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Tree Growing on Different Grounds

Pasicolan, P.N.

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Tree Growing on Different Grounds

An Analysis of Local Participation in Contract Reforestation in the Philippines

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op gezag van Rector Magnificus Dr. L. Leertouwer,
hoogleraar in de faculteit der Godgeleerdheid
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door

PAULO N. PASICOLAN

geboren te Enrile, Cagayan (Filippijnen) in 1956

Promotiecommissie:

Promotores:	Prof.dr. H.A. Udo de Haes Prof.ir. A. van Maaren (LUW)
Referent:	Prof.dr.ir. B.F. Galjart
Overige leden:	Prof.dr. J.W. Björkman Prof.dr.ir. W.T. de Groot (VU Brussel) Prof.dr. P.E. Sajise (University of the Philippines at Los Baños) Prof.dr. J.D. Speckmann

Dedication

This thesis is dedicated to the late Dr. Y.S. Rao, the former Senior Programme Advisor of the FAO Forestry Research Support Programme for Asia and the Pacific (FORSPA). Although we had only a brief time together in one of the study sites we visited, his unquenchable desire to know what is really out there in the field challenged me to hit the ground. Indeed he was a man of simple needs but with a broad vision and determination to make the best things happen.

Centre of Environmental Science
Leiden University
P.O. Box 9518
2300 RA Leiden
The Netherlands

Layout Sjoukje Rienks
Figures Paul Langeveld
Photos Gerard Persoon and Gerhard van den Top

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Preface

The title of this document does not only reflect the main theme of the study. 'Tree Growing on Different Grounds' in its metaphorical usage presents an issue facing all those who aim to find an appropriate formula to stimulate spontaneous and sustained private or government tree growing in the Philippines.

Amidst poor countries' overwhelming dependence on environmental loans as a means to propel tree growing on public lands, this thesis attempts to explore the other possible instruments for sustainable participation.

It does not discount, however, the relevance of financial incentives, such as paying people to plant trees. Rather, it defines the appropriate context in which paid labour could function best and when it could not. Furthermore, the analysis went beyond just looking at the effects of such cash payment. Equal attention was given to the other core motivations for people's sustainable participation in tree growing. This study does not only touch on the various possible combinations of policy instruments and institutional arrangements among the government, private sector and the tree grower, it also looks into the mechanics of operation.

This research document is the product of the generous contributions and participation of many people and institutions. Many of them cannot be mentioned here because of customary law at Leiden University.

Through the Programme Environment and Development of the Centre of Environmental Science of Leiden University I was given the opportunity to do my PhD graduate work as a research fellow working within the framework of the Cagayan Valley Programme on Environment and Development (CVPED), a joint undertaking between CML-Leiden University and the College of Forestry and Environmental Management (CFEM), Isabela State University (ISU), Philippines.

The FAO-Forestry Research Support Programme for Asia and the Pacific (FORSPA) for providing additional funds that enabled me to broaden the research scope of the study.

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My parents, brothers and sisters, as well as my in-laws, and extended relatives and friends who are part of my sovereign beginning. For their affection I owe them a huge debt of gratitude.

If there is one who deserves the greatest appreciation, it is my loving wife, Sim. Besides being the first person to introduce CML to ISU-CFEM, she played a critical role during my study. She was my constant support in everything. Not only was she a die-hard cheerer in those critical times, she also took the greatest load in keeping the family in perfect shape during my absence. My sons Daniel and T.J. who are my heart's delight provided the continuous challenge and the reasons for me to strive hard. I thank them for their sacrifice and for bearing with me in those difficult times.

But above all, I owe everything to God. To Him only belongs the glory and the honour.

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Abbreviations

ADB	Asian Development Bank
ANGOC	Asian Non-Government Organization Coalition
CBRM	Community-Based Resource Management
CTF	Communal Tree Farming
DBM	Department of Budget and Management
DENR	Department of Environment and Natural Resources
FAR	Family Approach to Reforestation
FOM	Forest Occupancy Management
FLMA	Forest Land Management Agreement
FLM	Forest Land Manager
FORSPA	Forestry Research Support Programme for Asia and the Pacific
ICM	Inspection Chart Map
IFMA	Industrial Forest Management Agreement
ISFP	Integrated Social Forestry Program
ITP	Industrial Tree Plantation
LGU	Local Government Unit
NFP	National Forestation Program
NGO	Non-Government Organization
NPCO	National Programme Coordinating Office
OGA	Other Government Agencies
PC	Progressive Contextualization
PENRO	Provincial Environment and Natural Resource Office
PIC	Problem-in-Context
PO	People's Organization
UNAC	Upland NGO Assistance Committee

Abstract

The Philippines has incurred huge loans from the Asian Development Bank and other overseas lending institutions for its Contract Reforestation Program. People are paid to plant trees on public lands. Alarmed by the dismal performance in seedling maintenance and protection in the first implementation phase of this program, this study tried to examine the various success conditions and the determinant factors of sustained contractor's project participation.

Three sets of independent investigations were carried out. The first was a contrast analysis between two successful and two unsuccessful projects in Cagayan Valley. The second validated the earlier findings in five additional successful projects in other regions in the country. The third set investigated four individual farmers' spontaneous tree growing initiatives.

Seven conditions for sustained participation were identified. In order of significance they are as follows: 1) the viability of simultaneous intercropping between seedlings, 2) having interest in other, related tree uses, 3) the aspiration for access/property rights over the project, 4) community cooperation, 5) a good financial situation of project participants, 6) the aspiration for a good track record, and 7) the prospect of a good wood market.

The determinant factors of success were derived from three project's background settings, namely: site characteristics, contractor characteristics and project management schemes. For the site characteristics, the determinant factors are: 1) good arability of the soil, 2) accessibility of the project, 3) a clear property regime, 4) no government prescribed forestland use.

For the contractor characteristics, the determinant factors are: 1) an income situation above subsistence level, 2) the meantime payment of labourers' wages during irregular payments by the government, 3) striving for more land to cultivate, 4) the allowance for future communal use of the project, and 5) an enterprising attitude.

For the project management schemes, the determinant factors are: 1) the provision of market prospects, 2) the provision of a prospect for future projects, 3) government's prompt release of contract payment, 4) the recognition of participants' usufruct/tenurial rights over the site, 5) the allowance for other land use combinations, and 6) 'on-site' or 'in-place' recruitment of participants.

The site and contractor features set the success opportunities or constraints. The management schemes either build on or mitigate the given setting. They may bring about the desired outcome, or they may spoil and reinforce the opportunities and constraints, respectively, and lead to project failure.

Three types of incentives appeared to be crucial for sustained project participation in government projects. These are: tenurial, social and financial. Correspondingly, there are three reforestation modalities: 1) farm-based (with the tenurial incentive allowing usufruct practice over the land), 2) community-based (with the social incentive for community cooperation), and 3) industry-based (with the financial incentive aimed at generating continuous rural employment).

For spontaneous tree growing by individual farmers without government's direct cash incentives, assured access to or property rights over the land and tree produce along with the presence of a wood market are crucial conditions for sustainability.

Since contract reforestation on public lands cannot take place without accompanying incentives, it should be designed around the actor's needs, his interest in tree growing as well as his financial resources, for maximum program efficiency. Those with substantial capital could serve as the project's financiers and the main stockholders. Subsistent participants in search of direct cash earnings may well comprise the labour force. For those motivated by access or property rights over the project, a tenurial instrument, alongside the introduction of a tree-based farming technology is most applicable. Such a selective application of specific instruments according to participant's needs and future project options is considered an effective and rational policy for successful project management. Failure to identify who has interest in what, how and when, and the inability to recognize the uses of the varied site qualities coupled with the faulty prescription of tenurial arrangements will continue to siphon off government reforestation funds.

1

Introduction

1.1 Background of the Study

Reforestation is one of the major government programs with which the Philippine government hopes to enhance environmental stability. Alarmed by the environment's rapid deterioration and the slow pace of reforestation in the country, the Department of Environment and Natural Resources (DENR) with a loan from the Asian Development Bank launched a massive tree growing program in 1988.

To rehabilitate the 6.5 million hectares of degraded lands until the year 2000, the DENR has adopted a new approach to encourage citizens to participate through 'contract reforestation', as part of the overall plan. All interested groups or private organizations can join.

Contract Reforestation is one of the latest strategies of the Philippine government to decentralize and democratize reforestation in the countryside. Under the National Reforestation Program, contract payments, daily wage, land tenure and benefit sharing arrangement are offered as incentives to stimulate strong public involvement. Local or private organizations bid for contracts. Each contractor is assured of support.

Although incentives may provide impetus or sometimes may be essential for active program participation, these appear also to impede the actor's initiative or motivation for consistent environmentally sound behaviour. This is shown in experiences in the field. For instance, the burning of some forest plantations of the RP-Japan Reforestation Project in Pantabangan allegedly stemmed from participants' desire for continuous employment in the project (De los Angeles, 1980). A similar incident was reported on the Dona Remedios Forest Occupancy Management project in Bulacan (Bernales and De la Vega, 1982).

Other cases of irregularities and drawbacks associated with financial incentives have been reported in the Philippines. One involves the Community Forestry Approach Program of the Pulp and Paper Industries of the Philippines (PICOP). After securing tree-farm loans from the government

through the company with an agreement that they will sell their harvest to PICOP, some farmer-participants harvested the trees they planted prematurely and sold them to other buyers (Veracion, 1982). Others neglected their tree farms and shifted to annual cash cropping.

Furthermore, the advent of labour intensive development projects using direct-wage may discourage small farmers to improve their own farming systems through agroforestry. Citing the many watershed projects in Pantabangan area that employ wage labour, De los Angeles (1980) found that small upland marginal farmer-cooperators were in a dilemma whether or not to prematurely abandon their own farming activities (which are time and labour-intensive before earnings could be derived from the produce) in favour of wage-labour opportunities from the projects. Reportedly, wage-earning activities of the projects attracted migrants to the area because of the high demand for labour during their construction stage. Eventually, this migration could pose more pressure on the land after the project was completed.

A major characteristic of environmental and forestry projects is that the aims of the government often do not coincide with the main aspirations or felt needs of the people who participate. Aquino (1983) observed in some Social Forestry Projects in the Philippines that community people participated in the projects not because of concern for the environment but rather for employment and other perceived livelihood benefits. The emphasis on forest-related activities in these projects does not seem to match with local people's felt need or expectation.

Yet another problem can be that at the program management level, the bureaucratic 'red tape' often impinges on the smooth execution of development programs. The issuance of honoraria and other 'grease money' becomes a common practice. Failure to give a 'gratitude fee' to administrative personnel for facilitating the legal or paper works would mean 'procedural sabotage' that could derail the program's normal flow.

These previous experiences with incentive systems in reforestation seem to suggest the risk that the on-going government's tree growing program in the country would face. However, there are also similar projects reported to have succeeded because of incentives. This also holds true for a number of projects in other countries.

The Rural Development Project in Yogyakarta, Indonesia could have met greater resistance in changing farmers' traditional land management practices if not for the financial incentives it provided for adoption of soil conservation techniques (Christanty and Iskander, 1989). Likewise, at the Betagi-Pomoa Social Forestry Project in Bangladesh, Bose (1989) observed that financial incentives and benefit-sharing mechanisms were effective in getting people involved in the project. This is in contrast with the Van Panchayat Chausali project in India. Thus, villagers withdrew from participation because the

project management failed to provide sustained financial incentives (Vidyarthi, 1989).

Although there are many conservationists who think that financial incentives may only ruin actors' motivation for environmentally sound behaviour, others argue that they are essential layout in development programs on the basis of the following examples: Udarbe (1989) urged that the government should provide fiscal and tax incentives to farmers who cultivate forest trees owing to the long gestation period of forest plantation. Pragtong (1989) subscribes to the idea that people who are induced to participate in forest village projects must have funds for living expenses and capital investments during the early phase of their stay in a new land. He further claims that farmers who are assured of employment or income would develop their land faster than those without seed money to start with. Observing community responses to the Social Forestry Program in Papua New Guinea, Cortez (1989) sensed the need of providing reforestation fees for people to engage in planting timber crops as an essential component of New Guinea's Industrial Agroforestry strategy.

Lessons learned from the above experiences with incentives simply underscore the need to look into how certain types of instruments can be profitably applied to attain optimum people's participation in forestry and other environmental programs.

1.2 Statement of the Problem

The Philippines incurred huge loans from the Asian Development Bank (ADB) and the Overseas Economic Cooperation Fund (OECF) for its environmental programs. Between 1988 and 1992 alone, a total of US$ 621 million was loaned from ADB and OECF. About $ 240 Million went to its National Forestation Program (PFSP Memorandum of Understanding, 1992). Another $ 200 million was granted by the same bank to support the Second Forestry Sector Project for 1993 to 1995.

With these funds, there was a dramatic increase in reforestation output in the first two years of program implementation. For the first time, tree planting in the country outpaced the yearly rate of deforestation by about 90,000 hectares (NPCO Report, 1992). In the following years, however, the image of the program was marred by rampant burning and premature abandonment of the project (UNAC, 1992; Baldwin, 1992). On the overall national performance, the average rate of seedlings maintained and established was estimated to be as low as 10 to 15 percent only of the total number planted in the same period (Personal Interview with the NPCO program staff, 1993).

Field reports claimed that participants' anger over the delayed DENR payments prompted them to deliberately burn down the projects (ANGOC, 1991; Tagana, 1992). In addition, 'fly-by-night' contractors and dummy participants infiltrated the program, resulting in haphazard performance.

The irony behind these big foreign borrowings, as claimed by Korten (1993), was 'while the loans were made under an environmental rubric, their huge size emerged out of the need to support the country's balance of payment's deficit' from the International Monetary Fund. In theory, Korten (1993) concluded that 'the reforestation activities could have been funded by the Philippine Government without loan assistance, though it is doubtful that without the loans, the government would have allocated such substantial sums to the program'.

Regardless of how the loan was negotiated, the Philippine government has shown its intent to continue sourcing out more loans to ensure that the program will be sustained. However, considering these aforementioned initial performance, the long-term program's success seems uncertain. This offers a new challenge to further examine the impacts of financial and other incentives on actors' perception and behaviour in contract reforestation projects. Research along this interest may well provide a guide to policy makers and forestry planners as to the manner and context in which incentives may be used in tree growing projects on public lands. This is presently of great relevance in the Philippines because financial grants and loans are becoming more easily available to the government for forest development purposes.

1.3 Research Objectives

In view of the pressing need to investigate local actors' motivations for sustained participation in the current tree growing program, this study was carried out with the following research objectives:

1. to determine the various success conditions with their corresponding determinant factors leading to contractor's sustained participation in some selected contract reforestation projects in the Philippines;
2. to analyze which of these success conditions and determinant factors are considered critically relevant in sustaining participation in seedling protection and maintenance after the three-year contract payment expires;
3. to derive an optimal tree growing model from the analysis, and
4. to draw policy recommendations from the research results.

2

Contract Reforestation: Prospects and Strategies

In 1934 the Philippines still had 17 million hectares of productive forest covering almost half of the country's land area (MPFD, 1990). However, 60 years later, the figure has been reduced to about 6 million hectares of which 5.2 million were residual forest and only less than a million hectares covered by were primary forest.

Although reforestation efforts have been carried out since 1916, their pace far lagged behind the rate of forest loss. From 1916 to 1987, or during a span of 71 years, only about 70,000 hectares had been successfully reforested (Forest Management Bureau, 1988), compared with the yearly average rate of deforestation of 100,000 hectares during that period.

This alarming decline in forest cover coupled with the dismal performance of past reforestation programs prompted the emergence of a new approach to forest regeneration, i.e., contract reforestation.

2.1 Program Intention and Assumption

Contract Reforestation provides incentives to the private sector, People's Organizations (POs), Non-Governmental Organizations (NGOs) and Local Government Units (LGUs) for tree planting on public lands. An individual or entity enters into an agreement with the DENR, the implementing agency, to perform a series of activities required in reforesting denuded areas. In return, the government pays the contractor for the work.

Premised on the assumption that unless the poor benefit directly from tree planting on public lands, their participation cannot be expected. Thus, the program has a dual goal: livelihood generation and forest regeneration. Direct cash payment is meant to become the main condition for sustained public participation.

The program started in 1988 with an ambitious aim of reforesting 6.5 million hectares of denuded land up to the year 2000, including 1.4 million hectares of critical watersheds. Specifically, its main focus was to establish production forest plantations for maintaining supplies of timber and fuelwood, thereby rehabilitating denuded watersheds, grasslands and unproductive upland areas. This contracting scheme was perceived by the government as a good modality for making use of the experience and entrepreneurial motivation of the private sector and aimed at an efficient accomplishment of the country's reforestation targets (Umali, 1989).

2.2 Implementation Scheme

The DENR as the main executing agency of the program closely collaborated with NGOs, POs, LGUs, private organizations and other government agencies (OGAs).

There are three types of contract being introduced: Family, Community and Corporate Contracts. Together they will be denoted as 'Contract Reforestation' projects. The family contract is awarded to either married or widowed individuals living within or adjacent to the project sites for sites of not more than five hectares. The community contract is given to legitimately organized communities, NGOs, POs, LGUs and OGAs whose area is more than five but less than 100 hectares. A corporate contract is awarded to corporations and other constituted entities for areas more than 100 hectares through competitive bidding. On the other hand, the family and the community contracts are commonly obtained through negotiated bidding.

Comparing family and community contracts, there is more clarity of institutional arrangement in the former than in the latter. In family contracts, all decision making, benefits sharing, etc., taken place purely at the individual level, both 'de jure' and 'de facto'. In community contract, there is supposed to be a collective level of operation from the local organization's inception, decision making, project implementation to benefit sharing. In practice, however, this is not taking place because of the haphazard formation of community contracts. The strong pressure on the DENR to attain certain predetermined target goals set by ADB disregards the importance of social preparation as prerequisite for the awarding of a community contract.

Contract payments are directly released by the Department of Budget and Management (DBM) to the DENR Provincial Environment and Natural Resources Office (PENRO). The payment of the funds is spread out over a period of three years. Seedling establishment is said to be the most difficult stage of the project because it consists of the main bulk of the work, such as site preparation and nursery activities. For this reason, 60 percent of the total contract

price is allocated in the first year. The remaining 40 percent is equally divided over the two following years for seedling protection and maintenance. A mobilization fund of 15 percent of the cost for the first year of operation is disbursed. Contractors are paid on the basis of a fixed schedule of payments, which is usually quarterly.

Yearly, a field evaluation is conducted. Project performance is measured in terms of percentage of surviving seedlings being inventoried. The minimum requirement for successful seedling establishment is 80 percent. To avail of the second and third instalment release of funding, the contractor must at least have attained the minimum success requirement. In case he falls short of the required rating, the contractor has to replant the area at his own expense until he can meet the minimum standard. This yearly field inspection is conducted by NGOs including academic institutions and other duly organized civic organizations capable of performing this.

2.3 Major Reforestation Activities

Site preparation, seedling establishment, plantation maintenance and protection comprise the major reforestation activities. To prepare the site for planting, each contractor must do the following activities whenever and which ever are applicable:

1. constructing trails in the project site;
2. complete brushing to be followed by ploughing;
3. strip brushing;
4. allowing natural regeneration.

Tree planting should start at the onset of the rainy season so that the seedlings can easily thrive without much maintenance. After planting the following activities should be carried for seedling maintenance and protection:

1. application of fertilizer after planting and at least once thereafter, preferably during the first rainy season during the establishment phase;
2. weeding (ring or strip) at least once in the first year and twice in the second and third years of establishment;
3. cultivation of the soil around the seedlings within an approximated 30-centimetre radius;
4. replacement of dead or stunted seedlings within two months after planting or at the start of the rainy season in the succeeding year;
5. establishment of greenbreaks (10-15 meters wide) using fire-resistant species with economic value. Examples of these are bananas, kadios, ipil-ipil, yemane and teak;
6. patrolling and the institution of fire preventive mechanisms;

7. checking on pest and disease infestation, and
8. controlling squatting or illegal settlements in the project area.

2.4 Incentives for Participation

Participants are compensated for any contracted activity performed in the project area. Aside from the direct monetary incentive, they are allowed to use interspaces for cash cropping or maintaining other livelihood projects which are not harmful to the established plantation. Likewise they can do regulated pruning and thinning of trees for fuelwood as long as these do not hamper but rather enhance growth of the trees. Furthermore, they may avail of free technical assistance, training and educational materials in reforestation and agroforestation from the DENR.

2.5 Expected Benefit and Projected Output

From the economic point of view, the income from participating in the project would really make a good take-home earning for an average upland farmer. With P 20,400 or (US$ 740) as maximum allowable contract price per hectare for the whole three-year period, about P 16,725 or 83.62 percent goes to labour payment (Table 1).

Table 1.
Price estimates of labour for one-hectare plantation for the three-year contract period

Activity	Year 1	Year 2	Year 3
1. Nursery Operations	P 5,418.34	--	--
2. Plantation Establishment	3,905.06	--	--
3. Maintenance & Protection	1,207.38	1,153.76	1,153.76
4. Infrastructure - firebreak const'n - footpath const'n - bunkhouse - lookout tower	3,322.42	282.30	282.30
Total	P 13,853.20	P 1,436.06	P 1,436.06
	GRAND TOTAL: P 16,725.32		

Recommended wage rate: P 64.40/manday.
US$ 1 = P 27.56 (as of March 1994)
Source: DENR Memorandum Circular No. 04, Series of 1990.

Normally, a contractor obtains not less than five hectares to reforest under the family contract, while a site under a community contract ranges from 10 to 100 hectares. In a 5-hectare contract, a farmer can realize a total income of P 71,346.12, or an average of P 23,782.04 yearly, good enough to supplement his farm earnings (Table 2). However, in practice, 60 percent (P 12,240) of the total contract price is disbursed in the first year; 25 percent (P 5,100) during the two remaining years with 15 percent (P 3,060) retention fee at the end of the contract if the 80 percent seedling survival rate was attained. As mentioned earlier, the schedule of payments is programmed according to the required field accomplishments in the project.

Table 2. Estimated yearly earning from labour per area size of contract in P

Area size	Year 1	Year 2	Year 3	Total
1 hectare	13,853.20	1,436.06	1,436.06	16,725.32
2 hectares	24,636.28	2,872.12	2,872.12	30,383.52
3 hectares	35,419.36	4,308.18	4,308.18	44,035.72
4 hectares	46,202.44	5,744.24	5,744.24	57,690.92
5 hectares	56,985.52	7,180.30	7,180.30	71,346.12
100 hectares	1,003,440	334,480	334,480	1,672,400

These cost estimates per hectare from the point of view of the rural poor who barely subsist from marginal upland farm earnings would be a considerable help in augmenting household income. Likewise, the program was perceived to be a good income alternative for most upland dwellers who depend so much on forest extraction for their livelihood.

The government expects that the terms of contract ensure that the planted areas paid for would actually grow into forests (Umali, 1989). Thus, the program planners are highly confident that through contracting, the needed wood supply of wood-based industries in the future would be sustained. Likewise, for the first three years, from 1989 to 1992, the government envisions to reforest 225,000 hectares. For the private sector, particularly those individuals or corporations who would like to venture into industrial forestry, 75,000 hectares of reforested land is the target for 1991/92. During this three-year period, DENR projected that reforestation would finally outpace the yearly rate of deforestation in the country.

2.6 Towards Longer Participation

In the past, government-administered reforestation scheme participants could not confidently look forward to harvesting in the future what they planted on public lands. Since the incentive for participation was mainly tied with tree planting, labourers did not care much whether or not the seedlings planted would reach maturity. Given the long gestation period of tree crops, this lack of assured access to future harvest was a strong disincentive to reforestation. Thus, project participants were rarely concerned to maintain and protect the seedlings in the long run.

In contract reforestation, however, a new incentive will soon replace the contract payment at the end of the three-year period intended for seedling establishment. This instrument is referred to as the Forest Land Management Agreement (FLMA). It is a 25-year tenurial instrument that is renewable for another 25 years, providing the participants guaranteed access to the future produce of the project.

The contractor can harvest, process, sell, and otherwise utilize the products from trees grown on the project area. Also, he can interplant cash crops, fruit trees and other agricultural and minor forest products for additional income. Furthermore, he can avail of free advice and technical assistance from the DENR. On the other hand, he must, without corresponding payment, maintain the project until the trees reach maturity. The gestation period for fast growing species is 10 to 15 years and for long maturing species, between 25 to 30 years.

For a contractor to qualify for the instrument, he should have at least obtained an average ICM rating of 80 percent seedling survival at the end of the three-year contract period. In addition, the average height of trees planted should have reached 2 meters and 2.5 meters for long gestation and fast growing species, respectively.

In the future, when the contractor will harvest the trees, 30 percent of the total revenue from the produce will have to go back to the government as payment for the first three-year expenses in seedling establishment and maintenance.

However, participation in all activities up to tree maturity is not automatic. In the first three years of the project, people may be conditioned to take part in the project mainly for payment, as it is the very instrument that was meant to stimulate participation. At the end of the third or fourth year, they may have the option to continue or not under FLMA. For those who are interested to venture into tree farming, they will have to carry out sustained plantation establishment activities which include fire protection, thinning, prunning, and other timber stand care and improvement schemes despite no direct monetary payment given as compensation. However, for those who are not really in-

tending to pursue a longer contract beyond three to four years, they will only participate in seedling establishment which include activities such as planting and replanting, fertilizing, weeding, cultivating, and fire protection. Other interested contractors will apply for the project through public bidding and will assume the responsibility for protecting and maintaining the growing seedlings till maturity.

3

Review of Literature

3.1 Local People's Participation in Forestry Programs

This section reviews the historical changes in forestry emphasis over the years in developing countries, the changes in the Philippines in particular, and the different conditions for people's participation in tree growing projects. The concluding part provides the theoretical bases of participants' varied behaviour towards farm forestry as a livelihood investment.

3.1.1 The new development paradigm

The term 'public participation' has become a magical catch word in most intervention programs today, to underscore local people's crucial role in their development process. This 'participative' approach to development seeks to turn into reality such aspirations as 'social equity', 'people's empowerment,' 'people-oriented development' (Ford, 1987; Chambers, 1983). Local aspirations, felt needs and options often now become the main bases for project design.

This was a response to the very one-sided economy driven project approach since the 50s. Thus, in forestry, the idea that there is a structural interdependence between forest harvesting and the industrial sector of the economy led to a biased concern for industry raw material demand rather than for the rural community household needs in the past. Emphasis was on increased timber production, efficient wood utilization and expansion of the export market.

This concept of 'industrialization as a basic premise for economic growth' in the early 50s paved the way for the intensive exploitation of the tropical rain forests in most developing countries by transnational corporations and local private enterprises. It was assumed that part of the profits from the growing wood industry would subsequently trigger development in the rural sector.

The devastating effect of this assumption only became obvious in the late 70s when backward development processes were observed in one time forest resource-rich developing countries (Westoby, 1978). As more forest stands were given up in order to meet the growing demand for industrialization and consumption in urban centres and in developed countries, rural people became more and more marginalized. The wrecking of the forest by private enterprises in a short time increased the time and labour local people spent collecting firewood, fodder and other tree-related needs for household consumption as the distance of the source grew further afield (Fernandes et al., 1988).

The 'trickle-down effect' theory of countryside development came under increasing criticism. Westoby (1978) even claimed that the 'growing interest of private enterprises in forest conversion in the 60s in fact was not really meant to bring about socioeconomic development in the rural areas'. According to him, the main driving force was only profit-making as there were an ever-increasing need of the rich countries for raw materials. The underdeveloped countries that were rich in forest resources just provided the opportunity to meet such growing need. He added that very few of the forest industries which had been established in these countries had made any contribution whatsoever to raising the welfare of the rural masses. He also underscored the important role of forestry in rural development and that in effect it must be carried out by the local people. Douglash (1983) considered an integration of forestry with agriculture and the voluntary participation of local communities in forest management with the use of appropriate local technology as important elements in the overall approach.

Thus, Social Forestry emerged as an upland intervention program in the 80s in countries beset by the problem of shrinking forests, in response to the need to democratize the use and management of forest resources for the benefit of the greater rural population. This time, emphasis was on local people's basic tree needs, such as for fuelwood, fodder, food, poles, timber and house construction. The pursuit of social equity was paramount in the context of sustainable forest development. People's participation became a means to this end.

In this way, 'forestry for rural development' as the predominant concern became the new orientation of most upland programs in developing countries starting in the 80s. The rationale was to return the control of resources to the local people and their communities so that they would again be able to meet their own needs. As a result, they would be motivated to protect the natural resources for sustainability.

3.1.2 Local actor's perception and motivation for participation

Most governments in developing countries often mobilized local communities in forest development programs. This approach aimed to take advantage of the strategic role of 'on-site' residents as effective guardians of the forest, besides equitably distributing the benefits from forest development among the majority of the neglected poor.

This section presents the different reasons why a farmer participates in tree growing projects and of the concomitant conditions and motivations.

1. Direct household needs

When tree products and other related uses meet a farmer's direct household needs, growing trees at the backyard or farmlot can become spontaneous, i.e. without government support. For most farmers, their immediate need for fuelwood, fodder and food can be the primary reason for growing trees. Thus Senegal, Tanzania, Indonesia, Panama and Nepal provide examples where people planted trees primarily for wood, fruit or fodder (Kone and Jensen, 1982; Skutch, 1983; Jones, 1982; Campbell and Bhattari, 1983, as cited by Foley and Barnard, 1989). In other places, people grew trees spontaneously for wind breaks, fences, shade, and for other benefits. In addition, Arnolds (1987) claimed that fruit trees were planted on almost every farm in Panama, while nearly half of the farmers interviewed in the Valle Occidental region of Costa Rica said that they planted trees as windbreaks. In the same survey, he noted that in the hill areas of Nepal, each household owned an average of 28 trees, mainly for fodder and fruit; about one-third of these trees were deliberately planted and cultivated.

A number of case studies attest that tree growing projects in public lands which likewise meet immediate household use, are more successful than projects which do not simultaneously address planters' tree needs. The Bangladesh Rural Advancement Committee Project, for instance, has sustained farmers' interest in planting and protecting *Leuceana leucocephala* in single rows along roadsides because of the fodder that accrues to them for their livestock (Hasan, 1990).

2. Direct cash from wood products sale

Earning an income is one of the strongest incentives in eliciting widespread participation in tree growing as became clear from projects in Haiti, India, Kenya, Philippines, and Republic of Korea (Gregersen, Draper and Elz, 1989). Arnolds (1987) noted that nearly 40 percent of the rural households in Kakamega District, Kenya maintain small nurseries, and 80 percent have planted trees on their land to produce poles for sale. Likewise, in Kovilur, Trichurapalli, India, many resource-poor farmers planted cashew and euca-

lyptus species on their small lands for the market. The high profit gained from tree crop production motivated farmers to invest in tree crops (Malmer, 1987 as cited by Chambers et al., 1989).

3. Land tenure

Land tenure appears to be another crucial factor in motivating local people to plant trees. In Bong County, Liberia (Harbeson et al., 1984), and in Babati district, Tanzania (Johansson, 1991), local people were induced to plant trees in their lots as a demarcation of boundaries and as a legitimate symbol of their right over a disputed area. In areas where the government would likely expropriate land for public projects, land owners seldom plant perennial tree crops, knowing that they would not benefit from them. It appears from these examples that aspiration for land right can become a strong incentive for spontaneous tree growing on a disputed or public land, but also that an unclear tenure situation may prevent people from planting trees.

Likewise, security of land tenure affects the spontaneity and sustainability of farmers' tree growing efforts. Sellers (1977) noted that in Tucurrique, Costa Rica, the type of tenurial arrangements determined greatly farmers' preference for forest plantations over short-term crops. Growing coffee, peach palms and other woody perennials was a spontaneous practice among farmers with secure titled lands while those with less secure use rights or those under tenancy opted for short term crops. (I regret to have not gotten hold of additional information about the tree growing arrangements in Costa Rica, although I tried to exhaust all available materials on hand in our country.)

Jones (1982) observed that the lack of security of land tenure in most farms in Honduras discouraged peasants from introducing fruit trees or plantation crops despite the prospect of high economic benefits from them.

4. Management arrangement

The degree of management responsibility given to local people is another factor that affects their motivation to participate in organized tree growing programs. There are a number of successful forestry projects resulting from local initiatives. Leach and Mearns (1988) described the villagers in Um Inderaba, Sudan who established a tree nursery, planted and protected a tree windbreak, fenced-off a small area to allow for the regrowth of woody vegetation and planted trees for shade, fuel and fodder. These spontaneous activities were carried out by highly motivated farmers who were directly involved in project designing, implementation and management despite its being a government-initiated endeavour. Another example concerns a farmers' initiative in Shinyanga, Tanzania. With farmers' indigenous knowledge, shrubs and trees were propagated for live fences from cuttings, transplanting wild plants and direct

seeding instead of being dependent on the nursery seedlings obtained from the Forest Agency.

McGaughey and Gregersen (1988) observed that most forestry projects with farmers' direct involvement from tree management to tree harvesting usually succeed. As such, it appears that one factor for failure in tree government growing projects is the fragmented or discontinuous enlisting of the public from tree planting up to the harvesting (Gregersen, 1985). Where farmers merely execute government plans, quality and sustained participation can not be guaranteed especially if the benefits they will gain, will have to be realized in the distant future.

Quality participation will not generally evolve spontaneously. The conditions have to be set by the government through an attractive incentive system or proper institutional arrangements. Therefore, a well-studied management arrangement has to be set up by the government.

Skutch (1983) learned that about 44 percent of the village woodlots which she sampled in Tanzania had low farmer project participation as a result of the Forest Service's 'prescriptive' and coercive management style. There was the risk that the real needs were not being addressed. There was too much emphasis on fuelwood planting which did not fit the farmers' livelihood system. Furthermore, the trees they planted were regarded as the village government's, not their own property.

5. Conservation measures

Soil conservation behaviour is seldom regarded in literature as an incentive for farmers to grow trees. Thus, Sen et al. (1985) reported that in one farm forestry project in West Bengal, participants were more aware of the direct benefits than of the effect of the project on soil conservation. In general, soil conservation becomes an important motivating factor if it is clearly linked to direct livelihood needs. Where short-term cash crop production constitutes the farmer's main livelihood, soil conservation may become a major concern, especially in rolling arable areas. Farmers in Mwenezi, Zimbabwe responded positively to tree growing as they learned the impact of soil degradation on farming (Leach and Mearns, 1988). Comparably, Coughenour and Chamala (1989) reported that Kentucky and Queensland grain farmers chose to adopt soil conservation measures over an intensive and erosive cropping system despite the promise of huge profits from the latter.

In sum, farmers' tree growing initiatives can be prompted by their immediate household needs or cash striving and can be enhanced or suppressed by the effect of certain institutional arrangements or other incentive systems. Table 3 provides an additional guide for understanding the particular conditions in which rural farmers may or may not participate in tree growing.

Table 3.
Heuristic guide showing the basic conditions in which a rural farmer may or may not participate in tree growing

Factor	Condition	
	Do not plant/Protect	Plant/Protect
1. Land tenure	Insecure	Secure or aspiration for security
2. Rights to usufruct	Priority for government or subject to taxation, or ambiguous	Vested primarily in the household, regularly exercised without restriction or rent
3. Security to future produce	Uncertain or not included	Provided and binding
4. Tree ownership	Owned by or shared with government or local authority, or ambiguous	Owned by the household by law or in practice
5. Management arrangement	Centralized and prescriptive	Participative or semi-autonomous
6. Main focus	Societal welfare	Specific household or communal needs
7. Production goal	Conservation and for wood industry needs	Equity and for immediately felt household needs

3.1.3 The theoretical bases of actor's behaviour

To understand in a more general way what inhibits rural farmers from growing trees voluntarily or from cooperating in tree growing projects when in fact their need of them is so obvious, brings us to a theoretical discussion. There have been many attempts to explain such behaviour in a more encompassing way. Although some theories had shed some light on this problem, no single theory has yet explained sufficiently the varied responses in different situations. Four of the theoretical bases will be discussed in this section which will try to illustrate some facets of the farmers' responses. They are treated as complementary to each other because they can only explain an aspect of the responses at stake. The first two theories were cited by Lovelace (1985) as a guide in understanding farmers' attitudes towards innovations. The third and the fourth were drawn from selected theories of Moral Domains and Collective Actions, respectively.

1. Risk-aversion

The risk-aversion type of reasoning is drawn from Scott's (1976) theory on the *Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. While studying the survival patterns of rural villages in Vietnam, Scott concluded that rural peasants are 'avert risk' as reflected in his strongest statement:

> 'The basic idea upon which my argument rests is both simple and, I believe, powerful. It arises from the central economic dilemma of most peasant households. Living close to the subsistence margin and subject to the vagaries of weather and the claims of outsiders, the peasant household has little scope for the profit maximization calculus of traditional neoclassical economics. Typically, the peasant cultivator seeks to avoid the failure that will ruin him rather than attempting a big, but risky, killing. In decision-making parlance, his behaviour is 'risk-averse'; he minimizes the subjective probability of the maximum loss.'

2. Rational peasant theory

The rational peasant type of reasoning is drawn from Popkin's (1979) 'Rational Peasant' theory. Like Scott, he focused specifically on rural Vietnam. His argument and conclusions, however, were quite different from Scott's as noted in his view:

> 'I propose a view of the peasant as a rational problem-solver, with a sense of both his own interests and the need to bargain with others to achieve a mutually acceptable outcome. I hope to leave the reader not with pity for peasants or with a longing to recapture their presumed innocence and simplicity, but with a respect for the intelligence with which they develop practical solutions to the complex problem of resource allocation, authority, and dispute settlement that every society faces.'

3. 'Moral Domains' theory

The works of three contributors of this theory were cited on the basis of their relevance to the subject, namely:

> (3.1) Goodin (1982): According to Goodin, there are two possible routes of reasoning, whichever would prevail over the other that theoretically guides individual's investment decision. This reasoning either stems from economic motivation (i.e., the ($) dollar domain) or ethical consideration (i.e., taking morality seriously). These two domains are said to be incompatible with each other, such that, only one route can be pursued at a time.

(3.2) Jack and Jack (1989): Like Goodin, Jack and Jack subscribe to the idea that there are two contending weights of consideration in the making of every decision and only one will prevail over the other. These two considerations are 'homo economicus' and 'ethics of care'. Both are not distinctively different from Goodin's '($) dollar domain' and 'moral domain' respectively.

(3.3) De Groot (1992): De Groot developed a variant of Goodin's and Jack and Jack's early works by identifying three modes of moral reasoning, namely: a) 'care', b) 'homo economicus' and c) 'honoris'. The first two are identical with Jack and Jack's motivational considerations. However, De Groot believes that there is still another dimension that can move individuals into voluntary compliance which does not necessarily stemmed from either economic or 'ethics of caring' motivation. He termed this third domain as 'honoris' to mean one's striving for prestige or recognition for his work. Accordingly, vaguely or rigidly, there are different modes of moral reasoning, in which different criteria for choice apply. Things and situations may be treated in one (or vaguely more) modes.

4. Olson's logic of collective action

There are a number of theories related to the management of common properties (e.g., Hardin's Tragedy of the Commons and the Prisoner's Dilemma). But only Olson's 'logic of collective action' will be highlighted here because of its direct relevance to the subject presently under study. However, both Tragedy of the Commons and Prisoner's Dilemma have to be briefly introduced first because they were the contexts on which Olson's logic of collective action was based.

Hardin's *Tragedy of the Commons* presupposses that under a completely open access to resource condition, each resource user is assumed to be a rational utility maximizer who receives positive utility from the benefits derived from the resource and negative utility from over-use of the same resource. When the aggregate of all users' activities begins to exceed the sustainable yield of the resource, each user is still motivated to intensify his scale of extraction because he benefits wholly from such additional increase in utility and only a partial share of the additional cost resulting from his over-use of the resource. According to him, 'each man is locked into a system that compels him to increase his resource utility without limit, in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons'. For Hardin, the only viable solution is 'mutual coercion, mutually agreed upon', by which restrained access can be enforced from the outside (state apparatus).

The *Prisoner's Dilemma* in a common-pool resource use regards the choice as being either to cooperate with others in a rule of constrained access or to not cooperate. The argument is that each individual has a clear preference order of options:

a. everyone else abides by the rule while the individual enjoys unrestrained access (he 'free rides' or 'shirks');
b. everyone, including himself, follows the rule ('cooperate');
c. no one follows the rule; and
d. he follows the rule while no one else does (he is 'suckered').

To arrive at the best situation (second option), the only solution is either coercion from outside the group to force people to reach a common restraint, or change in the rules from outside the group to a private property regime.

Olson's 'logic of collective action' appears to be similar to the Prisoner's Dilemma in a sense that it presupposses that 'unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interest'. In here, the use of punishments and inducements are legitimized and must be selectively applied so that those who do not cooperate can be treated differently from those who do.

For Olson, *voluntary collective action* will not produce public goods. Only collective action based on selective (that is, excludable) positive or negative incentives may produce public goods. He further argues that the likelihood of voluntary collective action (without selective punishments or inducements) is high for small interest groups, low for large ones, and intermediate for intermediate ones.

Like Hardin's *Tragedy of the Commons* and the *Prisoner's Dilemma*, Olson's argument would lead us to account for non-cooperation in terms of free riding, and to account for cooperation in terms of punishments or inducements which overcome free riding. Furthermore, there was so much emphasis on the difficulties of strictly cultivating voluntary collective action-that which proceeds from moral commitment, or habit, or a calculation of the benefits to each if each individual complies.

3.1.4 Theoretical implications

These four theoretical reasonings will now be examined to determine their relevance in explaining farmer's response to tree growing in earlier field and literature findings.

1. Risk-aversion

According to Lovelace (1985), the risk-aversion theory assumed that rural villagers have historically led a rather precarious existence. Peasants' behaviour was conditioned to be 'risk-averse' as a result of constant climatic irregularity and adverse environmental conditions along with agrarian problems. Farmers are continually conscious of risks, which they tend to avoid even if it means forfeiting opportunities for considerable economic returns. The 'safety in subsistence first' mentality precludes all other considerations.

Simon (1975), in a much earlier independent account of how the poor respond to risk, described them as:

> '(...) people living on a subsistence level or barely above it understandably resist change, when one miscalculation can destroy the thin security which their traditional habits insure. No matter how much he may want to better himself, a farmer eking out a marginal existence cannot afford to gamble. Improvements have to be demonstrated, and must be part of an integrated program of change that offers him a social and economic security more dependable than the one he is asked to give up.'

Similarly, Leach and Mearns (1988) observed:

> 'Rural people always assess, informally, the costs and benefits of investing their time and energy in different tasks. There are always explicit trade-offs between these demands on labour, and between expected benefits in the short-term and those in the long-term. One dimension of poverty is the frequent necessity to forego long-term benefits in order to meet short-term needs. This is the vulnerability aspect of poverty: having to spend one's saving or liquidate one's assets rather than saving them for a rainy day'.

