation		0	0	0	0	0	0	0	0	0
3rd Year Plantation			0	0	0	10	16	28	35	63
4th Year Plantation				0	0	0	10	0	0	0
5th Year Plantation					0	0	0	0	0	0
Sub-total+annual inc.	0	0	0	0	0	12	30	32	41	75
Black pepper										
1st Year Plantation	0	0	25	62	106	187	187	187	187	187
2nd Year Plantation		0	0	8	20	33	59	59	59	59
3rd Year Plantation			0	0	64	160	272	480	480	480
4th Year Plantation				0	0	312	780	1326	2340	2340
5th Year Plantation					0	0	328	819	1392	2457
Sub-total+annual inc.	0	0	29	86	244	938	2317	4306	7035	9168
Total Returns	0	0	130	187	345	1816	4177	7031	10664	14479
Net Returns	-647	-660	-613	-1068	-1166	488	2646	5363	8936	12704
Net Present Value	10752									

ANALYSIS OF FARMERS-PARTICIPANTS' CASHFLOW

Net Returns from Labour	52	58	126	490	690					
Net Returns from Labour	.351	.391	.854	3.311	4.659					
Net Returns per Household	.880	.980	2.143	8.305	11.688					
Participants' Total Labour Input						570	715	787	813	844
Labour Input per Participant						3.853	4.834	5.321	5.495	5.701
Labour Input per Household						9.664	12.127	13.347	13.784	14.300

Note: Figures in thousand pesos

APPENDIX 17

Financial Analysis for Bediao Agroforestry Project
Covering the Period 1990-1999

Parameters

Discount rate	.10	Annual price increase	
Number of farmers-participants	75	Coffee	.062
Number of households	37	Caoao	.018
		Black pepper	.052

COSTS/BENEFITS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Costs:										
Coffee										
Materials (Year 1)	9	4	4	6	7	9	9	9	9	9
Materials (Year 2)		23	10	10	17	20	22	23	23	23
Materials (Year 3)			6	2	2	4	5	5	6	6
Materials (Year 4)				36	15	15	26	31	35	35
Materials (Year 5)					0	0	0	0	0	0
Sub-total	9	27	19	54	42	47	62	67	71	72
Labour (Year 1)	9	5	5	8	9	9	11	11	9	9
Labour (Year 2)		24	13	13	20	24	25	29	29	25
Labour (Year 3)			6	3	3	5	6	6	7	7
Labour (Year 4)				36	21	20	31	37	38	45
Labour (Year 5)					0	0	0	0	0	0
Sub-total	9	29	24	60	53	58	73	83	84	86
Cacao										
Materials (Year 1)	27	10	10	13	17	20	25	25	24	24
Materials (Year 2)		8	3	3	4	5	6	8	8	7
Materials (Year 3)			22	8	8	11	14	17	20	21
Materials (Year 4)				12	4	4	6	8	9	11
Materials (Year 5)					0	0	0	0	0	0
Sub-total	27	18	35	37	34	41	51	57	61	64

APPENDIX 17: Continued .....

COSTS/BENEFITS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Cacao										
Labour (Year 1)	25	16	18	23	24	25	29	29	29	29
Labour (Year 2)		8	5	5	7	7	8	9	9	9
Labour (Year 3)			20	13	15	19	20	21	24	24
Labour (Year 4)				11	7	8	11	11	12	14
Labour (Year 5)					0	0	0	0	0	0
Sub-total	25	23	43	53	53	60	67	70	74	76
Black pepper										
Materials (Year 1)	60	14	16	16	16	16	16	16	16	16
Materials (Year 2)		0	0	0	0	0	0	0	0	0
Materials (Year 3)			76	18	20	20	20	20	20	20
Materials (Year 4)				177	42	46	46	47	47	47
Materials (Year 5)					120	29	31	32	32	32
Sub-total	60	14	91	211	198	111	114	115	115	115
Labour (Year 1)	22	8	16	16	16	16	16	16	16	14
Labour (Year 2)		0	0	0	0	0	0	0	0	4
Labour (Year 3)			28	11	21	21	21	21	21	35
Labour (Year 4)				66	25	48	48	48	48	48
Labour (Year 5)					45	17	33	33	33	33
Sub-total	22	8	45	93	107	102	118	118	118	134
Total Cost	655	668	728	860	851	871	934	958	971	995
Benefits (Returns from harvest)										
Coffee										
1st Year Plantation	0	0	15	25	35	45	80	80	80	80
2nd Year Plantation		0	0	40	66	93	120	213	213	213
3rd Year Plantation			0	0	10	16	23	29	52	52
4th Year Plantation				0	0	61	102	143	184	327
5th Year Plantation					0	0	0	0	0	0
Sub-total	0	0	18	83	151	310	496	755	911	1230

APPENDIX 17: Continued .....