The implication of the risk-aversion theory proposes that for an intervention program to become successful in a marginally subsistent economic condition, it should not violate or create major risks for the target population's survival patterns (Lovelace, 1985). Skutch's (1983) findings regarding the Tanzanian government's Village Afforestation Program illustrate this effect. In the 18 village woodlots she investigated, the extra demands on agricultural labour time and the loss of private land for communal use were found to be the main reasons for low farmers' participation. Hoskins (1982) raised the same dilemma for the poor subsistent farmers saying, 'If tree growing directly interferes with food production or off-farm wage earning activities, such sacrifices may be too costly to make'.

2. Rational peasant

Based on Popkin's theory, the rational peasant theory presumes that individual rural villagers and family units are accustomed to take risk and make all sorts of long- and short-term investments. This is in fact gambling on their future.

This theory implies that individual villagers are open to innovations as long as they are certain to benefit from the project rather than merely being used by outside agencies. According to Lovelace (1985), 'There is less need to take into account all of the complexities of each situation because it is assumed that most rural villagers are motivated by the same thing, namely, economic success, and are able to recognize and take advantage of a good opportunity when it arises.' This coincides with Chatterjee's (1985) findings that the majority of farmers in India who lived below subsistence level were motivated to shift from pure agricultural production to tree growing when there was a decline in net returns from both food and non-food production, while the price of wood, bamboo and other wood products increased from 1971 to 1979.

3. 'Moral Domain' theory

The Moral Domains theory presumes that farmers' motivation to grow trees may not only stem from economic consideration but can also be prompted by the intrinsic value of the activity or aspiration for prestige. The moral and psychological drives are treated as equally rational as the economic basis for tree growing. Whichever dominates could be the bottomline condition for farmers' tree growing participation. However, farmers' motivation can chance over time. This means that his motivation can shift from 'ethics of care' or 'honoris' to 'homo economicus' at one time.

A case in point was the alteration of farmers' motivation in Dy Abra, Tumauini after cash payment was introduced for tree planting (Pasicolan, 1992). Initially, farmers grew trees voluntarily as an appreciation of the intrinsic value of trees. However, very recently, farmers can no longer plant trees on communal lands spontaneously without assurance of payment from the government.

4. Logic of collective action

Olson and the other collective action pessimists argued that only through state intervention would there be an order and control of resource use in common properties. Since the mechanisms of restraint are assumed to be externally imposed, it is therefore logical to think that only coercion or application of selective punishment or benefit could bring about resource control.

Olson's logic however does not apply to all cases of common property. A number of successful cases of locally devised rule systems indicate that it is

not necessary for regulation of the commons to be imposed from outside (McKean, 1984; Ostrom, 1986 and Wade, 1987). Secondly, Olson's emphasis on the size of selective benefits or cost (punishment) as means to discrimate between people who participate and not contribute to the protection of a public good does not always hold true. His argument about the effect of size of groupings as a determinant of voluntary collective action was later on discounted by Wade's (1986) findings about the voluntary collective action that evolved within the local irrigation users in 31 villages in South India. In short, these villages exemplify the proposition that it is possible for an interest group organization to emerge voluntarily and be sustained, on the whole, voluntarily- that is, without selective benefits or costs- if the collective benefit is high. According to Wade, selective inducements to discourage free riding are completely lacking, and selective punishments (i.e., fines or even opprobrium) are present but are hardly the central motivating factor.

In principle, Olson's logic of collective action, as well as the Tragedy of the Commons and the Prisoner's Dilemma, seem to apply strictly to an 'open access' situation wherein everybody is free to use a resource that does not exactly belong to anybody. As such, the state plays a crucial role in protecting the resource. One example is a public forest or a public fishing ground where everybody tries to maximize his benefits from the resource without having no sense of moral obligation to protect it from over-use. However, for common resource that is being managed by local users under a common institution, Olson's argument does not apply in strict sense. An example of this is the community forestry in the hills of Nepal (Gilmour and Fisher, 1991). The local people were able without outside guidance to make arrangements to protect and regulate access to forest resources for which there is no single power.

3.2 Incentive Systems in Forestry Programs

When one talks to rural people about forest conservation, they usually respond by sharing their needs and their struggles to make a living. For people who live from 'hand to mouth', long-term conservation measures are a luxury (Kummer, 1984). The striving for subsistence induces them to view conservation efforts as counter to their pursuit of a livelihood (Pasicolan, 1991). Marginal farmers usually think of their immediate and specific daily needs while conservation programs consider greater societal benefits which focus on long-term effects and require controlled resource use.

Owing to this disparity in value orientation between conservationists and participants, it is often difficult to sustain conservation programs. On the one hand, there is the urgency to address conservation issues and not only the local people's immediate needs. On the other hand, conservation efforts

through local participation cannot apart from meeting participants' immediate felt needs. It is here where incentive systems can play a role. This section presents the rationale of incentive systems in forestry programs. Also, it reviews the experiences and lessons learned about the use of incentives as instruments for participation in forest conservation.

3.2.1 The rationale

Although farmers' responses to tree growing and to incentives for participation are not yet fully understood, it is clear that reforestation on public lands cannot be accomplished without incentives. Among the reasons for the use of incentive systems in public tree growing are:

1. the longer gestation period of tree crops compared with that of agricultural or cash crops;
2. the many risks associated with forest plantations, such as forest fire, insect infestation, man-made disasters, the lack of a sure market and price instability;
3. the need to subsidize farmers' income during the transition from monocropping to a diversified perennial cropping system, that goes with agroforestry and other tree growing-related activities;
4. the fact that in watershed management, the one who carries out tree growing at the upper catchment may not share directly in the long-term downstream benefit of his investment. The principle of 'externalities' applies here, i.e., the real beneficiaries of a watershed project may well be far removed from the upland farmers who protect and develop the watershed (McGaughey and Gregersen, 1985). The farmer is unlikely to make the investment unless the profit from eventually harvesting the trees provides a good rate of return for him in the future.

As mentioned in Section 3.1.2, people will hardly participate effectively and sustainably in tree growing if they do not benefit directly from it. To increase the chances of project success, we need to know more about the specific applicability of the different types of incentive. First, however, we must have a general idea about the various types of incentive systems.

3.2.2 Typologies of incentive system

Government incentives for public tree growing are generally meant to affect certain target groups' behaviour towards an activity of high social value. Specifically, they are policy tools for overcoming participants' major constraints in forest conservation or reforestation projects.

Gregersen (1985) classified incentives into two major categories. The first is direct and tied to a response from or an action by the farmer. This may take the form of cost sharing (e.g., cash grants, goods, materials), services (e.g., management, marketing), subsidized credit (loans), fiscal measures (e.g., tax rebates, or exemptions, special taxes) or reduction of uncertainty (e.g., rental contract, price guarantees, insurance, forest protection agreements, land tenure). The second consists of indirect incentives which are not tied to the farmer's response or action. These include market information, price reporting, extension, research and analysis, general forest protection and infrastructure. The use of these two types of incentives, however, varies with the type of project and with the institutional or social arrangements between tree growers and their collaterals (Teeguarden, 1985).

Goulet (1989) divided incentives either as material/economic and non-material/socio-cultural. Material incentives stem from financial-economic consideration, and take the form of money (e.g., salaries, subsidies, income from sales). They may also come in kind (e.g., free housing, access to land or production inputs, seedlings). On the other hand, non-material incentives stem from inner values or psychological considerations and take the form of moral rewards (e.g., status, recognition, belief); or penalties (e.g., disgrace or sanction).

Goulet's classification was not encompassing and seemed more applicable to small-scale tree growing or soil conservation projects at the household or community level. Gregersen's classification, on the other hand, is applicable to large scale industrial plantations under private management where there are high economic stakes for the private investors or the government.

This review will analyze tree growing incentives at the household and community level. Goulet's classification will thus be the point of reference, with material incentives as the focus. Only those incentives which are being used in the Philippine reforestation program will be studied, along with some incentives in Gregersen's classification which may be relevant to the present study.

3.2.3 Design and performance of incentives in forestry

Seven types of incentive will be examined, namely: 1) cost-benefit sharing, 2) wages or paid labour, 3) subsidies, 4) loans, 5) market incentives, 6) land tenure, and 7) access to future produce. *A general outcome for the literature study is that in practice, no single incentive can function by itself in the long-run.* It will always have to be complemented by one or more other types. Thus in assessing their individual impact, it is difficult to isolate the effect of one incentive from that of the others. On the other hand, for some aspects the tools can constitute alternatives for each step.

A review of the field performance of the different incentives applied in forestry will provide a better understanding of their strengths and limitations. The following discussion briefly describes the mechanism, functioning and results of the above incentives as applied in forestry projects in various developing countries.

1. Cost-benefit sharing

Partnership between a private entity/government and the tree farmer may be based on shared inputs. Usually, the farmer provides the labour and land, while the government or private enterprise takes care of the capital inputs. This type of arrangement is meant to be mutually beneficial especially to farmers who often lack the capital. However, in practice, the arrangement may not always fully benefit the farmer. For instance, the cost sharing between a private enterprise and a landowner in Ecuador is seemingly lopsided (McGaughey and Gregersen, 1988). The private enterprise obtains a loan from the government and pays the landowner for the cost of establishing a plantation. In return, a large part of the harvest reverts to the private enterprise proportionate to the cost he invested. Although the farmer-landowner derives fodder, fuelwood and other wood products from the plantation before harvest, he receives little of the profit (e.g., 75 percent of the sales value of the timber goes to the private enterprise and 25 percent goes to the farmer). The same holds true for some community forestry projects in Nepal (Molnar, 1981). Some villagers were reluctant to plant new areas and manage them because the government would receive most of the profit.

In general, we can say that if in a cost-benefit sharing arrangement between the tree grower and the private enterprise the former perceives that his benefit is not worth his cost, a successful partnership is not likely to be achieved.

2. Paid labour

In most government-initiated watershed programs, participants are paid in kind or in cash for work done either on private or public lands. This instrument by itself appears insufficient in motivating sustainable participation. Farmers in one village woodlot under Panchayat management in Nepal asked, 'Why should we expend our scarce time and labour even if we are paid, if only to create and manage a forest for the government to make a profit?' (Molnar, 1981). This coincides with the Risk-Averse Theory claiming that farmers are reluctant to gamble their limited time and labour in something that does not improve their basic security even if they get paid for it (see Risk-averse theory, Section 3.1.4.1).

A similar drawback was observed in the strip plantation and village woodlot reforestation projects in Gujurat, India (Chatterjee, 1985). Strip plan-

tation was established on public land along canals and roads, while the village woodlot was on communal land. Both project sites used to be a communal grazing area and a fuelwood gathering site for the local residents. After the conversion of the communal land into plantations, the people, despite having received tree planting wages, felt uneasy. The conversion seemed to have alienated them from their one-time communal resource (Banerjee, 1985; Molnar, 1986).

These two examples in themselves do not contradict the use of paid labour. However, they imply the need to look into which situations paid labour can and cannot be used. From the above cases, we glean the following insights:

First, the village woodlot project in Nepal calls for complementary incentives to back-up paid labour. In such setting, benefit-sharing could ensure participants' long-term project involvement.

Second, using paid labour in the reforestation project in Gujurat, India, failed to stimulate long-term people's participation. The people resented the conversion of their previous communal grazing area into a reforestation project. Wiersum (1984) cautioned that when rehabilitating communal lands, it is important to identify from the beginning who holds what rights to ensure that the planter will receive the benefits of his investments and to avoid unintended destruction of existing rights for resource gathering and grazing.

Third, another way to overcome low participation is to increase participants' wages proportional to the benefits forfeited for giving up a communal resource.

While wages seem attractive at first, some landless marginal farmers continue to search for arable land or at least a sustainable income source. The Watershed Management Project at Madagascar is one example (FAO, 1983). Despite the regular wages for reforestation work, the participants continued to clear forestland for planting coffee, cloves and vanilla for export. This may be because intercropping of arable crops for subsistence was not permitted in the project area.

When wages are complemented with other incentives, farmers tend to respond positively, especially when land tenure rights or equitable benefit-sharing arrangements are included. A case in point was the successful experience of one social forestry project in West Bengal which provided additional benefits aside from participants' reforestation wages (Chatterjee, 1985).

In the absence of a benefit-sharing arrangement, two mechanisms may make paid labour more attractive. One is to grant a progressive payment to the farmer for every tree protected and maintained over time. Hoskins (1979) observed that tree survival was 100 percent in the SODEVA Project in Senegal due to the progressive payment given to the participants. The other mechanism is to allow farmers to introduce cash crops in between rows of the tree seedlings, as in the case of the Village Agroforestry Project in Thailand

(Boonkind, Fernandez and Nair, 1984) and the Watershed Management Project in Panama (FAO, 1983). What sustained farmers' interest in these projects was the provision for intercropping of agricultural crops between plantation seedlings in addition to their wages. When farmers are adequately compensated through other direct benefits from the project for the forfeited income, which would have resulted from the adoption of new land use, high participation can be expected (Saxena, 1987; SIDA, 1988).

In general, paid labour by itself can not sustain participation. However, with back-up incentives like an equitable benefit-sharing arrangement, controlled access to tree products (e.g., for fodder, fuelwood or post) or provision for intercropping, sustained participation can be enhanced even in public and communal tree planting projects.

3. Subsidy

'Subsidy' in this review refers to *ad hoc* support incentives either in kind or in cash. In a strict sense, subsidies are meant to help the farmer out of an adverse situation (e.g., crop or price failures as a result of flood, drought, pest). They cannot be applied as a permanent or long-term measure (Botero, 1980). In forestry, because of the long gestation and intense capital requirement needed in tree farming, subsidies can complement other existing incentives, but are usually intermittently applied on a short-term duration. They are most applicable in watershed management when an impending environmental impact (e.g., soil erosion and sedimentation) that may cause downstream degradation, has to be averted (Filius, 1986).

In Peru, Panama, Venezuela, and Honduras, for instance, farmers received seedlings, equipment, land tools and often a food ration as subsidies in kind (Gregersen, 1985). Cash subsidies, on the other hand, were intended to raise private return rates or reduce investor's uncertainties.

Chatterjee (1985) claimed that the heavy subsidies provided by the government in India along with other financial incentives attracted many farmers to shift from annual cash crop production to tree growing in Western Uttar Pradesh. In 1980, 109 families were involved in the project, covering an area of approximately 43 hectares. The following year, participation increased to 15,239 families with 4,950 hectares planted. This dramatic shift was attributed to the government subsidies reinforced by good market condition. McGaughey and Gregersen (1988) also attested that most Latin American countries with successful tree farming programs provide subsidies for private companies.

Although short-term subsidies are indeed effective in stimulating participants' sustained interest in tree growing, there are also problems associated with their application.

When people have become accustomed to subsidies, their interest in making personal investment may diminish. From a public point of view, too much dependence on subsidies may not give much return to investment, as the subsidies merely substitute for private capital.

This repercussion could further be aggravated if one has chosen for the application of heavy subsidies. Gregersen (1985) argued that a subsidy covering more than 100 percent of the cost that a private entity would incur in a conservation project is no longer an efficient allocation of resources from an economic point of view. It may even be detrimental to the project's overall goal to promote sustainable participation.

Worse, when the subsidy is withdrawn later on, it can ruin participants' initiatives for sound environmental behaviour. Blustain (1985) claimed that the 100 percent subsidy applied in the Soil Conservation Project in Jamaica had a counter-effect on participants' commitment to the project's conservation goals. When the subsidy was later reduced to 75 percent, the participants were no longer motivated to maintain their terraces and ditches, and began complaining that they were not given the full amount of the benefit entitled to them. Others rationalized that: 'Since it was government's money that had built the terraces, then it should be government's money that should maintain them.' This shows that high subsidies only induce farmers to participate in order to get access to the incentive rather than the long-term conservation benefit.

In practice, subsidies are intended to remove tree growers' constraints which are associated with cost of production, risk and uncertainties that are transitory in nature. However, it should not be applied in excess, otherwise, it will become uneconomical to the government. Also, it will ruin private initiatives to invest on socially beneficial projects.

4. Loans/credits

Loan or credits are meant to solve a cash flow problem or lack of access of capital resources. It is granted either directly by a public agency or a private group with government loan guarantees at a reduced interest rate (Gregersen, Draper and Elz, 1989). In addition to a low interest rate, small farmers appear to prefer loans with long repayment duration and a grace period corresponding to the time until tree crops are marketable.

The Plan Bosque project in Ecuador is an example of high participation in farm forestry due to low interest loans given to small tree growers (Gradwohl and Greenberg, 1990). According to a government report, the project's greatest impact was on the tremendous barren area planted at a very low establishment and maintenance cost. A similar case was observed in the Saemeul Undong Reforestation Project in Korea (FAO, 1983). The credit scheme consisted of a 3% yearly interest payable in 15 years with a 10-year grace period. These

terms stimulated strong public participation and had accomplished 85 percent of its reforestation objective in just five years.

These experiences show that loans can lead to project success, especially if given at the beginning of the project, since small farmers usually do not have the adequate capital to start a new venture. If loans and credit schemes are designed to suit the terms of poor farmers rather than those of the financially stable, strong public participation may be expected.

5. Market incentive

In Uttar Pradesh, India, many farmers were encouraged to convert part of their agricultural fields to Eucalyptus plantation because of the ready market with a promising price for wood, along with the soft loans and subsidies given by the government (Chowdhry, 1985). In contrast the application of this tool met clear problems. Thus in local fruit production in Almora, northern Uttar Pradesh, Vidyarthi (1989) attested that:

> 'In all villages studied, the villagers had indicated interest in planting fruit species on private land. However, opportunities for doing so on a large scale did not exist owing to market uncertainties. Local markets did not create enough demand to absorb large volumes of production. This did not attract investments from would-be entrepreneurs, especially since most fruit trees grown in the region such as oranges, peaches, and plums die easily.'

The two above cases point to three critical factors in tree growers' investment decision regarding market incentives: market security, good pricing policy and provision of back-up incentives to overcome tree growers' investment risk.

6. Land tenure

Another provision that can reduce investment uncertainty is security of land tenure. 'People who have insecure or short-term rights of access to land can obviously not be expected to make long-term investments in tree planting' (Wiersum, 1984). An NGO working with tribal groups in the Banwasi Sewa Ashram project in Uttar Pradesh, India noted that despite having received funds from a donor agency, it could not get people interested in planting trees. There was no incentive to undertake any long-term investment, whether by planting trees, or by soil and water conservation, because the area was considered as 'squatted' lands (Prem Bhai, 1987 as cited by Chambers, Saxena and Sha, 1989).

A separate study by Sen et al. (1985) in West Bengal, India found that there was a greater participation in tree growing on land grants under individ-

ual management than on village woodlot (communal property) under the Panchayat (local community council). In both projects, fertilizer and insecticides were given in the first year. In addition, cash incentives were given per seedling maintained for the first two years and increased cash incentives were given per seedling maintained for two years beginning in the third year. Under the individually managed tree growing project, lands were clearly demarcated and allocated for each farmer. In the village woodlot, however, there was no clear land demarcation for each participant since it is a communal property. The contrasting result of these two conditions suggests the importance of tenurial security and management autonomy in stimulating local people's participation in a project.

In this context, Wiersum (1991) identified two important aspects relating to participants' degree of power in social forestry projects. The first is the degree of control which refers to the use or ownership of land and tree resources. The second refers to the degree of management responsibility over forest/tree resources which includes farmer's prerogative to select the species and planting site as well as his use of indigenous technical knowledge. These two elements provide a framework for classifying various tree growing projects. The objective of this classification is to define the appropriate institutional arrangement between the government and local people so that management or ownership issues over the resource are dealt with in the proper context.

In other words, security of land tenure may greatly affect farmers' motivation to invest in long-term crops. Where there is security of land tenure, farmers may well be motivated to grow trees. However, like the other incentives, it also functions best when combined with other instruments like paid labour, cost-benefit sharing, subsidies, loans and market support.

7. Access to future produce

Ownership right or usufruct practice over the land is not the only means that can sustain tree growing on public lands. In the absence of a land tenurial arrangement, the provision of tree tenure may suffice in the striving for property right over the project.

A number of field cases revealed that when there is no provision for farmers' rights over the trees they planted, they shy away from involvement. For example, in Honduras, private individuals were discouraged from venturing into tree farming because of the state policy claiming that all trees grown on private lots or on public lands did belong to the State (Jones, 1982).

When people are assured of direct benefits from the projects, they will more likely participate (Campbell, 1978). Sen et al. (1985) observed that farmers in West Bengal participated more actively in a farm forestry project when the benefits that would accrue to them were clearly defined. The privi-

lege given to them was their access to collect forest products from the plantation. In addition, 25 percent of the income from future harvest would go to them (SIDA, 1988). These arrangements encouraged them to participate actively in the project. Similarly, Gradwohl and Greenberg (1988) attributed the success of the Agroforestry and Outreach Project in Haiti to farmers' secured access and control over the fast growing trees they planted on state lands.

However, when farmers perceive no future direct benefit from the trees they planted on state lands, they are likely not to do the job well, even if short-term incentives are provided (Francis, 1987). Thomas (1964) found that peasants employed with 'food-for-work' in some developing countries to plant trees on land where they had no access of use, deliberately planted the seedlings upside down in the ground. Since the incentive was tied with the instant number of seedlings planted rather than the benefits from maintaining the plantation over the years, participants cared little whether the trees had grown or not. Thus, access to future produce from the project may be crucial in sustaining participants' involvement in tree growing on both public and communal lands. This incentive, however, usually functions as support to other instruments.

3.3 Incentives in the Previous Philippine Reforestation Programs

Reforestation in the Philippines started in 1916. Although it has always been included as a regular program within the forestry sector, it was only towards the 90s that it became the centrepiece of the country's environmental program. In the 70s, however, many upland development programs have already emerged with varying concerns and emphases, yet with the common goal of forest re-establishment.

This section reviews briefly the content of the country's past upland development programs, forerunners of the current contract reforestation program. The various incentive systems and their effects on people's level of participation are analyzed.

3.3.1 From forest enemies to partners in development

The old Forestry Laws and Regulations in the Philippines regarded upland dwellers and traditional forest communities as illegal occupants of the forest. Since the introduction of private ownership during the Spanish colonial period, the primitive usufruct access of forest occupants over the lands they occupied and cultivated ended (Sajise and Baguinon, 1982). This was embodied

in the Regalian Doctrine declaring all public lands, including the forest zones as state property in the name of the King of Spain.

In the early 1960s, shifting cultivation began to be recognized as one major factor of rapid forest denudation (Aquino et al., 1987). Because indigenous people and migrants inside the forest zones were regarded as squatters, the government employed punitive measures to curb the growing upland encroachment. Fines and imprisonment were imposed alongside forced resettlement schemes for people residing inside the forest.

This approach, however, did not succeed. Despite threats of imprisonment and intimidation, those resettled in new areas went back to their original settlements as in the case of the *kaingineros* in Mt. Makiling in the late 60s (Personal Interview, 1986). According to them, they were not only determined to go to prison but even felt better-off inside iron bars with daily food provision from the government than resettling in such harsh and unfamiliar environments. This experience taught forestry authorities and policy makers to view shifting cultivation as a socioeconomic problem rather than a technical or legal one.

Beginning in the early 70s, the government adopted a humanitarian approach in addressing upland problems. The development concern was redirected towards the socioeconomic welfare and political plight of forest occupants. Forest occupancy management was implemented. This was backed up by agroforestry technology promotion, census of forest occupants, and the creation of livelihood employment. This approach was reflected in the Forestry Reform Code of 1974.

For many years under heavy pressure from the government, the forest's former enemies now have become the targets of intervention programs. The government believed that only by addressing forest occupants' basic survival and tenurial needs, could the occupants be motivated to cooperate in forest protection and development.

3.3.2 Early strategies in upland development

With the dramatic change in government policy towards the uplands starting in the 70s, the use of incentives in public tree growing was considered as pivotal in democratizing forestry practice in favour of the poor majority.

In the early 70s, the first three pioneering social forestry programs were launched by the nowadays defunct Bureau of Forest Development, namely: Forest Occupancy Management (FOM), Communal Tree Farming (CTF) and Family Approach to Reforestation (FAR). These had dual objectives: social upliftment of the poor and environmental rehabilitation.

While these emerging social forestry programs were being implemented, the long existing (regular) reforestation projects continued to operate under

government administration. In addition, the private industry had its own reforestation scheme, the Industrial Tree Plantation (ITP). The next section describes the upland forest development programs in the 70s and the 80s.

1. Forest Occupancy Management

The main thrust of the Forest Occupancy Management was to help settle *kaingineros* or swidden farmers and to stabilize their farming system in ways consistent with improved upland productivity and soil conservation. The program offered two options: relocation and managed occupancy.

Relocation applied to bonafide forest occupants willing to be relocated to new areas where continuous cultivation would not pose adverse effects on the immediate environment and public interest. In managed occupancy, qualified occupants were allowed to remain in their settlement as long as they would not expand their clearings, and would undertake activities to conserve and protect the forest resources, following a management plan prepared by the Forestry Agency. In both options, the maximum land area allocated per family did not exceed seven hectares.

To legitimize the *kaingineros*' stay in the forest, a two-year Forest Occupancy Permit was given. They were also allowed to harvest the trees and agricultural crops in their area. In addition, technical assistance, training and free seedlings were given as incentives.

2. Communal Tree Farm

The Communal Tree Farm aimed to establish a communal forest in every town or city. This would involve the community people and the local governments in coordination with other agencies and the private sector. Each family was entitled to develop and cultivate two to 50 hectares of open public lands. Furthermore, the program provided a one-year provisional CTF Certificate, with which could be converted into a 25-year stewardship provision and could be renewed for another 25 years, if the performance of the participant was satisfactory. Except for its longer land tenurial arrangement, it had the same incentive system as the Forest Occupancy Management.

3. Family Approach to Reforestation

The Family Approach to Reforestation (FAR) was actually a short-term contractual reforestation scheme, meant to hasten the government's tree growing efforts at a lower cost, while generating income for families living in the project areas. A maximum of five hectares was allocated to each family. The families were paid in three instalments per seedling that survived and maintained. Apart from the wages gained, they were also allowed to interplant agricultural crops between rows of trees and to benefit from them as long as they worked in the project. The main difference between this program and the first

two was that there was no land tenure provision. It merely contracted a family to reforest a parcel of land, paying for the labour, over a period of one to three years, after which the Forestry Agency took over.

Both FOM and CTF provided security and access for future produce alongside with land tenure. Only the size of land holding and the length of tenure differed between the two. The CTF offered better terms of land size and tenure than FOM. On the other hand, what distinguished FAR from FOM and CTF was the absence of land tenurial arrangement and security over future produce from the trees the participants planted. Work in the project was compensated with direct cash instead.

4. Old Existing Reforestation Projects (= Regular Reforestation)

In addition to the above mentioned new instruments, the government had been maintaining a number of reforestation sites under its regular appropriation.

Until recently, it had maintained 189 reforestation sites throughout the country. Participants were paid for their work and were not entitled to any share from the produce since they were planting trees on public lands. The extent of local participation was quite low as compared to FOM, CTF and FAR, being dependent on the fixed and limited funds appropriated for each project site.

5. Industrial Tree Plantation

While the government spearheaded the massive regreening campaign in the countryside, the private sector also carried out its own forestry development strategy known as Industrial Tree Plantation (ITP).

This scheme was a tree growing partnership between private wood industry and the local community. Farmers were encouraged to grow trees either on their farmlots or on public lands. In addition, they were assured of a ready market for their produce since they entered into contract with the private wood industry. As part of the incentive package, the company provided loans, seedlings and other production inputs intended to overcome the farmer's constraint to tree growing. Furthermore, farmers were allowed to plant cash crops in between the seedlings as an intermediary crop while waiting for the wood products to be harvested. The small-tree farmholders of the Pulp and Paper Industry Corporation of the Philippines (PICOP) is an example of this type of program.

As a summary, the five earlier reforestation approaches were tied with various incentives for participation. The key instruments used include: *paid labour, production loans, market incentive, land tenure* and *access to future tree produce*. Although these instruments were applied in each program, livelihood generation and environmental rehabilitation remained their two pri-

mary goals. Table 4 below presents the various incentives for each type of program.

Table 4.
Incentives being used in the early tree growing programs in the Philippines

Program	Incentive				
	Paid labour	Land tenure	Loan	Market security	Access to future produce
1. Forest Occupancy Management (fb)		X			X
2. Communal Tree Farming (cb)		X		X	
3. Family Approach to Reforestation (fb)	X				
4. Regular Reforestation (cb)	X				
5. Industrial Tree Plantation (fb)			X	X	X

fb: family-based
cb: community-based

3.3.3 Impact of incentives on the past reforestation approaches

In 1989, a performance evaluation of all regular reforestation projects in the country was carried out by various private organizations and state universities/colleges (BU/BUDF Evaluation Report, 1989), by order of the central government (DENR). The aim of this was to make an extensive inventory of the actual accomplishment of the program over the past years. The information obtained served as bench mark data in preparation for the launching of a larger reforestation program known as 'Contract Reforestation'. Prior to this activity, other studies were conducted independently to assess the performance of a number of social forestry projects in the Philippines. Based on the results of these aforementioned studies and evaluation efforts, the impacts of the most important incentive systems used in the different programs were examined:

1. Paid labour

Under the past regular reforestation program, people in the nearby communities usually participated in tree planting activity merely for economic security reasons but when the projects slowed down or terminated, due to budget constraints, the same people destroyed the trees to clear space for subsistence cropping. Some local residents prompted by the following reasons burned or

cut down government tree plantations: for farming or pasture use, for gaining continuous employment through extended project operation or simply out of negligence. Hence, no matter how determined and highly motivated the contractors or the Forestry Department would be in the tree planting activity, without community cooperation there will be a very slim chance for project success.

If paid labour is viewed by the project labourers as an end in itself in the absence of other livelihood options, there appeared to be no guarantee for real reforestation success. One example was the deliberate burning down of newly established plantations allegedly committed by participants who were economically motivated to prolong their stay in the project (De los Angeles, 1980).

While monetary incentives could easily attract participation, it remains a big question how to sustain farmers' positive attitudes towards tree growing when the payment ceases. Aguilar (1982) noted that the temporary and sporadic wage employment opportunities offered by the Buhi Agroforestation and Watershed Development Project raised already some doubts about sustainable participation. Discouragement resulting from delayed payment caused most participants to stop working before the contracted activities were completed.

The hiring of local residents as contract labourers has been one way of diverting the destructive activities in the area. This strategy, however, was not effective in Albay (BU/BUDF Evaluation Report, 1989). This may be due to the fact that the forest occupants were hired as a subtle way of gradually ejecting them from the project area. Being paid to plant and to protect the seedlings, the farmers diligently cooperated with the project management at the start. Later, they deliberately mutilated the seedlings to justify the extension of their presence in the area. This example shows that paid labour can not ensure quality participation, unless a more binding arrangement with the forest occupants is provided for a longer term of participation in project protection and maintenance.

There are more examples where paid labour without additional instruments did not result in a desired outcome. In the Balatan Reforestation Project, the contracted labourers cut trees prematurely and sold them to local buyers and charcoal makers to compensate for the low project cash earnings (BU/BUDF Evaluation Report, 1989). It was also observed in some regular reforestation projects in Cagayan Valley that participants' project income was partly invested for tools or draft animals needed to expand and develop new forest clearings in another area (Personal Interview, 1991). This is a case whereby, unintentionally, an instrument meant to create environmental responsibility ended up reinforcing a destructive livelihood elsewhere. Unless income from the project is sufficient to meet the average household basic

needs, participants may continue to strive in augmenting their meagre earnings even though it means violating the project's overall objective.

However, there were also a number of instances wherein project participation was greatly improved as a result of cash incentive. Aguilar (1982) found that direct cash payment for tree planting had attracted many local people to work in forestry projects. In the case of the Pantabangan Family Approach to Reforestation project, 30 families participated in the first year, which increased to 70 families and then dropped to 40 in the second and third year, respectively. Later, the project succeeded in mobilizing 100 families. The reversal in the third year was attributed to ill-timed reforestation activities which coincided with the more lucrative onion growing. This *jibes* with the above mentioned 'Rational Peasant' theory which presupposes that rural farmers can recognize and take advantage of a good opportunity when it arises.

Conversely, in another project site evaluated by the BU/BUDF Team (1989), the long-term and uninterrupted working days for forest occupants and local residents, which meant more income from the project, resulted in a relatively low incidence of forest fire and a low tension between management and participants.

Overall, paid labour in the past reforestation programs appeared not to be economically efficient. Of the 189 regular reforestation projects with paid labour that have been operating with total target area of one million hectares, only 0.274 million hectares or 27.16 percent of the original target had reportedly been established in December 1988 (FMB, 1990). Cost wise, the 166,462 hectares planted from 1978 to 1985 involved a total expenditure of about P 1.9 million based on 1985 values (Durst, 1986 as cited by Castillo, 1991). This means that per hectare the cost was P 11,409, and assuming 50 percent survival, the effective cost was P 22,818 per hectare (= US$ 912) (Castillo, 1991).

In summary, it appears that paid labour can elicit massive project participation but in general its effect can not be sustained. When it is perceived as an end in itself, paid labour becomes counter productive. The overall result of this incentive in the framework of the various past government tree growing programs was seemingly low as indicated by the slow rate of forest renewal in the countryside.

2. Land Tenure

Aguilar (1982) cited the exemplary accomplishments of the Communal Tree Farm Project of San Pedro and the Ikalahan Social Forestry project, in contrast with the rest of the projects he studied. Both used land tenure as the main instrument for participation, while other projects used paid labour, or cost sharing and subsidy as incentives. Looking at the overall performance of the

Communal Tree Farming Program nationwide, it consistently surpassed the two other programs: Forest Occupancy Management and Family Approach to Reforestation (Aquino et al., 1987). The Family Approach to Reforestation did not provide land tenure since it was only intended to back up the regular reforestation projects of the government. While both Forest Occupancy Management and Communal Tree Farm provided security of land tenure, the latter offered a longer tenure and a larger land holding per family. Comparing the total hectarage covered by each program, CTF ranked top with 20,165 ha within two years time; followed by FOM with 11,220 ha within ten years time; FAR rated last with 1,853 ha within two years time (Bernales et al., 1982). CTF having by far the largest number of participants and area covered indicates that the longer land tenure attracted more farmers to the program.

Security of land tenure is the primary concern of most upland farmers because the existing Philippine forestry laws declare the uplands as public domain. Aquino (1984) noted that in the social forestry projects she visited, the people rarely mentioned deforestation problems. Security of land tenure appeared to be their top concern. When not met, plantation fires increased, but once secured, the number of trees planted increased significantly and the recurrence of fires decreased.

Similarly, Aguilar (1982), from his study of eight social forestry projects, raises his concern about the land right issues in the uplands, saying:

> 'Tribal communities in particular resent being called 'squatters' and would go to the extent of indiscriminate use of resources and protest burnings of forest to vent their resentment, especially in the face of displacement threats. In such situations, land insecurity can be counter-productive not only in terms of inflicting environmental damages, but in the uplander's reluctance to plant perennial crops for fear that once the area is reforested, there would be even stronger grounds for the government to reclaim the land as forests.'

Sajise and Baguinon (1981) share the same feeling that 'an uplander who feels he has no secure land tenure, especially on public land, will tend to go for short-term and exploitative types of resource utilization'. Short rotation crops, although highly erosive, are much preferred to perennials because farmers think of the investment risk in tree crops under uncertain tenurial conditions.

Lynch (1986) claimed that uplanders' resistance to adopt soil conservation measures and reluctance to make long-term and sustainable improvement on their illegally occupied lands stemmed from their lack of legal means to secure their occupancy. A similar view was shared by Fujisaka, 1986; Fernandez, 1988; Cruz and Cruz, 1988; Garrity, 1991, and Pingali, 1991.

In summary, obtaining a secured land tenure could develop a farmer's positive attitude towards tree growing. Duration of the tenure also matters, as in the case of the Communal Tree Farm Program. Farmers' choice of crops to be raised in usufruct areas depends greatly on how he perceives his security of tenure over the land he cultivates. Thus, it appears that security of land tenure is crucial in sustaining people's participation in tree growing projects on public lands.

3. Loan/credit

The loan as an incentive was effective in the case of the Paper Industries Corporation of the Philippines (PICOP), a smallholder tree farming project. Through the Philippine Development Bank, the corporation secured loans for tree growers at 75 percent of the cost spent to establish and maintain forest plantation. The grace period was set until the first trees were harvested, while repayment of interest and principal was spread over several years (Hyman, 1983).

During the first year, in 1968, only 22 farmers participated, covering an area of 220 hectares. In 1981, the number of participants grew to 3,778 covering 22,600 hectares.

Although the program had successfully met the raw material needs of the wood industry through private tree growing, it failed to obtain the massive participation of the small and landless farmers (Kirchhofer and Mercer, 1984). Since having a land title was set as a condition for the loans, only the large landowners and the rich farmers were able to participate. From the wood industry's perspective, it was the most practical and the most cost-effective approach in raising its raw material needs.

In other countries like the Plan Bosque in Ecuador (Gradwohl and Greeberg, 1990) and the Saemeul Udong Reforestation Project in South Korea (FAO, 1983), there was a greater participation of the rural poor. There the loans were given mostly to the small farmers who were engaged in tree growing on both private and public lands.

In general, loans and other types of credit assistance appeared to be attractive incentives that could draw both small and large farmers' participation in tree growing. The interest rate should be low and the mode of payment be liberalized to help the poor farmers who cannot pay the prevailing interest rate of commercial banks and credit institutions. However, under favourable conditions, small farmers can also pay their interest, if the Bank also grants small amounts of fund and has a good field infrastructure. In this way, this tool will provide a good possibility for government help. The aim is either to keep the interest rates low, or to act as a security/collateral to small farmers who are unable to pay their loans on time to private banks or other lending institutions.

4. Market incentive

One contributing factor to the above mentioned PICOP farm forestry's success was the easing of participants' risk and uncertainties by providing a sure wood market (Hyman, 1983). The loan agreement also gave farmers crop insurance besides market security. PICOP contracted the tree growers to sell their wood products from their plantations for the company's paper mill. This attracted many farmers to tree farming on their private lands.

Most upland farmers in the Philippines are reluctant to shift from annual cash crops to tree crops because of the following constraints: the lack of market incentives, the capital intensive characters and the long maturation time. There could have been a big incentive for tree growing at the farm level, considering the growing demand for more fuelwood in some urban centres. However, the lack of an organized marketing system for small firewood gatherers seemingly has become a disincentive to venture into a massive scale fuelwood production. In one firewood gathering community in Cagayan Valley, the middlemen took the biggest share of the profit from the firewood sale because of the absence of a cooperative system among the resource gatherers (Pasicolan, 1988).

From the successful experience of the small-tree farm holders of PICOP and the plight of poor firewood gatherers in Cagayan Valley, market and price security appear to be very important conditions for a sustainable farm and community forestry.

5. Security of future produce

In the Philippines, access to trees already planted is usually linked with security of land and tree tenure. A sense of ownership over trees planted by the farmer motivates him not only to plant trees but also to protect and manage them.

An example is the *pinugo* (family-owned forest) of the Ifugaos, a tribal minority in Northern Luzon. According to the Ifugao culture, each family in the community has to raise and protect one or two *pinugos*. Dacawi (1984) describes the close relationship between the community and forest, by saying:

> 'The value of the forest is so infused in the mind of the Ifugao that he maintains it well and takes from it no more than what he needs. The trees that he fells for his basic requirements are replaced by planting during the rainy season. He knows that the pinugo is the watershed from which springs forth the water he needs to irrigate his rice fields. He also knows that the pinugo is his ready source of wood for building his house and for cooking his food.'

Reflecting on the Ifugaos' experience, access to future produce, coupled with land tenure security were the major factors which attracted the local people to the Communal Tree Farming Program of the government. In principle, when farmers are assured of achieving future benefits from their labour, they will more likely participate not only in tree planting but also in plantation protection and maintenance.

3.4 Incentives in the Current Reforestation Program

The past reforestation strategies which have not been totally phased out were integrated into one new bigger program. However, the phasing out of the earlier programs led to the adoption of the new ones. Included in the current reforestation programs in the country today are: 1) Integrated Social Forestry Program (ISFP), 2) Community Forestry Program (CFP), 3) Contract Reforestation (CR), 4) Forest Land Management Agreement (FLMA), and 5) Industrial Forest Management Agreement (IFMA).

Although most of the five approaches evolved independently and in different periods, later they were all subsumed under one bigger umbrella program referred to as the National Forestation Program (NFP) in 1986. The NFP has a target of 6.5 million hectares to reforest until the year 2000. The major component of this program is contract reforestation.

This section introduces the main features of the five current reforestation approaches and also presents some preliminary findings about the performance of the contract reforestation program.

3.4.1 The current reforestation approaches

In the following the content of ISFP, CFP, CR, FLMA and IFMA are described.

1. Integrated Social Forestry Program (ISFP)

The Integrated Social Forestry Program (ISFP) subsumed all other previous reforestation approaches, including the Citizen's Tree Planting Degree (P.D. 1153) launched in 1976, the CTF in 1979, the FAR, Industrial Tree Farm (ITF), Tree Farm (TF), and Agro-forest Farm (AFF) in 1981. Under a Letter of Instruction (LOI) No. 1260 in 1982 which created the ISFP, 'forest resources are to be mobilized for social and economic progress, and that the government recognizes that the less privileged sectors of society, the *kaingineros* and other forest occupants, can be made effective agents in the rehabilitation of forest lands'.

Two main goals of ISFP are: increase upland production through appropriate farming technology and reforestation. The logic here is that by making

upland farms productive and their incomes higher, it is assumed that farmers will have no more reason to move from one clearing site to another. In addition, by having reforestation activities, farmers can benefit by being employed in the projects. Thus, they are expected to develop a sense of commitment to conserve the forest resources.

To pursue these goals, the government provides land tenure security to participants through the issuance of a 25-year Certificate of Stewardship Contract (CSC) which is renewable for another 25 years, depending on participant's performance. Forest occupants are given three (3) to seven (7) hectares of land to cultivate and develop wherein a portion (20 percent) should be planted with trees. All income or proceeds from the land goes to the participants, including forest products derived or harvested from the area. Technical, legal and financial assistance is also extended to participants.

2. Community Forestry Program (CFP)

The Community Forestry Program is a joint forest protection and management responsibility between DENR and qualified organized rural communities on residual or existing secondary forest. To stimulate active participation of local community groups, a 25-year Community Forestry Management Agreement (CFMA) renewable for another 25 years is granted. In addition, the instrument gives the local residents a legitimate access to extract, process, and sell products from the forest. Organized rural communities may be granted an area of 500 hectares or more but not exceeding 1,000 hectares.

Recruitment of participants is on a collective basis or by community. Local residents have to be organized and to be trained as a legal entity to come into partnership with the government as the new forest manager and local user under a controlled and improved system of resource extraction. For CFP being initiated by LGUs, contracting is usually done in the name of the community with the mayor or any constitutional or informal head of the village as the representative and chairman of the management board for the whole group. To make participation a real public responsibility and a privilege, the community participates in the coming up of a forest development plan through public hearing and consultation. Later, the CFP plan will be integrated in the overall municipal development plan where public ordinances governing forest development and use will be premised.