COSTS/BENEFITS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Cacao										
1st Year Plantation	0	0	0	41	61	109	136	246	246	246
2nd Year Plantation		0	0	0	13	19	34	42	76	76
3rd Year Plantation			0	0	0	34	50	90	112	202
4th Year Plantation				0	0	0	19	28	50	63
5th Year Plantation					0	0	0	0	0	0
Sub-total	0	0	0	44	81	180	271	468	568	700
Black pepper										
1st Year Plantation	0	0	30	74	126	222	222	222	222	222
2nd Year Plantation		0	0	0	0	0	0	0	0	0
3rd Year Plantation			0	0	37	94	159	281	281	281
4th Year Plantation				0	0	87	218	371	655	655
5th Year Plantation					0	0	59	148	252	445
Sub-total	0	0	34	91	210	546	939	1533	2224	2659
Total Returns	0	0	53	217	442	1036	1706	2755	3702	4589
Net Returns	-655	-668	-675	-642	-409	165	772	1797	2731	3594
Net Present Value	1677									

ANALYSIS OF FARMERS-PARTICIPANTS' CASHFLOW

Net Returns from Labour	56	60	111	206	213					
Net Returns from Labour	.748	.805	1.486	2.747	2.834					
Net Returns per Household	1.515	1.632	3.013	5.568	5.745					
Participants' Total Labour Input						220	258	270	275	296
Labour Input per Participant						2.929	3.440	3.604	3.672	3.951
Labour Input per Household						5.938	6.972	7.306	7.443	8.009

Note: Figures in thousand pesos

APPENDIX 18

Financial Analysis for Tongonan Rattan Plantation Project
Covering the Period 1990-1999

Parameters

Discount rate	.10
Number of farmers-participants	147
Number of households	80
Average annual rattan price increase (Based on 1989 Data)	.023

COSTS/BENEFITS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Costs:										
Rattan										
Materials (Year 1)	1541	1460								
Materials (Year 2)		1233	1168							
Materials (Year 3)			1233	1168						
Materials (Year 4)				1233	1168					
Materials (Year 5)					1233	1168				
Sub-total	1541	2692	2400	2400	2400	1168	0	0	0	0
Labour (Year 1)	1289	486	342	0	221	0	221	0	486	0
Labour (Year 2)		1032	389	273	0	177	0	177	0	177
Labour (Year 3)			1032	389	273	0	177	0	177	0
Labour (Year 4)				1032	389	273	0	177	0	177
Labour (Year 5)					1032	389	273	0	177	0
Sub-total	1289	1518	1762	1694	1915	839	671	354	840	354
Total Cost	2830	4210	4162	4094	4315	2007	671	354	840	354
Benefits (Returns from Rattan Harvest)										
1st Year Plantation									3142	
2nd Year Plantation										2570
3rd Year Plantation										
4th Year Plantation										
5th Year Plantation										
Total Returns	0	0	0	0	0	0	0	0	3142	2570
Net Returns	-2830	-4210	-4162	-4094	-4315	-2007	-671	-354	2302	2217

APPENDIX 18: Continued .....

COSTS/BENEFITS	Y E A R									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Costs:										
Rattan										
Materials (Year 1)										
Materials (Year 2)										
Materials (Year 3)										
Materials (Year 4)										
Materials (Year 5)										
Sub-total	0	0	0	0	0	0	0	0	0	0
Labour (Year 1)		265				265				
Labour (Year 2)			212				212			
Labour (Year 3)				212				212		
Labour (Year 4)	177				212				212	
Labour (Year 5)	0	177				212				212
Sub-total	177	442	212	212	212	477	212	212	212	212
Total Cost	177	442	212	212	212	477	212	212	212	212
Benefits (Returns from Rattan Harvest)										
1st Year Plantation		6869				6257				
2nd Year Plantation			5619				5118			
3rd Year Plantation				5746				5234		
4th Year Plantation	2687				5875				5351	
5th Year Plantation		2748				6007				5472
Total Returns	2687	9617	5619	5746	5875	12264	5118	5234	5351	5472
Net Returns	2510	9175	5407	5534	5663	11787	4906	5022	5139	5260
Net Present Value	329									

APPENDIX 18: Continued .....

ANALYSIS OF FARMERS-PARTICIPANTS' CASHFLOW

PARTICULARS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Net Returns from Labour	1789	1518	1762	1694	1915					
Returns from Labour per Participant	8.77	10.33	11.99	11.52	13.03					
Net Returns per Household	16.12	18.97	22.03	21.17	23.94					
Participants' Total Labour Input						839	671	354	840	354
Labour input per Participant						5.71	4.57	2.41	5.71	2.41
Labour input per Household						10.49	8.39	4.42	10.50	4.42

ANALYSIS OF FARMERS-PARTICIPANTS' CASHFLOW

PARTICULARS	YEAR									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Net Returns from Labour										
Returns from Labour per Participant										
Net Returns per Household										
Participants' Total Labour Input	177	442	212	212	212	477	212	212	212	212
Labour input per Participant	1.20	3.01	1.44	1.44	1.44	3.24	1.44	1.44	1.44	1.44
Labour input per Household	2.21	5.52	2.65	2.65	2.65	5.96	2.65	2.65	2.65	2.65

Note: Figures in thousand pesos

APPENDIX 19

Financial Analysis for Azupre Agroforestry Project
Covering the Period 1990-1999

Parameters

Discount rate	.10	Annual increase in abaca prices	.033
Number of farmers-participants	34	Area of plantation	3.5
Number of households	18		
1993 price of abaca (P/kg)	15		

COSTS/BENEFITS	YEAR									
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Abaca										
Total Material Cost	27	16	24	24	24	24	24	24	24	24
Total Labour Cost	42	55	50	50	50	50	50	50	50	50
Total Cost	69	71	74	74	74	74	74	74	74	74
Benefits (Returns from harvest)										
Abaca price (P/kg)	9.9	10.2	10.6	15	15.5	16.0	16.5	17.1	17.6	18.2
Annual yield (Kg/ha)	0	1350	1800	1800	1800	1800	1800	1800	1800	1800
Total yield (kg)	0	4725	6300	6300	6300	6300	6300	6300	6300	6300
Gross Returns (In thousand pesos)	0	48	67	95	98	101	104	108	111	115
Net Returns	-69	-22	-7	21	24	27	30	34	37	41
Net Present Value	25									

Note: 1990, 1991 and 1992 abaca prices were based on Statistical Bulletin for the Fiber Industry, 1990 Edition

1993 to 1999 prices were based on the 1993 prices plus the annual compounded increase.

APPENDIX 20

Economic Analysis for Baslay Agroforestry Project
(Without Project Situation)
Covering the Period 1984 to 1988

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Kaingin-making		
Households engaged	number	57
Mean annual income	pesos	723
Mean area of kaingin	hectare	.65
Mean volume of trees damaged per hectare	cu.m.	694
Mean incidence per year	no.	11.40
c) Farming of private land		
Households engaged	no.	57
Mean annual income	pesos	2389
d) Livestocks production		
Households engaged	no.	51
Mean annual income	pesos	4863
e) Other income sources		
Households engaged	no.	20
Mean annual income	pesos	1775
f) Mean annual household farm labor	man-days	300
g) Number of households	no.	59
h) Daily minimum wage	pesos/man-day	79
i) Firewood price per cu.m.	pesos	424

BENEFITS/COSTS	1984	1985	1986	1987	1988
Benefits:					
Kaingin-making	41211	41211	41211	41211	41211
Farming (private lot)	136173	136173	136173	136173	136173
Livestock production	248013	248013	248013	248013	248013
Other sources	35500	35500	35500	35500	35500
Total Benefits	460897	460897	460897	460897	460897
Costs:					
Trees damaged during kaingin-making	2181097	2181097	2181097	2181097	2181097
Trees damaged during illegal logging	0	0	0	0	0
Farm labor	1398300	1398300	1398300	1398300	1398300
Total Cost	3579397	3579397	3579397	3579397	3579397
Net Benefit/Cost	-3118500	-3118500	-3118500	-3118500	-3118500
NPV	-13003724				

APPENDIX 21

Economic Analysis for Bediao Agroforestry Project
(Without Project Situation)
Covering the Period 1984 to 1988

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Kaingin-making		
Households engaged	number	24
Mean annual income	pesos	1001
Mean area of kaingin	hectare	.47
Mean volume of trees damaged per hectare	cu.m.	694
Mean incidence per year	no.	3.40
c) Farming of private land		
Households engaged	no.	20
Mean annual income	pesos	1296
d) Livestocks production		
Households engaged	no.	23
Mean annual income	pesos	4142
e) Other income sources		
Households engaged	no.	15
Mean annual income	pesos	985
f) Mean annual household farm labor	man-days	300
g) Number of households	no.	24
h) Daily minimum wage	pesos/man-day	79
i) Firewood price per cu.m.	pesos	424

BENEFITS/COSTS	1984	1985	1986	1987	1988
Benefits:					
Kaingin-making	24024	24024	24024	24024	24024
Farming (private lot)	25920	25920	25920	25920	25920
Livestock production	95266	95266	95266	95266	95266
Other sources	14775	14775	14775	14775	14775
Total Benefits	159985	159985	159985	159985	159985
Costs:					
Trees damaged during kaingin-making	470952	470952	470952	470952	470952
Trees damaged during illegal logging	0	0	0	0	0
Farm labor	568800	568800	568800	568800	568800
Total Costs	1039752	1039752	1039752	1039752	1039752
Net Benefit/Cost	-879767	-879767	-879767	-879767	-879767
Net Present Value	-3668510				

APPENDIX 22

Economic Analysis for Tongonan Rattan Plantation Project
(Without Project Situation)
Covering the Period 1984 to 1988

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Kaingin-making		
Households engaged	number	30
Mean annual income	pesos	18227
Mean area of kaingin	hectare	1.97
Mean volume of trees damaged per hectare	bd.ft.	30528
Mean incidence per year	no.	1.60
c) Farming of private land		
Households engaged	no.	18
Mean annual income	pesos	16238
d) Livestocks production		
Households engaged	no.	15
Mean annual income	pesos	4647
e) Other income sources		
Households engaged	no.	6
Mean annual income	pesos	9792
f) Mean annual household farm labor	man-days	154
g) Number of households	no.	80
h) Daily minimum wage	pesos/man-day	79
i) Lumber price per bd.ft.	pesos	13

BENEFITS/COSTS	1984	1985	1986	1987	1988
Benefits:					
Kaingin-making	546810	546810	546810	546810	546810
Farming (private lot)	292284	292284	292284	292284	292284
Livestock production	69705	69705	69705	69705	69705
Other sources	58752	58752	58752	58752	58752
Total Benefits	967551	967551	967551	967551	967551
Costs:					
Trees damaged during kaingin-making	1250122	1250122	1250122	1250122	1250122
Trees damaged during illegal logging	0	0	0	0	0
Farm labor	973280	973280	973280	973280	973280
Total Costs	2223402	2223402	2223402	2223402	2223402
Net Benefit/Cost	-1255851	-1255851	-1255851	-1255851	-1255851
Net Present Value	-5236728				

APPENDIX 23

Economic Analysis for Azupre Agroforestry Project
(Without Project Situation)
Covering the Period 1984 to 1988

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Illegal logging		
Mean volume of trees damaged per year	bd.ft.	1977
Mean incidence per year	no.	7.40
c) Farming of private land		
Households engaged	no.	13
Mean annual income	pesos	9489
d) Livestocks production		
Households engaged	no.	4
Mean annual income	pesos	672
e) Other income sources		
Households engaged	no.	9
Mean annual income	pesos	4655
f) Mean annual household farm labor	man-days	198
g) Number of households	no.	18
h) Daily minimum wage	pesos/man-day	79
i) Lumber price per bd.ft.	pesos	13