Under the CFMA, the direct users of the forests are the local communities. In return, however, CFMA holders are responsible for protecting, managing and developing the forests. They are required to reforest all open, denuded and marginal lands within their contracted area, and to plant five (5) seedlings for every tree harvested during cutting operations. Furthermore, the suitable portions of up to 30 percent of the area may be developed into agroforestry farms. In short, the main incentive in this program is the provision of local

communities' access rights to utilize and dispose of forest resources within their localities.

3. Contract Reforestation (CR)

The 'snail pace' performance of the government regular reforestation in the past led to the adoption of Contract Reforestation. Private groups, non-governmental organizations (NGOs), local communities and families can enter into contract with the DENR to carry out tree growing in denuded and barren areas in the countryside for a three-year period. The participants who are paid for any reforestation activity, are also allowed to plant cash crops between rows of seedlings. Cash payments become the main motivating force to attract participation.

The past regular reforestation was under the full administration of the then Bureau of Forestry. There was a very limited public involvement and the recruitment of the participants often was politically motivated. Under the contract reforestation, the NGOs and other private and local organizations are mobilized extensively to do the task of project implementation, monitoring and evaluation. This development is viewed by the author as very strategic in accelerating the pace of reforestation in the country.

4. Forest Land Management Agreement (FLMA)

The Forest Land Management Agreement (FLMA) is a 25-year forestland lease and a production-sharing arrangement between the DENR and family, community and corporate contractors of reforestation. This instrument is meant to succeed the three-year reforestation contract and the agreement is renewable for another 25 years.

Under this agreement, the contractor can harvest, process, sell, and otherwise utilize the products from trees and plants grown on the land. He can also interplant cash crops, fruit trees, and other agricultural and/or minor forest products for additional income. In return, the contractor must protect and maintain the tree farm without any compensation. In addition, he has to adopt harvesting methods that ensure sustainability of the farm, and has to reforest areas that are harvested; the same holds true for additional areas not covered by FLMA.

Since both DENR and the contractor bear the costs, they are entitled to share the benefits. The Forest Land Manager (FLM) shall pay back 30 percent of the future proceeds to the DENR a share equivalent to the cost of reforestation during the first three to four years of seedling establishment and maintenance. The FLM will provide funds for maintenance, protection, replanting the area after each harvest, and for other operating expenses, and profits for its members. In short, the main incentives are: cost-benefit sharing, usufruct over the

area and access to future produce. So far, not many reforestation contracts have been converted to FLMA yet.

5. Industrial Forest Management Agreement (IFMA)

To ensure the sustained and adequate supply of timber and forest products for the wood industry in the future, industrial plantation is conceived as alternative source to the shrinking natural forest in the country. The Industrial Forest Management Agreement is a 25-year forest lease given to qualified individuals, corporations, partnerships, associations and cooperatives to occupy and possess, in consideration of a specified rental, any forest land of the public domain between 1,000 hectares and 20,000 hectares for the establishment of an industrial plantation. The holder of IFMA can avail of Internal Revenue Tax exempt, reduced forest charges, rentals, credit assistance and usufruct over the area. Trees and other products planted under IFMA belong to the holder who shall have the right to harvest, sell and utilize the produce from the plantation. He can also interplant secondary crops between rows of trees. The infusion of private capital in tree growing does not only relieve government's fund for the activity but also generates rural employment. In practice, IFMA closely resembles that of the ITP in the past in terms of objective. However, with regard to local people's participation, the IFMA provides greater chance for the rural populace to take part than ITP because local groups can more easily have access themselves to this institutional incentive.

Of the five aforementioned current reforestation approaches, only the ISFP and Contract Reforestation are presently fully implemented. The achievements of these two instruments will be discussed below. The CFP, FLMA and IFMA are presently (i.e., 1993) still in the pilot testing. As a guide, Table 5 presents the various incentive system for each program.

Table 5.
List of incentives in the current reforestation strategies in the Philippines

Programme	Incentive						
	Paid labour	Land tenure	Benefit sharing	Access to forest use	Usufruct	Tax discount	Loan
1. ISFP (fb)	X	X					
2. CFP (cb)	X	X		X	X		
3. CR (all)	X				X		
4. FLMA (all)		X	X		X		
5. IFMA (all)	X	X	X		X	X	X

fb: family-based
cb: community-based
all: referring to all legal entities e.g. universities, corporations, communities, NGOs etc.

3.4.2 The performance of Integrated Social Forestry Programs

The main incentive for participation in ISFP is the 25-year stewardship lease agreement which can be renewed for another 25 years. The effect of the instrument on participants' motivation towards tree growing is somewhat difficult to determine because of the absence of appropriate indicators.

Roughly, 50 percent of the 807 (of the total of 1,068) projects assessed by the defunct Bureau of Forest Development in 1984, were involved in agroforestry nursery activities (Aquino et al., 1987). Over the three-year period there were 700 agroforestry nurseries established nationwide, covering an area of almost 200 hectares with a cumulative total planting stock of 28 million seedlings raised. In 1985, about 21 million seedlings were distributed to the participants. This claim, however, does not give a clear picture of the individual participant's involvement in agroforestry on his ISFP-farm. A better basis of assessing the incentive's effectiveness should be the voluntary participation of farmers in tree growing on their farms rather than the area covered or the number of nurseries added or seedlings raised over time.

In an ISF project in the Cagayan Valley Region, Pasicolan (1991) noticed that participants lacked interest in tree growing inside their ISFP-farms despite the rigorous campaign conducted by the DENR and F/FRED-winrock Multipurpose Tree Species Project in the area. Tree growing as one condition in the 25-year Stewardship Contract should have motivated the farmers to take advantage of the free seedlings and other assistance offered by the project. Two nurseries were constructed for the production of Multi-Purpose Tree Species seedlings. When the seedlings were ready for transplanting, only 6 out of the 18 farmers asked for seedlings for their farm. Apparently, the 'wage-for-work-done' mentality introduced by the early DENR field staff had ruined the motivation of participants who were asked in the present project to construct hedgerows and terraces along the contours of their farmlands.

There appears to be no real guarantee that farmers will respond to tree growing by means of a land tenure arrangement in itself. The response varies with the type of socio-cultural or political settings participants used to live in. For the Ikalahan, a forest dwelling community in Sta. Fe Nueva Viscaya, security of tenure appeared to be an appropriate solution to their land dispute problems. For years they were subjected to constant threats of ejection by land speculators. When the area was finally declared under ISFP, there was a significant progress in forest regeneration and protection carried out by this tribe (Rice, 1984). Here, the recognition of the tribe's ancestral domain had strongly improved people's participation in forest protection.

In contrast, Maus and Schieferli (1989) found that in the regular reforestation site in Liwanag, Tumauini, the disputed land rights had caused continuous burning down of the project. According to local residents, portions of the

project site used to be their farmlands under usufruct, prior to the project's implementation. As an attempt to resolve the problem, a proposal to convert the project area into ISFP by the DENR was presented. However, the local people felt that the Certificate of Stewardship Contract (CSC), the 25-year land tenure provision of ISFP did not go far enough and they wanted the area to be fully privatized (Interview of CVPED conference participants, 1991).

From a legal viewpoint, the apprehension of the local people in the above mentioned project area is somewhat legitimate. One limitation of the stewardship contract, indeed, is its being just a lease contract. It is often considered inadequate as it has a limited term. Its validity only holds true under certain conditions. Also, it cannot be used as collateral for loans because it is not bankable since it can be revoked anytime by administrative action.

As an overall assessment of the impact of the program during its first seven years, Sajise (1991) is sceptical that the provision of land tenure alone can motivate and sustain participation in upland conservation and development in the long run. However, he still views the program as a potential major vehicle for developing capacities, values and orientation, skills and technology to harmonize the existence of the present occupants of the uplands with their environment.

3.4.3 The initial performance of Contract Reforestation

The National Forestation Program's accomplishment targets were mostly anchored on the Contract Reforestation. The Philippines staked its credibility to the lending banks being highly optimistic that the new reforestation approach in the country would be a show case for the ADB's expanded plans for environmental lending. This posed a strong pressure for the DENR to set unrealistic goals in order to justify the huge loans acquired (Korten, 1993).

It was a good show at the start, because for the first time in the history of reforestation in the country the pace of tree planting far exceeded the target goal for that period. However, this was a short-lived gain. The sustainability of people's participation began to decline in the second and third years of the contract. Based on the findings of many field evaluators there was a lower performance in terms of actual number of seedlings that survived, compared with what was initially reported during the tree planting phase.

The sub-optimal average performance of the program was partly attributed to participants' lack of technical preparation (ANGOC, 1991). However, the DENR's administrative limitations claimed to have aggravated the problem (Korten, 1993). The effects of cash payment on participants' project performance are presented below.

a. Effect on environmental goal

Most participants viewed the program as a mere livelihood option rather than as a means to protect the environment (ANGOC, 1991). Accordingly, some ISFP farmers abandoned their farms to join nearby contract reforestation projects, because they were allured by the immediate income. At the program level, there was a pressure to spend the huge funds regardless of the manner. Sometimes there were overlaps in the selection of project sites. A number of reforestation areas apparently already under the regular program, were designated as new planting areas (Personal Interview, 1991). More specifically, Umali (1989) identified three drawbacks with respect to the environmental goal.

First, the simple order to the field to 'plant, plant and plant' to reach the plantation establishment targets, only diverted the program's real qualitative goals/objectives (e.g., social equity, provide labour, sustainable development, and the necessity to maintain an established plantation).

Secondly, the choice of species was almost *ad hoc*. There was no prior and proper attention given to site characteristics, end-uses of the wood and the marketing aspects. The choice was just based on the availability of seeds.

Thirdly, the specific purpose of the plantation and the intended end-use of the wood and other produce were seldom specified. Also, there was no assessment of the economic, social and environmental viability of the projects.

b. Participants' socio-economic condition

Many participants claimed that the contract reforestation program was economically beneficial. Some invested their project's earnings to start a new livelihood option, others used their income for their children's schooling (NFP, Vol. 1, Nos 2, 3, 1990 & Vol. 2, No. 1, 1991).

While many claimed that they were benefited, others were further exploited, however. In the case of the Matigsalug-ug ethnic group in the Sinuda Contract Reforestation Project (ANGOC, 1991) it was reported that:

> 'The natives were initially eager to work for the reforestation because the contractors promised a high compensation rate. But wages were often delayed up to six months after their tasks had been completed. The contractors would instead offer them 'value' sheets to purchase goods from the contractors' stores. Food sold in these stores was extremely expensive which resulted in lower cash incomes. The natives experienced that pay arrangements were arbitrarily revised. For example, they were promised payment of P 900/hectare for planting. Yet many said they were only paid half of this. This situation angered many workers and prompted them to sabotage the program by throwing away seedlings instead of planting them.'

c. Effect on NGOs' and Local People's participation

The mushrooming of participating NGOs and community local organizations in such a short a time is very evident. During the period of 1989-90 alone, the DENR granted contracts to 9,594 families, 2,911 community associations, 465 corporations, and 142 local government units (Metin, 1991). This is in contrast to the 189 regular reforestation projects the government had maintained by December 1990. Up to June 1991, more than 20,000 contracts had been processed and were envisioned to be in full operation soon. In addition, eighty five percent (85%) of the 622 accredited NGOs were enlisted to assess and evaluate DENR contract reforestation projects throughout the country (NFP, Vol. 2, No. 1, 1991). However, not all of them were really committed to the cause of the program. Many developmental NGOs were much disturbed by the increasing number of 'fly-by-night' NGOs formed by individuals who simply wanted reforestation contracts and had no commitment to poverty alleviation or environmental restoration (Korten, 1993).

d. Actual Field Performance

Based on the DENR field evaluation report of 1991, there seems to be a sharp contrast between past achievement and the present contract reforestation. During 1988-1990 alone, there were about 154,127 hectares reforested as compared to the 274,270 hectares planted under the regular reforestation projects during the past many decades. In addition, the DENR claimed that deforestation has radically dropped to 17,401 hectares and reforestation had increased to 104,110 hectares from 1987 to 1988. In 1989, 131,404 hectares were reforested when the annual target was 100,000 hectares. If this rate of reforestation would have been sustained, undoubtedly, this would have exceeded the targeted total area of 225,000 hectares to be rehabilitated until the end of 1992. Quoting the impression of the team leader of the ADB Project Evaluation Mission in August 10, 1990, 'The National Forestation Program has shown commendable progress with all the targets having been met or substantially exceeded'.

However, despite this high commendation of the donor institutions about the initial accomplishment of the program, it was still too early that time to conclude that the present reforestation scheme is indeed successful. In most projects evaluated by ICRDF (1991) and HGAI (1991) in Pangasinan and Marinduque, respectively, in the past three years tree planting was reported to be more successful than seedling maintenance and protection. The separate evaluation made by NPCO-NFA (1991) of the 41 OSEC-funded community reforestation projects in Nueva Ecija did not mention any significant physical accomplishment of most projects assessed. Instead, it highlighted the poor seedling protection. The ICRDF (1991) shared these findings in one of the biggest contract reforestation projects in Tarlac.

Because the field assessments generally registered more failure than successful performance, the DENR's reforestation achievement report was probably merely based on selected good cases which in addition only focused on the total area planted rather than on the area actually maintained and protected.

e. Participants' environmental behaviour

To some degree, the program has heightened participants' environmental awareness (NFA Bulletin, 1991). However, with the recurrence of grassland fires and other related destructive activities taking place in most project sites, local people's participation became questionable. Some speculated that the delay in releasing funds, extortion and envy induced participants to sabotage the projects (NPCO-NFP Internal Report, 1991; HGAI, 1991).

Most participants probably interpret the program just as an employment activity. The cash-oriented and employment generation aspect of the program overwhelmed the value of environmental concern in the participants' mind. In Dy Abra, some local residents, who used to plant trees voluntarily in their farms and communal areas, began to associate tree planting with payment after the contract reforestation project was introduced in the area (Pasicolan, 1991). This coincides with what Goodin (1982) and Jack & Jack (1989) implied in their Moral Domain Theory. Accordingly, every decision could only be treated in one domain (i.e., either 'care' or 'homo economicus', whichever prevails over the other) because the two are incompatible with each other. Furthermore, the basis of decision cannot be fixed but rather changes depending on the prevailing drive.

Also organisational problems have been reported. The recent NPCO-NFP evaluation of 23 projects in Nueva Ecija mentioned the claim of some participants that there were contractors using dummy organizations, so that they could act as presidents to obtain more contracts. It was also discovered that most of them only undertook reforestation for profit motives. This is in accordance with the observed prevalence of many 'fly by night' contractors and NGOs (ANGOC, 1991).

3.4.4 Information gaps and research issues

Based on the aforementioned results and findings of using tenurial and financial instruments for participation in the ISFP and the Contract Reforestation respectively, the following information gaps and research issues can be identified.

1. Perception of the instrument by the target group

The experience with tenurial arrangement under ISFP has revealed the varying relevance of the instrument with respect to different types of participants. For example, the 25-year Certificate of Stewardship Agreement may be viewed by the DENR as appropriate to meet uplanders' quest for land rights. However, there were ISFP participants who perceived it as insufficient. There are instances wherein the instrument fits participants' needs; then, tree growing becomes an incentive to legitimize further an ownership claim over the area. This is for instance at stake in the case of tribal communities like the Ikalahan. But in general, it seems that the current contract is not perceived as sufficiently strong.

In the case of Contract Reforestation, most participants view the program as employment generation rather than as an environmental endeavour, because every activity is tied with cash payment. In some project sites, however, contract reforestation functions well. These good projects have some success attributes which are worthwhile to investigate.

Given the long experience with tenurial instruments under ISFP and the initial performance of paid labour in the case of the Contract Reforestation, the transition from the latter instrument to FLMA is rather uncertain. Therefore, there is a need to study further the various contexts in which the instruments do and do not function well to determine their optimum effectiveness and limitations.

2. Effect of the instrument on sustainable participation

While direct cash payment can arouse instant and widespread participation, based on the preliminary findings from the literature review, it appears that the effect of this incentive can not guarantee sustained project involvement in the long-run. Amongst others this was manifested by the incurrence of participants' behavioural problems associated with the irregularity of project cash flow. In this respect, it is important therefore to examine how financial instruments in the form of paid labour can contribute to participant's sustainable environmental behaviour. Both its comparative effectiveness and the possibilities to combine it with other instruments should be studied.

3. Transition period

The contractor's financial and technical preparation are two major factors that may impinge on the smooth transition from paid labour arrangement to FLMA.

A subsistent FLMA holder may be tempted later on to go back to his initial livelihood or may search off-farm jobs since it is not sufficient for him to depend on the direct cash earnings from maintaining and protecting the project. The probability that this will happen is high because there will be no immediate income options directly linked with the project.

In short, there is a need to examine contractor's considerations for sustained project participation to determine the bottomline of his long-term involvement after the three-year contract payment has expired.

4. Appropriate project performance indicators

In the DENR's project performance evaluation, the number of hectares planted and the rate of seedling survival constitute the main basis for the alleged success. There is no weight given to the social, economic and psychological aspects of actor's participation. In the long-run, such a performance evaluation scheme is too limited because the socioeconomic and psychological factors are crucial for real long-term project survival. In this regard, it is equally important to determine participants' perceptions, motivations and project behaviour. Such parameters will provide an empirical explanation of the project's physical performance and will be a better indicator of future success. The dynamics of participant's behavioural changes resulting from the shift of incentive system is as equally important as his field accomplishment in the project monitoring process.

3.5 Summary and General Conclusions

This section briefly summarizes the findings of this chapter. It also presents a few general conclusions gleaned from the literature study.

3.5.1 Local people's participation in forestry programs

In the past, forestry practice was mainly focused on industry needs. Towards the 80s, the emergence of Social Forestry marked the beginning of people-oriented programs with emphasis on tree growing for rural needs. People's participation became a magic catch-word in most forestry projects to highlight the call for massive local involvement in forest development.

Experiences in various countries revealed that tree growing by rural farmers may be conditioned by one or more of the followings factors:

a. *direct household needs*: e.g., fuelwood, fodder, food, housing and fencing materials and other tree-related needs;
b. *income*: earning from direct sales of tree products;
c. *land tenure*: it determines farmer's spontaneity and sustainability in tree growing;
d. *security over future tree produce*: tree grower's future access over the produce from the project, which is usually associated with tenurial security;
e. *management arrangement*: localized and semi-autonomous project planning and implementation;

f. *soil conservation*: if this factor becomes a critical condition for the promotion of sustainability of own resources (short-term cropping) then farmers will find an incentive in growing trees.

There is not yet a clear picture of how the different factors or conditions for spontaneous tree growing work in different situations. Much even less there is one encompassing theory which explains the different types of farmers' responses to possible tree growing programs of the government. However, existing theories can contribute together, in that they explain specific parts or aspects of the farmers' behaviour.

3.5.2 Incentive systems in forestry programs

The long gestation period of tree crops, coupled with many risks, makes tree growing a less acceptable livelihood option among most rural farmers. Incentive systems are introduced to remove farmers' constraints and to increase the feasibility of tree growing investment. Among the common incentives used in forestry programs are:

a. *Paid labour*: it can stimulate instant and massive participation, but is insufficient by itself. It must be complemented with or backed up by other incentives.
b. *Land tenure*: this is a critical condition for active and sustainable tree growing on public lands. If it is secured and clearly defined along with other incentives, farmers may well invest in long-term tree crops. However, under a vague or insecure tenurial arrangement, project participation tends to become erratic, conditional and problematic.
c. *Access to future produce*: this incentive always goes with security of land tenure. Both support each other in effect. When local people are assured of access from the tree produce apart from the other direct incentives gained from participation, their involvement in plantation maintenance and protection on public or communal lands may likely be sustained. However, if access to future produce is not provided, participation tends to be superficial and conditional.
d. *Cost-benefit sharing*: this is advantageous to poor farmers without initial financial capital whose main project input is land or labour. However, this would pose a problem on participation if the sharing arrangement is not equitable from the viewpoint of any of the contracting parties in the project.
e. *Subsidy*: it is often applied to change the allocation of the means of production. Its application can be necessary to motivate private individuals to engage in projects of high social value but with a low rate of return in the

short-run. However, it should not be too excessive, otherwise it may well become uneconomical from the government's viewpoint or it may even ruin participant's initiative for environmental sound behaviour.

f. *Loans/credits*: these are meant to solve cash flow problems or lack of capital to start and sustain a tree growing project. If granted with low interest and a grace period corresponding to the time until the tree crops are marketable, this instrument will benefit resource-poor farmers.
g. *Market incentive*: this is a very powerful incentive that can attract spontaneous and private tree growing. With a ready market and promising price of wood, farmers will be encouraged to invest in tree plantation, especially for fast growing species.

Each incentive has its own distinct role and degree of effect on sustainable participation. However, in practice, no single incentive can exist by itself. It is always complemented with or succeeded by another instrument. As to their relevance, it appeared from the literature that the most crucial factors to sustainable and spontaneous tree growing on public lands are the following: the market incentive and land tenure and/or access to future produce.

3.5.3 Incentives in the earlier Philippine reforestation programs

Reforestation in the Philippines is an old national policy concern which was also shared by most upland development programs in the past. Included among the early tree growing strategies initiated by both the government and the private forest industry on public lands were the following programs: 1) Forest Occupancy Management (FOM), 2) Communal Tree Farming (CTF), 3) Family Approach to Reforestation (FAR), 4) Regular Reforestation (RF), and 5) Industrial Tree Plantation (ITP). To gain the public participation, various incentives were used. Experiences with these programs revealed the following effects of the incentives used on participants' project behaviour.

a. *Paid labour*: when regularly given on a continuous basis, participation is generally high. However, it is a risky approach because it does not really result in a sustainable tree growing activity, especially if it is regarded as an end in itself. The overall effect has been poor as manifested by the low program output in the past.
b. *Land tenure*: if it is secured, farmers generally responded positively to tree growing. Both clarity and duration of tenure made the participants of the tree farm projects confident to plant trees in their areas even though the instrument was just simply under leasehold agreement.
c. *Access to future produce*: the sustainability of the indigenous forest management system developed by the Ifugao lies mainly in the tree growers' assurance of future access over the tree crops they planted. The 'Pinugo' is

a family-owned forest and it integrates Ifugao culture with the environment.

d. *Loan/credit*: this incentive proves to be effective in stimulating the sustained interest of small tree farm holders to engage in farm forestry. Small farmers' participation in plantation establishment in private lands increased when loans were made available.
e. *Market*: with a sure market along with production loans, small tree holders at the PICOP Southern Philippines were encouraged to shift from annual cropping to tree cropping. This incentive strongly motivates the small farmers to grow trees in their private lands.

Based on the literature review about the performance of the various incentives in the previous reforestation approaches in the Philippines, security of land tenure appeared to have the strongest positive effect on farmers' motivation to grow trees on public lands. In private tree growing however, both provision of loans and market incentives appeared to be crucial in farm and industrial forestry.

3.5.4 Incentives' impact on the current reforestation program

Under the new reforestation scheme on public lands, the government presently adopts the following programs: 1) Integrated Social Forestry Program (ISFP), 2) Community Forestry Program (CFP), 3) Contract Reforestation (CR), 4) Forest Land Management Agreement (FLMA), and 5) Industrial Forest Management Agreement (IFMA). Due to the recent emergence of some of these programs, only the Integrated Social Forestry Program and the Contract Reforestation were included in this review because in practice they have already been fully implemented nationwide for a certain number of years.

In the ISFP, the 25-year stewardship or leasehold contract as a tenurial arrangement between the government and the farmer appears to have varying effects with respect to the different socio-cultural backgrounds of the participants. Among the tribal groups, the leasehold contract in principle can suffice their quest for security over their ancestral domain which redounds to strong cooperation in forest development. However, on the overall effect the instrument seems not sufficient to meet most participants' aspirations for a truly secured tenure. This was manifested by the lack of voluntary response of the participants to tree growing or adoption of soil conservation measures in their ISFP farms.

The Contract Reforestation on the other hand, shows both signs of success and failure as based on the preliminary findings of the field evaluation carried out in its second year of implementation. As a cash incentive-based program, people are paid to plant and maintain forest species seedlings on public lands

for three years. Among its good effects on the overall attainment of the reforestation goals are:

1. there is a greater public participation compared to the results of the regular reforestation program. Various NGOs, People's Organizations, Local Government Units, individual households and other private and local groups were fully mobilized;
2. there is a relatively higher attainment of social equity, compared to the past regular reforestation scheme, in which employment benefits were confined within a very limited group. As such, the economic benefits from participation is widely spread over the rural communities;
3. there is an immense participation of NGOs, People's Organization and other local groups in the building up of community institutions as well as in the monitoring and evaluation activities of the program;
4. in general, the most obvious characteristic of the current reforestation program is its accelerated pace of tree planting as a result of massive public participation.

On the other hand, the program implementation suffered a great setback, particularly caused by the huge ADB loan, which outmatched the DENR's bureaucratic capacity. Among the negative repercussions evidently observed are:

1. the large environmental loans forced unrealistic targets for the implementing agency. The consequences were: haphazard recruitment of contractors, mushrooming of 'fly-by-night' and dummy NGOs, delineation of inappropriate areas for planting, rigid compliance to a prescribed field plan, unscrupulous program spendings resulting to graft and corruption;
2. the late releases of contract payments derailed the program. Subsistent participants were much affected and were forced to quit prematurely or to participate inconsistently and conditionally. However, those above subsistence level endured to remain in the project until they were able to obtain a lumpsum of the delayed project earnings;
3. the Contract Reforestation was perceived by most participants as merely an employment rather than as an environmental program. Those who directly depended on the project for subsistence had erratic, intermittent, conditional and problematic involvement in seedling protection and maintenance;
4. there was a remarkable field accomplishment in the first year in terms of number of hectares awarded and planted. The succeeding years were characterized by premature abandonment of the project, deliberate burning and low seedling survival. This dramatic turn of events coincided with the late releases of payments and the reduced expected project earnings in the second and third year of implementation.

3.5.5 Contract Reforestation Sustainability Conditions

From the above mentioned preliminary findings, the following are some conditions for contractor's sustained participation:

1. contract payment should be given equitably and regularly;
2. community contracts should have a real and strong organizational control that emanates from the group's majority decision or aspiration;
3. contractor's initial development plans and options for the site should be integrated in the over all reforestation plan;
4. accomodate contractor's species and plant spacing references;
5. introduce or diversify contractor's subsistent patterns preferably a livelihood linked to tree growing;
6. provision of other incentives in kind (e.g., fencing materials, farming inputs or animals);
7. equipping contractors and labourers with social and technical preparation.

3.5.6 Contractor's options

The following are among the possible project options of contractors:

1. the subsistent contractors would prematurely abandon the project in search of immediate source of earnings in case of prolonged delays of payment;
2. disgusted subsistent contractors may likely abandon the project and would even be tempted to sabotage it;
3. under a good climatic and soil condition, landless subsistent contractors may simultaneously intercrop between seedlings in the project area;
4. rich contractors with initial development plans for the project area may be interested to pursue longer participation beyond the three years contract;
5. contractors representing tribal or strongly organized communities may continue to participate in protecting the project even after the three year contract expires prior to the awarding of the FLMA.

3.5.7 General conclusions

Based on the findings obtained from the various experiences in the Philippines and in other countries, a number of factors or success conditions for sustainable tree growing were roughly identified. Although there is already some initial picture of how these different factors work, it is still quite unclear the extent to which one factor works individually or in combination with other factors to attain a long-term success under different conditions. Hence, there is a need to examine in what context a certain incentive works and when it does not function well. Also, it is equally important to investigate how the

various incentives for tree growing complement or support each other to bring about the desired outcome in the long-run.

3.6 Research Questions

There is a rather varying but predominantly insufficient and even negative result of the contract reforestation program up to now. In addition, there is a dearth of information about the conditions which are essential for the successful implementation of paid labour as an instrument for participation. Given the assumption that paid labour is still a powerful tool, which can or has to be profitably used in the Philippine reforestation program, the following research questions can be formulated:

1. What is the bottomline of actor's sustained participation in the three-year contract reforestation period of the program?
2. What are the various success conditions for and the determinant factors of farmers'/participants' sustained project involvement after the three-year contract payment has expired?
3. To which extent can these success conditions and determinant factors be differentiated with respect to different situations?
4. How can these success conditions to sustainable tree growing be possibly enhanced and sustained in the Philippines?

4

Research Structure and Methodology

4.1 General Research Structure

The field investigation of this study consisted of three main parts: 1) contrast analysis, 2) validation study and 3) investigation of spontaneous tree growing activities.

4.1.1 Part I: Contrast analysis

A comparative assessment between successful and not successful reforestation projects was conducted in Cagayan Valley region. The aim was to identify the various parameters related to contractor's successful project performance. It examined the effect of paid labour (as instrument for participation) and the other exogenous factors on his sustained seedling protection and maintenance in the second and last year of the three-year contract period. From this analysis the various conditions for project success and the background factors behind them were identified and analyzed. The findings from this analysis served as baseline data for the further study in other tree growing projects included in this research.

4.1.2 Part II: Validation study

This was an independent follow up study carried out in selected successful reforestation projects in other regions in Luzon Island. The primary objective was to test whether the success parameters determined in Part I (contrast analysis) correspond to those in other regions in the country. Also, this validation study tried to identify other possible success parameters and the background factors behind them that seemed to be not evident in the earlier study.

4.1.3 Part III: Investigation of spontaneous tree growing

An extended field investigation was carried out in spontaneous tree growing activities in the same locations of a number of unsuccessful government reforestation projects. The purpose of this research was to validate whether or not the success parameters present in government-sponsored reforestation projects would also hold true for spontaneous tree growing projects through farmers' initiatives. On the basis of this analysis, it may also be worthwhile for DENR to develop a policy aimed at stimulating these spontaneous tree growing activities.

4.2 The Conceptual Framework of the Analysis

In all these three parts of the study, a four-step procedure was followed consistently throughout (see Fig. 1). These steps were:

1. assessment of project performance, in terms of seedling survival. Based on DENR's performance evaluation criteria, the 80 percent seedling survival served as the ultimate basis of project success;
2. assessment of participants' behaviour in terms of their performed activities. The term 'participant' is a collective name to mean both contractor and labourer. What distinguishes one from the other is that the contractor, being the primary actor, has a formal role and with a definite tenure of project involvement. In contrast, a labourer in most cases, is someone who is hired on a daily basis without a definite duration. Often, he participates mainly to earn an immediate income from the reforestation activities. In practice, the contractor has a higher stake and a moral responsibility over the project than the labourer, being the very person who entered into agreement with the DENR;
3. identification of the contractor's motivations, in terms of the various conditions for his sustained participation in seedling maintenance and protection for the first three-year period of the project. By determining the bottomline motivation for his participation, this provided an empirical basis in explaining his project behaviour;
4. identification of the background factors determining contractor's motivation for participation. These were broadly categorized under three major components of the project setting:
   a. *site's characteristics* comprised the biophysical and tenurial features of the project site;
   b. *contractor's characteristics* comprised his socioeconomic condition as well as his personal traits and attributes;

c. *project management's characteristics* comprised the program's implementation schemes and the DENR's institutional setting.

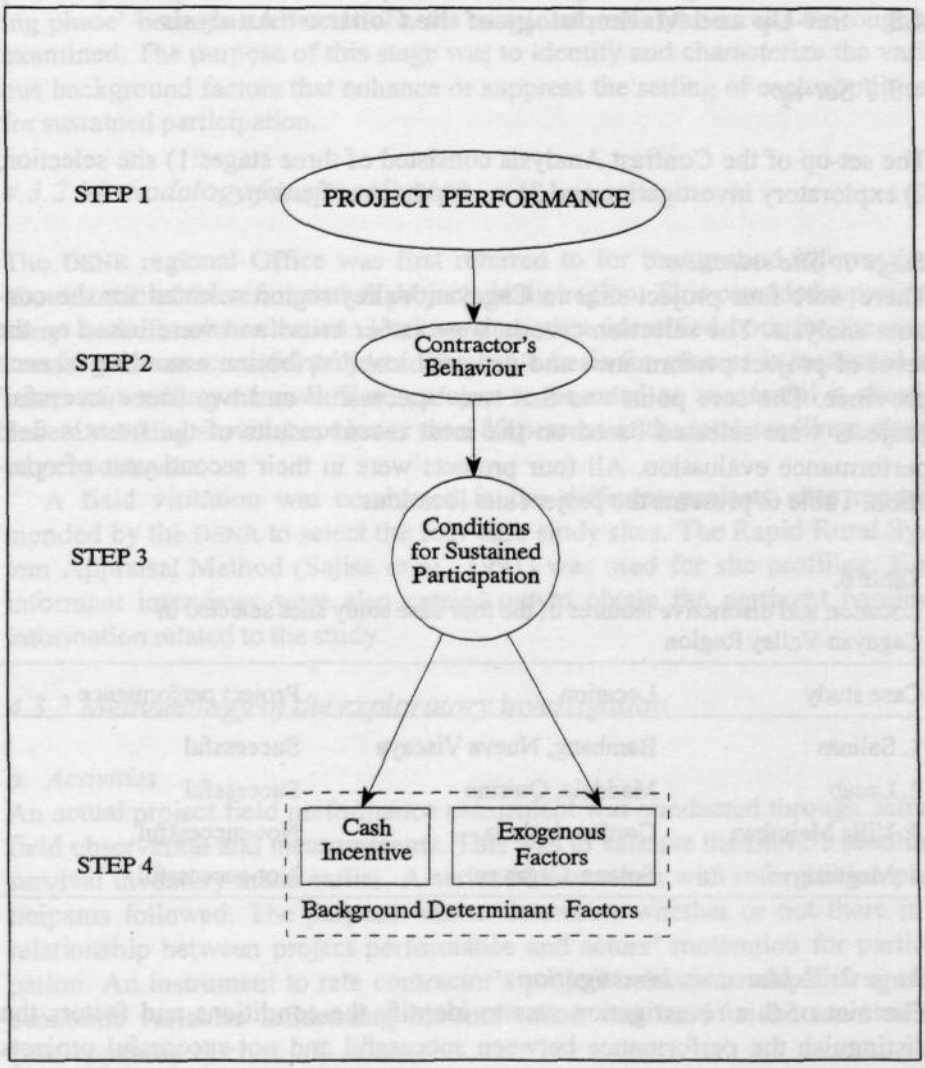


Figure 1.
Conceptual framework of the analysis

In Part I and II, the key respondents were contractors in government reforestation projects. In Part III however, they were individual farmers and tree growers without contracts from the DENR and government introduced incentives.

4.3 Set-Up and Methodology of the Contrast Analysis

4.3.1 Set-up

The set-up of the Contrast Analysis consisted of three stages:1) site selection, 2) exploratory investigation and 3) in- depth investigation.

Stage 1: Site selection

There were four project sites in Cagayan Valley region selected for the contrast analysis. The selection criteria were rather broad and were based on the level of project performance and geographical distribution according to each province. The core point was that two 'successful' and two 'not-successful' projects were selected based on the most recent results of the DENR's field performance evaluation. All four projects were in their second year of operation. Table 6. presents the project site locations.

Table 6.
Location and distinctive features of the four case study sites selected in Cagayan Valley Region

Case study	Location	Project performance
1. Salinas	Bambang, Nueva Viscaya	Successful
2. Lacab	Maddela, Quirino	Successful
3. Villa Meimban	Cordon, Isabela	Not-successful
4. Maguirig	Solana, Cagayan	Not-successful

Stage 2: Exploratory investigation

The aim of this investigation was to identify the conditions and factors that distinguish the performance between successful and not-successful projects. Since the main focus of the study was to evaluate the effect of financial incentive in the form of paid labour on local actors' project participation, the effect of this instrument was used as starting unit of inquiry. However, the focus of the analysis was centred on the various conditions for contractor's sustained project participation. This stage was regarded as the 'scanning phase' because

it tried to identify roughly all variable factors that would seem to have a bearing on project performance.

Stage 3: In-depth investigation

The conditions for actor's sustained project participation identified in the Exploratory Analysis were further probed. This stage was regarded as the 'focusing phase' because each condition for sustained participation was thoroughly examined. The purpose of this stage was to identify and characterize the various background factors that enhance or suppress the setting of each condition for sustained participation.

4.3.2 Methodology for site selection

The DENR regional Office was first referred to for background information about status of the reforestation projects in the region. This provided a preliminary basis for site selection. Various sites were identified both for the successful and unsuccessful projects. The DENR basis for success is measured in terms of seedling survival. For a project to be rated as successful it should have a seedling survival not lower than 80 percent of the total seedlings planted per contract.

A field visitation was conducted in the different projects sites recommended by the DENR to select the four case study sites. The Rapid Rural System Appraisal Method (Sajise et al., 1991) was used for site profiling. Key informant interviews were also carried out to obtain the pertinent baseline information related to the study.

4.3.3 Methodology of the exploratory investigation

a. Activities

An actual project field performance assessment was conducted through actual field observation and measurements. This was to validate the DENR's seedling survival inventory made earlier. A series of interviews with reforestation participants followed. The purpose was to determine whether or not there is a relationship between project performance and actors' motivation for participation. An instrument to rate contractor's project behaviour and other socio-economic variables influencing his motivation was used in the assessment (see Appendix 1).

b. Respondents

A total of 202 respondents (i.e., 52 contractors and 150 hired daily wage labourers) were interviewed. There were two separate interviews made to distinguish between primary actors' (contractor) and peripheral actors' (hired

wage labourers) participation. Although the latter formed the main work force, they do not have a formalized role and certainty of longer involvement in the project. In practice, only the contractor had permanency and moral responsibility over the project.

c. Social inquiry technique

Participant observation, direct, unstructured and informal interviews were the main tools for the data collection in this stage. Here, respondents' perception, motivations and behaviour towards the project were examined. Vayda's (1983) Progressive Contextualization concept combined with De Groot's (1992) Actor-in-Context analysis provided practical insights in carrying out the field interviews. Three basic principles were observed in the interview:

1. there should be no *a priori* framework set about the problem to be investigated or any predetermined structure of questions in order not to preempt a bias judgement about any perceived deviation from the normative actor's behaviour. The premise was 'all human actions are rational in their own context';
2. there should be no fixed system boundary set, to pursue the 'element of surprise' which may disguisedly be hidden beyond the domain of the chosen object of the field inquiry. Here, it is important to keep track of the context of every action link to the problem under investigation and to define the who, what, where, when and why dimensions of the inquiry. With this approach, the researcher can switch from one unit of analysis to another as called for by the situation;
3. the analysis should start from the actor's problematic activity and continuously pursue towards getting into the core of the problem as more actors and activities linked to the activity are being investigated with progressing context.

4.3.4 Methodology of the in-depth investigation

Since the in-depth study was a follow up of the exploratory investigation, the same field interview approach and tools were used in the inquiry. In this stage however, the research inquiry was more focused on the last step of the framework of the analysis (Fig. 1), i.e., the identification of the various background factors to actor's sustained participation in the project. Also, the interview was confined at the contractors because they are the direct actors who have a formal role with a more defined interest in the project than the daily wage labourers. The concluding part of this stage was the Chi-square test of significance of the various conditions which seemingly have a bearing on contractor's sustainable participation in seedling protection and maintenance.

Chi-Square Test was used because it fitted the type of data, which were organized in 2 x 2 blocks (success/no-success and factor/no-factor). It is a measure of a significance of a difference between two populations (is factor A distributed in the successful population diffently from in the unsuccessful population?). The sample being drawn was two out of the population of successful projects and two out of the population of unsuccessful projects in Cagayan Valley, generating a larger number of contractors in these projects. The basic condition for applying Chi-Square Test, that E (expected value) is larger than 5 was satisfied.

4.4 Set-Up and Methodology of the Validation Study

4.4.1 Set-up

Stage 1: Site selection and profiling
Five additional successful government reforestation projects located in other regions in Luzon Island were selected as a follow up of the four case studies in Cagayan Valley. The main features of the project sites were examined in relation to their biophysical and contractors' characteristics.

Stage 2: Exploratory investigation
The aim of the analysis was to identify and examine the conditions of contractor's sustained participation in seedling protection and maintenance as well as the background factors behind these conditions in the five additional successful government projects.

Stage 3: Validation and identification of new variables
The aim of this stage was to compare the success conditions and background factors obtained from the four case studies in Cagayan Valley (in the contrast analysis) with that of the five additional projects. Also, it was intended to determine other variables to contractor's sustained project participation that were not present in the earlier case studies.

4.4.2 Site selection and profiling methodology

a. Criteria for site selection
The five additional sites were selected based on the following criteria. First, the project should have a successful field performance with at least an average seedling survival of 80 percent for the three successive years of the contract period. Secondly, the project should be due for turn over by the DENR to the

contractors for FLMA. Thirdly, each project site must represent one region in Luzon. Table 7 presents the geographical location for each project.

Table 7.
Geographical locations of the five additional case studies in other regions

Project	Location	Region
Sta. Marcela	Kalinga, Mountain Province	Cordillera Autonomous Region
Labney	Mayontoc, Tarlac	Central Luzon
Bugallon	Bugallon, Pangasinan	Ilocos Region
Cavinti	Cavinti, Laguna	Southern Tagalog Region
Virac	Virac, Catanduanes	Bicol Region

b. Activities

The National Reforestation Coordinating Office at the DENR Central Office was consulted in the selection of the study sites. After determining the sites, an ocular inspection and field interviews with the prospective FLMA contractors were conducted.

c. Research tools

A rapid assessment of the project site was done using the Rapid Rural System Appraisal Approach. For the field interviews, the same research tools were used as in the contrast analysis study.

4.4.3 Exploratory investigation methodology

The same social survey tools and approach in the first four case studies in Cagayan Valley were applied in the conduct of interviews with respondents in the five additional study sites. Likewise, the four steps of pursuing the research inquiry in the contrast analysis study were also used with Fig. 1 as a basis.

4.4.4 In-depth investigation methodology

The validation of the earlier findings in Cagayan Valley with the research results in the additional five projects investigated was done by comparison and contrast. The identification of the new variable factors to contractor's sustained project participation was accomplished in the process of doing the exploratory investigation.

4.5 Set-Up and Methodology of the Investigation of Spontaneous Tree Growing Activities

4.5.1 Set-up

Stage 1: Discovery of observation sites and profiling

Four sites with spontaneous tree growing activities by individual farmers were included in order to compare with and validate the research findings obtained in the nine government-sponsored tree growing projects. The main features of each observation site were examined with much focus on the farmers' background and attitudes in relation to tree growing. Table 8 presents the geographical location of the sites of the four spontaneous tree growing activities.

Table 8.
Geographical locations of the sites of the four spontaneous tree growing activities by individual farmers

Observation site	Location
1. Quibal	Penablanca, Cagayan
2. Maguirig	Solana, Cagayan
3. Nagtimog	Diadi, Nueva Viscaya
4. Timmaguab	Sta. Ignacia, Tarlac

Stage 2: Exploratory investigation

The aim of the analysis was to identify and examine the conditions of farmers' spontaneous tree growing activities and the background factors behind these conditions in the four observation sites.