BENEFITS/COSTS	1984	1985	1986	1987	1988
Benefits:					
Illegal logging	114112	114112	114112	114112	114112
Farming (private lot)	123357	123357	123357	123357	123357
Livestock production	2688	2688	2688	2688	2688
Other sources	41895	41895	41895	41895	41895
Total Benefits	282052	282052	282052	282052	282052
Costs:					
Trees damaged during illegal logging	14630	14630	14630	14630	14630
Farm labor	281556	281556	281556	281556	281556
Total Costs	296186	296186	296186	296186	296186
Net Benefit/Cost	-14133	-14133	-14133	-14133	-14133
NPV	-58934				

APPENDIX 24

Economic Analysis for Baslay Agroforestry Project
(With Project Situation)
Covering the Period 1989-1993

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Mean annual household income from the project	pesos	13892
c) Kaingin-making		
Households engaged	number	57
Mean annual income	pesos	723
Mean area of kaingin	hectares	.65
Mean incidence per year (without projet)	no.	11.40
Mean area cleared per year (without projet)	hectares	7.41
Mean incidence per year (with projet)	no.	.20
Total area cleared in 1990 (with projet)	hectares	.65
Mean volume of trees damaged per hectare	cu.m.	694
d) Farming of private land		
Households engaged	no.	56
Mean annual income	pesos	2206
e) Livestocks production		
Households engaged	no.	44
Mean annual income	pesos	5611
f) Other income sources		
Households engaged	no.	12
Mean annual income	pesos	1897
g) Mean annual household farm labor	man-days	300
h) Number of households	no.	59
i) Daily minimum wage	pesos/man-day	79
j) Firewood price per cu.m.	pesos	424

APPENDIX 24: Continued .....

BENEFITS/COSTS	YEAR				
	1989	1990	1991	1992	1993
Benefits:					
Income from project (wages/compensation)	819628	819628	819628	819628	819628
Income from plantation crops/harvests	2500	4125	6025	8800	12848
Kaingin-making	41211	41211	41211	41211	41211
Farming (private lot)	123562	123562	123562	123562	123562
Livestock production	246903	246903	246903	246903	246903
Other sources	22760	22760	22760	22760	22760
Income from cooperative consumer store	30000	30000	30000	30000	30000
Value of trees saved from kaingin-making	2181097	1989772	2181097	2181097	2181097
Total Benefits	3467661	3277961	3471186	3473961	3478009
Costs:					
Capital/fixed costs (Infrastructures, vehicle, computer, television, video, electric generator)	371000	445000	30000	0	0
Direct project costs (labor, planting materials, fertilizer, other farm inputs)	79426	997889	1129600	1269600	1205600
Operational expenses	132080	178959	222567	736373	805974
Project staff salary	116121	133539	153570	176606	203096
Staff training	0	0	53333	53333	53333
Project review consultant	37500	37500	37500	50000	50000
Trees damaged during kaingin-making	0	191324	0	0	0
Farmers labor input in their own farms	1398300	1398300	1398300	1398300	1398300
Total Costs	2134427	3382511	3024870	3684212	3716304
Net Benefit/Cost	1333234	-104550	446315	-210251	-238295
Net Present Value	1286320				

APPENDIX 25

Economic Analysis for Bediao Agrofrestry Project
(With Project Situation)
Covering the Period 1989 to 1993)

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Mean annual household income from the project	pesos	11064
c) Kaingin-making		
Households engaged	number	13
Mean annual income	pesos	941
Mean area of kaingin	hectares	.47
Mean incidence per year (without projet)	no.	3.40
Mean area cleared per year (without projet)	hectares	1.60
Mean incidence per year (with projet)	no.	.40
Mean area cleared per year (with projet)	hectares	.19
Mean volume of trees damaged per hectare	cu.m.	694
d) Farming of private land		
Households engaged	no.	19
Mean annual income	pesos	1270
e) Livestocks production		
Households engaged	no.	19
Mean annual income	pesos	5537
f) Other income sources		
Households engaged	no.	11
Mean annual income	pesos	1186
g) Mean annual household farm labor	man-days	300
h) Number of households	no.	24
i) Daily minimum wage	pesos/md	79
j) Firewood price per cu.m.	pesos	424

APPENDIX 25: Continued .....

BENEFITS/COSTS	Y E A R				
	1989	1990	1991	1992	1993
Benefits:					
Income from project (wages/compensation)	265536	265536	265536	265536	265536
Income from plantation crops/harvests	0	0	0	0	0
Kaingin-making	12233	12233	12233	12233	12233
Farming (private lot)	24134	24134	24134	24134	24134
Livestock production	105195	105195	105195	105195	105195
Other sources	13046	13046	13046	13046	13046
Income from cooperative consumer store					
Value of trees saved from kaingin-making	415027	415027	415027	415027	415027
Total Benefits	835171	835171	835171	835171	835171
Costs:					
Capital/fixed expenses	0	0	0	0	60000
Direct project costs (labor, planting materials, fertilizer, other farm inputs)	52951	511908	380000	472800	485600
Operational expenses	90060	122024	151759	502341	549822
Project staff salary	79225	91109	104775	120491	138565
Staff training	0	0	40000	53333	53333
Project review consultant	37500	37500	37500	50000	50000
Trees damaged during kaingin-making	55406	55406	55406	55406	55406
Farmers labor input in their own farms	568800	568800	568800	568800	568800
Total Costs	883942	1386747	1338240	1823172	1961526
Net Benefit/Cost	-48772	-551576	-503070	-988001	-1126356
Net Present Value	-2477581				