Stage 3: Validation and identification of new variables

The aim of this stage was to compare the success conditions and background factors obtained in the nine government tree growing projects with that of the spontaneous projects. Likewise, it was intended to determine other pertinent variables to successful tree growing which may apply to both government and spontaneous tree growing projects.

4.5.2 Discovery of observation sites and area profiling

The discovery of the four observation sites was accidental but was mainly inspired by the 'look for and enhance contrast' general guiding principle in

De Groot's (1992) Action-In-Context Research Method. By looking for actors who appear to be in the same circumstances as those first identified but who do not carry out the problematic activities (i.e., deliberate burning or premature abandonment of the project, undue grazing, conditional participation, etc.), the location of the spontaneous tree growing activities were discovered through evaluating a number of unsuccessful government projects in the same sites.

The same profiling method was used as in the first two sets of case studies.

4.5.3 Exploratory and in-depth investigation methodologies

The same exploratory and in-depth investigation methodologies in the validation study on the government tree growing projects were applied for the spontaneous tree growing activities.

4.6 Summary of Research Activities

The research activities were carried out in four different periods from May 1992 to August 1994 (Table 6). The first phase consisted of two stages. These first and second stages were regarded as the 'scanning' or 'exploratory' phase. Two successful and two not-successful projects in Cagayan Valley were contrasted and analyzed. Site profiling and identification of the various success conditions for contractor's sustained participation in seedling maintenance and protection were conducted under this contrast analysis.

The third stage is referred to as the 'focusing' or 'in-depth analysis' phase. Here, the various background determinant factors of success conditions identified in the scanning phase were investigated in more detail.

The fourth stage is the 'validation phase'. The different success conditions and the corresponding determinant factors found in the contrast analysis were further validated in terms of their presence and relevance in the five additional case studies of government projects and the four spontaneous tree growing activities by individual farmers in other regions in the country. Table 9 presents the program of research of activities of the study.

Table 9.
Generalized program of research activities

Period	Research activity
1. May - Sept. 1992	Reconnaissance survey, selection of the four case studies for the contrast analysis and key informants' interview
2. Oct. 1992 - March 1993	Project assessment and exploratory investigation of the various success conditions for contractor's sustained project participation in the four case studies under the contrast analysis
3. April - Dec. 1993	In-depth investigation of the various determinant factors of the success conditions identified in the exploratory study under contrast analysis
4. Jan.-Aug. 1994	Validation of the contrast analysis findings in additional five selected government reforestation projects and in four spontaneous tree growing activities by individual farmers in other regions in the country

5

Contrast Analysis

5.1 Selection and Brief Characterization of the Study Sites

Four reforestation projects in Cagayan Valley were taken as case studies. There were two 'successful' and two 'unsuccessful' projects compared and contrasted. The aim was to examine the success conditions of good performing projects and the factors of failure of unsuccessful ones.

There were no prior criteria used in the selection of the project sites except for their current field performance and geographical location. The two successful projects are found in Salinas and Lacab and the two unsuccessful ones are located in Villa Meimban and Maguirig. As an overview of the four case studies, Table 10 gives general features of each project area.

Table 10.
General features of the four case study sites selected in Cagayan Valley Region, Northeastern Philippines

Project	Location	Size (ha)	Type of contract	Number of contractor	Total No. of labourer	Project performance
1. Salinas	Bambang, N. Viscaya	250	Community	16	224	Successful
2. Lacab	Maddela, Quirino	66	Family	12	36	Successful
3. Villa Meimban	Cordon, Isabela	97	Family	9	139	Unsuccessful
4. Maguirig	Solana, Cagayan	200	Community	15	225	Unsuccessful

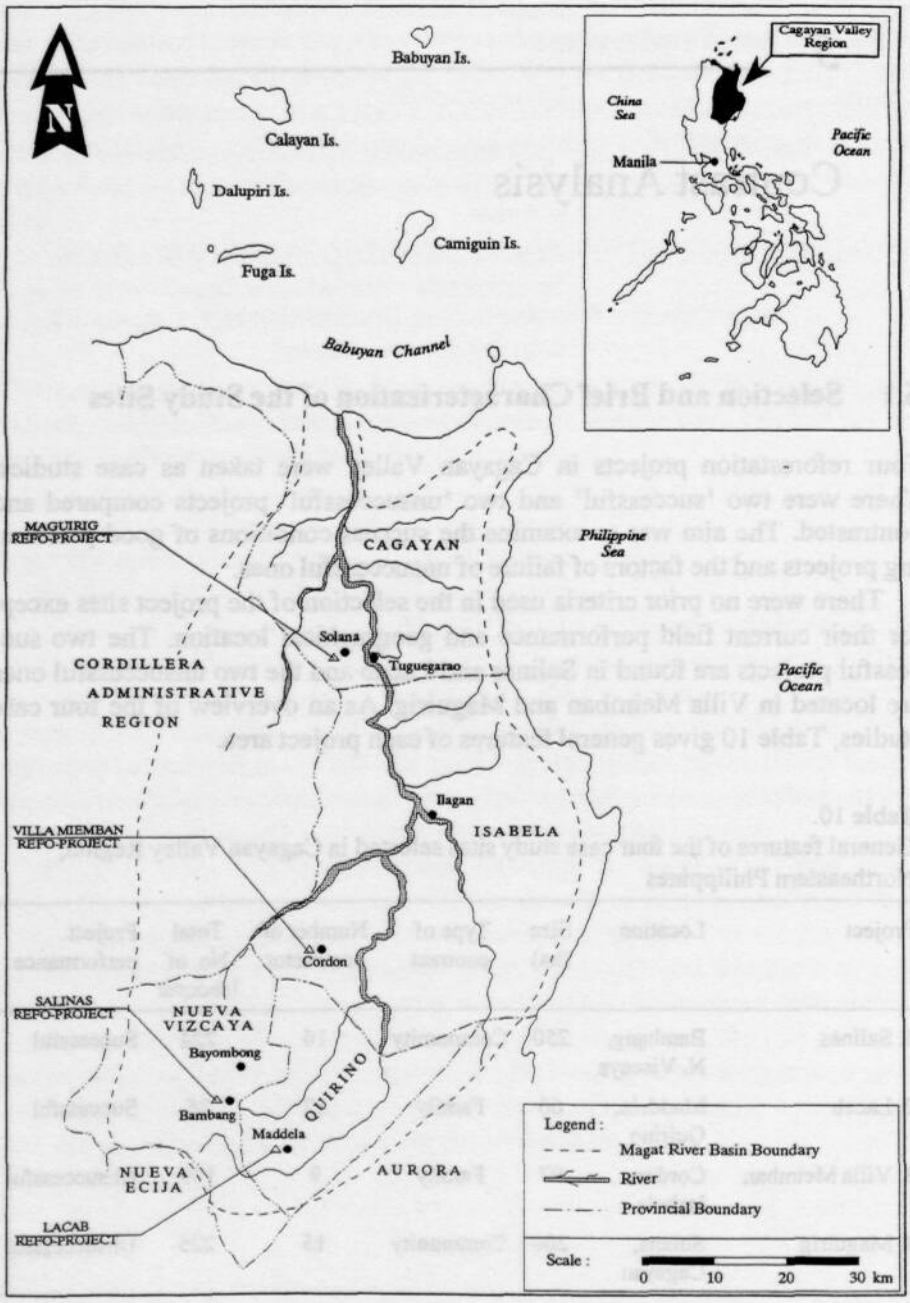


Figure 2.
Location map of the four study sites for the contrast analysis in Cagayan Valley region

The projects in Lacab and Villa Meimban were dominantly under family contract. In Salinas and Maguirig, almost all projects were under community contract. The minimum required number of participants in a community contract is 15. The contractor, being the formal representative of the group, has a relatively permanent tenure throughout the contract period. Most participants are often just hired as daily wage labourers, although in principle, they comprised the membership of the association they represent. Under the family contract, the work and benefit are confined within the household members.

The four projects were in their second year of operation and being under the same DENR regional administrative set-up, they shared common experiences and circumstances as regards to the problems of delayed issuance of contract payments.

The following sections discuss in detail the results of the exploratory investigation for each case study. Fig. 2 presents the location of these four case studies in Cagayan Valley region.

5.2 Exploratory Investigation

5.2.1 Salinas case study

a. Project setting

The Salinas Reforestation Project was established in 1940 as watershed protection of the Lower Magat side that partly drains in the Cagayan River. The total project area is roughly about 10,000 hectares extending to the eastern Cordillera Mountain Range.

In the 70s and 80s the area was frequented by many tourists and excursionists because of its spectacular natural salt spring. After the killer earthquake in 1990, the salt geyser died out. Since then, the former tourist spot became a rather desolate place with just the reminiscence of a massive solid white rock. Although tourism no longer provided additional income for most of the local people, the community still seems to prosper economically because of the boom in rice production.

Rice farming is a rewareling livelihood. More than 1,000 hectares of rice fields are under cultivation year-round due to the continuous abundance of irrigation water . Both rice and vegetables rank top most in the farmers' cash crops with market outlets extending even up to Manila and Baguio.

In short, rice farming and vegetable gardening remain the dominant livelihood of most people in the community with earnings from the reforestation project as supplementary income.

The project had 240 participants representing 57 households in the community. Of this number, five households were pasture leaseholders while 42

engaged simultaneously in rice and vegetable farming with the project earnings only as additional income. Only ten households were partly dependent on the income from the project for their subsistence. With the high demand for farm labour year-round, farmers have no time to waste. Every participant had at least two or more income options.

Majority of the participants had experienced working as daily wage labourers in the past regular reforestation project under government administration. With contract reforestation, participation was increased including barangay officials and some rich local residents. The majority of the participants were above subsistence level while most contractors were financially stable with cash surplus. All participants were locally-based.

b. Project performance

On the average, the performance of the whole reforestation project was relatively satisfactory. Despite the project being situated in a fireprone area, there was a minimal and sporadic occurrence of grassland fires which were unintentional as claimed by the participants.

Based on the 1992 DENR evaluation, few contracts obtained an ICM[1] rating slightly lower than the 80 percent passing mark. On the average, the project rating was 88.68 percent, a score that qualifies for FLMA. In the same year, another field evaluation was carried out as part of this study with the overall performance rating shown in Table 11. The measurement used to assess qualitatively the performance of the project is found in Appendix 1.

c. Research findings

A majority of the participants were not desperately dependent on the project for their subsistence. They withstood the agony of waiting for their payments without prematurely leaving the project. First, the presence of other sources of income in the community enabled them to cope with the situation. Secondly, the wealthy project contractors defrayed meantime the wages of poor members of the project which prevented the disintegration of the group. Thus, there was a strong community cooperation in fire fighting and strict regulation of open grazing in the project site. Thirdly, their striving for FLMA motivated them to perform well in the project.

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[1] ICM = Inspection Chart Map is a tabulated recording system being used in keeping a periodic assessment of the percentage seedling survival in the project area. For a project to be considered 'successful', it must have an ICM score of at least 80 percent.

Table 11.
Performance rating of Salinas Reforestation project as per actual evaluation in 1992

Parameter	Rating
1. Seedling Survival: (new plantation: 85%)	Very high
2. Level of Local Participation	Very high
3. Sustainability of People's participation	High
4. Sense of Ownership	High
5. Level or Moral Responsibility	High
6. Ability to Contain Problems Related to DENR's Project Implementation Practices	High
7. Level of Awareness About the Program	Very high
8. Level of Psychological Satisfaction Towards the Financial Instrument	Very high
9. Level of Organization	Very high
10. Level of Environmental Concern	Very high
11. Trust in the Project Management	Low
12. Participants' Working Morale	High

Few participants viewed project earnings as additional source of subsistence. Often they were conditioned to participate when immediate payment was assured. Participants above subsistence level on the other hand were not much affected by the delayed payments. They regarded project earnings as savings or additional capital for future investments or for sending their children to high school. Unlike the subsistent participants, they withstood cash-related problems and remained actively involved in the project. Also, most of them felt no resentment towards the DENR or the project management for the late payments. Some wealthy contractors even used their personal funds meantime in paying their labourers' wages.

Most of the successful contractors manifested strong sense of ownership over the project. Some even ambitioned to convert the site into homestead later on. Majority of the contractors perceived the prospect of turning the area into agro-silvi-pastoral project in the future. Some farmers introduced other perennials such as fruit trees in the project site. A number of them were able to interplant short-term subsistent crops in those arable portions. One contractor fenced his area with much confidence that he will be awarded with the FLMA soon. Almost all of them were looking forward with much anticipation the conversion of their contracts into FLMA in the near future.

d. Conclusion

Based on this exploratory assessment, the high financial security of most contractors and the above subsistence level of the majority of the labourers appeared to have a significant effect on project success. Also, there was a strong

sense of project ownership felt by most contractors. Their overwhelming anticipation for the FLMA motivated them to introduce site developments including simultaneous intercropping in the area. The prospect of agro-silvi-pastoral management was much ambitioned by them. Furthermore, the strong community cooperation spared the project from rampant grassland fires and open grazing. In short, five success conditions appeared to have bearing on the project's success, namely: 1) good financial situation of the participants, 2) intercropping between seedlings, 3) assured access/property right, 4) having interest in other related tree uses, and; 5) community cooperation.

5.2.2 Lacab case study

a. Project Setting

In the 1970s, the project site used to be a *kaingin* area. It was occupied by the Ilocanos and Ifugaos who first came to the place in search for land to farm. Being endowed with good soil and favourable climate, the site became a promising cropland.

Although it is within the forest zone, its accessibility to Maddela town enables the farmers to bring their harvests and other farm products to the nearest trading centre regularly. Marketing their farm products is not a problem at all.

In 1989, the DENR turned the area into a reforestation site in response to the new order of planting trees in all open forestlands. The people did not resist such move because there was no spatial displacement or alteration of farmers' position in the newly declared reforestation site. Each farmer became a reforestation contractor of his own farm. While reforestation was taking place in the site, short-term cash and subsistent croppings continued in between the seedlings. The contractors were also given the freedom to choose the tree species to plant.

To prolong the use of the land for annual cropping, farmers chose to plant long gestation species like narra (*Pterocarpus indicus*) and mahogany (*Swietenia macrophyla*) instead of the fast-growing species recommended for reforestation like *Gmelina arborea* and Eucalyptus. The planting space adopted was 4 x 4 meters instead of the prescribed spacing of 2 x 2 meters.

The project management usually consulted the farmers for any plan or new developments concerning the project. They were encouraged to participate in meetings and to decide for themselves in all matters affecting their stay in the area. A strong community cooperation was enhanced with the involvement of the village council in the project management. Fire fighting and plantation protection became a communal activity. With this climate trust and confidence built between the community and the DENR, the participants felt the strong sense of project ownership.

There were 12 family contracts covering a total area of 66 hectares. Out of 48 participants, about 30 are Ifugaos and Igorots while the rest were Ilocanos and Ibanags. These farmers have settled in the area since 70s and 80s. Some of them have both upland farm and a small parcel of irrigated rice field. These farmers are said to be self-sufficient in food and that they go out rarely during off-season in search of a part time job to augment their subsistence. Around 80 percent of the produce from their farms is for home consumption, while the remaining is sold in the market. However, their major source of income is derived from banana, vegetables, fruits, swine and sales of other farm animals. An average farmer can realize a weekly income of P 300-400 from banana sales, an amount sufficient enough to provide a family of five members in the rural area the basic household needs.

b. Project performance

Apparently, 'paid labour' was not the main motivation for contractors' participation. In a strict sense, it appeared that there was no payment needed to motivate participants in protecting and maintaining the project. As they cleaned and cultivated the land for annual cropping, they also provided the same care for the seedlings since these were planted in between the main crops. Such kind of treatment, together with good soil and favourable climate, resulted in a high seedling survival and a height reaching an average of almost 1.5 meters in just two years. Likewise, there was no incidence of grassland fires or other plantation damage despite the fact that the project is situated in a fire prone area. With the strong sense of communal spirit among the contractors they agreed to help each other in protecting their farms from astray animals and grassland fires.

The average ICM rating based on the 1992 DENR's evaluation is 93 percent seedling survival, with average tree height of 1.5 meters, which is highly qualified for FLMA. Likewise, in the same year, an independent evaluation was conducted in this present study reporting the overall performance rating as presented in Table 12 below.

Table 12.
Performance rating of Lacab Reforestation project as per actual evaluation conducted in the study in 1992

Parameter	Rating
1. Seedling Survival: (new plantation: 90%)	Very high
2. Level of Local Participation	Very high
3. Sustainability of People's Participation	Very high
4. Sense of Ownership	Very high
5. Level or Moral Responsibility	Very high
6. Ability to Contain Problems Related to DENR's Project Implementation Practices	Very high
7. Level of Awareness About the Program	High
8. Level of Psychological Satisfaction Towards the Financial Instrument	Very high
9. Level of Organization	Very high
10. Level of Environmental Concern	High
11. Trust in the Project Management	High
12. Participants' Working Morale	Very high

c. Research findings

The recognition of the farmers' usufruct over the recently declared reforestation area appeared to be an important factor for the project's success. The original settlers, being assured of their land rights over the site, were motivated to participate actively in the project. Later on, this was further reinforced by their awareness of FLMA as a means to ensure long stay in the area. Also, the farmers' free choice of species to plant and the seedling spacing to follow, boosted their confidence of ownership over the project. In the future, they envisioned to introduce agroforestry when short-term cropping would no longer be feasible in between the growing trees.

The cash-for-work done in the project is not a crucial factor in sustaining project participation. Most of them viewed paid labour as additional incentive but they were not dependent on it for subsistence. According to them, 'they may not even be paid for the trees they planted because it is within their farmlots anyway'. More interestingly, some participants expressed willingness to reforest new sites even without payment to avail of additional landholdings for farming.

A majority of the participants felt satisfied with the earnings from the project. They seldom uttered any negative remark against DENR or the project manager regarding late payment or undercompensation. According to them, 'what matters most is that they can farm in the same area and hope to attain the FLMA in the future'. Furthermore, they were not desperately dependent on

the project's earnings for subsistence because they gained food and cash needs from simultaneously farming the area.

d. Conclusion

Based on this exploratory assessment, the creative management intervention (i.e., recognizing 'on-site' contractors' informal rights over the site), triggered their strong acceptance of the project in their croplands. The uninterrupted farming alongside with the reforestation relieved contractors' direct dependence on project payment for their subsistence. This helped much in sustaining their participation amidst irregularity of payment.

In conclusion, project success was primarily attributed to the following conditions: 1) contractors' assured access or property rights over the site, 2) their practice of simultaneous intercropping between seedlings, 3) their non-dependence on project payment for subsistence, 4) their interest in other related tree uses, and 5) their community cooperation.

5.2.3 Villa Meimban case study

a. Project setting

Villa Meimban Reforestation Project lies in the eastern side of the Magat Reforestation Area. Situated in the foothills facing the Cordillera Mountain Range from the extreme east, its topography is rugged and steep. The area is dominantly covered with grass (*Imperata cylindrica*) and randomly interspersed by shrubs, brushes and *kaingin* farms.

Adjacent to the project site is the 281-hectare Integrated Social Forestry Project (ISFP). Farmers simultaneously farmed the ISFP land and planted trees on project sites.

The area is notable for its high production of corn, vegetable, banana and fruits. However, its isolation from the nearest commercial centre makes it difficult for farmers to transport their products, especially during rainy season. Farmers travel to Cordon town three times a week during dry season, but only occasionally in the wet season.

Life in the community became harder when the *kaingin* farms deteriorated due to soil depletion. During lean months, many farmers migrated to other places searching for off-season jobs. Others gathered stumps, tree trunks and branches for charcoal making. Fifty out of 200 households (25 percent) produced charcoal while farming.

All reforestation participants are members of the ISFP and farm two to three hectares. Around 50 labourers on a rotational basis were hired when the project started in 1987 under the regular project administration before becoming a contract reforestation. This scheme enabled them to re-arrange their farming activities so that they could work on the reforestation sites and farm

simultaneously. But farming remained their number one priority. Reforestation was just a part-time work especially during the dry season.

b. Project performance

In 1988, Villa Meimban Reforestation Project garnered an award as a model reforestation site in Cagayan Valley. However, after one year, most of the area was burned and the plantation experienced yearly fires. This coincided with many participants leaving the project.

The management's inability to pay regularly the participants prompted them to quit the project in favour of other jobs elsewhere. Only when the reforestation project served as their last income resort did participants make it a priority.

Based on the DENR ICM evaluation conducted in 1992, the project obtained an average aggregate rating of 78 percent seedling survival which was short of two percent for the passing mark. An independent evaluation was made in this study in the same year with the following results presented in Table 13 below:

Table 13.
Performance rating of Villa Meimban Reforestation project as per actual evaluation of the study in 1992

Parameter	Rating
1. Seedling Survival (new plantation: 78%)	Short of the passing Mark
2. Initial level of Local Participation	Very high
3. Sustainability of People's Participation	Very low
4. Sense of Ownership	Very low
5. Level of Moral Responsibility	Very low
6. Ability to Contain Problems Related to DENR's Project Implementation Practices	Very low
7. Level of Awareness About the Program	Low
8. Level of Psychological Satisfaction Towards the Financial Instrument	Very low
9. Level of Organization	Very low
10. Level of Environmental Concern	Low
11. Trust in the Project Management	High
12. Participants' Working Morale	Very low

c. Research findings

A majority of the participants complained about the delayed payments and undercompensation. As a result, many left the project prematurely. Likewise,

during farming season, they tended their lands more than the project. They only worked full-time at the sites during lean months or droughts. The irregular payment forced the subsistent farmers to shift from one income option to another.

All participants viewed the project as an employment opportunity. The cash offered for tree planting motivated them to join the project but their participation was conditional and intermittent just as there were delays in DENR's payments for six to 12 months.

Participants claimed that they hardly participated during fire fighting activities since their project involvement was characterized as 'come and go' type. They were most active only during the first year. However, in the second and third year, only few remained involved. According to them, they were motivated in the first year because they received up to 60 percent of the total contract price. Motivation decreased in the second and third year because they only expected 20 percent each year. According to them, some plantation fires were attributed to members' distrust and resentments towards the project management.

As to the acceptability of FLMA, all of the participants strongly opposed the instrument. They preferred another three-year reforestation contract if payments would be regular and equitable. They also preferred regular reforestation to contract reforestation because of assured payment even on a weekly rotational basis.

d. Conclusion

Based on this exploratory assessment, the gradual decline of the project's performance was attributed to participants' growing disinterest in their payment coupled with their resumption of farming after a period of inactivity. Their direct dependence on the project's earning for subsistence especially during lean months prompted them to seek other immediate source of earnings in times of late payments. No community cooperation was evident because the participants had a low regard of the project. This was exemplified in their disinterest to pursue project ownership through FLMA in the future. The low performance of the project seemingly attributed to participants' conditions and negative attitudes towards the project were as follows: 1) direct dependence of participants on project's earnings, 2) no interest in intercropping, 3) no interest in assuming future property rights over the project, 4) no interest in other related tree uses, and 5) the absence of communal concern in protecting the project.

5.2.4 Maguirig case study

a. Project setting

Maguirig Reforestation Project is often referred to as 'no man's project' because of the existence of many claimants over the area. Historically, the site has been as agricultural land since the early 1940s as claimed by the original inhabitants of the community. In the 1950s, a cadastral survey by the then Bureau of Lands and many of the local people at that time were able to apply for a title because it was declared as 'alienable and disposable' land. During that time, agriculture was the dominant land use practice in the area.

In 1978, a reforestation project was introduced in the same site. There was no resistance among the local people against the project. While the Bureau of Forestry began to introduce trees in the site, it likewise assured the original claimants of their right of use for agricultural production. Later on, when the Land Survey and Classification Division under the Bureau of Lands was merged into the Bureau of Forestry, the area was finally reclassified as forest zone owing to its topography.

Between the 80s and the present, the tenurial status of the area was constantly transformed from one property regime to another. In 1980, it became a communal tree farm area while a portion was used as pasture land of a local politician. It was declared as an Integrated Social Forestry Project site in 1985, then reverted to a regular reforestation project in 1989. Finally, it became a contract reforestation site starting in 1990 to the present.

Although DENR claims the area as being under its jurisdiction because of the presence of the project, some community people still believe that the land belongs to them. A number of cattle owners on the other hand, regard the area as a communal grazing site.

Local project participants desired to plant short-term agricultural crops in between the tree seedlings but they were inhibited to do so because of the overlapping tenurial status of the area. However, a number of local non-participants have succeeded in clearing and maintaining patches of *kaingin* farms inside the project site.

Most of the project contractors were non-residents of the community. Some of them held key positions in government offices and/or had private business. Of the 15 contracts, only six were given to the community people headed by the barangay council. Also, out of the 225 labourers, about 135 (or 60 percent) were from other places (Table 14).

Table 14.
Number of local and non-local participants of the Maguirig Reforestation Project, 1992

Type of participant	Number	Percentage
1. Contractor:		
- local	6	40
- outsider	9	60
	15 (Total)	100 (Total)
2. Labourer:		
- local	90	40
- outsider	135	60
	225 (Total)	100 (Total)

The awarding of the few contracts to the community was even perceived by most local people as politically manipulated because most of the selected participants were related to the village leader either by blood or extended social affiliation.

The 'off-site' contractors chose their labourers preferably coming from their place of origin. These labourers were not bound by formal agreement because they were just hired or subcontracted to perform specific activities in the project at certain periods of the year. Out of 96 local participants, a great majority were tenant rice farmers but only 3% were land owners who were also project contractors.

b. Project performance

The notion that there is a fund for every activity spoiled the participants' initiatives. Everything revolved around money. Community participation especially in fire fighting could hardly be practised after the introduction of the contract reforestation scheme. Unlike the regular reforestation project in the past, collective voluntarism among local residents was evident even without payment. But now, fire fighting had become associated with payment to non-participants of the project. According to them, only with forest fires they could benefit from the project because they could demand payment from the contractors.

Based on the field evaluation conducted by DENR in 1992, out of the 15 contracts, only four obtained an ICM rating above 80 percent. These contracts all belonged to the Local Government Unit. Most of the unsuccessful ones were contracted by people from outside who abandoned prematurely their sites which were raged by fire. In the same year, an independent evaluation was made by this study reporting the performance rating as presented in Table 15.

Table 15.
Performance rating of Maguirig Reforestation project as per actual evaluation conducted by the study in 1992

Parameter	Rating
1. Seedling Survival (new plantation: 85%)	Very low
2. Recent level of Local Participation	Low
3. Sustainability of People's Participation	Very low
4. Sense of Ownership	Low
5. Level or Moral Responsibility	Very low
6. Ability to Contain Problems Related to DENR's Project Implementation Practices	Low
7. Level of Awareness About the Program	Low
8. Level of Psychological Satisfaction Towards the Financial Instrument	Low
9. Level of Organization	Very low
10. Level of Environmental Concern	Low
11. Trust in the Project Management	Very low
12. Participants' Working Morale	Very low

c. Research findings

The overlapping land tenure of the area impinges on the successful implementation of the project. This was compounded by a low recruitment of local people in favour of rich and influential outsiders. Local participants did not intercrop in between seedlings although most of them desired to do it. This stemmed from their preconceived notion that the land on which they were planting trees belonged to a particular individual in the community.

Subcontracted participants viewed themselves as mere hired labourers whose participation was transactional where they were paid on a daily basis. Being itinerant off-farm workers depending on the daily earning for subsistence, the labourers found their immediate payment crucial in sustaining their participation in the project. In short, earning an immediate cash was what motivated them to join the project.

Delayed DENR payment aggravated by the growing disgust of most local people for not being hired in the project resulted to non-community cooperation during grassland fires. Furthermore, open grazing became rampant in the project site. Nobody really looked after the condition of the seedlings planted, except for the few local contractors.

d. Conclusion

Based on this exploratory investigation, it appeared that the failure of the project to secure local claimants right over the project site contributed greatly to

the non-sustainability of reforestation in the area. Instead, it even reinforced the vague tenurial status by awarding more contracts in favour of the outsiders. This boiled down to non-cooperation of the community in fire protection and disinterest of local contractors to intercrop simultaneously in the area. This problem was exacerbated by the DENR's late release of contract payments resulting in conditional and problematic participants' project involvement. Since the greater majority of the labourers were subsistent daily wage earners, their sustained participation was conditioned by the regularity of project payment.

In conclusion, project failure stemmed from the following conditions: 1) participants' direct dependence on project's earnings, 2) local contractors' lack of confidence to intercrop simultaneously due to the overlapping tenurial regime of the site, 3) contractors' lack of security of future project ownership, 4) contractors' lack of interest in related tree uses due to insecurity of land and tree tenure, and 5) absence of community cooperation in fire fighting and in the strict regulation of open grazing in the site.

5.3 In-Depth Case Analysis of Salinas

5.3.1 Introduction

One objective of contract reforestation is to provide economic incentive for the rural poor to motivate them participate in tree growing projects. This strategy is based on the assumption that the poor have limited economic option. With the ready cash earnings the program can offer, massive participation of rural farmers would likely be expected.

In Salinas, rice farming and vegetable production are the main year-round preoccupation of people in the area. Participation in the project is just one among various income sources available. The project's relative financial profitability is rated against that of the other income patterns in the community.

It is interesting to examine how the project's earnings would rate with respect to other income options in the community. Likewise, it is important to know the context in which project's income may be regarded as an incentive or not.

This section highlights the effect of level of economic security on participants' behaviour and quality of project's performance. Having a stable subsistence or being in the state of cash surplus appeared to be a plus factor for project success in the case of most contractors in Salinas.

5.3.2 Comparative economic advantage

Joining the reforestation project was more of a part-time livelihood activity than a main occupation among subsistent farmers. The presence of diverse income sources in the community made participation in the project just another economic option for the people (Table 16).

On-farm labour was in continuous demand year-round because rice and vegetables are raised three and two cropping cycles, respectively. At P 75 a day on the average, a farmer with a household of five can subsist at a minimum food level. Some farmers engaged for an even better rate in contract jobs like road and drainage construction during off-farm season.

Table 16. Livelihood options for an average farmer in Salinas, Bambang, Nueva Viscaya (Personal Interview, 1993)

Income source	Average yearly net earning	Man-day labour	Time engagement	Cash regularity
Rice production	P 32,000	100	seasonal	low
Vegetable sales	30,000	120	seasonal	low
Off-farm labour	15,000	varied	intermittent	high
On-farm labour	10,000	144	seasonal	high
Reforestation	22,376	240	full time	very low

A vegetable farmer can earn in one year from his 0.5 hectare *kaingin* an average net income of P 30,000 in two cropping cycles. This was in contrast to the expected income of P 33,284.5, P 16,923.00 and P 16,923.00 in the first, second and third years respectively in a five-hectare reforestation project. Furthermore, there were higher labour and man-day inputs for seedling establishment, maintenance and protection. Full time attention was needed especially during dry months to prevent grassland fires in the project area. However, despite the comparative profitability of other livelihoods over projects' earnings, many farmers still participated in the reforestation.

Some farmers preferred to spend their off-season in improving and cleaning their fields more than joining the project. On the other hand, most daily wage earners preferred work that ensured daily take-home pay.

In practice, most participants had more than one income source. Those who were not dependent on the project for subsistence can endure late payments from the DENR as often as it was the case. However, few subsistent labourers who cannot wait any longer for their delayed payment dropped out easily from their participation. The local residents near the project area found it more convenient to work in the reforestation than search for off-farm jobs.

But, unless there was regular cashflow from participation their continued involvement was not guaranteed. Among participants who are above subsistence level or already in a cash surplus status, joining the project was an incentive. However, for the below subsistent level participants, it was a disincentive at times they cannot avail of their immediate payment. Cash regularity defined their sustained participation.

5.3.3 The agony of prolonged waiting

Delayed payments were not expected by most participants. Usually, it took six months or sometimes even a year before they got paid. According to the Forestry Field Officers, the problem of delayed payment was beyond DENR's control. They blamed the Department of Budget and Management for the faulty programming of fund release. Another cause of pending payment was due to contractor's failure to meet certain requirements in their contract.

There was a significant decline in interested participants over time. Those who experienced difficulties in the first year dropped out from the activity in the following years (Table 17).

Table 17.
The declining trend in the number of participants in the Salinas Reforestation during the three year contract period (Personal Interview, 1993)

Period	Contractor	Labourer	Total
First year	16	224	240
Second year	16	102	118
Third year	16	56	72

The lower seedling maintenance and protection budget in the second and third year of the contract also partly attributed to the decreasing participation. Contractors were forced to limit the number of their work force since they cannot spend beyond what was appropriated. Furthermore, at P 64.60 daily hiring rate for labourers, only the participants above subsistence level who remained in the succeeding years because they withstood the late project payments.

Many of those who dropped out sought on-farm work like weeding, ploughing, planting, harrowing, and harvesting vegetables and rice. According to them, they would rather settle for a lower hiring rate, as long as they can bring home cash daily.

5.3.4 The role of spending meantime personal fund

Irregular cash flow impinged on the smooth conduct of the project. On the other hand, it indicated participants' commitment to the project. Contractors who were determined to maintain good performance exhausted all means to save the project from blowing off. In most cases, they drew from their personal resources the money, rice or any good in kind, as a support to their poor labourers. This prevented the labour force from disintegrating. Some contractors without sufficient personal funds borrowed from other sources, however, not all were willing to spend their personal fund in the meantime. The lack of financial means was the main reason in the case of the poor contractors. However, those who could afford but did not defray their labourers' wages had no intention of pursuing the FLMA in the future. Often, they were complacent contractors without any motivation to work hard. The worse, they made the DENR's failure of providing the funds on time as an excuse for their projects' poor performance.

However, contractors who perceived the prospect of assuming future project ownership, sacrificed personal fund to pay their labourers' wages. The Local Government Units (LGUs) in particular strived best because they were put at the public eye. There were two driving conditions that motivated them to excel. One stemmed from their desire to qualify for FLMA in pursuit of their ambition to turn the project into a silvipastoral system. The second reason was aspiration for good track record to win the confidence and favour of the DENR for more contracts in the future.

Contractors' practice of paying their labourers' wage improved their working relationship considerably. Those who helped their labourers enjoyed a strong cooperation during sudden outbreaks of fire more than those who did not.

In Salinas, of the 16 contractors, 10 had a satisfactory performance. The success of the four community contracts, according to them, was mainly attributed to the confidence their members had towards them. By being supportive and generous, they were able to sustain their members' participation in seedling protection and maintenance. The six contractors who were passive and antipathetic to the group's needs were prematurely deserted by their original members.

Although this practice of paying labourers' wages was not a contractor's stipulated obligation, it was found to be a very crucial factor to the project's success. With this, it appeared that the selection of contractors and the type of contract should be given much attention.

5.3.5 Dominant factors of project success

Participants' degree of involvement varied greatly with their level of economic security. Likewise, contractors with future plans for the project had better performance than those without any desire to participate any longer. Three main factors appeared to have effect on these varied degrees of participation among different types of participants:

Table 18.
Comparative profile between wage labourers below and above subsistence level in Salinas (Personal Interview, 1993)

Parameter	Subsistence level	
	Below	Above
1. Average yearly income	P 18,500	P 32,000
2. Main income source	Rainfed rice farming & wage labour	Irrigated farming & vegetable production
3. Cash flow regularity	Seasonal	Steady
4. Livelihood diversity	Limited (not >2)	Multiple (>2)
5. Subsistence stability	Low (fluctuating)	High (year round)
6. Income depends on the project	High (direct)	Dispensable
7. Use of income	Subsistence	- Children' schooling - Buy farm equipment - Farm production capital
8. Project participation	Conditional and short-lived	Spontaneous and sustained
9. Bottomline of participation	Regular cash flow	Assurance of future payment
10. Future project options	Work for daily wage	Enter into bidding as a contractor

a. Level of economic security

In most cases a participant's income level and the stability of his current livelihood determine his level of involvement in the project. Participants with marginal income and an unstable livelihood pattern usually viewed project's income as a supplementary source of subsistence (Table 18). The level and quality of their participation consequently, was conditioned by the timing and

amount of payment. When they failed to gain what they expected at the time they needed most, they shifted to other off-farm jobs. Similarly, contractors who were barely within subsistence level tended to abandon their project prematurely to seek a more reliable source of income when payment was delayed. Participants with a stable source of subsistence viewed their compensation as a supplementary source of household income. They were less affected by delayed payments because they have other sources of subsistence.

Table 19.
The average subsistent and rich contractors' profile in Salinas (Personal Interview, 1993)

Parameters		Contractor's socioeconomic status	
		Subsistence level	Cash surplus
1.	Average income/annum	P 25,000	P 100,000
2.	Main income source	Wage labour	Farming & business
3.	Cashflow regularity	Entrepreneurship seasonal	Steady
4.	Livelihood diversity	Limited (not >2)	Multiple livelihood
5.	Subsistence stability	Low	High
6.	Sense of project ownership	Low	High
7.	Future development option	Enter into a new 3-year contract reforestation	Pursue FLMA (Agrosilvipastoral project)
8.	View of the income from the contract	Supplementary source of subsistence	Cash saving/production capital
9.	Actual use of the income	Food	- Children's schooling - Acquisition of farm equipment
10.	Degree of dependence	High (direct)	Low
11.	Effect of project income on his behaviour	- increases dependency - counterproductive	Increases confidence to venture into future projects
12.	Level of satisfaction	Dissatisfied	Satisfied
13.	Level of project participation	Conditional and intermittent	Spontaneous and responsible management
14.	Bottomline of participation	Amount & regularity of payment	Future project ownership
15.	Project performance	Failure	Successful

Contractors who were already in the state of a cash surplus prior to joining the project or at least above subsistence level, viewed the project's earnings as a reserved income for buying farm implements or for their children's schooling (Table 19). Also, they can patiently wait for their payment without much complaint and irritations. Often, the wealthy willing contractors defraying meantime labourers' wages took the burden of absorbing the negative repercussions of members towards the project for the late DENR's payments. They even knew in advance that if the project fails they would not be able to obtain the 20% last payment.

The majority of the Salinas project contractors were not desperately dependent on the reforestation wages. The presence of multiple income sources in the community cushioned them when payment was short and irregular.

In general, the participants' current level of economic security determined their degree and sustainability of participation. The higher the security is, the greater would be the chance of success. Subsistent participants, on the other hand, had conditional and discontinuous participation. They tended to shift to jobs that could ensure a daily income.

b. Sense of future project ownership

Most daily wage labourers did not desire to assume future ownership over the project. They viewed their participation as a means to gain additional income. Those below subsistence level preferred to work as a daily wage labourer rather than opt for FLMA.

The majority of the contractors however, wanted to pursue FLMA. The introduction of FLMA concept on the second year of the contract period significantly heightened their interest in maintaining and protecting the seedlings. Surprisingly, however, their desire for a pasture area, rather than the future produce from the trees was their main motivation. Most of them were presently tending at least five heads of cattle. Likewise, a number of pasture lease owners in the area were willing to disperse cattle to interested contractors under a benefit sharing agreement.

Thus, most of the contractors envisaged an agro-silvi-pastoral project in combination with tree growing later on. Those who do not have the initial capital to start a livestock project, thought of entering into a partnership with ranchers for an animal tenancy arrangement. Likewise, those on good soil type were interested to interplant cash crops and fruit bearing trees.

Contractors who did not intend to own the project appeared to have superficial and problematic participation. Everything was conditioned by direct cash payment. They did not have the initiative to improve the area beyond what was required of them. Whenever the payments got delayed, they made it a reason to abandon or neglect the project. Sometimes after receiving

the initial payment for the first phase, they abandoned the project and looked for other livelihood options.

In general, contractors with a strong sense of future ownership over the project tended to perform better than those without intention of pursuing FLMA. The most preferred type of land use combination suggested the rich contractors was silvipastoral management. Those who are positioned in good soil intended to interplant cash crops and fruit trees. Their strong aspiration for future ownership motivated them to introduce long-term developments in the site while at the same time spent personal resources to sustain their work force.

c. Type of local organization

Projects managed by 'Family Contracts' and 'Ethnic Tribal Group' were more successful than those under 'People's Organizations' (PO) or the 'Community Contract.' The tribal groups had a stronger community spirit not evident in most community contracts. Likewise, in the family contracts, the financial benefit from participation was confined solely among members of the household or kinship. As a result, there was minimal feuding among members which usually stemmed from inequitable sharing of the project's benefits. Tribal contracts, like the family contract operated on a very organized structure, with a system of shared values, aspirations and needs. Most people's organizations and community contracts emerged overnight without a common institution to bind diverging interests other than the financial motivation.

The terms 'Local Government Units' or in general, the 'community contracts' are misnomers. There is no such thing as a real community contract since all members do not equally benefit from the project's income. According to most participants, almost all community contracts were organized without a clear and common consensus among members. The initiative usually comes from the contractor, and the members joined because of the job offered to them. Sometimes, even dummy members were included among the list of participants.

In a community contract, there is a *de jure* collective level association to take care of the decision making, the project implementation and sharing the benefits of the contract payments. In practice, however, this is not the case in most instances. One powerful individual (e.g., the mayor) can head an association in the name of the members of the community. What he normally does is first to enlist people as members to satisfy the *de jure* conditions of the contract, but later simply treat them as daily labourers when it comes to decision making and benefit sharing. There are some exceptions however, e.g. in the case of a few community contracts, belonging to tribal groups and in some situations that necessitate strict collective action as in the case of fire fighting

activities and restriction of open grazing practices in highly motivated local groups.

In practice, most community contracts did not evolve from a common interest among members, but usually from a one-person initiative. Even the selection of the group's head or the officers was already predetermined before organizing. Equitable benefit sharing rarely materialized since the project initiator by virtue of his effort in organizing the group, usually takes the biggest share and treats the other members as subcontracted daily wage labourers. As a result, a spirit of voluntarism was often lacking especially during plantation fires in most unsuccessful projects. Furthermore, when some members sensed that the contractor was subtly extorting the fund, most of them just abandoned the project without feeling responsible or accountable to the group. Most problematic projects belonged to community contracts, including people's organizations, local government units, non-government organizations and other local-based organizations that failed to give members real representation.

In general, projects without of a common institution such as shared values, needs and aspirations to transcend diverging personal interests likely to have superficial and unsustainable participation. Projects based on family contracts and with tribal groups with strong internal control system based on traditional values are likely to be more successfull. Furthermore, a community project without a clear representation of the participating organization, the situation appears to be even worse.

5.3.6 The search for appropriate social actors

From the aforementioned findings, it is difficult to conclude that the project really benefitted the rural poor. Whether it was an incentive or just an income option, depends greatly on who defines it. The wealthy contractors may view it as an incentive. According to them, it was not only an additional income but savings that can be invested in other economic endeavours. Most enterprising contractors charged interest for the money or goods in kind they lent or provided to members while the latter waited for their late payments. The daily wage labourers who were not desperately dependent on the project for their subsistence also considered the project's income as supplementary support for their children's schooling, home furnishing, and social functions.