APPENDIX 26

Economic Analysis for Tongonan Rattan
Plantation Project (With Project Situation)
Covering the Period 1989 -1993

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Mean annual household income from the project	pesos	13116
c) Kaingin-making		
Households engaged	number	25
Mean annual income	pesos	13408
Mean area of kaingin	hectares	1.97
Mean incidence per year (without projet)	no.	1.60
Mean area cleared per year (without projet)	hectares	3.15
Mean incidence per year (with projet)	no.	1.50
Mean area cleared per year (with projet)	hectares	2.69
Mean volume of trees damaged per hectare	bd.ft.	30528
d) Farming of private land		
Households engaged	no.	16
Mean annual income	pesos	9963
e) Livestocks production		
Households engaged	no.	15
Mean annual income	pesos	4547
f) Other income sources		
Households engaged	no.	4
Mean annual income	pesos	11050
g) Mean annual household farm labor	man-days	154
h) Number of households	no.	80
i) Daily minimum wage	pesos/md	79
j) Lumber price per bd.ft.	pesos	13

PPENDIX 26: Continued .....

ENEFITS/COSTS	Y E A R				
	1989	1990	1991	1992	1993
enefits:					
ncome from project wages/compensation)	1049280	1049280	1049280	1049280	1049280
ncome from plantation crops/harvests	0	0	0	0	0
aingin-making	335200	335200	335200	335200	335200
arming (private lot)	159400	159400	159400	159400	159400
ivestock production	68200	68200	68200	68200	68200
ther sources	44200	44200	44200	44200	44200
ncome from cooperative consumer store	138296	138296	138296	138296	138296
alue of trees saved from kaingin-making	1249247	1249247	1249247	1249247	1249247
otal Benefits	3043823	3043823	3043823	3043823	3043823
osts:					
apital/fixed expenses	482000	0	0	0	0
irect project costs (labor, planting materials, fertilizer, other farm inputs)	112968	927262	1630400	1301600	1301600
perational expenses	201743	273346	339954	1125244	1231600
roject staff salary	177441	204057	234666	269866	310345
taff training	0	0	40000	53333	53333
roject review consultant	37500	37500	37500	50000	50000
rees damaged during kaingin-making	1172733	1172733	1172733	1172733	1172733
armers labor input in their own farms	973280	973280	973280	973280	973280
Total Costs	3157665	3588198	4428533	4946056	5092892
Net Benefit/Cost	-113842	-544375	-1384710	-1902233	-2049069
Net Present Value	-4581833				

APPENDIX 27

Economic Analysis for Azubre Agroforestry Project
(With Project Situation)
Covering the Period 1989 to 1993

Parameters	Unit of Measure	Values
a) Discount rate	percent	.10
b) Mean annual household income from the project	pesos	4246
c) Farming of private land		
Households engaged	no.	15
Mean annual income	pesos	12509
d) Livestocks production		
Households engaged	no.	4
Mean annual income	pesos	8430
e) Other income sources		
Households engaged	no.	13
Mean annual income	pesos	7158
f) Mean household farm labor per year	man-days	198
g) Illegal logging		
Mean volume of trees damaged per year (without project)	bd.ft.	1977
Mean incidence per year (without project)	no.	7.40
Mean volume of trees damaged per year (with project)	bd.ft.	791
Mean incidence per year (with project)	no.	1.60
h) Number of households	no.	18
i) Daily minimum wage	pesos/man-day	79
j) Lumber price per bd.ft.	pesos	13

APPENDIX 27: Continued .....

BENEFITS/COSTS	Y E A R				
	1989	1990	1991	1992	1993
Benefits:					
Income from project (wages/compensation)	76428	76428	76428	76428	76428
Income from plantation crops (abaca)	0	0	0	0	122500
Farming (private lot)	187634	187634	187634	187634	187634
Livestock production	33720	33720	33720	33720	33720
Other sources	93056	93056	93056	93056	93056
Income from cooperative consumer store	24224	24224	24224	24224	24224
Income from Guiron sale	0	0	0	7079	7079
Income from savings and loan project	0	0	0	270	270
Value of trees saved from illegal logging	173735	173735	173735	173735	173735
Total Benefits	588797	588797	588797	596146	718646
Costs:					
Capital/fixed expenses	0	0	0	0	0
Direct project costs (labor, planting materials, fertilizer, other farm inputs)	88783	195527	195527	0	0
Operational expenses	133418	180771	224821	0	0
Project staff salary	117361	134965	155210	77605	85366
Staff training	0	0	0	0	0
Project review consultant	37500	37500	37500	0	0
Farmers labor input in the plantation	0	0	0	139672	139672
Farmers labor input in their own farms	281556	281556	281556	281556	281556
Value of trees damaged by illegal logging	23034	23034	23034	23034	23034
Total Costs	658618	830319	894614	498833	506594
Net Benefit/Cost	-69821	-241523	-305817	97313	212052
Net Present Value	-324182				

APPENDIX 28

DRAFT MEMORANDUM OF AGREEMENT BETWEEN THE PHILIPPINE NATIONAL OIL COMPANY AND NEW ZEALAND GOVERNMENT ON THE JOINT IMPLEMENTATION OF THE NEW ZEALAND - PNOC SOCIAL FORESTRY PROJECT

KNOW ALL MEN BY THESE PRESENTS:

This Memorandum of Agreement entered into this ___ day of _____ 19__ at Makati, Metro Manila, Philippines, by and between:

The New Zealand Government through the New Zealand Embassy in the Philippines with postal address at Gammon Centre, 126 Alfaro Street, Salcedo Village, Makati, Metro Manila, hereinafter represented by its Ambassador, _____ and hereinafter referred to as DONOR;

and

The Philippine National Oil Company, with postal address at PNOC Building, 7901 Makati Avenue, Makati, Metro Manila, hereinafter represented by its President, _____ and hereinafter referred to as PNOC.