However, participants who were below or barely above subsistence level, regarded participation as a disincentive. During late payments they bought or borrowed the needed food for their household at a higher price. According to them, they were all the more marginalized because they bought goods from the local stores on a credit basis with a higher price than what they would normally pay in cash. Some complained about the forfeited economic opportuni-

ties due to their investment of their time and labour in the project, which in the end did not provide them with a better pay and immediate income. Also, the delayed payments prevented them from investing in other worthwhile projects. For most of them participation was just an income option. Among wage income earners, it was difficult to find participants who were really fully satisfied of the cash earnings they expected to obtain from the project.

These varied effects of cash incentive on the labourers of different economic stature bring us to the conclusion that those who benefitted most are the ones who have already much. The poor to some degree also benefitted, since the project provided an added income option. The only limitation was that they cannot entirely depend on it in times of late payments.

This implies the need to give careful attention to the selection of appropriate actors in government tree growing projects. The rich contractors appeared to be in a better position to form a partnership with the government than the community. Aside from representing a fixed social entity, they also have the initial capital to venture into it. Subsistent participants, or the community could be relegated to serve as the labour pool. However, the government should provide legitimizing and enabling instruments to remove the tree growing constraints and risks in order to allow private enterprise to embark on massive tree growing projects. Another possibility is that the community could do the three-year seedling establishment phase and receive payment for their labour. After the contract expires, the government could turn over the project to interested prospective FLMA holders such as the private enterprise if the community is not interested to manage it. However, the community could still serve as the labour force in maintaining and protecting the project at the private entity's expense. The private enterprise or the rich contractors could take care of the management aspect and at the same time serve as the stockholder of the business venture. The government's role is to provide the policy instruments to safeguard both parties' interests. Ultimately, the government would benefit from this arrangement because it is the private sector that does the reforestation. The public fund supposedly for the activity can now be diverted to other economically profitable development projects in the countryside. In other words, it is a matter of matching actors with the proper role in the reforestation program and providing the appropriate incentive packages peculiar to their needs and context. Failure to define who needs what, how and when may continue to siphon off government's funds.

In summary, the determinant factors to project success of most contractors in Salinas can be enumerated as follows: 1) DENR's assurance of more future projects for successful contractors, 2) DENR's approval of other future land use combinations, 3) DENR's recruitment of 'on-site' contractors 4) labourers' above subsistence level and contractors' cash surplus status, 5) contractors' meantime payment of their labourers' wages, 6) contractors' enterprising atti-

tude, 7) good arability of some portions of the project site, 8) project proximity and accessibility to the participants, and 9) clear tenurial status of the site.

The varied socioeconomic and organizational settings of the different actors in the program defined the level and type of their participation. The cash surplus contractors and labourers above subsistence appeared to have a better performance than those marginal subsistence ones. The family and tribal groups function better than community or people's organizations in contracting. The worse situation could happen if community contracts do not have a real representation of their membership. In terms of organizational set-up, a business partnership between the private sector and the community can be feasible. The former could serve as the financier and stockholder while the latter could provide the labour force. The government could function as a catalyst providing enabling policy instruments. This arrangement would infuse private fund to reforestation activities, thus sparing public money for other noble purposes.

5.4 In-Depth Case Analysis of Lacab

5.4.1 Introduction

Normally rural farmers are reluctant to introduce long-term improvement or soil conservation measures in areas where they have no security of tenure. The upland farmers at Lacab Reforestation project however, acted quite differently. Participants were highly motivated to plant and maintain tree seedlings on their *kaingin* farms because of the prospect of one day owning and sustaining usufruct practice in the project area.

The people were squatters and subsistence farmers in the logged-over area, prior to its conversion into a reforestation site. Faced with the possibility of losing their usufruct access if the project would be turned over to outsiders in the future, they were prompted to protect and maintain the planted seedlings as a condition for longer use through FLMA. Their exemplary performance clearly demonstrates their willingness to work, even amidst irregular payment and undercompensation. Maintaining their usufruct mattered more than the wages from tree planting and protection. This section is an in-depth analysis of the Lacab case study. It tries to highlight the positive effect of assured access or property right in stimulating local people's sustained participation in tree growing in an area under threatened ownership or illegally squatted.

5.4.2 Captive actors became contractors

By virtue of their initial position in the project site, farmers at the Lacab Reforestation project can be seen as 'captive actors' to reforest their *kaingin* farms, while simultaneously raising agricultural crops for their subsistence. Since the 70s, the project site has been cultivated by migrant farmers from Ifugao, Cagayan and other Northern Provinces. All were landless peasants pushed from their original settlements by unequal land rights or population growth, and tried to find a living in the new place.

The site is considered the community's primary production area, where both subsistence and cash needs can be met. On average, a farmer has in total at least five hectares of arable land, the effective area under cultivation for rice or corn is one half hectare. The remaining portions were all planted with bananas, papayas, coffee and other subsidiary farm crops for cash needs. Only a few farmers have paddy ricefields. As such, the project site serves as the only income option for most of the people. Table 20 presents the average gross income of a one-hectare *kaingin*.

Table 20.
Average yearly gross production of 1-hectare *kaingin* at Lacab Reforestation site (Personal Interview, 1993)

Source	Average gross income/annum	Remark
1. Banana	P 12,000	year-round production for market
2. Upland rice	1,800	one season; mainly for home use
3. Corn	3,500	one season; for market & home use
4. Vegetable & Coffee	1,000	year-round production for home use
Total	P 18,300	

At first, all 12 family contractors resented the conversion of the area into a reforestation site. Being in the site since the 70s, they feel that land informally belongs to them, although they claimed to be squatters of the area.

Most of them recalled the punitive measures adopted by the Forestry Department in the mid-70s to curb the increasing upland encroachment in the area. With such traumatic experiences in mind, the 1989 introduction of reforestation within the *kaingin* area was perceived by them as a signal of a renewed struggle over the land.

Contrary to their fears and uncertainties, there was a totally different social climate compared to their oppressed condition in the 70s. Instead of ejection, they were recruited as contractors within their respective landholdings inside

the newly declared reforestation area. With this approach, they sensed the government's sincerity to involve them in forest development. This pacified their doubts concerning the uncertainty of their continuous stay in the area. In principle, they willingly cooperated with DENR project management not because of the cash incentive for tree planting. Beyond the cash remuneration was a bigger goal they wish to aspire for, i.e., land tenure security.

5.4.3 Building on what works

It was not difficult to start the project despite the farmers' illegal occupation of the area. This can be attributed to the participatory strategy adopted by the project manager, which included the following elements:

a. Contracting according to initial spatial position

Normally, the DENR determines what areas are allocated to individual contractors. However, in Lacab, each of the 12 farmers already positioned in the area was awarded at least five-hectares according to his initial spatial location and landholding size. It was classified under family contract since there was no displacement or alteration of original farming position which would have created tension among the participants.

b. Allowing continuous usufructing in the area

One factor that convinced farmers to cooperate was the assurance that they could continue using the land for short-term cropping. However, interplanting between tree seedlings is encouraged instead of pure short-term subsistent cropping. In fact, all of the farmers regarded their farmholdings as theirs by usufruct ('de facto') because of the site improvements they introduced. Legally ('de jure'), however they recognized it as public domain and a part of the forest zone.

c. Allowing farmer's choice of reforestation species

In most reforestation areas planting Gmelina arborea was recommended because it is fast growing and adaptable especially in marginal areas. However, the farmers chose the slow growing species *Pterocarpus indicus* or *Swietenia macrophyla* instead. They also spaced the seedlings 6 x 6 meters rather than 3 x 3 meters. Their main consideration for a long gestation period tree species with farther spacing was to prolong their usufructing on the land.

d. Introducing the FLMA concept

At first, some participants were reluctant to plant trees on their farmlots because of the paid arrangement offered to them by the DENR. Some asked, 'Why does the government pay us for the work done in our farmlots, if it has

no intention of assuming control over the area when the trees have grown to maturity ?' However, when they understood the government's long-term intention of eventually turning over the project to qualified contractors through FLMA, their doubts and fears were pacified.

e. Adopting participatory and contextualized management

Another factor that sustained participation was the good working relationship with the project management. All of the contractors had high confidence to the manager in the way he implements the project.

The official reforestation plan is said to be a highly prescriptive 'blue print', emanating from the top. It is the operational standard for all projects-from the type of species to the cost estimates. However, sensing the difficulty of pursuing a predetermined plan in a site that has been occupied by migrant farmers, the manager allowed some adjustments consistent with the local farmers' development options.

Likewise, plans and directives from the central office can also be modified if needed, based on the contractors' prerogative. According to the participants, their freedom to choose the tree species and the kind of spacing strengthened their sense of control and right of use over the area.

In principle, the flexible project management style, e.g. allowing participants to define their own options according to their need is critical and has minimized the use of unnecessary instruments to induce participation. Determining what will motivate them to comply should be the basis of prescribing the incentive for participation. Giving the people the freedom to define their own options for their needs and problems within the limitations of a tree growing framework, is a stronger incentive than cash.

5.4.4 Planting trees to gain rights

Tree planting was more of an aspiration to establish property right over the site than an activity driven by cash needs. This is seen in the way the contractors perceived the project (Tables 21 and 22).

Participants who aspired for project ownership in the future attributed their successful performance to their desire to attain FLMA. Only a few (17 percent) thought they might be ejected because of their relatively low performance. The fear of not meeting the government's expectation and being ejected from the area motivated them to work diligently. However, a majority of them (83 percent) claimed that the project belonged to them and expressed no reason for not making it successful. Although a few doubted their ownership they still viewed the trees they planted as theirs.

Table 21.
Participants' perception and attitude towards the project at Lacab Reforestation Project (Personal Interview, 1993)

Perception/attitude	Respondents (N=12)	Percent
1. Trees planted will be theirs	12	100
2. FLMA as a means to strengthen their legitimate position in the area	12	100
3. Preference for property right to cash payment	12	100
4. Willing to interplant reforestation seedlings even without payment	12	100
5. Willing to maintain the project even without payment	12	100
6. Determined to pursue FLMA	12	100
7. Strong sense of project ownership	10	83
8. Desire to introduce fruit bearing trees in their farmlots	10	83
9. Desire to clear more farming areas and willing to interplant tree seedlings even without payment	6	50
10. Entertain the possibility of ejection from the site	2	17

All of them were willing to interplant seedlings and maintain them even without payment. Their strong sense of ownership made them consider introducing fruit trees as a permanent crop aside from the reforestation species.

Half of the participants (50 percent) were also willing to encroach adjacent public areas and plant reforestation seedlings without payment in order to increase their usufruct area. Most of them can dispense with payment, claiming that the 'work was done anyway in their own farmlots'.

As to their motivation in planting and maintaining the trees in their respective farmlots, a majority (83 percent) expressed intention to establish a legitimate claim of ownership over the area (Table 22).

Table 22.
Contractors' primary motivation of tree planting in Lacab Reforestation Project (Personal Interview, 1993)

Primary motivation	Number of respondents (n=12)	Percent
1. Establish legitimate right of use and future ownership over the area	10	83
2. Cash incentive	2	17
3. Soil and water conservation measures	0	0
Total	12	100

Not one mentioned the environmental benefit as a consideration for growing trees on their farmlots. Only two (17 percent) were motivated by direct cash incentive from participating.

The high score for environmental concern in Table 12 means that the contractors are concerned about their environmental problems and that they know the value of trees. The zero score for soil and water conservation measures on Table 22 means that this is not their primary motivation to do reforestation but more as a secondary motivation. A majority regarded growing trees as a means to gain full rights over the site, rather than its importance in meeting their cash needs or for environmental protection.

Although all of the contractors recognized their need for additional cash from the project, they did not consider this as their main source of subsistence (Table 23).

Table 23.
Contractors' view and regard of the income from the Lacab Reforestation Project (Personal Interview, 1993)

Perception & regard towards the income	Respondents (N=12)	Percent
1. Important but not a necessary condition for active participation	12	100
2. Used it for buying clothes	12	100
3. Used it for home improvement	10	83
4. Satisfied with the amount received	10	83
5. Used it for buying home appliances	7	58
6. Used it as a supplementary source of subsistence	5	42
7. Used it for children's schooling	4	33
8. Main source of subsistence	0	0

Most participants used their income for their children's schooling, buying household appliances, clothing and improving their houses. Only five (42 percent) used the cash earnings as supplementary income to buy food and other basic necessities for the home. As to the level of satisfaction, a majority (83 percent) felt good about the amount they received, despite the long delays.

From this observation, it appears that even without cash incentive, tree planting and protection could still be sustained in this situation because there was a greater drive for the farmers to do it beyond just direct payment. Estab-

lishing tenurial right was more important to farmers than the future produce or the project's direct cash earnings.

5.4.5 Dominant factors of project success

The project consistently performed well over the three-year contract period. It is highly qualified for FLMA. After three years, it obtained an ICM rating higher than 85 percent for seedling survival and average tree height of two (2) meters for long gestation species. The exemplary performance was attributed to the following factors:

a. Contractors' pressing need for arable land

The project area has been cultivated by the participants prompted by their strong need for more arable land to cultivate. Contracting was done 'on-site' or 'in-place' without altering or displacing farmer's initial spatial position and landholding size in the area. In addition, the contractors were encouraged to continue farming the land and to adopt intercropping between the seedlings. As they cleaned and cultivated the land for annual cropping, the same care was given to the seedlings since these were intercropped with their main crops. Therefore, seedling maintenance and protection could still have been sustained even without payment.

b. Participants' low dependence on project's earnings

Almost all participants were not dependent on the income of the project. Their performance was not conditioned by the regularity or availability of the cash incentive. Although they recognized the importance of the paid labour as additional incentive, they did not regard it as an end in itself. Some of them were willing to plant forest seedlings in other unopened and undeclared areas for reforestation without payment if it would extend their practice of usufructing in these areas.

c. Assurance of future property right

After learning the provision of the FLMA (a 25-year forestland stewardship), the contractors were more encouraged to participate in seedling protection and maintenance. Being confident that the produce from the project will be theirs under FLMA, they became also interested in the future use of the trees planted.

A strong sense of project ownership was felt by majority of them even prior to their participation in the project. Through FLMA, they were confident to gain greater ground for assuming legal right over the area someday. Some planned to turn the project into agroforestry as an intermediary farming system towards tree farming.

d. Hazard-controlled area

Grassland fires rarely occurred even during dry season. All year round the area was under cultivation, making it free from grassland fire. Likewise, the strip of bananas planted along the peripheral boundaries and even inside the project sites served as firebreaks when major fires would occur.

Since almost all of the contractors are locally-based, a strong cooperation in plantation protection became a communal concern. As a part of the local regulation, open grazing was strictly ban and fire fighting was a must for every household in the community.

e. Creative and participative project management style

The farmers could have resisted the DENR's attempt to convert the area into a reforestation project, considering their long use of the site. However, the creative and participative project management approach which allowed them to continue usufructing in the area boosted their morale. It also gave them the prerogative to choose the tree species they wanted to interplant between their subsistent crops. This recognition of their priorities and options gave them a true feeling of owning the project thus making them active participants.

5.4.6 The sustainability of contractors' participation

Although the farmers have cooperated actively during the three-year contract reforestation despite the project's cashflow problems, what assurance is there that they will continue to do the same after awarding the FLMA to them ? How will they subsist during the transition period when farming is no longer feasible because the trees would have grown too high? Will the farmers not destroy the trees in favour of short-term cropping? Is FLMA a sufficient condition for farmers to engage in a long-term tree growing activity? What are some institutional mechanisms and incentives necessary to ensure farmers' sustained positive attitude towards tree growing?

To address these questions, the following conditions appeared to be crucial incentives for the sustainability of contractor's participation in tree plantation establishment and maintenance.

a. Provision of stronger tenurial arrangement

The lack of tenurial security coupled with the long-term nature and high risk of tree farming constitute major constraints to private investments in government tree growing programs. Most participants in Lacab when asked about tenurial preferences opted for privatization over FLMA. According to them, under FLMA, the land still belongs to the government. When they associated government's inability to fully protect public forest from illegal encroachment, contractors felt sceptical about their exclusive ownership over the

planted trees under FLMA. According to them, since FLMA is just a leasehold agreement, its term is limited and undependable since administrative action could cancel it anytime. Also, it cannot be used as collateral for loans from the bank, owing to its unbankable nature.

To resolve contractors' tenurial insecurity, arable portions of the forestland should be privatized. However, their usage should be strictly for forestry production but can be intercropped while the seedlings are still young and short. It should start as a stewardship contract and then progressively be elevated to stronger tenurial security as the farmer will continually maintain and develop the area into farm forestry.

Tenurial security is regarded as crucial because other sustainability conditions build on this premise. These other conditions are discussed individually in the following text.

b. Introduction of agroforestry technology package

To ensure that the contractors will continue to protect the growing trees when short-term cropping will no longer be feasible, helping them recognize the importance of trees on soil and water conservation through agroforestry system would provide further incentives for them to protect the project. Since this technology can address both household's direct food and cash needs, it is regarded as a good livelihood transition from short-term subsistent to pure tree cropping.

c. Creation of wood market

One reason why participants usually do not regard the project's produce as a future economic asset is because no one had assured them of immediate and sure markets. Poor farmers are risk-averse. They cannot afford to gamble their limited resources. Without assurance of immediate markets for their tree products, it is unlikely that they will make the long-term investment. Contract tree growing is one way to lessen farmers' risk besides the creation of sure market and assurance of price security.

d. Provision of other financial incentives

There should still be a continuous financial incentive (in the form of paid labour) be given to the contractor especially during the transition phase until such time the agroforestry farm can provide him the sustained cash. Also, production loans shall be made available to him in the future to defray his overhead costs for plantation maintenance and protection up to the harvestable stage. Furthermore, the vulnerability of the forest plantation to fire and insect infestation makes crop insurance a necessary back-up instrument. Such an insurance would reduce tree growers' risk of losing his entire investment of time, labour and financial resources.

5.4.7 Towards farm forestry

Although the Lacab reforestation is successful during the three-year period of seedling establishment, this however, is not a guarantee for sustainability towards farm forestry. In summary, the success of the project during the three-year contract period was triggered by the following factors: 1) contractors' perceived possible DENR's sanction for project failure, 2) DENR management's recognition of the 'on-site' participants' usufruct practice over the project site, 3) DENR's approval of other land use combinations, 4) recruitment of 'on-site' contractors 5) participants' above subsistence level, 6) contractors' pressing need for farmland, 7) contractors' enterprising attitude, 8) good site arability, and 9) project's proximity and accessibility.

These aforementioned factors are not sufficient to sustain contractors' motivation towards tree farming. Considering the varied constraints and uncertainties related to tree growing, a package of incentives from the planting to the harvesting stage is needed. Various types of incentive should be offered and the applicability of each incentive or a combination in each stage of the project should be examined.

Furthermore, the DENR should work out practical measures to demonstrate the compatibility and mutual enhancement between short-term subsistence and tree cropping. This is to encourage the farmers to integrate tree growing in their farming system. Furthermore, the government should allow the privatization of some arable portions of forestlands for exclusive forest production purpose to attract the private sector to invest in industrial forestry.

5.5 In-Depth Case Analysis of Villa Meimban

5.5.1 Introduction

As part of the overall upland development strategy, contract reforestation was envisaged to address both concerns for environmental rehabilitation and socioeconomic upliftment of the rural poor. This was based on the assumption that unless poverty is mitigated, conservation efforts would likely fail. The poor are naturally more concerned about their immediate food needs than about conservation goals. In this context, local participation cannot be expected without direct immediate benefits from tree planting and protection on public lands.

However, wage or cash payment alone is not a sufficient condition for sustained and quality participation. If not given promptly or regularly, it can be counter productive especially when participants are directly dependent on the project's earnings for subsistence.

The Villa Meimban reforestation illustrates how project implementation using paid labour as instrument for environmental action can either build or spoil 'on-site' participants' attitude towards tree growing. The regularity of labourers' payment affects level of participation. This was exemplified by the fluctuating reforestation performance appeared to be associated with the continuous and later on an interrupted cash flow experiences of the project. Also, quality participation depends on seasonal changes of the year which determine farmers' best use of their time in making a living. Participation is high during droughts and lean months because no better income option is available in the community than the project in such times. However, participation is conditional and erratic when the farming season comes.

This in-depth investigation of the Villa Meimban project explains why locally-based subsistent farmers' participation fluctuates despite being under contract.

5.5.2 The quest for sustainable cashflow

Villa Meimban is a remote upland community, isolated from the nearest trading centre of Cordon by streams of water cutting across the main road near the community. The frequency of incoming vehicles is limited to a few times a week only because of the rugged and steep terrain, which requires a special type of jeep to make the trip. During the rainy season, the road is impassable and people have to walk 10 to 15 kilometres to reach Cordon.

Farming boomed in the 70s because of the good harvest from the newly opened *kaingin* site. Most households found no difficulty making a living in this new settlement. But life became harder as arable land shrank because of the growing population towards the 90s. Coupled with the declining soil fertility, a farmer could hardly obtain 60 cavans of corn grain compared with the yield in previous years, which amounted to 120-150 cavans (Personal Interview, 1993).

Corn, banana and vegetable production comprise the main sources of farm income. But even during high production, farmers earn little because the gate price of their products is almost 80 percent lower than the prevailing market price. One surprising aspect of this community is its total integration into the market economy, despite its isolated location. The community's lifeblood is cash. People raise corn, vegetables and bananas for market. In return they purchase rice, canned goods and other household commodities with the money they earn from farming.

However, farming is not always feasible and profitably gainful. During prolonged droughts, some farmers are forced to migrate to other areas in search for non-farm jobs. Others prefer charcoal production as an alternative

income source. Table 24 presents the various income sources of farmers in the community before the reforestation project came to the area.

Table 24.
Income options of an average farmer in Villa Meimban prior to the introduction of the Reforestation Project in 1987 (Personal Interview, 1993)

Income source	Average gross income/annum	Remark
1. Farming:	P 35,000	seasonal; depends greatly on a favourable climate
- corn production	(P 20,000)	
- banana sales	(P 5,000)	
- vegetable sales	(P 10,000)	
2. Charcoal making	P 6,000	income option during dry season and long drought period
3. Non-farm job	P 4,000	seasonal and intermittent

The whole area has been part of the ISFP since 1984. Increased farm production through improved upland farming technology is the goal of the ISFP. During that period, farmers were encouraged to adopt the Sloping Agricultural Land Technology (SALT) for soil conservation and sustainable farm production. Many responded when cash was introduced to motivate farmers to construct hedgerows or rockwall terraces. However, after the incentive was withdrawn, they returned to traditional farming practices and forgot about hedgerows and terraces. Even worse, new *kaingins* were opened, clearing the remaining tree cover in the area.

The local people have been clamouring for sustainable means of livelihood to be able to cope with low harvest during uncertain times. According to them, farming and charcoal making cannot provide for all of their cash needs because timber stumps and fallen logs are getting scarce. This is coupled with declining soil fertility, exacerbated by climatic uncertainty. There was also no employment from outside to provide a sustainable and adequate income for the whole year.

5.5.3 Cash Payment: incentive for participation

The Contract reforestation project in 1988 came at the right time. For three successive years, farming had produced little because of a long drought. Farmers depended entirely on the project for their income during this period.

Each interested farming household could participate in the project with an estimated price of P 20,410 per hectare to reforest, for the whole three-year

contracted period (Table 25). Of this sum, approximately P 16,724 was spend on the hiring of labour.

Table 25.
Income estimates for labour per hectare to reforest (DENR Memo Circular No. 04 Series of 1990)

Activity	Year 1	Year 2	Year 3	Total
Nursery Operation	P 5,418	P --	P --	P 5,418
Seedling Establishment	3,905	--	--	P 3,905
Maintenance & protection	1,207	1,154	1,154	P 3,515
Infrastructure - road construction - firebreak construction - footpath construction - bunkhouse - lookout tower	3,322	282	282	P 3,886
Total	P 13,852	1,436	1,435	P 16,724

For a five-hectare project, P 71,345 can be earned in three years for labour alone (Table 26). The cost for a hectare at the first year cannot automatically become the unit basis to infer the cost of a five-hectare contract since the economy of scale operates in this case. During the first year, a farm household could realize an income of P 56,985, in the second year: P 7,180 and in the third year: P 7,180 or and average yearly income of P 23,781. This is a good income for an average upland family.

Table 26. Estimated yearly earnings from labour payment per project size

Area size	Year 1	Year 2	Year 3	Total
One hectare	P 13,852	P 1,436	P 1,436	P 16,724
Two hectares	P 24,636	P 2,872	P 2,872	P 30,380
Three hectares	P 35,419	P 4,308	P 4,308	P 44,035
Four hectares	P 46,202	P 5,744	P 5,744	P 57,690
Five hectares	P 56,985	P 7,180	P 7,180	P 71,345

These income estimates however, merely served as an operational guide for DENR in budgeting the total cost of the program. In practice, only 55 percent of the total contract payment, or P 39,587 from the P 71,345, accrued to the contractor for a five-hectare project (Table 27).

Table 27.
Sample schedule and actual amount paid for a 5-ha project in the Villa Meimban (Personal Interview, 1993)

Type of payment	Date	Paid amount	Contracted amount
1. Awarding of contract	10 May 1990	--	
2. Nursery operations and seedling establishment	6 June 1990	P 8,500	P 46,615
3. Maintenance & protection for the first year	17 Dec. 1990	P 4,754	P 6,035
4. Maintenance & protection for the second year	12 Dec. 1991 (partial release)	P 6,960	P 5,770
	23 Jan. 1991 (release of balance)	P 4,973	
5. Maintenance & protection for the third year	13 Dec. 1992	P 2,400	P 5,770
6. Retention fee	25 Oct. 1993	P 12,000	P 7,155
Total		P 39,587	P 71,345

The actual average yearly income for three years amounted to P 13,195 assuming that a contractor only received P 39,587 for the whole contract period. All participants were angry. Even more frustrating was waiting for six months to a year to be paid. According to them, they could have cooperated well with the project management being the only readily available income source for the community in hard times. However, with delayed payment they could not endure to stay longer since they had to search for quick income option for their daily subsistence.

In terms of work load, reforestation required more man-days than *kaingin* farming in the first year but less in the second and third year (Tables 28 and 29).

Table 28.
Estimated workload in a reforestation project required per hectare (DENR Memo Circular No. 04, Series of 1990)

Activity	Month	No. of man-days
1. Nursery activities	Jan. to May	127.08
2. Plantation Establishment		60.43
- strip brushing	Aug.	16.67
- digging & pulverization of soil	Sept.	16.67
- transport of seedlings	Sept.	10.42
- planting	Sept.	16.67
3. Maintenance & Protection		97.30
- ring weeding	Oct.	16.67
- brushing & fertilizer application	Oct.	16.67
- replanting	Nov. & Dec.	1.66
- fireline construction	Febr. & March	32.30
- patrol works	Febr. to August	30.00
Total		284.81

Table 29.
Estimated workload in a one hectare *kaingin* farm per cropping season (Personal Interview, 1993)

Activity	Month	No. of man-days
1. Clear Brushing	Jan.	20
2. Burning & Ploughing	Febr. & March	15
3. Harrowing (2x)	April	15
4. Planting	May	14
5. Cultivating	June	14
6. Harvesting	Sept.	20
7. Corn Drying	Sept. & Oct.	10
Total		108

Ground preparation and seedling establishment in the first year are the main bulk of the work in reforestation. The remaining two years are spent for patrol works and replanting if necessary.

A majority of the participants mentioned the dilemma of allocating their time and labour for farming when the rainy season came. Droughts or dry season posed no problem because farming is not feasible during such period. As such, there is more time budgeted for the project than during farming season.

Attending to their *kaingins* or ISFP farms took priority and received greater attention. The farmers also viewed the project's activities as something that could be postponed.

In other words, income from reforestation became the main source of subsistence in bad times, but just another income option during favourable season for farming. This perception affected the quality and sustainability of participation in the project. In the end, farming was given full priority in the good season, whereas in the dry season or during droughts, participation depended on the regularity of project payment.

Examining the over all performance of the policy instrument for participation, it seems that the project failed to consider how its incentive (paid labour) would fare with other economic options. The following subsection illustrates the opportunity conscious nature of small farmers, e.g. shifting from a lesser to a more profitable option when the opportunity arises.

5.5.4 The rise and fall of a model project

The first two years of operation marked a good start for the project. Participants were highly motivated to work and there was a spirit of voluntarism, especially during fire fighting activities. Seedling survival reached 90 percent, a rarity in the area's history of reforestation. With this significant accomplishment, it was declared the best reforestation project in Cagayan Valley Region in 1988 (Personal Interview with Project Manager, 1993).

Although there was a remarkable increase in the number of participants between 1989 and 1991, the number declined over time (Table 30). This size of work force included both contractors and the labourers. The significant drop in participation especially in 1992 and 1993 stemmed from the combined effect of good weather conditions and participants' resentment towards the project.

According to most respondents, the first two years of the project were considered profitable. Payment for the first year, e.g. the full 60 percent of the total contract price was released and bolstered the confidence and motivation of participants. In the following years, the condition totally changed. Payments were delayed, aggravated by many anomalies in the project implementation. Most participants believed that they were being cheated by the project managers, contractors and DENR field personnel.

Table 30.
Status of farmers' participation in the Villa Meimban Contract Reforestation Project from 1988 to 1993 (Personal Interview, 1993)

Year	Status		Cumulative size (active)	Remark
	New	Inactive		
1988	50	--	50	good performance (model)
1989	15	--	65	long drought period
1990	10	20	55	problem of payment started
1991	26	21	60	peak of inactivity; moving out to other places
1992	--	15	45	farming resumed under favourable weather
1993	--	11	24	farming booms
Total	81	67		

However, the resumption of farming in 1992 was also an important reason to leave the project. Out of the 35 participants interviewed, 18 (51 percent) mentioned that farming was their priority during that year (Table 31). About 16 (46 percent) said they discontinued their participation because of their resentments towards the project.

Table 31.
Factors of the declining participation in the Villa Meimban Reforestation Project (Personal Interview, 1993)

Cause for project inactivity	Number	Percent
Priority to farming	18	51
Resentment towards the project	16	46
Circumstantial movement	1	3
Total	35	100

The remaining 24 participants in 1993 said they had difficulty in performing their regular tasks in the reforestation project during the peak of the farming season.

The reduction in the workforce since 1992 had resulted in heavy setbacks in the project. Premature abandonment and even deliberate burning of the seedlings by disgruntled members followed. Table 32 presents the extent of burnt area in the project which coincided with the problematic years, when participants' departure from the project peaked.

Table 32.
Extent of burnt area at the Villa Meimban Reforestation Project from 1988 to 1993 (Personal Interview, 1993)

Year	Dropped out	Burnt area (ha)	Remark
1988	0	0	Good performance; became a model project site
1989	0	2	Long drought period
1990	20	30	Problem of payment started
1991	21	112	The peak of movement to other places in search of stable jobs
1992	15	132	Farming resumes and less attention is given to patrol works
1993	11	138	Farming is gaining more importance as the weather is improving, together with a declining project's cashflow

Participants who still hoped to receive complete payment of their contract remained in the project. However, their participation was intermittent.

This one-time model project turned into a problematic case, as farming began picking up again. Abandoned reforestation sites were reverted to grassland cover. Project management activities were scaled down to just a monitoring routine for the remaining surviving area. The vast burned area appeared to be unredeemable and some farmers tried to convert certain portions into *kaingins*. Tropical grasses, particularly the *Sacharum* and *Crisopogon* species once again started to dominate the area. All that remained were burnt saplings of *Gmelina arborea*, a reminiscence of the millions of pesos invested in the project over the past years.

Assessing the project's impact, its environmental and socioeconomic goals have failed. Participants have not reached entrepreneurial status and their socioeconomic condition had not been alleviated. The farmers continued the cyclic shift from one subsistence pattern to another as they could not avail of regular payment from the project and they were also dependent on the prevailing climatic conditions.

5.5.5 Project earning's effect on participants

At some point, income from the project helped participants meet their cash needs when farming and other livelihood options were not feasible. Many participants commented, 'It became our main source of bread in those crucial

times when simply nothing could be grown in our land.' The lack of a stable means of subsistence prompted farmers to cling to the project as a last income alternative (Table 33).

Table 33.
Socioeconomic profile of an average farmer in Villa Meimban Reforestation Project (Personal Interview, 1993)

Parameter	Features
1. Farming system	Rainfed; erratic rainfall pattern
2. Subsistence diversity	Limited: farming & charcoal making
3. Subsistence stability	Low; declining & unpredictable
4. Dominant farm crop	Yellow corn
5. Household economy	Market oriented; cash exchange
6. Average household income/year	P 20,000
7. Subsistence level	Barely subsistence; marginal food

Although the project's income helped farmers meet their food needs during the drought periods, their socioeconomic condition remained unchanged. Of the 35 active and inactive participants interviewed, a majority claimed that they spent their earnings primarily for food (Table 34).

Table 34.
Respondents' actual use of income from participating in the Villa Meimban Reforestation Project (Personal Interview, 1993)

Income use	Number of respondents	Percent
Food	30	85
Farm inputs	2	6
Medicine	1	3
Others	2	6
Total	35	100

Only 2 (6 percent) mentioned that they used part of their income as farm inputs for buying pesticides and fertilizers for their cash crops. Since the income they received merely served as a contingency during those periods of long droughts, a majority of the participants claimed that they were not better-off today than five years ago (Table 35).

Table 35.
Respondents' assessment of their present socioeconomic status with reference to five-years ago at the Villa Meimban Reforestation Project (Personal Interview, 1993)

Status	Number of respondents	Percent
Progressed	0	0
Status quo	33	94
Retrogressed	2	6
Total	35	100

All 35 respondents viewed the income from the project as an end in itself. Likewise, they preferred being hired as project labourers with continuous payment planting and maintaining trees rather than pursuing the Forest Land Management Agreement. The majority of them had reasoned their lack of interest in tree farming. According to them, they were not interested in the project site for intercropping since they could just squat or clear new areas for subsistent farming. This is coupled with the semi-arability of the project site which is not suitable for short-term subsistent cropping. Table 36 summarizes farmers' perception, motivations and level of level of participation in Villa Meimban reforestation project at the end of the project period.

Table 36.
Farmers' perception, motivations and level of participation in Villa Meimban Reforestation Project (Personal Interview, 1993)

Parameter	Features
1. Degree of dependence on income from the project	High especially during dry months and crop failures
	Basic source of subsistence especially in hard times
	Food and farm inputs
	- Increases direct dependence on the project - Ruins actor's initiatives
	Conditional, circumstantial and intermittent
	Regularity of sustained cashflow
7. Intervening factor to sustained participation	Farming activities during wet season
8. Project performance over time	Successful at the start, when cashflow was high and regular

5.5.6 Doing more harm than good

The concern for immediate income more than the prospect of future ownership over the project negatively affected the level and quality of project involvement among participants, as seen in the following behaviourial tendencies and practices:

a. Conditional participation

Participation was low when there was no immediate payment. However, whenever DENR field personnel assured them that the release of payment was eminent, all of them resumed the maintenance and protection activities until another long delay.

Some participants only performed a particular activity which should have been done much earlier to comply with the DENR requirements for the release of their payments. For instance, firebreaks should be constructed during summer because of the chance of grassland fires. However, some constructed them during rainy season because of the condition that 'no payment for no firebreaks'. In other words, everything had become conditioned by payment, even though the activity was no longer essential at the time of its execution.

b. Transactional participation

There were participants who performed activities just tantamount to what was paid at that particular period. The 'no pay, no work' mentality was deeply ingrained in their minds. As such, they were extremely conscious that every activity should be equally compensated.

c. Haphazard performance

Farmers often transplanted immature seedlings to beat the targeted number of seedlings and hectarage to be planted. Likewise, areas not thoroughly brushed and cleaned were planted just to comply with the specified time set by DENR. Worse than that, most contractors limited the application of fertilizer to the young seedlings so that they could increase their profit margin.

d. Interrupted participation

The 'off and on' participation of most farmers was not intentional. According to them, they make the most of every opportunity to provide added income for their families. When a sudden call for labour came for short-term or daily wage off-farm jobs, most grabbed the opportunity, while postponing the work in the project. Similarly, during rainy season, all of the participants have to attend to their farm first. At times they no longer had time to work in their project because of the mounting work load on the farm as they tried to cope with the availability of rainfall. Occasionally, when there was a field inspec-

tion scheduled by DENR field personnel, participants doubled their time trying to cope with both farm and reforestation activities. However, normally, farming and other immediate earning options took priority.

e. Premature abandonment of the project

Delayed payment and undercompensation posed doubts on the project's real intention of helping the participants' economically. Some of the marginally poor participants prematurely abandoned their areas and went back to charcoal making. Others went out to other places in search for work. A number of them simultaneously worked on the project while seeking off-farm jobs, like carpentry work, charcoal making or gardening from time to time.

The need for immediate cash kept them from staying on the project. Some commented, 'it is not worth spending our time and energy to something that cannot ensure us of our immediate daily need.' In short, the search for sustained daily income during lean months greatly affected consistent involvement in the project.

f. Deliberate burning of the project

Although nobody had claimed the responsibility for causing grassland fires in the project area, most participants believed that some of the incidences were deliberately set by disgruntled members (Table 37).

Table 37.
Respondents' perception of the causes of the previous grassland fires at the Villa Meimban Reforestation Project (Personal Interview, 1993)

Cause of burning	Number of respondents	Percent
Accident	9	26
Deliberate	16	46
Unmitigated fire from a nearby ranch	7	20
Other causes	3	9
Total	35	100

g. Concern for cash more than project ownership

Almost all participants did not have a sense of deeper involvement in the project. This was manifested by their poor involvement in the project. Their lack of interest in pursuing FLMA made them complacent about maintaining and protecting the project. Even though payments were delayed, they could have still continued maintaining the project while waiting for the rains to come for farming. However, they regarded completely the project as source of immedi-

ate livelihood and ignored the prospect of owning it in the future through FLMA. One of their reasons for their disinterest in FLMA was the long gestation of tree crop coupled by the poor arability of the project site for intercropping of fruit trees. Also, land for farming seemed not to be a pressing need for the farmers, since almost all of them kept on opening new *kaingins* for subsistent cropping. In short, what mainly motivated them to participate was the cash incentive for tree planting in the reforestation project.

5.5.7 The factors of project failure

From this case study, it seems that the socioeconomic objective of the program has overridden the concern for forest renewal. Although the project has provided employment it has not raised the participants' entrepreneurial capacity however. It merely filled their cash needs during bad times and the worse, it deepened their direct dependence on the project.

At the beginning there was a good reforestation performance when project payment was very regular. This was also in time with the long drought, in which the locally-based farmers had no choice but to participate actively in the project as a last resort for their means of subsistence. However, the following years were characterized by erratic and problematic releases of contract payments which prompted most all 'on-site' participants to go back to farming at that time when the climate got better. Their participation significantly dropped. Those who remained had intermittent project involvement in favour of farming.

From this analysis, it appears that regularity of payment is a critical condition for sustained participation among below subsistent farmers. This holds true whether in a bad or good season of the year but most especially in hard times. During the rainy season, the interference of farming with project activities especially in the second and third years is no longer critical. The last two years are intended for patrol works against grassland fires. But during the wet-season, the risk of grassland fire is extremely low. Thus, simultaneous farming could never have become a problem if project payment would have been regular.

Furthermore, community cooperation against fire could have been enhanced because all participants were locally-based. However, the inability of the DENR to remit regularly labourers' payment spoiled the initial good performance of the project. Also, the problem of late payments could have been circumvented if there were rich contractors in the community. Almost all participants were below the subsistence level.

In conclusion, the project failed not because of the negative site conditions but mainly due to the management failure of providing the participants the needed cash incentive promptly and regularly. However, on the overall as-

sessment, it appears that the following factors have all contributed directly or indirectly to the failure of the project, namely: 1) DENR's failure to release contract payments promptly and regularly, 2) project management's marred image which ruined participants' confidence of expecting more future projects, 3) participants' marginal economic condition, 4) absence of rich contractors who could have paid meantime their labourers' wages, 5) participants' low farming need, 6) contractors' lack of enterprising attitude, and 7) poor site arability.

5.6 In-Depth Case Analysis of Maguirig

5.6.1 Introduction

As became apparent in the results of the exploratory investigation in Section 5.2, the yearly burning of the reforestation project in Maguirig was allegedly attributed to conflicting land claims over the project area. Most farmers subtly allowed the encroachment of their farmlands by the Forestry Department in exchange for employment in the original reforestation project established in the area in 1978. Reforestation performance at the beginning was claimed to be high when the project employed local residents in the community.

There were several tree growing schemes that succeeded the original reforestation project later on. The dispute over land rights was overlooked as the local people continued to benefit from the project's earnings. However, when the Contract Reforestation was introduced in 1990 on the same site, the bias recruitment of participants in favour of outsiders kindled the local people's unrest over their lands.

Some local participants would like the project to continue, but the majority was calling for its closure. In the later years, no substantial accomplishment occurred. Some of the early occupants felt the growing need to cultivate their occupied farmlands again. The conflict over who had the legal claim over the area made many other interest groups speculate over the project site.

The aim of this in-depth investigation of the Maguirig case was to probe further how the situation came about. The fact that there was an initial cooperation between the community and management in the past despite existing tenurial overlaps in the site posed some doubts in the way the current reforestation project was being implemented.

5.6.2 History of the land conflict

At the beginning of the government's regular reforestation in 1978, the Project Manager subtly included private lands in the project area. He convinced

the farmers to plant trees in their private lands. In return, he promised them employment from tree planting and maintenance in the project. Also, he assured them that 'the land would still belong to them and that the only interest of the Forestry Department was tree planting in the same site'. The realization of a large project area resulted generally in a considerable funding, thus opening a greater opportunity to squander it for personal gain.

This subtle usurpation of private lands was reinforced by subsequent tree growing projects in the same site under varying management regimes (Table 38).

Today, the area is still maintained by the DENR while the local people still are hopeful that some day their lands will be reverted to them. Some of them consider to resume farming in their occupied lots by the project, while others have already started to clear some portions for short-term subsistent cropping. Worse still, a greater portion of the project is abandoned and turned into a communal grazing area.

Table 38.
Chronological transformation of the tenurial status of the Maguirig Reforestation Project site from 1950 to 1990 (Personal Interview, 1993)

Year	Tenurial/project regime	Reason
1950s	'Alienable & Disposal'	Released for private titling
1978	Communal Tree Farm	Community tree growing as a reforestation scheme employing original land claimants
1985	Integrated Social Forestry	Awarding of stewardship contracts to interested occupants but not necessarily the original legal claimants of the area
1987	Regular Reforestation	ISF was unsuccessful and the area was reverted to public tree growing project
1990	Contract Reforestation	The regular project turned to contract reforestation as the most recent tree growing scheme on public lands

5.6.3 Recruitment of the wrong actors

Under the first reforestation project in the area, the local people were hired as daily wage labourers from 1978 up to the end of the 80's. This was a trade-off for allowing the project to operate in private farmlands.