W I T N E S S E T H :

WHEREAS, under the Presidential Decree No. 1515 as amended by Presidential Decree No. 1749 in conjunction with Executive order No. 223, PNOC is mandated with the conservation, management and development of watershed areas and reservations supporting energy projects;

WHEREAS, watershed areas are critical and essential to the operations and life span of water-based energy projects;

WHEREAS, as part of bilateral aid programme between New Zealand and Philippine governments, the DONOR has committed to support the implementation of the New Zealand - PNOC Social Forestry Project by granting financial and technical assistance;

WHEREAS, PNOC has committed to allocate a counterpart financial and technical assistance to the social forestry project;

NOW, THEREFORE, for and in consideration of the foregoing premises and the mutual covenants hereinafter set forth, the parties hereby agree to the following:

ARTICLE I
DUTIES AND RESPONSIBILITIES

A. DONOR shall have the following duties and responsibilities over the project:

1. Provision of financial assistance to the project for a period of five years to support the following:

   a. Establishment and maintenance costs of the project particularly labor and direct inputs such as planting materials, fertilizers, fungicides, pesticides and other agricultural chemicals;

   b. Social development and technical crop production consultancy costs such as professional fees and travel expenses of consultants to the different project areas;

   c. Expenses during training of project beneficiaries including travel expenses and food provision;

   d. Provision of a vehicle for each project location; and

   e. Cost of project equipments such as computer and nursery and plantation tools.

2. Semi-annual release of project funds to PNOC specifically during the month of June and December of every year;

3. Provisions for study tours and advance studies in Forestry in New Zealand and/or within the region for PNOC Environmental Management Division staff;

4. Conduct of annual review and evaluation of the project.

B. PNOC shall have the following duties and responsibilities:

1. Provision of counterpart fund to the project including the following:

a. Administrative costs of the project such as salary and other benefits of PNOC personnel involved in the project, delivery and hauling costs, communication, office supplies and other materials;

b. Travel expenses of PNOC personnel during field visits to the project areas;

c. Cost of road maintenance and repair; and

d. Maintenance cost, spare parts, fuel, lubricants, tires, batteries and other accessories of the New Zealand-donated vehicles.

2. Submission of semi-annual project technical and financial update to the DONOR during the months of June and December of each year;

3. Submission of project budget request to the DONOR during the months of June and December of each year;

4. Assurance of timely release of payment for labor services to the project beneficiaries;

5. Implementation and monitoring of the project; and

6. Preparation of tenure paper requirements and coordination with the Department of Environment and Natural Resources (DENR) regarding the processing and issuance of lease agreement to the beneficiary associations.

ARTICLE II
AREAS OF COOPERATION

DONOR AND PNOC shall have the following joint undertaking over the project:

1. PNOC and DONOR shall explore all means for the smooth and successful implementation of the project and shall be guided by the revised management plan; and

2. PNOC shall inform and/or consult the DONOR regarding critical revision of plans during the course of project implementation and shall jointly conduct the formulation of the revised plan as necessary.

ARTICLE III
EFFECTIVITY

This MEMORANDUM OF AGREEMENT shall take effect immediately upon execution and shall remain in force until mutually revoked by both parties.

IN WITNESS WHEREOF, the parties have hereunto affixed their signatures this ___ day of _____ 19__ at Makati, Metro Manila, Philippines.

_____	_____
Ambassador New Zealand Embassy	President Philippine National Oil Company

SIGNED IN THE PRESENCE OF:

_____	_____
First Secretary New Zealand Embassy	Vice-President PNOC-Energy Development Corporation
_____	_____
Programme Officer New Zealand Embassy	Manager PNOC-Environmental Management Division

APPENDIX 29

WAIVER OF PNOC'S ACCOUNTING PROCEDURES

MINUTES OF MEETING BETWEEN EMD AND ACCOUNTING DEPARTMENT REGARDING ACCOUNTING PROCEDURES FOR PROJECTS FUNDED BY NEW ZEALAND GOVERNMENT, DENR/ADB AND OTHER AGENCIES
Fort Bonifacio, Makati, Metro Manila
September 7, 1990

ATTENDEES:

ACCOUNTING DEPARTMENT	EMD
E. O. Losloso	A. C. de Jesus
F. A. Gesite	J. B. Sobrevinas
J. M. Eijansantos	M. L. Gecolea

The meeting was called by the Environmental management Division as advised by Audit Manager, E. G. Maxino to identify means to hasten the processing of accounting documents of the New Zealand-funded Social Forestry Project, DENR/ADB-funded Reforestation project and other future projects to be funded by other agencies.

HIGHLIGHTS OF THE MEETING:

A. Implementation of NZ-PNOC Social Forestry Project's waiver on company's accounting policies and guidelines

It was agreed that all project sites shall follow a standard procedure as regards to the provisions of the accounting guidelines dates January 19, 1990 (Annex I) to address specifically the difference in interpretation of the provisions by administrative and accounting groups in the respective project sites.

1. Direct awarding of work/labor services to the project beneficiaries

a. Bidding requirement is no longer necessary.

b. Project beneficiaries need not prepare the cost estimate of the project activities since work program and cost f project are fixed by New Zealand.
c. EMD shall attach the project cost estimate in all work orders. Labor cost shall not exceed the original cost estimate as reflected in the work order.
d. Accreditation and pre-qualification papers shall no longer be required from the project beneficiaries as they are selected based on the economic and social criteria of the project and the funding institution.