However, in 1990, the contract reforestation was introduced with a new project management. The historical precedence of employing local people

was violated with the recruitment of more 'off-site' participants than the local residents (Table 39).

Table 39.
Percentage of local and non-local participants at the Maguirig Reforestation Project (Personal Interview, 1993)

Type of participants	Type of origin		Percentage ratio (%)
	Insider	Outsider	
1. Contractor	6	9	40/60
2. Hired labourers	13	52	20/80
Total	19	61	24/76

About 76 percent of the total participants came from the outside. The majority (85 percent) were subcontracted labourers who were daily wage earners, moving from one place to another searching for off-farm work during dry season.

Although there were few local contractors recruited, their areas did not coincide according to their original spatial position in the site.

Table 40.
Economic profile of an averaged hired labourer of the Maguirig Reforestation Project (Personal Interview, 1993)

Parameter	Features
1. Farmholding	Almost all are under tenancy
2. Farmholding size	One hectare
3. Rainfall pattern	Erratic; distinct dry and wet
4. Farming system	Rainfed and irrigated
5. Diversity of subsistence	Rice farming & wage labour
6. Dominant livelihood	Rice farming
7. Stability of major form of subsistence	Stable
8. Annual household income	P 24,000
9. Level of subsistence	Barely above subsistence
10. Average household size	Seven

Although the area is predominantly a farming community, most farms are under tenancy. Local farmers do not really gain much profit from rice farming

because of the cost of production besides the exorbitant interest of the loans they use in farming. As such, many of them try to supplement their farm earnings with other income options available in the community. Table 40 presents the economic profile of an averaged hired labourer of the project.

Most of the project contractors, on the other hand, are financially stable. Those from the outside were already in cash surplus level and were among the very influential people in the locality. Table 41 presents the income status of both 'on-site' and 'off-site' contractors.

Table 41.
Annual income distribution of contractors at the Maguirig Reforestation Project (Personal Interview, 1993)

Annual income	Number of contractors (N=15)		Total percentage (%)
	Insider	Outsider	
P 25,000	1	--	8
P 25,000-50,000	2	--	14
P 50,000-100,000	1	--	8
P 100,000-300,000	--	1	8
P 300,000-500,000	--	8	48
P 500,000-1 million	--	2	14

The great number of 'off-site' participants has put the project in a poor strategic position. All of the subcontracted daily wage labourers from outside were sedentary workers always searching for off-farm jobs. When grassland fires occurred, one could not reckon on them because of their distance and intermittent presence in the area.

The exclusion of most local residents created animosity towards the project. In the past, local people voluntarily participated in fire fightings. But now, they became passive and indifferent. Some speculated that a number of fire incidences were deliberately set by local people who resented the project.

5.6.4 Tree planting for what?

The awarding of most contracts to outsiders had a purely political reason. Most of those who were awarded with contracts were related to the project manager either by blood or extended affiliation. The Local Government Unit was the only local organization that obtained a contract. However, even in the way the Barangay Captain chose her members, there was nepotism in favour of her close kin and officers of the village.

The subcontracted labourers viewed their project participation as a form of intermittent employment. Their tenure was temporary, and all that they wanted was the financial compensation for their work.

The local contractors shared the same view. They joined the project not because they saw the importance of trees in the community but simply for financial gain. Even after knowing the provisions of FLMA, they were not interested to pursue it because of their prior knowledge about the conflicting status of the area. 'Off-site' wealthy contractors joined the project and intended to speculate the site for pasture area in the future. Some were motivated to provide additional income to their entrusted men through the project. Table 42 shows the motivation of contractors towards the project.

Table 42.
Contractors' motivations for joining the Maguirig Reforestation Project (Personal Interview, 1993)

Motivation	Contractors (N=15)		Percentage
	Local	Outsider	
1. Income for employment	3	4	47
2. Land speculation	--	7	47
3. Environmental reason	--	1	6

About 40 percent of the contractors perceived that the project will be turned over to the government, while 47 percent believed it will belong to the contractor (Table 43). Those who viewed the project as government's property mainly participated for cash.

Table 43.
Contractor's view of project ownership at the Maguirig Reforestation Project (Personal Interview, 1993)

Motivation	Contractors (N=15)		Percentage
	Local	Outsider	
1. It will belong to the government	3	3	40
2. It will belong to the contractor	--	7	47
3. Cannot be determined	--	2	13

Among the local contractors, most of them were inhibited to introduce site developments in the area. According to them, 'No matter how much they desire to interplant other tree crops in the area, they are always prevented by

their preconceived notion that the land is not theirs.' On the other hand, the outside contractors believed that if they could comply to the government's requirements for FLMA, they would have a good chance to keep the area for 25 years under the forestry leasehold agreement. However, their failure to recruit 'on-site' labourers did not spare their projects from frequent grassland fires. They were demoralized after their areas got burned. However, this did not affect their confidence of getting new contracts in the future because they regarded themselves as friends or close associates of the regional or local DENR top officials.

5.6.5 The breakdown in property regime

Originally, a portion of the project site was classified as private agricultural lands as many of the local people claimed. Most of them still have a legal title which they obtained in the early 1950s. In principle, the project had occupied both private lands and public lands.

There was not so much a problem in the first reforestation project because the 'on-site' participants that time were assured of their property rights over the site. With the successive shifts of projects in the later years, local participation gradually diminished as the new project managers recruited more outsiders than insiders. Consequently, community cooperation was difficult to attain especially during fire fighting activities.

Most of the contractors claimed that most fire incidence in the area were deliberately caused by local people (Table 44).

Table 44.
Contractors' view of the causes of grassland fires at the Maguirig Reforestation Project (Personal Interview, 1993)

Causes of fire	No. of contractors	Percent
1. Deliberate	9	60
2. Accidental	4	26
3. Burning in adjacent pasture area	1	7
4. *Kaingins*	1	7

Most of them claimed that it was purposive, and stemmed from the need to produce continuously fresh new shoots from the grasses for their animals (Table 45). Although some viewed burning of grasses as an inevitable phenomenon in the area, all believed that it could have been prevented from encroaching the entire reforestation project, if local people had been contracted.

Table 45.
Contractors' view of people's motive of setting fires in the Maguirig Reforestation Project (Personal Interview, 1993)

Primary motivation of burning	No. of contractors	Percent
1. Out of resentment	5	33
2. To improve forage quality	7	53
3. Unintentional	3	14

Today, the abandoned portion of the project site turned into an open grazing area. The few patches of surviving seedlings were those that were being maintained by the local contractors.

Tracing the gradual breakdown of local ownership claims, over the site (i.e., from private to communal to open access resource), the community people were in a dilemma of what to do next with the project. Accordingly, even though the land belonged to them legally, if the government wanted to re-possess it for a community project, they were willing to waive their rights. However, because of the presence of outsiders with a disguise motive over the land, the local people began to loose confidence on the contract reforestation project's intention in the area.

Prompted by fear of eventual displacement, the original claimants consciously tolerate open grazing even in their one-time private lots. They preferred to see the land turned into a community property rather than to turn it over to private individuals from outside the community. According to them, they would be in a stronger political position, if the whole community would unite as one for the protection of a common resource rather than each individual fighting for his own claim.

But in practice, grazing is not an exclusive right of the local people. Because of the dispute of ownership claim, some land speculators and 'free-riders' took advantage of the situation by treating the site as an open access resource.

In short, the gradual breakdown in property regime over time has not only worsened the tenurial status of the area, but it has also decreased the prospect of reforestation success in the site. 'Off-site' contractors often complained about the rampant practice of grazing in the area that caused severe damage to the newly planted seedlings. Followed by periodic grassland burning, they felt helpless to abate such episodical environmental hazard.

5.6.6 Confronting local people's option

Although most of the local residents felt bad about their not being hired as contractors, they were still confident to regain their rights over the land. Many of them also entertained the possibility of joining the project in the future. Table 46 presents the views and future options of respondents randomly selected as regards to the status of the project in the area.

Table 46.
Local people's views and options regarding the land use in the Maguirig Reforestation Project (Personal Interview, 1993)

Views and options	Respondents (N=50)	Percent
1. Revert the area to private land	50	100
2. Maintain the area for grazing	50	100
3. Cancel the reforestation project	42	84
4. Continue the project and hire local people	36	72
5. Prefer the area for agriculture	27	54
6. Convert the area into another community project	10	20

All respondents would like the see the disputed area be reverted into private property of the original claimant. However, all of them also expressed the need to maintain the area as a communal grazing site. The majority saw two possibilities for the project. One option could be its cancellation as suggested by 84 percent of the respondents. Reasons stemmed from the project's failure to employ more local people than outsiders. Another option was to continue the project as supported by 72 percent, on the condition that only local people were hired.

When asked about their plans for the old-aged standing trees planted during the early reforestation project, a majority wanted to maintain some of them and clear the arable portions of the site for subsistent farming. Others preferred to clear the whole area for planting fruit trees (Table 47).

Those who wished to resume farming regarded the standing trees on their lots as belonging to the DENR. According to them, they would not mind if the government would receive income from the entire tree crop as long as they could regain their farmlots. Some wanted to plant fruit trees instead of forest trees.

Three local contractors were not interested in pursuing FLMA, even if their projects would qualify. They gave as a reason the lack of tenurial security over the land they presently maintained for the project. In the future, they

said, they would prefer to work again as contractors and possibly pursue FLMA if the area to be awarded to them is free from disputes and has a good soil. To gain additional land rather than interest in future tree produce was what motivated them.

Table 47.
Local people's plan in case the project site will revert to private land (Personal Interview, 1993)

Future plan	Respondents (N=50)	Percent
1. Maintain some trees and convert the arable portion for cash crop production	30	60
2. Clear some portions for fruit trees	15	30
3. Completely clear the trees for farming	5	10

5.6.7 Factors of project failure

The poor project performance in the area was mainly attributed to the dramatic change in local people's attitude towards the management. In 1978, fire fighting was a voluntary communal activity. Despite the subtle inclusion of their private lots in the reforestation area, they still cooperated because all of them were hired as labourers. Today, the lack of communal involvement in fire protection stemmed from three main factors.

First, the new project management failed to sustain the established local cooperation through its bias recruitment of labourers in favour of outsiders. Because the majority of the participants were 'off-site', they were only intermittently present. They are not available during fire fighting activities. The community people on the other hand were indignant towards the manager. As such, they became apathetic and indifferent towards the project.

Second, the recruitment of more outsiders reinforced local people's apprehension about the tenurial status of their occupied lands. Being not contracted to do reforestation, they feared the possibility of losing their land rights the moment the project would turn to FLMA. This feeling of land right insecurity could be one basis of local people's deliberate burning of the project as many claimed.

Third, the failure of the project management to set sanction for poor project performance has spoiled the initiatives and strivings of the outside contractors for a better performance. Being rich and influential, they exploited the politically infested Forest Bureaucracy in the region. As such, their strong influence gave them no incentive to strive well in their performance because of their confidence that they could avail of future projects just the same. Fur-

thermore, they could have hired local labourers or defrayed meantime their labourer's wages to keep them from premature exit, thus saving the project.

In conclusion, the project failed not because of the initial land tenure conflict in the area, but mainly due to the contract reforestation project management's inability to build on the already existing community cooperation. This was mainly attributed to the following intervening factors: 1) management's low recruitment of 'on-site' participants, 2) its non-recognition of the usufruct/tenurial rights of the local people, 3) its delayed release of contract payment, 4) its non-provision of sanctions for poor performance, 5) contractors' non-payment of their labourers' wages meantime, 6) their lack of enterprising attitude, 7) labourers' marginal economic condition, 8) site's problematic tenurial status, and, 9) its inaccessibility to 'off-site' participants.

5.7 Analysis of the Bottomline Motivation of Actor's Participation

This section presents the bottomline of contractor's sustained participation in seedling maintenance and protection in the first three-year period of the contract reforestation projects. It also highlights the relevance of the various success conditions and variables associated with project performance.

5.7.1 Project performance variables

Based on the results of the exploratory investigation, there are eight conditions associated with contractor's sustained participation in seedling maintenance and protection in Cagayan Valley, namely:

1. *Intercropping*: the contractor's subsistent or cash crops interplanted in the same project site apart from the tree crops;
2. *Financial Situation*: whatever the contractor's income source is, it should be above the subsistence level;
3. *Aspiration for Good Track Record*: the contractor hopes to get also future project contracts for a good performance;
4. *Assured Access/Property Rights*: the contractor's present usufruct or tenurial right over the site is recognized or that he is being assured of a future project ownership;
5. *Interest in Other Related Tree Uses*: the contractor's expressed interest on some future land use development prospects in the project site or tree uses and benefits derived from other than wood products;
6. *Prior Awareness of the FLMA*: contractors' initial knowledge of the FLMA concept and provisions;

7. *Good Working Relationship with DENR*: refers to the casual and close interaction between contractors and DENR project management;
8. *Sense of Community Cooperation*: local residents' voluntary participation in fire protection and strict regulation of open grazing inside the project site.

The above mentioned conditions were subjected to Chi-square for the test of significance. Table 48 shows the results of the Chi-square test. A 2 x 2 table was constructed to calculate their Chi-square values (Appendix 2). The square blocks were build up on one axis 'High/Low Performance' and the other axis the factor Present/Not Present, which is filled in with the number of contractors.

Table 48.
The results of the Chi-square test for the various success conditions for sustained seedling maintenance and protection in the four case studies in Cagayan Valley

Variables	D.F.	Chi-square value	Level of significance (a=.01)
1. Practised intercropping	1	38.25	Significant
2. Interested in other related tree uses	1	33.43	Significant
3. Financial situation	1	19	Significant
4. Assured access / property right	1	14	Significant
5. Sense of community concern	1	10.93	Significant
6. Aspire for good track record	1	6	Significant
7. Prior awareness of FLMA	1	1.24	Not significant
8. Good relationship with DENR	1	0.0003	Not significant

5.7.2 The relevance of the success conditions

Based on the results of the Chi-square test conducted, there appeared to be six dominant variables consistently recurred in all of the four case studies investigated. These variables referred to as success conditions to contractor's sustained participation in seedling maintenance and protection are as follows: 1) intercropping between seedlings, 2) interest in other related tree uses, 3) good financial situation of participants, 4) assured access or property right, 5) community cooperation, and 6) aspiration for good track record. Although these conditions are not independent from each other, they all seem to give their own contributions to success or failure.

To illustrate the relevance of these six success conditions, their individual bearing on seedling maintenance was examined as the two successful projects (Lacab and Salinas) were being contrasted to the two problematic ones (Maguirig and Villa Meimban). The success conditions are all present in the successful projects but not in the unsuccessful ones. The presence or absence of the success conditions forms the basis of the analysis.

a. Intercropping between seedlings

1. 'Successful Projects'

The opportunity of intercropping simultaneously in the project site gave greater chance for the planted seedlings to be taken care of by participants. In Lacab, the presence of farmers' main subsistence and cash crops in the site prompted them to clean regularly and conduct patrol works in the project. As they cultivated and cleaned the field interplanted with corn, upland rice, coffee, banana, papaya, root crops, and vegetables, they did ring weeding on the growing seedlings simultaneously.

In Salinas on the other hand, farmers who interplanted mango (*Mangifera indica*) between the *Gmelina* seedlings did periodic weeding and cleaning to save both species from grassland fires. Few contractors who have farms adjacent to the project area and which are situated within the arable portions practised intercropping.

2. 'Unsuccessful Projects'

Although intercropping was one stipulated provision in the contract, the Maguirig and Villa Meimban contractors did not practice it despite the good soil condition of some portions of the project sites. The existence of local claimants over the project area discouraged both 'on-site' and 'off-site' contractors to intercrop despite its good arability in Maguirig.

In Villa Meimban, there are some arable portions in the project site that can be farmed. The contractors however, found no interest to do intercropping since all of them claimed to have a vast farmholding to cultivate.

b. Interest in other related tree uses

1. 'Successful Projects'

Most contractors in Lacab ambitioned agroforestry as an intermediary farming system when intercropping would no longer be feasible. Their confidence to qualify for FLMA triggered further interest in maintaining the trees they planted for future uses.

The rich contractors in Salinas took the burden of defraying meantime their labourers' wages as often as project payments were delayed. Motivated

by strong desire to turn the area into silvipastoral use under FLMA, they strived to keep their work force intact through meeting their labourers' cash needs. Many local pasture lease owners in the area indicated their willingness to disperse heads of cattle to interested project participants. This arrangement encouraged even the subsistent contractors to strive for FLMA.

The Rational Peasant Theory applies in this context since farmers (in Lacab) were open to innovation despite the uncertainties they may face ahead. In Salinas, the rich contractors were regarded as rational problem-solvers concerned with both their own interests and how to address the needs of others in order to achieve a mutually acceptable outcome.

2. 'Unsuccessful Projects'

Although the rich 'off-site' contractors in Maguirig perceived the planted trees as important component for homestead in the future, this ambition was subdued by the overlapping tenurial status of the site. Coupled with their far distance from the area, they were not sure whether or not they could protect the growing trees later on from local firewood gatherers.

Contractors in Villa Meimban expressed no interest in tree farming or any other use of the project. Their concern was focused most on the direct cash income from the project. They did not yet sense the importance of growing trees for their household consumption, having much confidence that the nearby shrublands would still be able to meet their future needs. In other words, they were not enterprising to view tree growing as an investment for future benefit. Also, they perceived the project as government's possession. Being hired only to plant trees at the site, they feared that they might not share in the harvest of the tree produce in the future. This behaviour observed in both problematic projects coincided with the Risk-Averse Theory claiming that rural farmers often minimize the subjective probability of the maximum loss.

c. Financial situation of contractors

1. 'Successful Projects'

Although most of the family contractors in Lacab are all subsistent farmers, they were not desperately dependent on the project's income for subsistence. The produce from banana, vegetable, corn and upland rice sufficiently meets their food and cash needs. They regarded earnings from the project as additional household income for housekeeping expenses other than food.

The majority of the participants in Salinas are above subsistence level. With the dual or multiple livelihoods of most, this cushioned them from the effects of the project's late payments. Earnings from the project however served as capital savings, tuition fees for children's schooling and for buying farm implements or farm production inputs. Rich contractors defrayed mean-

time poor labourers' wages to surmount DENR's failure to keep up with its financial responsibility. Participants not desperately dependent on the project for subsistence remained up to the last year of the contracted period even without immediate compensation.

2. 'Unsuccessful Projects'

Most contractors in Maguirig are rich. Their labourers, however, are practically all itinerant daily wage labourers always in search of jobs that could provide them immediate cash earnings. Similarly, the Villa Meimban participants are marginally poor with unstable sources of subsistence. If farming was feasible, they temporarily abandoned the project but tended to depend on it for subsistence during lean months and drought periods. Almost all labourers in both projects prematurely deserted their contractors when payments from the project got delayed for eight to twelve months or even longer. In Villa Meimban, some participants went back to charcoal making, others sought jobs outside the community. The rich contractors did not mitigate the cash flow problem of their poor labourers in Maguirig. The latter sought other off-farm jobs in other places.

The trend in these two study sites revealed that if projects' earnings primarily used for subsistence, participants' sustained involvement in seedling protection and maintenance was unlikely. When project payments were delayed, they looked for other work that could give them immediate earnings.

d. Assured access or property right

1. 'Successful Projects'

Contractors in Lacab had strong sense of ownership over the project site. Having their cropland at the same time, they aspired for security of tenure in the area. At first, they were just concerned in maintaining their usufruct, a condition that could not warrant long-term interest in tree growing. Since farming the area predominated over contractors' interest on trees, mutilating or burning the plantation when intercropping will no longer be feasible. This was the reason why they opted for *Pterocarpus indicus* and *Swietenia macrophyla* (long gestation species) instead of *Gmelina arborea* (a fast growing species) to prolong their intercropping in the area. They used wider seedling spacing of 3 x 3 meters instead of 2 x 2 meters to maximize the area cultivated. However, when they learned later the provisions of FLMA, 25 years forest leasehold arrangement, this motivated them to continue protecting and maintaining the seedlings.

In Salinas, all successful contractors expressed the intention to proceed to FLMA. Their ambition to gain property right over the site through FLMA encouraged them to perform well in the project. Even before learning about the

FLMA instrument, however, some contractors have already presumptuously asserted ownership rights by planting fruit trees in between seedlings. Others started exploring the prospect of integrating livestock production. Still another one constructed peripheral fencing, being confident that the FLMA instrument will be awarded to him.

2. 'Unsuccessful Projects'
Both 'on-site' and 'off-site' contractors in Maguirig did not ambition to pursue FLMA, although it could have been the appropriate opportunity to gain a renewed legal claim over the disputed area. There were two reasons for their disinterest for FLMA. First, being just a stewardship agreement which can be revoked any time by administrative action, the FLMA was viewed as inadequate. Second, the local contractors were doubtful of the applicability of the instrument in the area. The presence of local legal claimants in the community discouraged them to opt for FLMA. According to them, FLMA could reinforce their previous claims if they were contracted 'in-place' i.e., according to their spatial land location in the site.

In Villa Meimban, contractors found no incentive applying for property rights over the project area. They claimed that acquiring a landholding is not problem to them because they can just clear an area on the vast open public domain.

e. Aspiration for good track record

1. 'Successful Projects'
Contractors in Lacab perceived their eventual ejection from their usufruct area once they fall short of DENR's reforestation performance requirements. They had in mind the danger that outsiders might be contracted later on if they could not satisfy the project management's standard. The contractors associated this possible eventuality with the sanction they earlier experience with government's punitive measures in the 70s. In effect, this further reinforced their striving for a good project performance despite no regular DENR payments.

The performing contractors in Salinas on the other hand, believed that their success in the first project would eventually draw more contracts for them in the future. The psychological sanction and incentive to gain more benefits heightened contractors' motivation of performing well in Lacab and Salinas respectively.

This supports De Groot's (1992) concept about the quest for honor or prestige ('honoris') and economic gain ('homo economicus') as among the three moral bases of investment decision.

2. 'Unsuccessful Projects'
The rich 'off-site' contractors in Maguirig did not feel any possible sanction as a threat for longer project involvement. According to them, they can easily avail of future contracts from the program through their friends and political connections in the forestry bureaucracy.

In Villa Meimban, government's failure to release contract payments on time ruined contractors' confidence towards the project. Participants no longer expected the possibility of more contracts to be awarded in the future. Most of them reasoned out, 'if the government cannot pay us now, why expect more project contracts to come'. There was no incentive to aspire for good project performance since participants were not certain whether or not the DENR would really pay them for the long over due work they performed in the project.

f. Community cooperation

1. 'Successful Projects'
In Lacab, farmer-contractors evolved a local regulation among themselves to cooperate with one another in protecting the project from stray animals. This was possible because almost all of them are residing in the same farming community. Furthermore, they realized the importance of the project in protecting the watershed that continuously sustains the irrigation water for rice farming.

This self-induced local cooperation among contractors in Lacab and to some extent in Salinas contradicts Olson's logic of collective action theory in one aspect. Contrary to his emphasis of the need for outside intervention to bring about collective action, a communal compliance in fire protection and observance of open grazing restriction in both sites are practiced through voluntary cooperation.

2. 'Unsuccessful Projects'
Community cooperation was not evident in Maguirig because the greater majority of the participants came from outside. Unlike in the past, when the labourers of the project all came from the community, fire protection was a communal activity. Today, the local residents ceased to participate voluntary in fire fighting activities. Worse still, they were allegedly blamed for the causes of most grassland fires in the area lately.

Although the Villa Meiban participants were all locally-based, community cooperation failed because participants themselves had low regard to the project. Overwhelmed by resentments over late payments and undercompensation, practically all of them prematurely deserted the project. When there were fires nobody cared to stop them, even if they had the chance to ar-

rest it. They reasoned out the futility of risking their life for a project which did not compensate them fairly and regularly for their work.

5.7.3 Determinant factors of the success conditions

Based on the results of the in-depth investigation in the Cagayan Valley case studies, the determinant factors of the success conditions were identified.

With respect to the site's characteristics, the following determinant factors are:

a. *site arability* (soil, climate and physiography);
b. *accessibility* (distance and ease of reaching the project site from the contractor's residence);
c. *status of property regime* (tenurial status of the site).

With respect to contractor's characteristics, the following determinant factors are:

a. *subsistence level* (degree of food or cash security);
b. *farmholding need* (striving for land to cultivate or pressing need for more arable land to cultivate);
c. *meantime payment of labourers' wages* (contractor's practice of temporarily lending cash or in kind goods to project labourers in the absence of DENR regular and prompt payments);
d. *enterprising attitude* (a characteristic of having initiative, foresight, business inclination, exploratory nature, and risk in new ventures).

With respect to project management's characteristics, the following determinant factors are:

a. *assurance of project prospects* (a promise of future projects for the contractor or assurance of his secured stay in the site as a condition for good project performance);
b. *promptness of DENR payment* (regularity and timely release of participant's contract payment);
c. *recognition of usufruct or tenurial right* (respect for 'on-site' participant's or local farmer's claim over the land within the domain of the project area);
d. *approval of other land use combinations* (allowance for other tree crop combinations or future physical site developments);
e. *recruitment of 'on-site' participants* (hiring of local people or farmers who are positioned in the site).

5.7.4 Comparative evaluation between successful and unsuccessful projects

The six success conditions not inherent in a given project are dependent on the combined effects of site's, contractor's and project management's characteristics. To further differentiate successful from unsuccessful projects, it is interesting to examine how the success conditions are determined by the critical determinant factors in each site.

The two successful projects are not really different in all aspects from the two unsuccessful ones. They were chosen on the basis of their contrasting performance but with comparable constraints or opportunities. What differentiates one project from the other was their varying project management characteristic.

Table 49.
Critical determinant factors of reforestation success in Salinas and Villa Meimban projects

Success condition	Critical determinant factors	
	Salinas	Villa Meimban
1. Intercropping between seedlings	- arable in some areas (o)* - enterprising contractors (o)	- low farm need (c)
2. Interest in other tree related uses	- enterprising contractors (o) - allowed other land use combinations (s)	- no enterprising contractors (c) - participants' marginal condition (c)
3. Financial situation of contractors	- contractors above subsistence level (o) - meantime payment of labourers' wages (o)	- contractors' marginal condition (c) - no prompt release of project's payment (s)
4. Assured access or property right	- enterprising contractors (o) - 'on site' recruitment of participants (s) - clear site's property regime (o)	- low farm need (c) - no enterprising contractors (c)
5. Community cooperation	- 'on-site' recruitment of participants (s) - meantime payment of labourers' wages (o)	- no prompt release of project's payment (s)
6. Aspiration of good track record	- assurance of future project prospects (s) - meantime payment of labourers' wages (o) - enterprising contractors (o)	- no prompt release of project's payment resulted in loss of confidence in project's future (s)

* o = success opportunity; c = success constraint; s = project management steering effect.

Salinas was contrasted to Villa Meimban because both have similar site settings. The relevant site features include: moderate soil arability, fire prone area, good site location and accessibility, and clarity of property regime. Their difference however, lies on the type of contractors and participants. Salinas' contractors are relatively better-off contractors and most participants are more economically stable than those in Villa Meimban. In both sites, the participants were all locally-based, a strategic success factor from project management's view.

Table 50.
Critical determinant factors of reforestation success in Lacab and Maguirig projects

Success condition	Critical determinant factors	
	Lacab	Maguirig
1. Intercropping between seedlings	- arable soil (o)* - recognition of usufruct practice (s) - approval of other land use combination (s) - High farm holding need (o)	- conflicting site's property regime (c) - recruitment of 'off-site' contractors (s)
2. Interest in other tree related uses	- enterprising contractors (o) - allowed other land use combinations (s)	- no enterprising contractors (c) - conflicting site's property regime (c)
3. Financial situation of contractors	- contractors above subsistence level (o)	- labourers' marginal condition (c) - no prompt release of project's payment (s) - no meantime payment of labourer's wage
4. Assured access or property right	- arable site (o) - high farm need (o) - recognition of usufruct practice (s) - allowed other land use combinations (s)	- conflicting site property regime (c) - not easily accessible to outsiders (c)
5. Community cooperation	- 'on-site' recruitment (s)	- 'off-site' recruitment (s)
6. Aspiration of good track record	- provision of psychological sanction (s)	- 'no sanction' feelings of contractors due to DENR's subservience

* o = opportunity; c = constraint; s = management steering effect.

Likewise, Lacab was matched with Maguirig because both areas shared common characteristics as follows: arable site, precarious property regime of site, remote but accessible, and fire prone. In Lacab however, contractors were 'on-site' and have been usufructing in the site prior to the introduction of the reforestation project. While in Maguirig, the previous occupants of the project area were denied of their privilege to participate in the project in favour of outsiders. However, both projects were considered problematic in terms of clarity of property regime. The initial presence of local people currently claiming or usufructing in the sites is considered a nuisance or constraint for project success from the standpoint of management.

To illustrate the effects of site's, contractor's and project management's characteristics on project performance, Tables 46 and 47 show the interplay of the different critical determinant factors for each success condition. As a guide, only those critical factors which are primarily responsible for initiating or triggering participant's response towards a situation are included in the listing. Both constraints and opportunities are present in the successful and the not- successful projects. However, for the successful projects, only the determinant factors creating opportunities for success were presented in Tables 49 and 50. Likewise, those factors creating constraints hold true for the unsuccessful projects.

5.7.5 Critical relevance of the determinant factors

The six success conditions identified in this contrast analysis are dependent on various determinant factors which are further classified into three major groupings referred to as project's background settings: site, contractor's and project management's characteristics.

To understand the relevance of these variables to project success, the same successful and unsuccessful projects were compared and contrasted as follows:

Set A: Between Salinas and Villa Meimban

As mentioned earlier, the two projects have comparable site features. In Salinas, the cash surplus condition of most contractors or the above subsistence level of most labourers could be viewed as *opportunity* for project success. This is an opportunity because it cushioned participants agony of directly depending on the delayed project's income. But this opportunity could have been spoiled if there was no further incentive offered for deserving contractors. Since subsistence needs are not the bottomline of contractor's participation, the management was able to build on the opportunity by providing *assurance of future project prospects* to good performing contractors. Eventually, most rich contractors defrayed meantime their labourers' wages to prevent their work force from premature disintegration. Thus, they were able to obtain

a high ICM rating for the three successive years which will qualify them for the FLMA.

On the other hand, in Villa Meimban, the below subsistence level conditions of both contractors and labourers were considered as *constraints*. Being desperately dependent on the project's earnings, the regularity of payment was crucial in sustaining participants' project involvement. However, the management was not able to mitigate this. Instead, it reinforced this negative setting by unintentional *delays of contract payments*. This resulted to the premature abandonment of the project. There could have been a good chance for the project to succeed because all participants were locally-based.

This interaction between the site, contractor's and management's settings is shown in Fig. 3.

Set B: Between Lacab and Maguirig

The Lacab and Maguirig projects have similar characteristics in terms of site arability, site proximity to contractors and problems of squatting or the presence of claimants over the site. In Lacab, the area is a forest zone but under cultivation by migrant farmers prior to the introduction of the project. The Maguirig's condition is worse where there is overlapping of land tenure and the local residents were claiming the area as theirs. However, the condition in both cases was regarded as a *constraint* for effective project management.

In Lacab, however, the project management was able to mitigate such constraint by its deliberate *recognition of the usufruct practice* of the farmers positioned in the site. They were contracted to reforest their own piece of farmholding without interrupting their farming livelihood. In short, there was *'on-site' or 'in-place' recruitment of participants*.

The clearly different management intervention however made the project in Maguirig a total failure. It suffered from lack of community cooperation. However, prior to the contract reforestation, the earlier tree growing project in the area claimed to be better in performance than the current. There was a strong community cooperation in fire fighting activities because all project participants were locally-based.

This good beginning of local people's involvement was not sustained by the new management. Instead, of *'on-site' or 'in-place' recruitment* of contractors, more outsiders were hired than the local people. Here, there could have been a good chance of project success if the new management had built on the already established community cooperation.

From these case studies, the initial site setting or contractor's features are not what matters most in the sustainability of tree growing on public lands. Although they are important factors in defining the opportunities and constraints for sustainability, the final outcome still depends greatly on the type of management intervention.

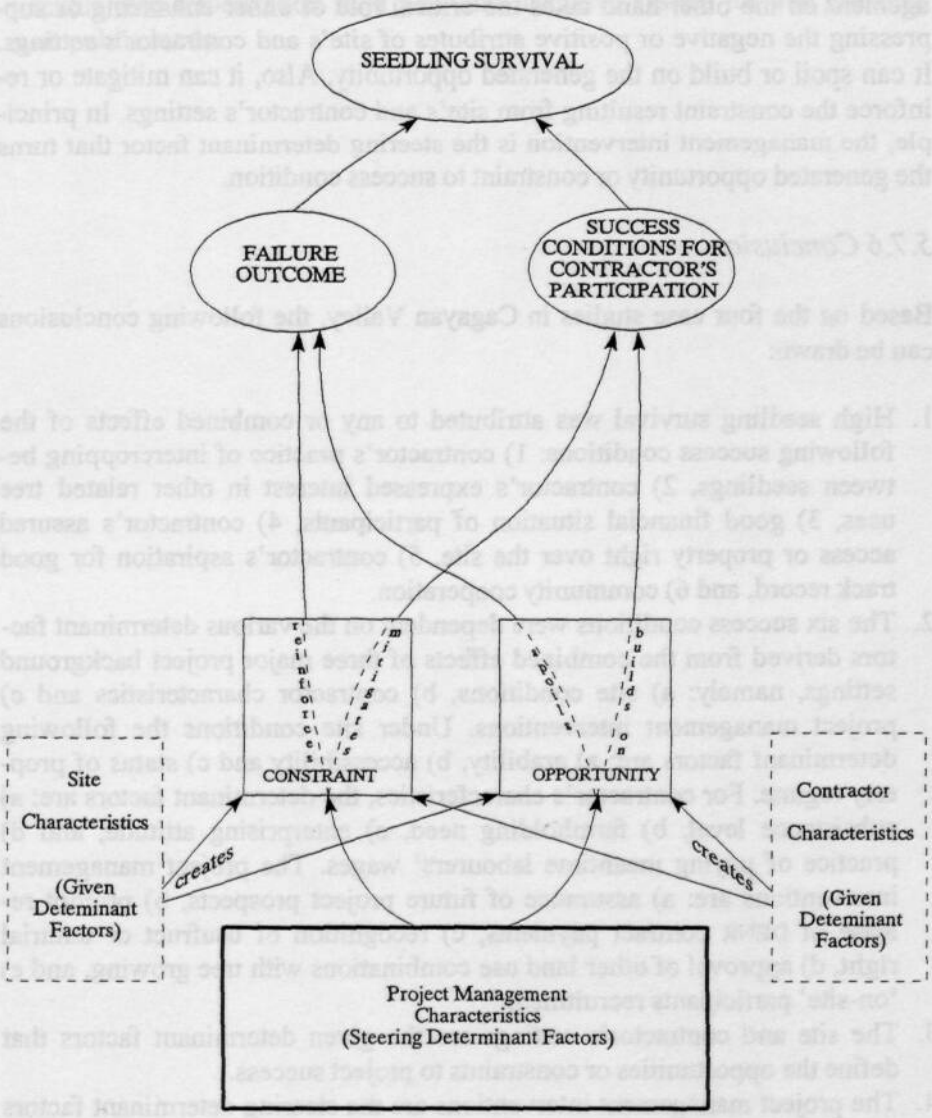


Figure 3.
Schematic diagram showing the steering effect of *project management* characteristics in building on the opportunity or reinforcing the constraint set by *site* and *contractor* characteristics in Salinas, Lacab, Villa Meimban and Maguiring reforestation projects

The site's and contractor's features are regarded as the given factors. They may either be positive or negative in nature and magnitude. The project management on the other hand takes the critical role of either enhancing or suppressing the negative or positive attributes of site's and contractor's settings. It can spoil or build on the generated opportunity. Also, it can mitigate or reinforce the constraint resulting from site's and contractor's settings. In principle, the management intervention is the steering determinant factor that turns the generated opportunity or constraint to success condition.

5.7.6 Conclusion

Based on the four case studies in Cagayan Valley, the following conclusions can be drawn:

1. High seedling survival was attributed to any or combined effects of the following success conditions: 1) contractor's practice of intercropping between seedlings, 2) contractor's expressed interest in other related tree uses, 3) good financial situation of participants, 4) contractor's assured access or property right over the site, 5) contractor's aspiration for good track record, and 6) community cooperation.
2. The six success conditions were dependent on the various determinant factors derived from the combined effects of three major project background settings, namely: a) site conditions, b) contractor characteristics and c) project management interventions. Under site conditions the following determinant factors are: a) arability, b) accessibility and c) status of property regime. For contractor's characteristics, the determinant factors are: a) subsistence level, b) farmholding need, c) enterprising attitude, and d) practice of paying meantime labourers' wages. The project management interventions are: a) assurance of future project prospects, b) prompt release of DENR contract payments, c) recognition of usufruct or tenurial right, d) approval of other land use combinations with tree growing, and e) 'on-site' participants recruitment.
3. The site and contractor's settings are the given determinant factors that define the opportunities or constraints to project success.
4. The project management interventions are the steering determinant factors because they can either enhance or suppress the opportunities or constraints to bring about the desired project outcome.
5. It is well possible that a good opportunity will still lead to project failure if the management interventions spoil it. Also, a constraint may well turn out into project success if the management interventions can mitigate the negative attributes of the site or/and contractor's settings.

6. The project management interventions should adjust to the prevailing site and contractor's settings. In line with this proposition is the need for a contextualized reforestation field plan and incentive system for tree growing on public lands.



Landslide at the Sta. Fe. Nueva Viscaya road exacerbated by inadequate vegetative cover at the mountain top



A Contract Reforestation Project aimed at both concerns for environmental rehabilitation and socioeconomic livelihood for the poor



A billboard in one of the reforestation sites in Cagayan Valley highlighting community ownership and responsibility over the trees planted



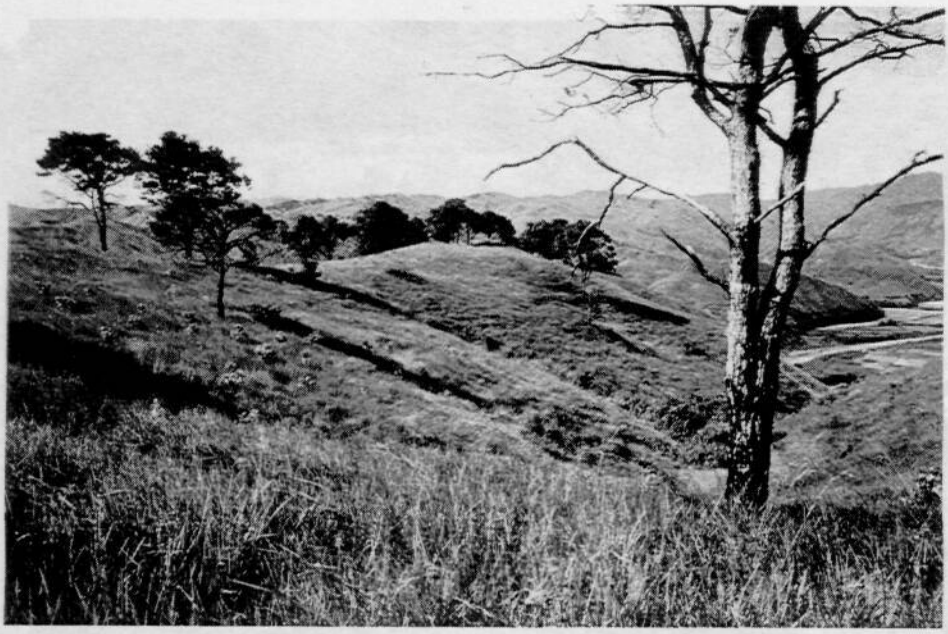
A typical landscape targetted for reforestation in Cagayan Valley, Philippines



Inspection of an unbrushed *Imperata*-dominated reforestation area prone to grassland fire



A closer look at the planting site under a thick *Imperata* cover



Replanting an old reforestation site destroyed by grassland fires in the past



The raging grassland fire that threatened to wipe out the entire plantation of mixed species along the Cordillera Mountains

6

Validation Study

Contract reforestation lasts only three to four years. Afterwards, the government issues another agreement to interested contractors for a longer tenurial phase of project participation. This succeeding phase of the contract reforestation is referred to as the Forest Land Management Agreement.

The FLMA concept however, became only known in the third year but some contractors did not even hear about the instrument at all. Hence, at the very start, the general thinking of most participants about the reforestation program was more in terms of obtaining immediate profit from tree planting rather than deriving benefits from long-term tree management (Korten, 1993).

This observation also surfaced out in the two problematic case studies in Cagayan Valley and even in many field studies conducted earlier (ANGOC, 1992; Tagana, 1992; Soriano, 1993). However, what is more striking was that there were a number of contract reforestation projects that succeeded apart from the financial motivation. It is interesting to further examine the factor of difference between successful and not-successful projects in a larger scope.

Considering the diverse geographical settings in the country, the findings of the earlier four case studies in Cagayan Valley are still rather a narrow base to make a conclusion. It is important therefore to extend the study, and to validate whether or not the results also hold true for projects in other regions in the country.

In this regard, five additional reforestation projects in other regions in the Philippines were investigated with the following research objectives:

1. to validate whether or not the six success conditions for high seedling survival in Cagayan Valley (e.g., practice of intercropping, interest in other related tree uses, good financial situation of contractors, assured access or property right, aspiration for good track record, and community cooperation) would apply as well in other regions in the country;
2. to evaluate contractors' future project options after their three-year contract reforestation expired.