2. Payment of labor services

Item No. 3 of the Implementing Guidelines states that payment of labor services rendered by project beneficiaries shall be paid in cash by the respective Site Coordinators. However, due to security concern on the part of the Site Coordinators in possessing a large amount of money, the payment scheme will be reverted to check payment which takes additional processing time thus creating inconvenience on the part of the beneficiaries. To address this concern, it was agreed as suggested by E. O. Losloso that instead of check, payment might be facilitated through payment order and specify the payment through cash. The requirements for processing of payment will remain unchanged as stated in Item No. 3 of the implementing guidelines with all the documents still passing the usual site routing procedure.

3. Delegation of authority

E. O. Losloso confirmed the suggestion of E. G. Maxino for A. C. de Jesus to delegate an authority to the Site Coordinators to approve payment order for a maximum of P35,000.00 in order to further hasten the processing of payment. In this scheme, documents will no longer pass through the site administrative routing procedure. The responsibility will be transferred to the Environmental Management Division. A. C. de Jesus will prepare the delegation of authority to Project and Site Coordinators for Approval by P. S. Santos. In the interim, the scheme agreed in Item B.2 above will be adopted.

4. Additional petty cash

Accounting Department will require the respective Site Cashiers to withdraw additional petty cash for payment of labor services under the New Zealand-PNOC Social Forestry Project and the National

Reforestation Project. EMD will furnish the Accounting Department with projected monthly expenses for labor as the basis for additional petty cash withdrawal. Fifty percent each of the projected monthly expenses shall be withdrawn every 15th and 30th of each month.

It was further agreed to strictly adhere to the attached accounting waiver's implementing guidelines.

B. Implementation of the DENR/ADB-funded National Reforestation Program (NFP)

It was also agreed that the NFP Site Coordinators shall also be delegated the authority to approve payment orders for project related activities.

Prepared by:

(*Original Signed*)
J. B. SOBREVINAS

Approved by:

(*Original Signed*)
E. O. LOSLOSO

(*Original Signed*)
A. C. DE JESUS

Annex I

M e m o r a n d u m

January 19, 1990

To: All Concerned *Ref:*

cc: See distribution* *Code:* 25-450

Implementation Guidelines
for NZ-Funded Social
Forestry Project's
Accounting Policy Waiver

In connection with the approved waiver of accounting policies for the NZ-funded Social Forestry Project, the following guidelines/procedures shall be implemented in all project locations.

1. Preparation and approval of work orders

   Work orders for social forestry activities shall be prepared by respective site coordinators at least two weeks before the estimated start of the activity to be approved by the Project Manager or his authorized representative if the cost of the activity is within his limit of approval. Otherwise, approval must be coursed to the Division Head.

2. Awarding of work/labor services

   a. Work/labor services related to the social forestry project shall be directly awarded to the association of the respective community beneficiaries. An authorized representative of the association shall be designated by the member beneficiaries to represent the association in all communications with PNOC.

   b. For labor services exceeding P50,000.00, a contract shall be prepared.

3. Payment of labor services

Labor service rendered by the association shall be paid in cash by the respective site coordinators after completion of the following requirements:

a. Billing or Statement of Accounts submitted and duly signed by the association's authorized representative;

b. Receipt for Cash Disbursed (RCD) duly signed by the association's authorized representative;

c. Affidavit of the association that they already received payment for the specific activity. (Note: this must be submitted only during association's last billing of a specific activity);

d. Certificate of Completion of Work duly signed by the Site Coordinator; and

e. Xerox copy of Work Order and Acceptance Letter duly signed by the association's authorized representative and approved by the Project Manager or his authorized representative if the aggregate cost of labor services exceeds P5,000.00. (Note: Original work order and acceptance letter will be attached only to last billing of a specific activity).

A 3% labor tax shall be deducted from the total cost of the services. Site coordinators shall coordinate with their respective field accountants on the manner of deduction of said amount and shall be responsible in informing the association about this deduction.

4. Direct purchase of materials from selected stations/ suppliers

Theres is a need for a one-time canvassing of all materials including planting materials and tools for price reference. In case of purchase of planting materials from individuals or groups other than the canvassed suppliers, purchase may be allowed on the following conditions:

a. Said materials are of same quality;

b. Price is equal or lower than the quoted price of the accredited suppliers; and/or

c. If the new supplier is the only source of the required materials at the time of purchase.

Other materials like fertilizers, pesticides, fungicides, insecticides and other agricultural chemicals can be directly purchased, provided, the unit cost of the material does not exceed P300.00 and the total amount of the requisition does not exceed P1,000.00. Otherwise, these items shall be procured through the site's normal purchasing procedure.

5. Payment of directly purchased materials

Payment of planting stocks may be through cash advance drawn by the Site Coordinator or his Officer-In-Charge in case of his absence if purchased in site. In case of planting materials that are being purchased from other sources like purchases ex-Batangas, UPLB, Nestle, etc., payment may be through cash advance drawn by the Project Coordinator of his Officer-In-Charge or through check. In case of check payment which normally requires the statement of accounts, sale invoice or official receipt during processing, issuance of check could be facilitated, provided, the statement of accounts and the official receipt will be forwarded by EMD to Payables Section within a maximum period of one week after purchase of materials.