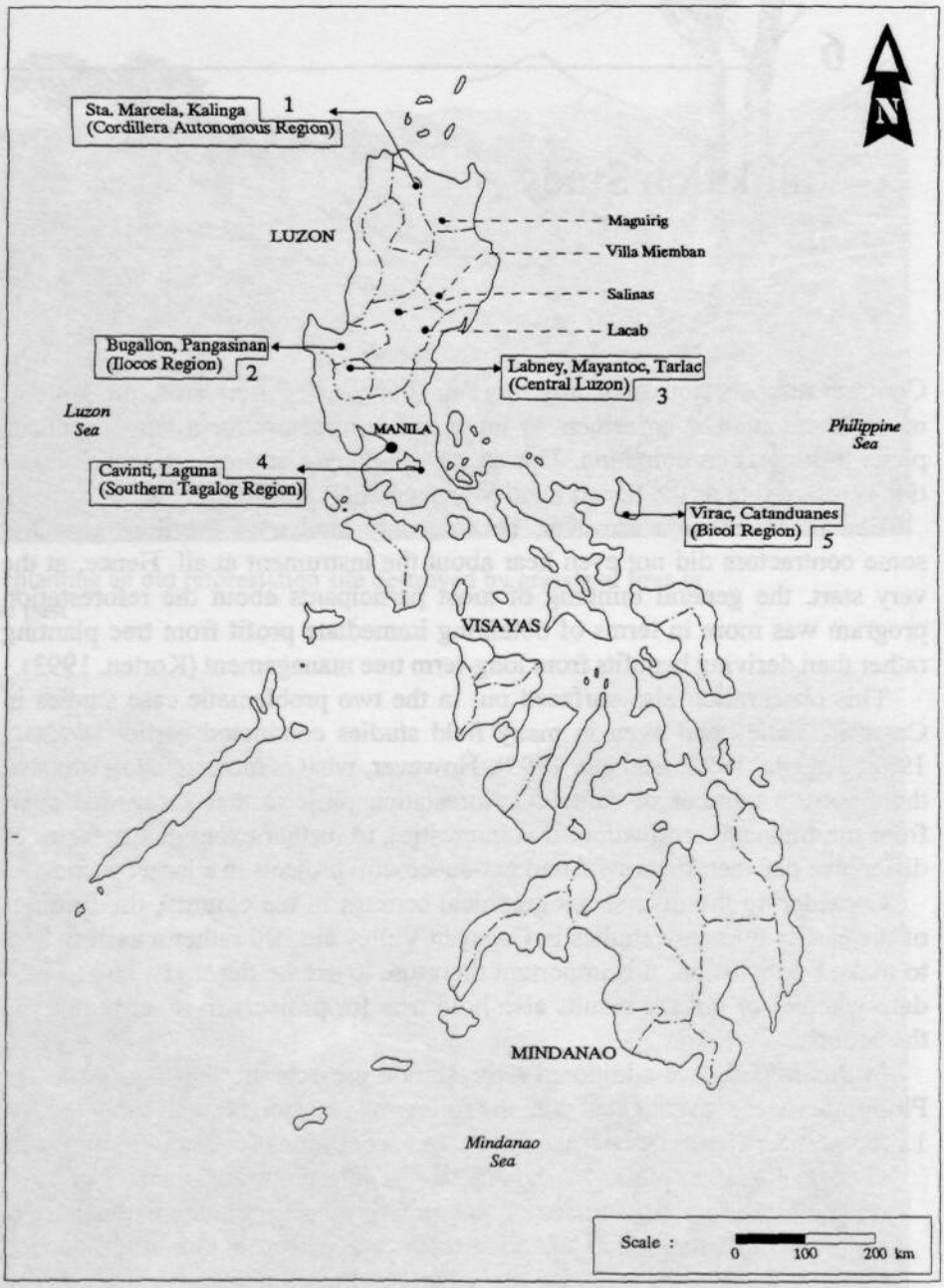


Figure 4.
Location map of the five successful reforestation projects for the validation study taken from the other five regions in Luzon, Philippines

6.1 Selection of the Five Additional Study Sites

The additional project sites were taken from other five regions of Luzon island having the characteristics as follows: 1) obtained at least 80 percent seedling survival and an average plant height of two meters at the third year period, 2) the three-year contract period was over, and 3) diverse environmental and socioeconomic settings. In this validation phase, two different sets of projects were chosen as case studies, based on participants' site proximity. The first set consisted of two projects with 'on-site' participants (i.e., contractors and labourers). The second set consisted of three projects with 'off-site' contractors but hired locally-based labourers and original occupants of the project area. The stratification was coincidental and it further broadened the basis of comparing the future project options between successful 'on-site' and 'off-site' contractors. Most importantly, it provided the appropriate background in determining the positive factors related to 'off-site' contractors' ability in saving their projects from grassland fires.

To assess the performance of these projects, a total of 32 successful contractors were interviewed in the five sites. The object of inquiry focused on contractor's motivations that had sustained their participation in the project. Their future project options were also confronted to infer the social acceptability of the new instrument (FLMA) in transition.

Informal and unstructured interviews were carried out. Likewise, field visitation followed after to assess site quality and identify other intervening factors to project success. Table 51 and Fig. 4 present the geographical locations of the five additional study sites.

Table 51.
Geographical locations of the additional five successful reforestation projects for case studies

Project site	Province	Region	Contract
1. Sta. Marcela	Kalinga Apayao	Cordillera Autonomus Region	Family
2. Bugallon	Pangasinan	Ilocos Region	Community
3. Labney	Tarlac	Central Luzon	Family
4. Cavinti	Laguna	Southern Tagalog Region	Community
5. Virac	Catanduanes	Bicol Region	Community

Table 52.
Brief description of Sta. Marcela, Labney, Bugallon, Cavinti, and Virac Reforestation Projects, 1994

Project	Region	Setting	Respondents (n)
1. Marcela	CAR	- arable public land, fire prone - participants were all 'on-site' - landless or with limited landholding - the project site was under usufruct - practice of intercropping - participants are subsistent farmers - participants have a strong sense of project ownership	4
2. Labney	Central Luzon	- arable public land, fire prone - concurrently under usufruct - participants were all 'on site' - practice of intercropping - not dependent on the project for subsistence - participants have strong sense of project ownership - strong participation of the Local Goverment Unit	15
3. Bugallon	Ilocos Region	- marginal and fire prone area - presence of squatters - most contractors were 'of-site' but hired locally-based labourers and local occupants - most contractors are big landholders - some contractors are cash surplus and all of them have at least one stable source of subsistence	6
4. Cavinti	Southern Tagalog	- good soil but poor physiography - contractors were 'off-site' but hired locally-based labourers - contractors have rice fields - contractors have other income sources - the site was perceived by contractors as critical watershed	3
5. Virac	Bicol	- good soil but poor physiography - presence of squatters - contractors were 'of-site' but hired locally-based labourers and local occupants - contractors have rice fields - contractors have other stable source of income - pratice of intercropping by local occupants - contractors perceived the area as a critical watershed	4

6.2 Brief Characterization of the Study Sites

A Rapid Rural System Appriasal was conducted to obtain the general feature of the study sites. Table 52 presents a capsulized description of each study site.

Table 53.
Success conditions present in the Sta. Marcela, Labney, Bugallon, Cavinti, and Virac Reforestation Projects, 1994

Project	Critical determinant factor	Relevant succes condition
1. Sta. Marcela	- 'on-site' recruitment of participants - allowance of communal resource use - high farmholding need - recognition of usufruct practice - contractors have enterprising attitude	- community cooperation - practice of intercropping - sense of present project ownership - interest in other tree related uses and benefits
2. Labney	- 'on-site' recruitment of participants - allowance of communical resource use - high farmholding need - recognition of usufruct practice - contractors have enterprising attitude	- community cooperation - practice of intercropping - sense of present project ownership - interest in other tree related uses and benefits
3. Bugallon	- 'off-site' contractors hired 'on-site' labourers - meantime payment of labourers' wages by rich contractors - assurance of future project prospect	- community cooperation - contractors' good financial situation - aspiration for good track record
4. Cavinti	- 'off-site' contractors hired 'on-site' labourers - meantime payment of labourers' wages by rich contractors - participants are above subsistence level - assurance of future project prospect	- community cooperation - contractors' good financial situation - aspiration for good track record
5. Virac	- 'off-site' contractors hired locally based labourers - allowance of communal resource use - meantime payment of labourers' wages by labourers and local occupants - most participants are above subsistence level - assurance of future project prospect	- community cooperation - contractors' good financial situation - aspiration for good track record

6.3 Project Success Conditions

Based on the results of the exploratory investigation conducted in the five additional projects in other regions of Luzon, the various success conditions were identified (Table 53).

6.4 Determinant Factors of Project Success

Based on the results of the in-depth analysis conducted in the five projects in other regions of Luzon, the various determinant factors to success were identified (Table 54).

Table 54.
Determinant factors of success in Sta. Marcela, Labney, Bugallon, Cavinti, and Virac Reforestation Projects, 1994

Determinant factor	Sta. Marcela	Labney	Bugallon	Cavinti	Virac
1. Site Context					
- arability	x	x			
- accessibility	x	x			
- property regime				x	
- not a DENR declared watershed area	x	x	x		
2. Contractor characteristics					
- far above subsistence level			x	x	x
- farmholding need	x	x			
- meantime payment of labourers' wages			x	x	x
- enterprising attitude	x	x			
- allows communal resource use	x	x			
3. Project Management Characteristics					
- assurance of future project prospects					
- promptness of funds' release			x	x	x
- recognition of usufruct or tenurial right	x	x	a		a
- approval of other land use combinations with tree growing	x	x	b		b
- recruitment of contractors 'on-site'	x	x	c		c

x = the presence or applicability of the determinant factor or having an effect on the project
a = contractors allowed local occupants in the area to continue their usufruct practice
b = contractors allowed local occupants in the area to intercrop between tree seedlings
c = 'off-site' contractors recruited 'on-site' labourers and local occupants in the area

6.5 Critical Relevance of the Success Conditions

The following success conditions appeared to have bearing on the five additional projects under investigation. The six conditions may not necessarily be present all together in a project. However, in most cases, they complemented one another.

6.5.1 Intercropping between seedlings

Site arability and good physiography encouraged Sta. Marcela and Labney contractors to intercrop between seedlings. With their big need of farmholdings, they considered the project area as their croplands. Some contractors in Labney have rice fields just at the lower side of the project area. To maximize the use of the project site, they planted fruit trees in between the seedlings. Those who intercropped claimed to have the burden of always looking after the project because other crops were also planted in the same site.

In Bugallon, the soil is totally not suitable for intercropping. In Cavinti, contractors complained of the narrow seedling spacing of 2 x 2 meters which discouraged them to interplant perennials. On the other hand, in Virac, the poor physiography limits interplanting of short-term subsistent crops. Migrant farmers in the area however, were able to plant abaca and banana between seedlings.

Besides the site's arability and accessibility factors, contractors in these three projects had not ambitioned to intercrop in the site since they have other big farmholdings in their respectives communities.

6.5.2 Interest in other related tree uses and benefits

Apart from intercropping fruit trees between seedlings, Labney contractors expressed their need for the project as watershed protection. Because of the watershed function, the contractors did not expect income from the trees as timber products. However, they saw additional uses, compatible with the watershed function for communal source of fuelwood, forage, housing and post materials.

Future local use of the trees dominated Sta. Marcela contractors' consideration for maintaining the project. Although they claimed to have benefitted from the project's cash earnings, also the long-term use of the trees as source of fuelwood, housing materials for their children, and other wood needs was said to be of much value to them. The contractors' foresight on the anticipated uses of the trees added greater incentive for them to continue protecting and maintaining the seedlings even without regular payment.

The 'off-site' contractors of Bugallon, Cavinti and Virac expressed no interest in tree crops. The long gestation period coupled with market uncertainties for timber and wood products made them doubt about the profitability of tree farming as a future project option. In Cavinti and Virac, contractors perceived from the very start the impossibility of cutting the planted trees upon maturity because the project is for watershed protection. Knowing their contracts covered a critical watershed area, they do not expect to gain direct benefits from the trees they planted in the future. In this context, it appears that the behaviour of the contractors in these three projects reflects that of the Risk-Averse Theory.

6.5.3 Good financial situation of participants

Project participation among local people in Bugallon, Cavinti and Virac could be sustained because most of them were not directly dependent on cash from the project. They were not pressed hard by urgency for immediate payment since their subsistence was not tied with their earnings from the project. Although payments were late, they still found an incentive in working because of cash needs for their children's schooling and for household uses other than food needs.

Some contractors in Bugallon and Cavinti loaned money from other sources to meet the needs of labourers for their children's tuition fees and other related needs during school openings. In Virac, contractors used personal funds to pay partially some labourers who indeed were depending on the project's earnings for their subsistence. Both labourers' high subsistence level and contractors' willingness to pay meantime wages of their members when they needed most prevented the whole project work force from blowing off during prolonged project fund delays.

In one instance, the rich contractors in these projects were risk-averse as regards to making long-term investment in tree growing. However, their ability to circumvent their labourers' difficulty of depending on DENR irregular payments seemingly reflects the claim of the Rational Peasant Theory that rural farmers are indeed creative in solving problems of resource allocation.

The contractors in Sta. Marcela and Labney were not cash sufficient. However, they were not dependent on the project for their subsistence. They viewed income from reforestation as additional incentive to farming the site. Hence, they could endure late payments without influence on their attitude towards maintaining and protecting the seedlings they planted.

6.5.4 Assured access or property right over the site

Sta. Marcela and Labney participants felt no threat with the presence of the project in the area. Being positioned there prior to the coming of the project, they claimed to be the righful owners of the site. Even before learning about the FLMA concept, they regard the project as theirs because it is within their usufruct areas. The effect of upholding local people's usufruct practice over the project sites all the more fostered their participation in seedling protection and maintenance in both projects.

In contrast, having much landholdings and stable income sources, the Bugallon, Cavinti, and Virac contractors had no future plan to acquire the project area through the FLMA in the future.

6.5.5 Aspiration for a good track record

Earning a good track record motivated contractors in Bugallon, Cavinti and Virac to perform well in the project. Most of these contractors have established a good rapport with the local DENR field office, because they are highly esteemed in the community. Aside from DENR's assurance of giving more projects for succesful performance, they strive hard for excellence because they felt being put in the public eye. They were convinced to get another three-year reforestation contract because they perceived their performance as successful.

This success condition was not evident in Sta. Marcela and Labney. In contrast to Lacab in Cagayan Valley, Sta. Marcela and Labney contractors felt no threat of displacement from the area. They claimed that they were the original people who opened the area and would not allow outsiders to take over their settlement.

6.5.6 Community cooperation

The strong community participation in fire fighting activities both in Sta. Marcela and Labney enabled the projects to survive grassland fires. According to the Barangay officials (village leaders) in Labney, 'the community is morally obliged to protect and maintain the project because the future beneficiaries will not only be the participants but the whole community'. The locals recognized the importance of the projects in improving the hydrology of the area that will sustain the free flow of water for paddy irrigated rice production. On the other hand, in Sta. Marcela, the common tribal origin (*Kalinga*) of most participants enhanced greater communal concern in protecting the project from possible damage. This community commitment was made possible because contractors in both sites assured the local people of their fu-

ture access to gather fuelwood, fencing materials and other tree related needs under certain conditions.

Such spontaneous support expressed by the communities in the project sites reinforces Wade's (1987) findings that if the collective benefits from participation is high, the local people tend to cooperate voluntarily in protecting a common resource. This observation contradicts Olson's logic which emphasizes so much the importance of state intervention or the imposition of selective rewards and punishment to those who cooperate and free-ride respectively as means to achieve collective action.

This type of social unity among local people was also evident in Bugallon, Cavinti and Virac as claimed by the contractors. They attributed this community cooperation to the recruitment of local residents and farmer-occupants in the sites. In addition, the local hired labourers found incentive to continually work in the project because their cash needs were being met by the rich contractors despite DENR late payments.

6.6 Contractor's Response to FLMA

This section describes contractors' responses towards FLMA in Sta. Marcela, Labney, Bugallon, Cavinti and Virac (Table 55).

6.6.1 FLMA as a future project option

Contractors in Sta. Marcela and Labney expressed desire for FLMA upon learning the provisions during the field interview.

In both projects, usufructing has been practiced even prior to reforestation because of the good soil condition. In Sta. Marcela, the participants were more interested on land rights than tree tenure. They viewed the trees as communal property but they will like the land to be under individual stewardship.

Participants in Labney on the other hand ambitioned to carry on with the project even without payment. Apart from watershed consideration, they also wanted to develop the area into agroforestry farm.

The strong sense of ownership, current productive use of the sites and the projects' future value to the participants attracted them to pursue FLMA. Most of them viewed the instrument to legitimize their claim of ownership by position (*de facto*) over the area. However, they attributed the sustained project participation as a result of their strong sense of ownership and community cooperation.

Table 55.
FLMA acceptability in Sta. Marcela, Labney, Bugallon, Cavinti and Virac Reforestation Projects, 1994

Project	Response to FLMA			
	In favour	(n)	Not-favour	(n)
1. Sta. Marcela	- in need of farm	4		
	- perceived the instrument as a means of legitimazing ownership by position	4		
2. Labney	- for farming	12		
	- ensure rights for land and trees	15		
3. Bugallon			- unarable site	4
			- inaccessible	4
			- no full security against squatting	4
			- timber market insecurity	6
			- uninterested in tree farm	6
4. Cavinti			- intercropping not feasible	3
			- uninterested in tree crop	3
			- cannot ensure full property right over land & trees	3
5. Virac			- inaccessible	3
			- presence of squatters in the area	4
			- cannot ensure full property right over the trees	4
			- uninterested in tree crop	4
			- timber market insecurity	4

6.6.2 Contractor's constraints in pursuing FLMA

Contrary to the assumption that contractors would maintain the project even after the three-year contract payment expires thru FLMA, successful contractors in Bugallon, Cavinti and Virac had entirely different views and future project options. Practically all of them expressed rejection to FLMA. Their disinterest on the instrument stemmed from the following perceived conditions:

Firstly, the contractors lacked confidence on the property right provisions of the instrument. According to them 'forest land stewardship does not really ensure absolute right of ownership both for the land and trees'. They further

argued, 'the fact that the land still belongs to the government, there would be no assurance that it could really restrain other people's access to the area, just like squatting or poaching in public forest'.

Along with their lack of confidence on the tenurial provision of FLMA, the presence of illegal occupants in their project area was regarded as a threat to them. Although some hinted private titling as an option, a majority, found no incentive in doing so. Site physiography as perceived by them is not suitable for short-term cropping.

Secondly, most contractors are 'off-site' occupants of the area. Their inability to protect and maintain the project is a major obstacle. Also, most of them reasoned out their having farmholdings in their respective communities which would compete with their time and attention.

Thirdly, their present livelihood seemed more stable to them than tree farming. Pessimistic about the future timber market, most of them were skeptical about the profitability of tree farming. The long gestation period plus the risks associated with forest tree crops and contractors' old age contributed more to their prejudice over FLMA.

Fourthly, the poor arability of the sites limits subsistent and cash cropping, especially in Bugallon. Also, in Cavinti, contractors complained about the waterlogged condition of the area. In Virac, contractors knew before hand that logging would not be permitted later on in the project area since it is within a critical watershed. In short, contractors had no intention to further maintain the projects. Among their constraints include low confidence on FLMA's provision, geographical remoteness, market insecurities, and site condition. As regards low farmholding need, they found no incentive of maintaining the area after their contract expires. They preferred another three-year reforestation contract to FLMA as a future option.

The following conditions appeared to have association with contractors' considerations for FLMA:

a. Site quality

The arability of the area as determined by soil quality and physiography motivated 'on-site' farmers to pursue FLMA. Farming ranked top in the list of possible uses of the project site.

b. Accessibility

Contractors' geographical proximity to the project is another consideration for FLMA. 'Off-site' contractors signified no ambition to pursue FLMA in remote and inaccessible project areas. They perceived the difficulty to develop the site if it is far from their main residence. However, for the 'on-site' participants, accessibility and their current use of the land stimulated them to pursue FLMA.

c. Initial property regime

Contractor's choice for FLMA was also determined by the initial tenurial status of the site. The presence of illegal occupants in the area prior to the introduction of the project discouraged them to pursue the instrument.

d. Market security

The fear of no ready wood market in the future also discouraged contractors to consider FLMA as an option. This is coupled by their uneasiness to endure the long gestation period of tree crops. The absence of other back-up financial incentives such as production loans, crop insurance and tax exemptions were perceived by most contractors as limitations of the current national reforestation program to attract private investment.

e. Landholding need

Farmers in bad need of landholdings viewed FLMA as a means to acquire additional area for farming. Their striving for arable land especially if it concurrently under cultivation superseded all other considerations for the instrument.

f. DENR prescribed the forestland use

Contractors' prior knowledge of the DENR predetermined forestland use of the project area tended to limit their option for FLMA. In areas initially declared as critical watershed like the case of the old project sites, contractors believed that reforestation projects under this land use classification cannot be turned over to private individuals for production or farm forestry. This condition however, is site specific.

h. Reforestation scheme

The type of species and seedling spacing also interfered with contractors' choice of other future land use combinations. Prescribing the species and seedling spacing as was the practice DENR limited contractors' development options and only reinforced their perception that the project belongs to the government.

6.7 Analysis

The Sta. Marcela and Labney projects resembled Lacab project in Cagayan Valley. Contractors in both projects were initially positioned in the area which could have posed a potential problem to the project. Instead, of relocating the local occupants, the manager contracted them to reforest the area and encouraged them to continue their farming activities. There are three

management interventions which sustained contractors'participation in seedling maintenance and protection: 1) recognition of usufruct practice, 2) approval of other land use combinations, 3) 'on-site' recruitment.

Boosting contractor's confidence with *assured access or property right* over the project, further motivated them to do *intercropping between seedlings*, expressed their *interest in other related tree uses*, and had strong *community cooperation* in fire protection. Fig. 5 in the succeeding page illustrates this interaction.

On the other hand, what sustained contractors' project participation in Bugallon, Cavinti and Virac was their striving for a good track record in the hope to obtain more future project contracts. This *aspiration for good track record* as a goal motivated them to work out *community cooperation.* Since most of them were outsiders, they recruited locally-based labourers. In addition, the rich contractors, out of their own funds paid regularly their labourers' wages meantime during delayed releases of DENR fund. A good *financial situation* appeared to be an ideal complementary attribute of the contractors. They were able to withstand delayed DENR payments and to sustain their labourers' working moral by defraying meantime their wages. The most crucial determinant factor that stimulated contractors' sustained project participation was the management's *assurance of future project prospect* for successful performance. Fig. 6 in the succeeding page illustrates this interaction.

Furthermore, sustained seedling protection and maintenance does not necessarily require all success conditions to be met. In the case of Sta. Marcela and Labney projects, 'assured access/property right' is indespensable because other success conditions build on it. For Bugallon, Cavinti and Virac projects, both 'good financial situation of participants' and 'aspiration for good track record' are two crucial conditions that would lead to a very important success condition (i.e., 'community cooperation').

From these findings, project success is dependent greatly on the management intervention. This confirms the earlier findings in Cagayan Valley about the management function as the steering determinant factor for both site's and contractors' settings to bring about the desired project outcome.

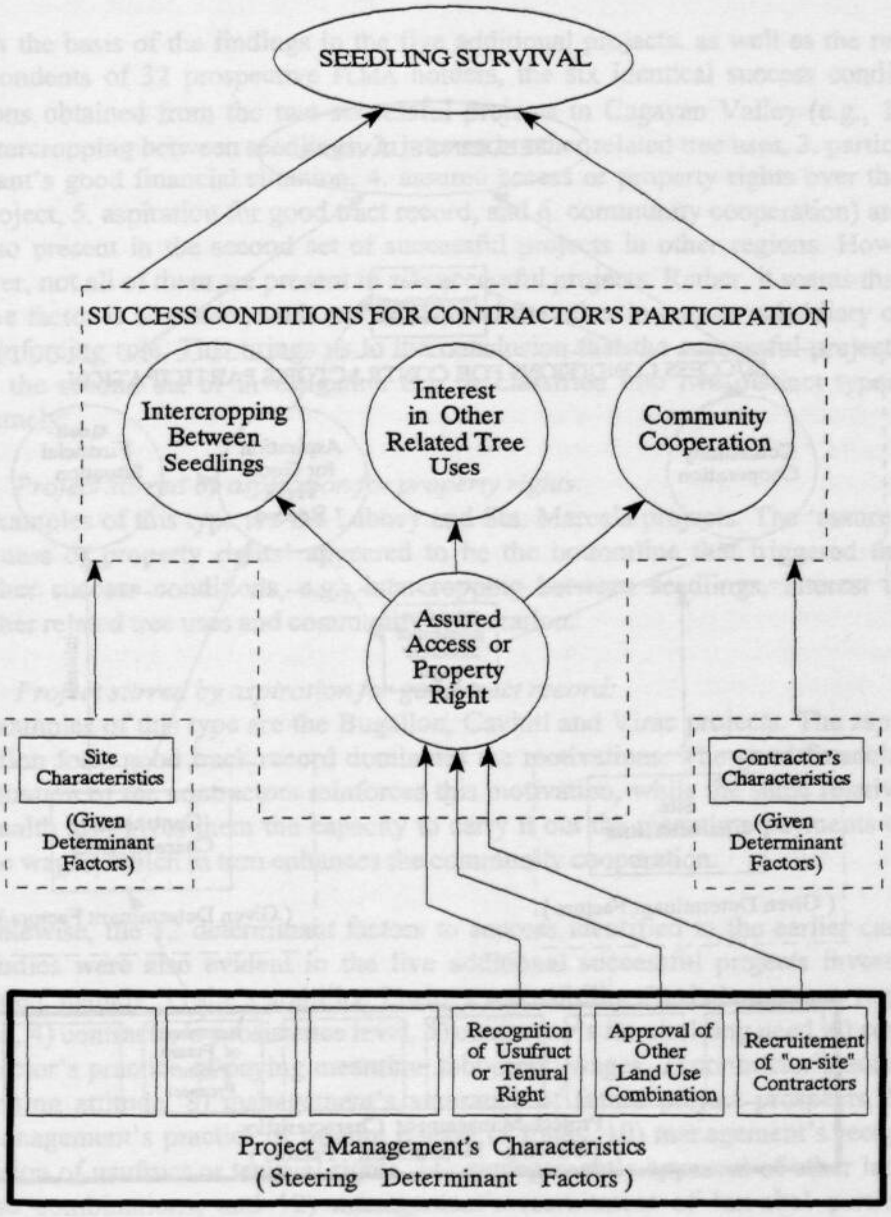


Figure 5.
Schematic diagram showing the prominent role of the project management characteristics in affecting assured access or property right as the bottomline condition for contractor's sustained participation in Sta. Marcela and Labney reforestation projects

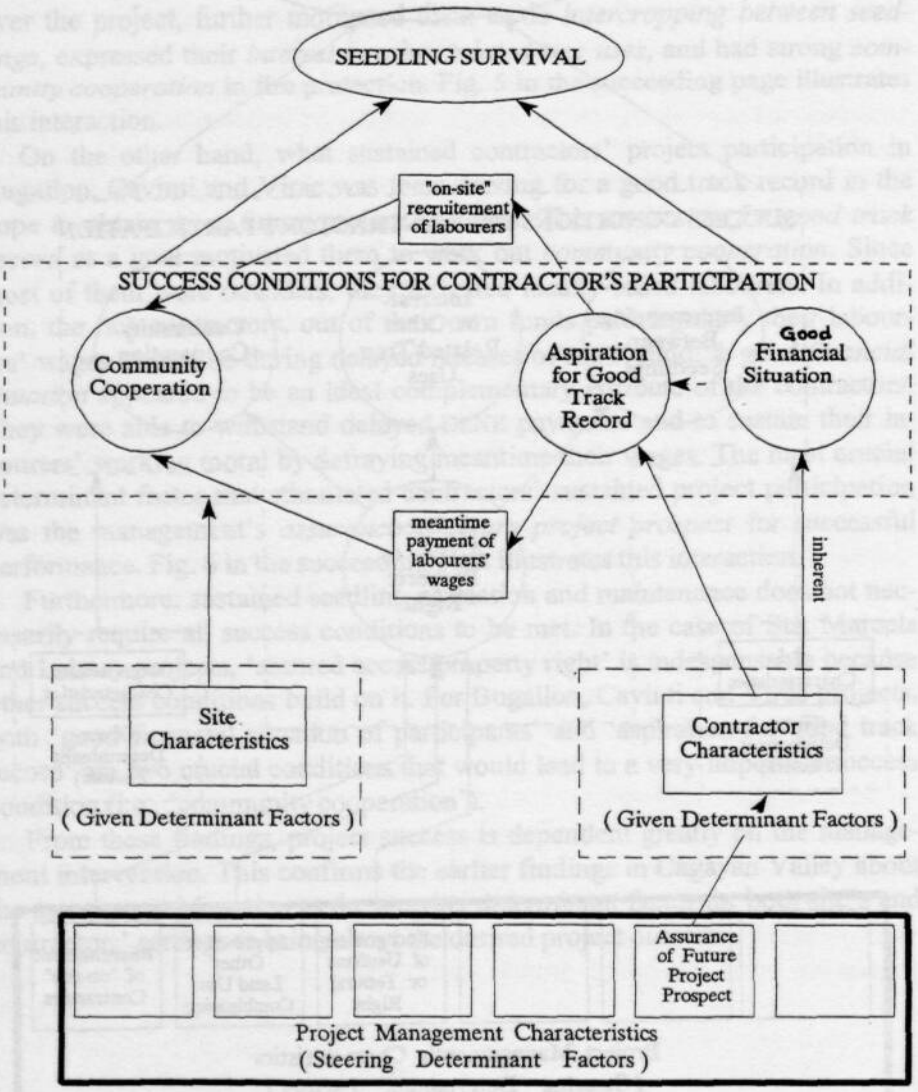


Figure 6.
Schematic diagram showing the promenent role of the project management characteristics in assuring contractors of future incentives which triggered their sustained participation in Bugallon, Cavinti & Virac reforestation projects

6.8 Summary and Conclusion

On the basis of the findings in the five additional projects, as well as the respondents of 32 prospective FLMA holders, the six identical success conditions obtained from the two successful projects in Cagayan Valley (e.g., 1. intercropping between seedlings, 2. interest in other related tree uses, 3. participant's good financial situation, 4. assured access or property rights over the project, 5. aspiration for good tract record, and 6. community cooperation) are also present in the second set of successful projects in other regions. However, not all of them are present in all successful projects. Rather, it seems that one factor is dominant, with one or more of the other in a more subsidiary or reinforcing role. This brings us to the conclusion that the successful projects in the second set of investigation can be classified into two distinct types, namely:

1. Project stirred by aspiration for property rights:
Examples of this type are the Labney and Sta. Marcela projects. The 'assured access or property rights' appeared to be the bottomline that triggered the other success conditions, e.g., intercropping between seedlings, interest in other related tree uses and community cooperation.

2. Project stirred by aspiration for good tract record:
Examples of this type are the Bugallon, Cavinti and Virac projects. The aspiration for a good track record dominates the motivations. The good financial situation of the contractors reinforces this motivation, while the same relative wealth also gives them the capacity to carry it out the meantime payments of the wages, which in turn enhances the community cooperation.

Likewise, the 12 determinant factors to success identified in the earlier case studies were also evident in the five additional successful projects investigated, namely: 1) site's arability, 2) site's accessibility, 3) site's property regime, 4) contractor's subsistence level, 5) contractor's farmholding need, 6) contractor's practice of paying meantime labourers' wages, 7) contractor's enterprising attitude, 8) management's assurance of future project prospects, 9) management's practice of prompt release of funds, 10) management's recognition of usufruct or tenurial rights, 11) management's approval of other land use combinations, and 12) management's recruitment of 'on-site' participants.

Two more factors were identified in this study, namely:

1. *DENR prescribed the forestland use* (i.e., the initial intended use of the site; predetermined by the government whether for watershed or for production forestry).
2. *Allowance for future communal resource use* (which means that the contractor is also willing to allow the local people to gather forest products or use the project site under certain conditions in the future).

All the success conditions and the determinant factors in Cagayan Valley projects are relevant in the five additional projects in other regions in the country.

On FLMA acceptability, there was a divided response among successful contractors. Those with high farm holding need and are concurrently usufructing in the project site, FLMA appeared to be a good instrument to legitimize their continuous stay and activities in the area. For the rich and landed 'off-site' contractors, FLMA appeared to be a less attractive incentive for sustained tree growing livelihood. Among the other back-up incentives appeared to be essentially important to sustain private individuals' interest in farm foresty are: market security, production loans, crop insurance, stronger tenurial arrangements, and other incentives.

7

Investigation of Spontaneous Tree Growing

Reforestation in the Philippines is normally associated with employment generation because people are paid to plant trees on public lands. Among other things, the sustainability of such paid labour-induced reforestation depends greatly on the government's ability to finance the activity continuously and promptly.

The poor results of using wages as instrument for participation in the past led to the introduction of other incentives. In other words, the government has been exploring other possibilities to make people plant trees. This approach however, resulted in both good and bad outcomes. Although a number of good projects were established, the majority however were not successful. Evidence from unsuccessful projects includes the many incidences of deliberate burnings of plantations prompted by the participants' need for continuous employment from the project.

Apart from government reforestation programs, also spontaneous tree growing activities do exist at the household or farm level independent from outside support. Unfortunately, these have hardly been considered in designing reforestation strategies (Olofson, 1980; Eder, 1981; Wiersum and Veer, 1983).

Nonetheless, such spontaneous activities may well illustrate the presence of determining factors of successful tree growing at the farm level. Such information may be combined with knowledge about why farmers participate in government-sponsored projects to provide a stronger basis for designing a better reforestation program. Therefore, in this chapter, a number of spontaneous tree growing initiatives will be described.

The purpose of this extended investigation is to learn from the farmers' experience of growing trees apart from government support and to validate the success conditions obtained from the nine government projects.

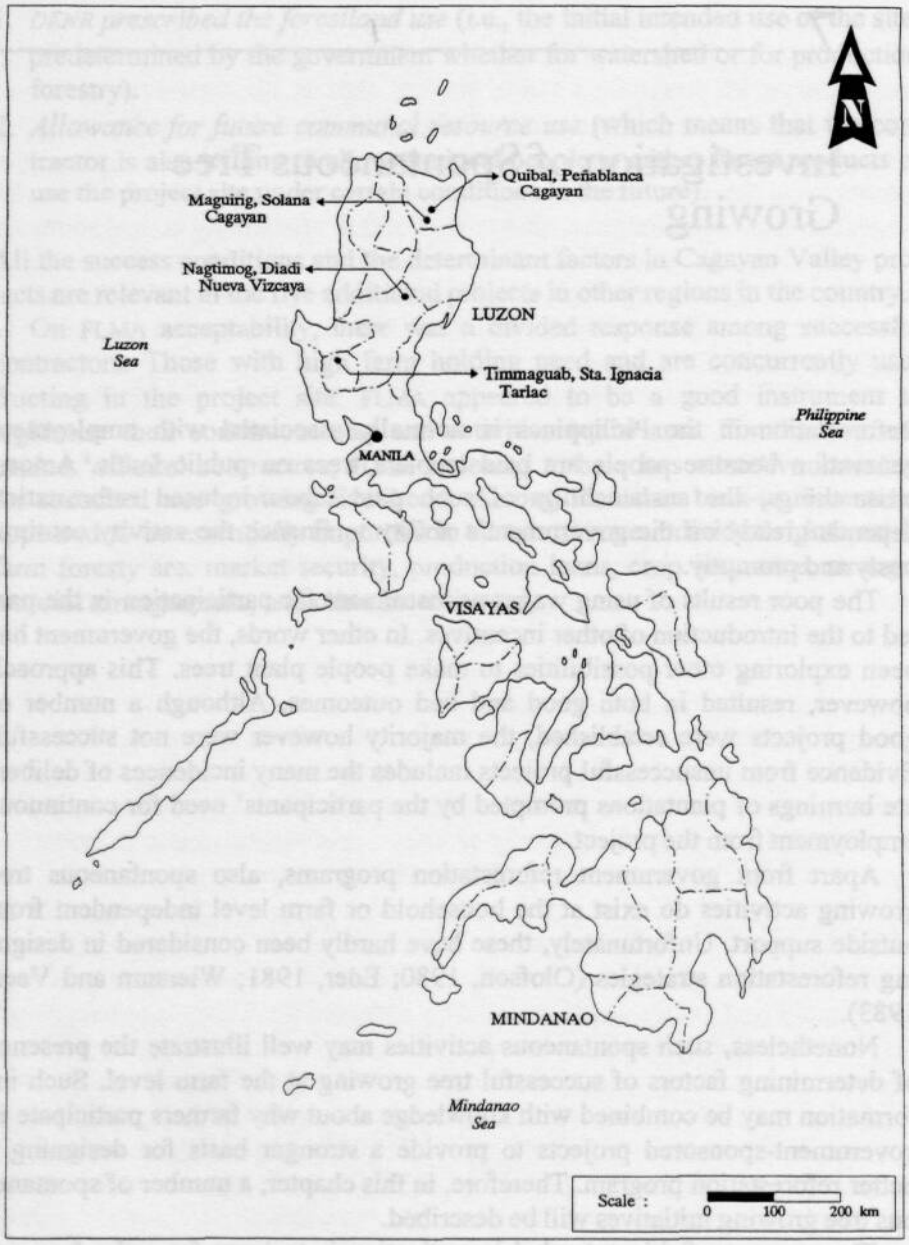


Figure 7.
Location map of the four spontaneous tree growing activities through farmers' initiative

7.1 Discovery of Observation Sites

The discovery of each observation site was just incidental. While assessing the government projects, information about the existence of small tree growing activities by private individuals was obtained. These were then included in the research. The main consideration was the glaring contrast observed between the government and farmers' tree growing performance, as the latter had been noted in the same setting during the course of the data gathering in the nine case studies. Fig. 7 presents the geographical location of each observation site.

7.2 Brief Description of the Four Observation Sites

Table 56 presents the main features of the four observation sites while the next section presents a detailed description of each.

7.2.1 Site 1: Quibal, Penablanca, Cagayan

Quibal, Penablanca, Cagayan is a firewood gathering community at the foothills of the Sierra Madre Mountain Range in Northeastern Luzon, Philippines. Originally, it was a *kaingin* farming community in the 60s.

Progressively declining farm productivity, however, prompted farmers to switch to firewood extraction. Carabao logging began in the early 70s. As a result, most households subsisted on fuelwood and timber sales.

Over time, the community's dependence on timber and firewood sales exerted much pressure on the remaining forest in the area. In the 80s, timber gatherers began to feel the difficulty of maintaining the previous level of their wood extraction. A cutting moratorium was imposed by the then Bureau of Forestry and forced most timber gatherers to seek other livelihood options. Table 57 presents the timber gatherers' responses to the growing problem of resource scarcity.

Table 56.
Brief characterization of the four observation sites on spontaneous tree growing by individual farmers, 1994

Site	Feature
1. Quibal	- firewood gathering community - farmers shifted to firewood gathering due to low farm yield on their *kaingin* - firewood sales provide mainly the farmer's cash needs for subsistence - intensive carabao logging and firewood gathering threaten to deplete the long-run resource supply
2. Maguirig	- farm-based tree growing inside an unsuccessful reforestation project - the tree growers are local farmers who refused to let their private farmlands be reforested by the government program - the woodlot provides household fuelwood - farmers cultivate rice field under tenancy in adjacent areas
3. Nagtimog	- farmers cultivate some portions of the abandoned reforestation site - farmers have limited farmholdings in other public areas adjacent to the project site - the farmers were able to establish a 7-ha *Gmelina arborea* plantation alongside short-term intercropping even without corresponding DENR payment for tree planting - ownership right over the trees was provided to the farmers informally by the DENR
4. Timmaguab	- tree growing integrated with farming - farmers have started growing trees in their *Imperata* dominated private abandoned lands mainly for household use - the presence of local market for fuelwood and other wood products later on provided additional incentives for farmers - most farmers have other productive private farmland in adjacent areas

The majority of the carabao loggers who used to fell big diameter timber ceased to operate while some sold their chainsaws. Others shifted to firewood extraction since this does not require quality-size timber to be sustained.

For the majority of the firewood gatherers, the scarcity of the fuelwood did not threaten their livelihood. Although their production level declined, they never considered moving to a new site. They instead started raising *Leuceana*

leucocephala and *Gmelina arborea* in their backyards or farmlots in anticipation of the impending fuelwood scarcity (Pasicolan and Paguirigan, 1993).

Table 57.
Timber gatherers' production constraints and options resulting from diminishing forest resource in Quibal

Resource user	Production constraint	Development option
Carabao logger	- scarce supply of commercial-size timber - growing distance of the forest - cutting ban	- going back to farming - renting chainsaw to fulltime firewood gatherers - shifting to firewood extraction
Firewood gatherer	- increased resource competition - growing distance from the resource - high labour input	- going back to farming - planting fast-growing trees for fuelwood - making forest clearings

When asked about the feasibility of putting up a community forestry project in the area, almost all the interviewees preferred farm forestry over community forestry. They said that it is easier to organize family labour than that of the community. Second, when it comes to land and tree rights, they claimed that it is easier to work out a benefit sharing arrangement within the household than at the community level. They suggested, however, that the government should delineate an adequate planting area for each household and should provide security of tenure as well.

7.2.2 Site 2: Maguirig, Solana, Cagayan

Mang Casimiro, an 80 year-old farmer of Maguirig, Solana, Cagayan successfully established a woodlot in his 3-hectare farm. Aside from him were two other farmers who resisted the Forestry Department's attempt to include their private lots for reforestation in 1975. Today, their tree farms inside the abandoned problematic government reforestation project stand as a case against 'government-driven tree growing project' in the community.

Most of the residents were not able to develop tree farms in their landholdings because they allowed the Forestry Department to take over their farms for reforestation. According to them, they 'were persuaded by the employment offered to them as labourers of the project'. Also, they were told that 'the land still belonged to them and the Forestry Department's concern was just to plant trees'.

Over the years, other government projects have been implemented one after the other in the same site (e.g., from Regular Reforestation to Integrated Social Forestry then to Contract Reforestation). This resulted in overlapping tenure over the area (see Section 5.6 about Maguirig Reforestation Project).

While public tree planting has been going on in the project for several years, Mang Casimiro also planted fast growing trees in his small farm for household use. According to him, the seedlings he planted in 1978 were all obtained from the nearby government reforestation project.

Although farming was his main occupation, he simultaneously planted *Gliricidia sepium*, *Leuceana leucocephala* and *Gmelina arborea* and some fruit trees such as jack fruit, mango and citrus in his lot. Today, even though the trees have grown, he has still space to plant corn, mungbean and vegetables for home consumption. He also plants banana, papaya, pineapple, sweet potato, cassava and other root crops as subsidiary farm crops.

He claimed that the woodlot meets his yearly needs for household fuelwood and fencing materials. He further cited the regenerative capacity of his oldest trees in continually spreading out new seedlings in other portions of his farm. Because of this, he does not need to do direct planting any more. All he has to do is protect the trees from grassland fire.

Today, the almost 200-hectare government contract reforestation project in the same site stands barren and abandoned. The residents could hardly see any surviving tree to remind them of their one-time project involvement. Most farmers felt bad about what had happened to their farmlots occupied by the project as they noted the glaring contrast in Mang Casimiro's and the two other farmers' woodlots.

The success story of Mang Casimiro simply suggests the importance of secured property rights as a condition for spontaneous tree growing in areas where there is conflict of land claims at the start.

7.2.3 Site 3: Nagtimog, Diadi, Nueva Viscaya

Nagtimog is an upland farming community, seven kilometres away from the main town of Diadi, Nueva Viscaya. Bounded by networks of creeks, it is not accessible to jeepneys during the rainy season.

A regular reforestation project was introduced in the community in the early 70s. Most of the local people planted trees to earn an income, while simultaneously growing vegetables. However, the project did not last long because of inadequate funding for protection and maintenance. Being in a fire prone area, the project experienced yearly grassland fires which were believed to be either deliberately or accidentally caused by outsiders and by residents (see Section 5.5 about Villa Meimban Reforestation Project).