6. Approval and withdrawal of cash advances

Site Coordinators will be allowed to withdraw a weekly cash advance of P5,000.00 (other than his personal advance for base off) or equal to the project's estimated operations expenses for a week to be approved by the Project Manager or his authorized representative. In case of cash advances exceeding the approval limit of the Project Manager, cash advances shall be approved by the EMD Division Head, provided said amount does not exceed his limit of authority. All cash advances of the site coordinators shall be withdrawn from the site for closer monitoring by the Accounting Department.

7. Liquidation of cash advances

Cash advances shall be liquidated weekly immediately after the payment of labor services before another cash advance for the next week's activity could be granted. Expenses incurred for the payment of labor services shall bear the requirements enumerated in Guideline Number 3 while expenses for direct

purchase of materials and supplies must be supported with receipts or RCD's as the case maybe including the required LSO requisitions.

(*Original Signed*)
JBS/MCL/FAG/ACJ:jbs Mario C. Berbano

Conforme:

(*Original Signed*)
Efren O. Losloso

* Distribution

RSM/CVM/MLG
WNA/MCD/BDY
GPC/AAG/WSA
JMQ/RTP/SBQ
SCC/ECA/ACN
AGR/OFB/JRMC
File

APPENDIX 30

DELEGATION OF AUTHORITY

M e m o r a n d u m

September 17, 1990

To: P. S. Santos *Ref:*
(Thru: S.P. Javellana)
cc: *Code:* 25-450

Delegation of Authority

To facilitate the implementation of reforestation projects funded by outside agencies (New Zealand and DENR), E. G. Maxino recommended the delegation of authority on the approval of PO and CA to the site coordinators.

We have discussed the details of the advice of Mr. Maxino and other accounting procedures with E. O. Losloso, F. A. Gesite and J. M. Eijansantos last September 7, 1990. It was agreed that the PO shall mostly cover labor services which are already fixed by donor agencies and the CA shall cover material requirements whose price ceilings have been determined through the one-time canvassing done by Accounting and Logistics last quarter. The amount of delegated authority was estimated from expected expenditures for each project. Please find attached the following:

1. Delegation of Authority for 3 Coordinators of the National Forestation Project.

2. Delegation of Authority for 4 Coordinators of NZ Project.

3. Minutes of Meeting with Accounting Department.

(*Original Signed*)
:zbc Agnes C. de Jesus

ENERGY DEVELOPMENT CORPORATION APPROVALS MANUAL	Section: DELEGATION OF AUTHORITY	Section No	Effective: Sept. 17, 199
	Delegated to: JOSIMAR B. SOBREVIÑAS	Subject No	Page

AUTHORITY DELEGATED	LIMIT
A. Finance	
1. Approval of payment orders	MP 35
2. Cash advances for expenses	MP 20

Note:

This delegation of authority is temporary and coverage shall be limited to the PNOC-New Zealand Social Forestry Project. Period of effectivity is from September 17, 1990 to December 31, 1993.

Delegated by	Date	Delegation Approved by	Date
A. C. de Jesus	9/17/90	P. S. Santos	9/18/90

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ENERGY DEVELOPMENT CORPORATION APPROVALS MANUAL	Section: DELEGATION OF AUTHORITY	Section No	Effective: Sept. 17, 199
	Delegated to: REINERO S. MEDRANO	Subject No	Page

AUTHORITY DELEGATED	LIMIT
A. Finance	
1. Approval of payment orders	MP 35
2. Cash advances for expenses	MP 10

Note:

This delegation of authority is temporary and coverage shall be limited to the PNOC - New Zealand Social Forestry Project. Period of effectivity is from September 17, 1990 to December 31, 1993.

Delegated by	Date	Delegation Approved by	Date
A. C. de Jesus	9/17/90	P. S. Santos	9/18/90

ENERGY DEVELOPMENT CORPORATION APPROVALS MANUAL	Section: DELEGATION OF AUTHORITY	Section No:	Effective: Sept. 17, 199(
	Delegated to: MARCIANO L. GECOLEA	Subject No:	Page:

AUTHORITY DELEGATED	LIMIT
A. Finance	
1. Approval of payment orders	MP 35
2. Cash advances for expenses	MP 10
Note:	
This delegation of authority is temporary and coverage shall be limited to the PNOC - New Zealand Social Forestry Project. Period of effectivity is from September 17, 1990 to December 31, 1993.	

Delegated by: A. C. de Jesus	Date: 9/10/90	Delegation Approved by: P. S. Santos	Date: 9/18/90

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ENERGY DEVELOPMENT CORPORATION APPROVALS MANUAL	Section: DELEGATION OF AUTHORITY	Section No:	Effective: Sept. 17, 199
	Delegated to: CIRILO V. MENDOZA	Subject No:	Page:

AUTHORITY DELEGATED	LIMIT
A. Finance	
1. Approval of payment orders	MP 35
2. Cash advances for expenses	MP 10

Note:

This delegation of authority is temporary and coverage shall be limited to the PNOC - New Zealand Social Forestry Project. Period of effectivity is from September 17, 1990 to December 31, 1993.

Delegated by	Date	Delegation Approved by	Date
A. C. de Jesus 9/17/90		P. S. Santos	9/18/90

APPENDIX 31

INCREASING TREND IN MEMBERSHIP IN BENEFICIARY ASSOCIATIONS

NAME OF ASSOCIATION/ PROJECT LOCATION	Y E A R		
	1990	1991	1992
1) Baslay Farmers Association (Baslay Social Forestry Project)	83	164	168
2) Kapunungan ng mga Mag-uuma sa Bediao (Bediao Social Forestry Project)	49	75	75
3) Tongonan Farmers Association (Tongonan Social Forestry Project)	145	147	178
4) Tublijon Farmers Association (Tulungan) (Azupre Social Forestry Project)	23	30	34

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