The area became an object of land speculations by local farmers after the project management abandoned the site. Most were reluctant, however, to farm it, knowing that the area was still a DENR project site. For many years the site laid idle while some farmers kept on clearing new areas for *kaingin*.

The coming of contract reforestation in 1989 raised most farmers' expectations of resuming the government-sponsored tree planting in the community. However, adjacent communities, not this area, were selected as contract reforestation site.

This gave the farmers the idea of cultivating the abandoned project site. At first, only two farmers applied for usufruct access over the area on the condition that they should simultaneously reforest it without corresponding payment. In return for their voluntary efforts in tree planting, DENR assured them tenurial rights over the trees they planted.

The farmers cultivated the area for short-term crops in the first year. Later, they started interplanting trees between their main crops. In other clear portions they simultaneously planted short-term and tree crops together. This scheme, according to the farmers can restrain grassland fire if the area is always kept under cultivation.

The farmers claimed that after five years, the *Gmelina arborea* they planted in between their main crops had grown to a height that discouraged intercropping underneath. This prompted them to move to another portion of the site. The good soil condition of the site motivated them to informally apply for more usufruct areas for farming. Also, being confident of their rights over the trees they planted, they gained added incentive in protecting and maintaining the project. The seven-hectare plantation now stands in striking contrast to the adjacent problematic contract reforestation project in Villa Meimban.

These successful and no-cost reforestation activity opened the prospect of rehabilitating the long-abandoned project area. More and more farmers expressed desire to farm the site's other unoccupied portions under the same institutional arrangement. They suggested that the government should organize the community for possible replication of the successful tree growing pioneered by their two fellow farmers. According to them, they would actively grow trees even without wages as long as they had formal tenurial rights.

7.2.4 Site 4: Timmaguab, Sta. Ignacia, Tarlac

Timmaguab, Sta. Ignacia, Tarlac is a rice farming community but growing trees for household needs has become an integral part of the residents' farming system. Not far from the area are reforestation projects that continually got burned down and prematurely abandoned by participants.

However, small farm-based tree growing activities using little capital have been carried out by the farmers for some time on their *Imperata*-dominated private lots. The trees are raised to improve soil nutrients, provide fuelwood, fodder, fruits, and household fence posts. Lately, most tree growers get added income by selling the wood products to the market.

Trees were usually grown to establish peripheral boundary fencing. Today, the growing demand for wood products has heightened farmers' interest to plant more trees. Tree growing has become a source of supplementary household income.

This farm-based tree growing was new to the community. In 1987, a new occupant in the area introduced agroforestry on his 6-hectare idle land. After three years, many of his neighbours started following his example. Today, about eight out of 25 farmers in the community have established woodlots on their private lands.

Most of the farmers had established woodlots of *Leuceana leucocephala* and *Gliricidia sepium*. They also allowed naturally occurring species like *Vitex negundo*, *Albizzia procera*, *Philiostigma malabarica*, and *Pithecelobium dulce* to increase in density. In addition, they planted such fruit trees as *Sandoricum koetjape*, *Anona mauricata*, *Anona squamosa*, *Mangifera indica* along with some citrus and short-term crops.

Table 58.
The distinct features of farmers' spontaneous tree growing activities in each site, 1994

Site	Location	Distinctive
1. Quibal	Penablanca, Cagayan	Tree growing prompted by fuelwood shortage and cash needs
2. Maguirig	Maguirig, Cagayan	Woodlot resulting from farmer's sense of ownership over the land and the trees planted
3. Nagtimog	Diadi, Nueva Viscaya	Voluntary tree growing in abandoned government reforestation site with short-term farming as trade-off
4. Timmaguab	Sta. Ignacia, Tarlac	Farm-based tree growing for small household use

The farmers claimed that aside from benefitting economically they also grow in experience through constant experimentation on their woodlots. Observing the increase in biomass through natural regeneration process, they realized that tree growing can proceed even without much labour or capital. What they only need to do is to protect and maintain existing trees. Nature does the rest

of the work. They also learned that the more plant species they introduced, the fewer was the occurrence of natural pests in their farms.

Two factors encouraged the farmers to grow trees. One, they knew that the produce will accrue to them. Second, they needed fuelwood and other tree products to use at home and to sell to the market. Table 58 presents the distinct features of each site's tree growing efforts.

7.3 The Critical Determinant Factors and the Success Conditions

Based on the results of the exploratory and in-depth investigations, Table 59 shows the determinant factors and success conditions for farmers' sustained participation.

Table 59.
Determinant factors and success conditions in the four spontaneous tree growing efforts by individual farmers, 1994

Site	Critical determinant factor	Success condition
1. Quibal	- enterprising attitude - assured status of property regime	- wood products market prospect - assured access/ownership rights
2. Maguirig	- above subsistence level - recognition of usufruct or tenurial right - with farmholding need - enterprising attitude	- good financial situation of participants - intercropping between seedlings - assured access/ownership rights - interest in other related tree uses
3. Nagtimog	- above subsistence level - with farmholding need and good site arability - recognition of usufruct or tenurial right - enterprising attitude	- good financial situation of participants - intercropping between seedlings - assured access/ownership rights - interest in other tree related uses
4. Timmaguab	- enterprising attitude - above subsistence level - good site arability - clear status of property regime	- wood products market prospect - interest in other related tree uses - good financial situation of participants - intercropping between seedlings - assured access/ownership rights

7.4 The Relevance of the Success Conditions

Four of the six success conditions identified in previous analyses of government reforestation projects also appeared relevant for spontaneous tree growing activities by individual farmers. Two conditions did not apply (i.e., 'aspiration for good track record' and 'community cooperation'). However, a new success condition was identified which appeared critical for spontaneous tree growing (i.e., wood products market prospect). This condition indicates the current demand for wood or future market certainty.

This section presents the relevance of each success condition as it applies to certain cases.

7.4.1 Practice of intercropping

Farmers in Nagtimog successfully raised *Gmelina arborea* voluntarily in the abandoned project site after many government attempts in the past failed. By simultaneous intercropping with corn, peanuts and mungbean on rotation, the tree seedlings had been spared from grassland fires in the past. The farmers constructed fire lines and planted banana as firebreaks to protect both farm crops and seedlings from fires. Both soil arability and the need for more croplands prompted farmers to cultivate the project site.

This type of farmers is said to be risk-takers, enterprising and creative. Their attitudes resemble the farmer's being described in the Rational Peasant Theory.

Farmers in Maguirig and Timmaguab adopted wide tree planting spacing that enabled them to intercrop fruit trees between the forest species. Aside from this mixed-stand, they also established woodlots along the peripheries of their farmlots. Intercropping is not feasible in Quibal because the farmlots are under fallow and most farmers have shifted to firewood gathering as a main livelihood.

7.4.2 Interest in other related tree uses

Fuelwood for domestic or market consumption was apparently the common consideration for almost of the five sites, particularly in Quibal. In Timmaguab and Maguirig, farmers recognized the role of the *Leuceana leucocephala* and *Gliricidia sepium* leaves in nitrogen fixing. According to them, the fast increase in biomass exhibited by the species helps in soil building and enriching. The same observation was claimed by farmers in Nagtimog regarding the green compost coming from *Gmelina arborea* interplanted between their farm crops. Also, in Timmaguab and Maguirig, the leaves and pods of *Leuceana leucocephala* served as feeds for goats and hogs. The enterprising

attitude of the farmers led them to value the other potential uses of trees that further increased their interest to grow more trees. This kind of trait is highlighted in the Rational Peasant Theory (Section 3.1.4).

7.4.3 Good financial situation of farmers

The high food security of farmers in Maguirig, Nagtimog and Timmaguab enabled them to invest part of their time in tree growing activities. Having other sources of subsistence, they were not compelled to devote their time fully to earning their daily food needs. With other farmholdings providing the main subsistence and cash needs, the farmers regarded their tree farms as a part-time project.

In Quibal, however, most farmers were desperately dependent on their daily fuelwood sales as a means of subsistence. Their striving to extract more fuelwood amidst declining supply prompted them to shift back to farming or establish their own woodlot. A number of those totally dependent on the resource started raising *Leuceana leucocephala* and *Gmelina arborea* in their backyards and abandoned farmlots.

7.4.4 Assured access or property right

Farmers in Quibal, Maguirig, Nagtimog, and Timmaguab had spontaneous and sustained interest in growing trees because they were certain that the future produce or benefits will accrue to them. In Nagtimog, DENR's provision of usufruct and tree tenure conditioned farmers to grow trees even without payment. The Maguirig and Timmaguab cases on the other hand, illustrate how security of land ownership alone motivated farmers to give great care to the trees planted, in contrast to the unsuccessful public tree planting in adjacent areas (see Maguirig in Section 5.6). In Quibal, tree growing was done on public domain. The long stay of farmers in the area, however, gave them a sense of ownership by position. As such, they were confident that the trees they planted belonged to them. Contractors' sense of ownership over the trees combined with their enterprising attitude made tree growing spontaneous and sustainable.

7.4.5 Wood products market prospect

Selling fuelwood is the source of people's livelihood in Quibal. Firewood constituted the major source of household cooking energy in the vicinities. Also, in Tuguegarao, the capital of the Cagayan Valley Region, bakeries, hotels and restaurants, blacksmith shops and other small-scale industries continually depend on fuelwood from Quibal for their cooking or heating needs.

Threatened by the decreasing supply of the resource due to intensive extraction over the years, some firewood gatherers have started planting *Leuceana leucocephala* and *Gmelina arborea* in their farmlots for future sales.

In Timmaguab, self-sufficiency in fuelwood and other tree uses for household needs was the farmers' main reason for planting trees. The growing local demand for fuelwood and fencing materials, however, motivated farmers to plant more trees in their farmlots.

In both sites, the wood market evolved from local consumers' pressing need for fuelwood and other tree products rather than being created by the Local Government. The farmers' enterprising attitude plus market opportunity sustained tree growing.

On the other hand, marketing wood products was not mentioned by farmers in Maguirig, and Nagtimog as a motivation for growing trees. Their main concern was subsistent and cash cropping in the land more than any other consideration.

7.5 Analysis

Unlike the previous case studies under DENR tree growing projects, farmers in Quibal, Maguirig, Nagtimog and Timmaguab were more self-motivated than the reforestation participants with cash incentives.

In government reforestation, the project management functions as the steering determinant factor to success (Figs 3, 5 and 6). Spontaneous tree growing, however, is different. It is the individual farmer's enterprising characteristic which generates the impulse. The farmer either makes use of the positive attributes of the site setting or induces project management to affect the critical requirements for spontaneous participation (Fig. 8).

For instance, no government incentive motivated the farmers to grow trees in Timmaguab. Nevertheless, five success conditions were evidently present in such a case, namely: 1) practice of intercropping, 2) farmer's interest in other related tree uses, 3) his assured access or property right over the trees planted, 4) his good financial condition, and 5) wood products market prospect. Farmers' spontaneity was triggered by their 'enterprising attitude'. This attitude was nurtured by their being above 'subsistence level' and having a landholding clear of legal incumbrances (or clear status of property regime).

Both Quibal and Timmaguab farmers were market-driven. Tree growing becomes their livelihood pattern and could even be their main source of subsistence as in the case of Quibal.

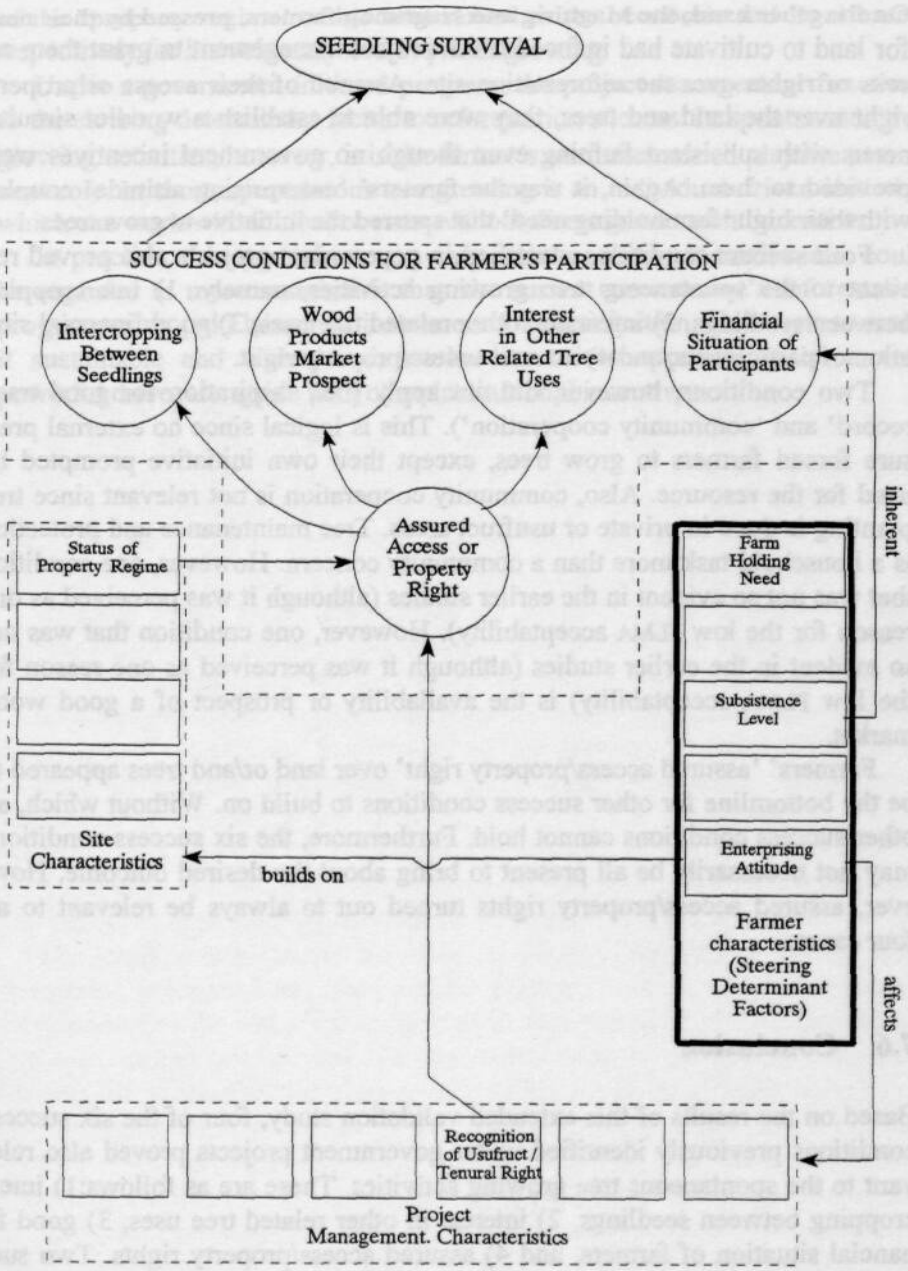


Figure 8.
Schematic diagram showing the prominent role of farmer characteristics as the steering determinant factors to spontaneous tree growing success in Quibal, Maguirig, Nagtimog and Timmaguab

On the other hand, the Maguirig and Nagtimog farmers, pressed by their need for land to cultivate had induced DENR project management to grant them access or rights over the reforestation site. Assured of their access or property right over the land and trees, they were able to establish a woodlot simultaneous with subsistent farming even though no government incentives were provided to them. Again, it was the farmers' 'enterprising attitude' coupled with their high 'farmholding need' that spurred the initiative to grow trees.

Four success conditions identified in government projects also proved relevant to the spontaneous tree growing activities, namely: 1) intercropping between seedlings, 2) interest in other related tree uses, 3) good financial situation of participants, and 4) assured access/property right.

Two conditions, however, did not apply (i.e., 'aspiration for good track record' and 'community cooperation'). This is logical since no external pressure forced farmers to grow trees, except their own initiative prompted by need for the resource. Also, community cooperation is not relevant since tree planting is done in private or usufruct areas. Tree maintenance and protection is a household task more than a community concern. However, one condition that was not so evident in the earlier studies (although it was perceived as one reason for the low FLMA acceptability). However, one condition that was not so evident in the earlier studies (although it was perceived as one reason for the low FLMA acceptability) is the availability or prospect of a good wood market.

Farmers' 'assured access/property right' over land or/and trees appeared to be the bottomline for other success conditions to build on. Without which, all other success conditions cannot hold. Furthermore, the six success conditions may not necessarily be all present to bring about the desired outcome. However, assured access/property rights turned out to always be relevant to all four cases.

7.6 Conclusion

Based on the results of this extended validation study, four of the six success conditions previously identified under government projects proved also relevant to the spontaneous tree growing activities. These are as follows:1) intercropping between seedlings, 2) interest in other related tree uses, 3) good financial situation of farmers, and 4) assured access/property rights. Two success conditions did not apply, i.e., aspiration for good track record and community cooperation. Another success condition, however, appeared very crucial to spontaneous tree growing, i.e., wood products market prospect.

In all cases, the farmer's 'enterprising attitude' was the main compelling force for voluntary action. His status 'above subsistence level' and the clarity

of the 'property regime' of his land served as the economic and legal bases, respectively for his voluntary action in tree growing.

Under a government-initiated program, the project management functions as the steering determinant factor to reforestation success. In spontaneous tree growing activities, however, it is the farmer's attributes which play the prominent role. In short, spontaneous tree growing is an individual-driven initiative which can work with limited or even without direct government incentive.

In practice, this type of tree growing activity, although small scale, could be regarded as more sustainable than the current government's reforestation program using paid labour as instrument for participation. However, to make it sustainable and widespread, market incentives appeared to be a very powerful drive, alongside with other institutional incentives.

8

Synthesis of Findings

Reforestation in the Philippines is an old program, having started as early as 1916. With its long history, all the accumulated experiences of the years could have ushered the program into a sustainable state. Although administrative revamps have marked the Forestry Bureaucracy with nearly every change in the country's national leadership, there still has been no significant improvement on the efficiency of the country's reforestation program.

As more recent policy instruments are being tried, the best tree growing system should have theoretically already been evolved. In practice, the government is still exploring various schemes towards a more sustainable system.

This chapter brings together the research findings from nine government reforestation projects and four voluntary tree growing projects by individual farmers, investigated in an attempt to derive a general diagram of the factors relevant to a sustainable tree growing system in the Philippines. It tries to identify the conditions for successful and sustainable tree growing based on the experiences of both good and problematic projects. Also, it highlights several factors of high seedling survival in the successful project sites.

The study was primarily based on an in-depth analysis of several sites, comparing successful and unsuccessful projects. Such an in-depth approach was directed to the identification of core factors of project success and failure, but with limited possibilities of a statistical testing of the results. After contrasting the successful and unsuccessful projects, two more independent field investigations were carried out to validate the findings of the first set of case studies. A tree growing model was derived, resulting from the successful experience of both government projects and spontaneous tree growing activities by individual farmers. The model has thus a broad basis and is supposed to have a significant predictive power to guide future reforestation plans in the Philippines.

8.1 Data Formation

This section describes the sequential process of data formation and how it developed into a general model for tree growing. There were four phases of data gathering:

8.1.1 Phase 1: Literature survey

A broad survey of various case studies on tree growing projects in some developing countries and in the Philippines was conducted. It identified five bases or motivations for successful tree growing as follows: 1) household use, 2) income from tree product, 3) land right security, 4) management arrangement, and 5) soil conservation. Also, seven policy instruments commonly used by government program to sustain tree growing on public lands were identified, namely: 1) cost-benefit sharing arrangement, 2) paid labour, 3) subsidies and tax exemption, 4) loans and credits, 5) market incentive, 6) land tenure, and 7) access to future produce.

8.1.2 Phase 2: Contrast analysis

Two successful and two unsuccessful projects in Cagayan Valley were compared and analyzed. These were assessed under two stages of field observation, namely, exploratory investigation and in-depth investigation.

Stage I: Exploratory Investigation

During this stage, the success conditions for contractor's sustained participation in seedling maintenance and protection in Cagayan Valley were roughly examined. Table 60 shows the results of the exploratory investigation.

Table 60.
Success conditions of the Cagayan Valley case studies, 1993

	Unsuccessful		Successful	
Success condition	V. Meimban	Manguirig	Salinas	Lacab
1. Intercropping between seedlings	no	no	yes	yes
2. Interest in other related tree uses	no	no	yes	yes
3. Participant's good financial situation	no	no	yes	yes
4. Assured access / property right	no	no	yes	yes
5. Aspiration for good track record	no	no	yes	yes
6. Community cooperation	no	no	yes	yes

Stage II: In-Depth Investigation

In this stage, three project background settings were analyzed to identify the determinant factors of the success conditions. These were broadly categorized into:

1. Site Characteristics - the project's physical, biological and tenurial settings.
2. Contractor Characteristics - the contractor's socio-economic condition, project perception, motivations, future options, inherent traits and cultural background.
3. Project Management Characteristics - the government's or DENR's management schemes and interventions, including program implementation, policy instrument and field personnel attitudes.

Table 61 shows the results of the in-depth study in Cagayan Valley highlighting the determinant factors of success.

Table 61.
Project settings and the corresponding determinant factors in the Cagayan Valley case studies, 1993

Broad categorization of background settings	Differentiation of the various determinant factors
1. Site Characteristics	- good arability - proximity and accessibility - clear status of property regime
2. Contractor Characteristics	- above subsistence level - with farmholding need - meantime payment of labourers' wages - enterprising attitude
3. Project Management Characteristics	- assurance of project prospects - promptness of DENR payment - recognition of usufruct / property right - approval of the land use combinations - recruitment of 'on-site' participants

8.1.3 Phase 3: Validation study

Five other successful government reforestation projects in other regions of the Philippines were investigated to validate the applicability of the determinant factors and the resulting success conditions in the Cagayan Valley case studies. The 12 determinant factors and six success conditions previously noted

all recurred in the five additional projects. Two new determinant factors were also identified (i.e., 'DENR prescribed the forestland use' under site characteristics, and 'allows communal resource use' under contractor characteristics). Table 62 shows the cumulative progression of the determinant factors and success conditions in the two sets of field observation.

Table 62.
Validation of determinant factors from Cagayan Valley successful case studies in other regions in the Philippines, 1994. The numbers refer to the number of projects in which the factor was peasant

Determinant factors	Cagayan Valley No. of successful proj. (N=2)		Other regions No. of successful proj. (N=5)	
1. Site Characteristics				
- good arability	yes	all (2)	yes	2
- proximity and accessibility	yes	all (2)	yes	all (5)
- clear status of property regime	yes	all (2)	yes	3
- *DENR prescribed the forestland use*	no	not applicable	yes	2
2. Contractor Characteristics				
- above subsistence level	yes	all (2)	yes	4
- with farm holding need	yes	1	yes	2
- meantime payment of labourers' wages	yes	1	yes	3
- enterprising attitude	yes	all (2)	yes	2
- *allows communal resource use*	no	not applicable	yes	all (5)
3. Project Management Characteristics				
- assurance of future project prospects	yes	all (2)	yes	3
- promptness of DENR payment	yes	0	yes	0
- recognition of usufruct/tenurial right	yes	1	yes	4
- approval of other land use combinations	yes	all (2)	yes	3
- recruitment of 'on-site' participants	yes	all (2)	yes	all (5)

8.1.4 Phase 4: Investigation of spontaneous tree growing activities

Four spontaneous tree growing individual farmers were the test samples in validating the relevance of the success conditions and the determinant factors found in government-sponsored reforestation projects. Four of the six success conditions also appeared present in the spontaneous tree growing activities. Two conditions did not hold true: 'aspiration for good track record' and 'com-

munity cooperation'. However, one new success condition was added among the list, i.e., 'wood products market prospect' (Table 63).

Table 63.
List of all success conditions from the 11 successful case studies, 1994.
The numbers refer to the number of cases in which the factor was present

Success conditions	Cagayan Valley No. of successful proj. (N=2)	Other regions No. of successful proj. (N=5)	Spontaneous tree growing (N=4)
1. Intercropping between seedlings	all (2)	2	3
2. Interest in other related tree uses	all (2)	2	all (4)
3. Contractor's good financial situation	all (2)	all (5)	3
4. Assured access/property right	all (2)	(2)	all (4)
5. Aspiration for good track record	all (2)	3	not relevant
6. Community cooperation	all (2)	all (5)	not relevant
7. Wood products	not now	not now	2

Also, not all determinant factors recurred. Under site characteristics, 'DENR prescribed the forestland use' did not apply. Of five project management determinant factors, only one recurred (i.e., 'recognition of usufruct/tenurial rights'). The provision of 'wood products market prospect' seemed to be a strong stimulant for private tree growing as in the case of the spontaneous tree growing. Three of five determinant factors under contractor's characteristics were found relevant (e.g., 'above subsistence level', 'with farmholding need' and 'enterprising attitude'). Table 64 presents the complete list of determinant factors from all 11 successful case studies.

Table 64.
List of all determinant factors from the 11 successful case studies, 1994. The numbers refer to the number of cases in which the factor was peasant

Determinant factors	Cagayan Valley No. of successful proj. (N=2)	Other regions No. of successful proj. (N=5)	Spontaneous tree growing (N=4)
1. Site Characteristics			
- good arability	all (2)	2	3
- proximity and accessibility	all (2)	all (5)	all (4)
- clear status of property regime	all (2)	3	all (4)
- DENR prescribed the forest-land use	not applicable	2	not relevant
2. Contractor Characteristics			
- above subsistence level	all (2)	4	3
- with farmholding need	1	2	3
- meantime payment of labourers' wages	1	3	not relevant
- enterprising attitude	all (2)	2	all (4)
- allows communal resource use	not applicable	all (5)	0
3. Project Management Characteristics			
- provision of market security	not applicable	not applicable	perceived need
- assurance of future project prospects	all (2)	3	not relevant
- promptness of DENR payment	0	0	not relevant
- recognition of usufruct/tenurial right	1	4	2
- approval of other land use combinations	all (2)	3	not relevant
- recruitment of 'on-site' contractors	all (2)	all (5)	not relevant

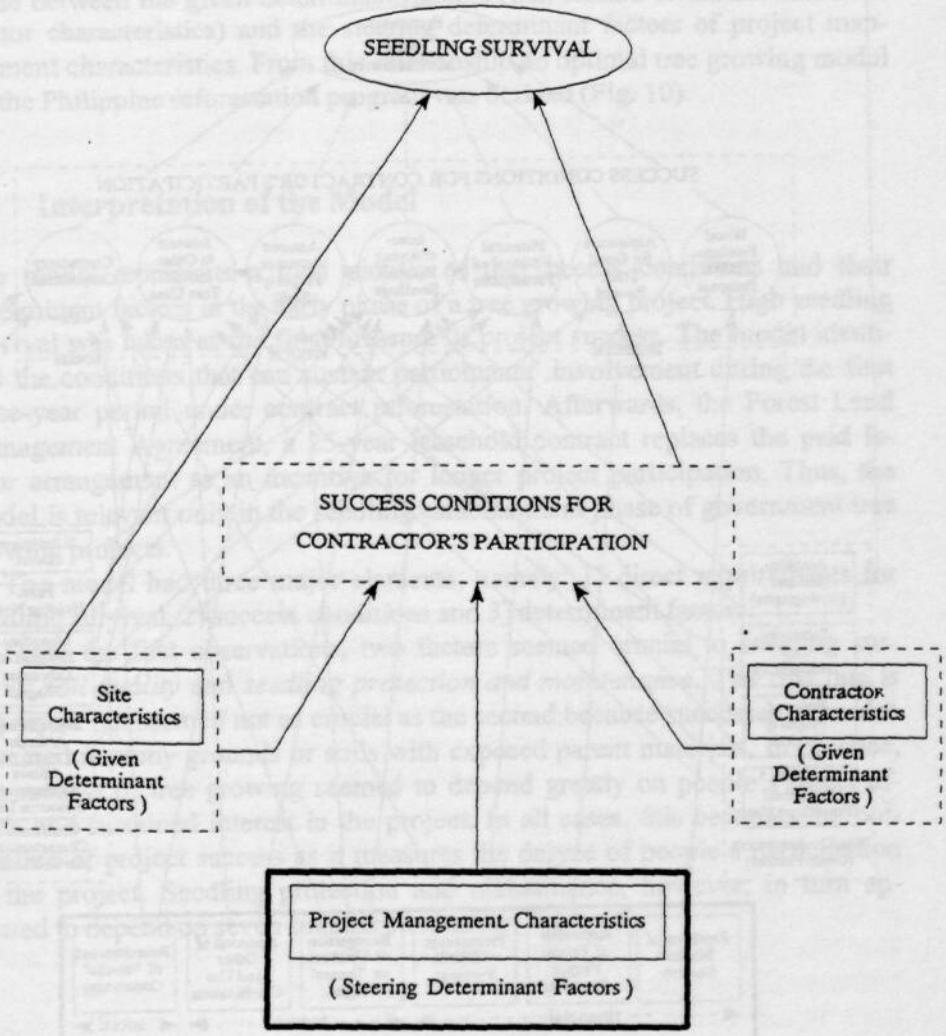


Figure 9.
General diagram showing the relationship between determinant factors and success conditions

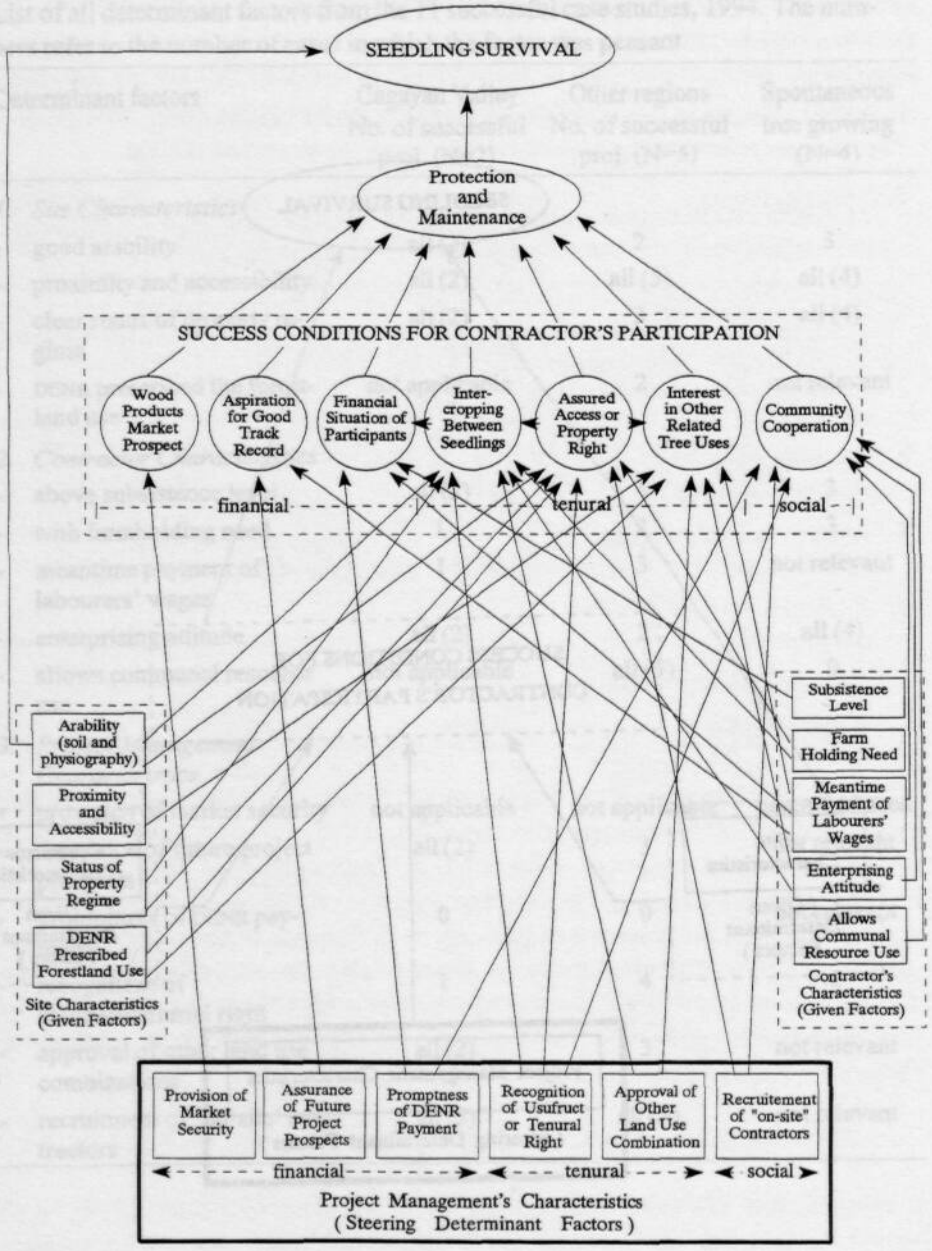


Figure 10.
Conceptual diagram for successful tree growing projects in the Philippines (Pasicolan, 1995)

8.2 Model Formation

The determinant factors and success conditions in Tables 60 to 64 were collated to form a tree growing diagram. Fig. 9 below shows the relationships between determinant factors and success conditions. A distinction was also made between the given determinant factors (i.e., related to the site and contractor characteristics) and the steering determinant factors of project management characteristics. From this relationship an optimal tree growing model for the Philippine reforestation program was derived (Fig. 10).

8.3 Interpretation of the Model

The model represents a total picture of the success conditions and their determinant factors in the early phase of a tree growing project. High seedling survival was taken as the final measure of project success. The model identifies the conditions that can sustain participants' involvement during the first three-year period under contract reforestation. Afterwards, the Forest Land Management Agreement, a 25-year leasehold contract replaces the paid labour arrangement as an incentive for longer project participation. Thus, the model is relevant only in the seedling establishment phase of government tree growing projects.

The model had three major elements, namely: 1) direct requirements for seedling survival, 2) success conditions and 3) determinant factors.

From the first observations, two factors seemed crucial to seedling survival: *soil quality* and *seedling protection and maintenance*. The first one is important but seemed not as crucial as the second because successes were also obtained in stony grounds or soils with exposed parent materials. In practice, the success of tree growing seemed to depend greatly on people's direct efforts and sustained interest in the project. In all cases, this becomes the bottomline of project success as it measures the degree of people's participation in the project. Seedling protection and maintenance, however, in turn appeared to depend on seven success conditions (Table 65).

Table 65.
The seven success conditions for sustained seedling protection and maintenance in the nine government and four spontaneous tree growing projects in the Philippines

Condition	Description
1. Wood products	The presence of a current demand for wood of future market certainty (i.e., in raw form, lumber, poles, post, fuelwood, and for other domestic and industrial uses)
2. Aspiration for good track record	Contractor's striving to gain DENR's confidence in the hope of obtaining more project contracts in the future. It could also mean striving for good project performance to prolong usufruct over the site
3. Contractor's good financial condition	Whatever the contractor's income source, it should provide income above the subsistence level
4. Intercropping between seedlings	Planting of short-term of perennial crops (e.g., corn, upland rice, vegetable, coffee, papaya, banana, etc.) in between reforestation seedlings for subsistence and/or cash
5. Assured access / tenurial right	Indicates present usufruct or land tenure security over the project site. It could also mean expressed aspiration to assume future ownership over the project
6. Interest in other related tree uses	Contractor's current intention to pursue other future tree use prospects under FLMA (e.g., short-term intercropping of subsistence or cash crops, silvipastoral use, fuelwood, other wood products, watershed protection for local benefits, or other communal tree-related uses)
7. Community cooperation	Residents' voluntary participation in grassland fire protection and strict regulation of open grazing rules inside the project area

The seven conditions are regarded as the sustainability requirements during and beyond the three-year period of contract reforestation. They are derived from the combined effects of the three interacting components of the project setting, namely: site characteristics, contractor characteristics and project management characteristics. Each of these components consists of many determinant factors which contribute to one or more of the success conditions.

In Fig. 10, all the arrows from the determinant factors are directed to the success conditions to mean the latter's dependence on the former. The heavy convergence of arrows in a success condition, however, does not connote the

degree of requirements needed for that condition. Rather, it conveys the many possibilities to attain it. Also, it does not mean greater relevance because some conditions with less arrows are critically important as well (see Section 8.5). However, the more conditions present, the greater likelihood for success.

The content of the different success conditions can be grouped into three broad categories, i.e., *financial*, *tenurial* and *social* (Fig. 10). Associated with the financial incentives, are the following success conditions: 1) contractor's good financial situation, 2) aspiration for good track record to obtain more future project contracts, and 3) wood products market prospect. These three conditions are directed towards improving contractor's income.

For tenurial incentives, the following success conditions are associated: 1) intercropping between seedlings, 2) interest in other related tree uses, and 3) assured access or property right. Only 'community cooperation' falls under the social category.

Interestingly, the three sets of success conditions for the contractor's sustained participation correspond to the three types of incentive system that the project management can introduce or affect to promote sustainable tree growing in the countryside (see Fig. 10). These incentive systems with their corresponding possible management schemes are:

1. *Financial incentives*: Provision of more cash flow and compliance with previously stipulated terms of agreement in the delivery of existing contract payment for participation such as the following interventions:
   a. provision of market security
   b. assurance of more future project prospects
   c. promptness of DENR contract payment
2. *Tenurial incentives*: Exploring the viability of tenurial arrangements and other property right instruments for participation, including:
   a. recognition of usufruct and tenurial right
   b. approval of other land use combinations
3. *Social incentive*: Recruitment of 'on-site' contractors and labourers forms the primary basis of a community-based resource management system. If project participants are not locally-based, it will be very difficult to attain community cooperation. It is important to emphasize the critical relevance of this incentive because the long-term survival of tree growing on public land depends greatly on community cooperation in fire fighting and strict regulation of open grazing inside the project area. The community will generally not participate, unless they can benefit economically and socially from the project.

8.4 Criteria for Evaluation

This section aims to show how the success conditions were empirically derived from the results of the field study.

As previously mentioned, the sustainability of contractor's participation may depend on at least one or more of the seven success conditions. This section presents the empirical basis of this claim. It gives an outline (an approach) for determining the possible occurrence or absence of the success conditions by rating the number of positive and negative background factors for each condition.

In the actual assessment exercise, these success conditions carry either a *yes* or *no* score, which indicates whether they are present or absent in the project. On the other hand, the determinant factors have either a positive or negative value or may not be applicable at all depending on the given project context.

Since one success condition could be a product of more than one determinant factor, often both the positive (+) and the negative (-) values come together. As a rule, the final score for the success condition is determined by the net result, after summing the positive and the negative background factors.

However, the more positive factors are present, the greater the likelihood the success condition will occur. Likewise, the opposite holds true for the negative frequency.

In instances where the number of positive is equal to the negative factors, the value or sign of the most critical factor is considered. A critical factor is one with the most relevant or weighted effect on the contractor. There is no specific critical determinant factor set in a general way, because it varies from one project context to another.

In the succeeding pages, the criteria of rating the determinant factors of project success are presented in Table 66. Also, in Table 67, the survey results of the 13 tree growing projects and activities are presented and collated. Furthermore, in Table 68, the seven success conditions were rated for their frequency of occurrence in the contrast analysis, validation study and in the investigation of spontaneous tree growing activities.

Table 66.
Criteria for rating determinant factors to project success

Factor	Negative (-)	In between (±)	Positive (+)
A. Site Characteristics			
1. Arability	poor soil and physiography	some portions are arable	good soil and physiography
2. Proximity and accessibility	remote and cannot be easily reached by 'off-site' participants	remote but can easily be reached by 'off-site' participants	accessible and within the reach of local-based participants
3. Status of property regime	conflicting and overlapping land tenure	public land with migrants positioned in the area even prior to the project	public land free from occupants
4. Prescribed forestland use	designated as watershed area	can be for protection and production forestry	intended for production forestry
B. Contractor Characteristics			
5. Subsistence level	below subsistence level; direct dependence on project's income for main subsistence	at subsistence level: project's income as supplementary source of subsistence	above subsistence level with stable or multiple livelihoods; project's income spent for other productive uses or investment
6. Farm holding need	no need for additional farm	additional to existing farmholding	badly in need of farm area to cultivate
7. Meantime payment of labourers' wage	not practised at all	provision of labourers' need by contractor's borrowing from other sources	personal funds of rich contractors used to defray meantime labourers' wages
8. Enterprising attitude	no initiative and foresight	limited foresight and less interested in tree crops	exploratory with foresight, initiative and interest in other tree uses
9. Allows communal resource-use	regards future produce from the project strictly for personal use	allows only limited and selected group	allows public use of the resource

C. Project Management Characteristics

10.	Provision of market	none	no clear or formal terms of agreement	provision of contract growing agreement or rationalize existing local wood market
11.	*Assurance of* more future project prospects	*none*	*assurance of speedy* processing of contract payment	*assurance of more* project contracts in the future
12.	Promptness of DENR payment	more than six months delay in payment	partial payment every six months	prompt release of government fund, or if not, contractors defrayed meantime labourers' wages
13.	Recognition of usufruct/tenurial right	displacement of original occupants	allowing migrants in the area but not their project involvement	contracts with original occupants, according to their initial spatial position and land holding size
14.	Approval of other land use combinations	allows no changes in the reforestation plan	limited flexibility and only free choice of seedlings allowed	accommodates contractor's other land use options, including free choice of species and planting species
15.	Recruitment of 'on-site' contractors	majority of participants from outside	'on-site' labourers hired by 'off-site' contractors	contractors or at least all labourers locally-based

Table 67.
Matrix showing the success conditions of the 13 cases

	Unsuccessful		Successful							Spontaneous			
Success condition	VMeim (F)	Mag (C)	Sal (C)	Lac (F)	SMar (F)	Lab (F)	Bug (C)	Cav (C)	Vir (C)	Qui (F)	Mag (F)	Nag (F)	Tim (F)
1. Wood products market prospect	NA	NA	NA	NA	NA	NA	NA	NA	NA	yes			yes
- enterprising attitude			+	+	+	+				+	+	+	+
- provision of market security										+	-	-	+

Success condition	Unsuccessful		Successful							Spontaneous			
	VMeim (F)	Mag (C)	Sal (C)	Lac (F)	SMar (F)	Lab (F)	Bug (C)	Cav (C)	Vir (C)	Qui (F)	Mag (F)	Nag (F)	Tim (F)
2. *Aspiration for good track record*	no	no	yes	yes			yes	yes	yes				
- meantime payment of labourers' wages	-	-	+				+	+	+				
- assurance of future project prospects	-	-	+	+			+	+	+				

Success condition	Unsuccessful		Successful							Spontaneous			
	VMeim (F)	Mag (C)	Sal (C)	Lac (F)	SMar (F)	Lab (F)	Bug (C)	Cav (C)	Vir (C)	Qui (F)	Mag (F)	Nag (F)	Tim (F)
3. *Contractor's good financial condition*	no	no	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes
- subsistence level	-	-	+	+	+	+	+	+	+	-	+	+	+
- meantime payment of labourers' wages	-	-	+				+	+	+				
- promptness of DENR payment	-	-	-	-	-	-	-	-	-				
- intercropping between seedlings	-	-	±	+	+	+	-	-	-	-	+	+	+

Success condition	Unsuccessful		Successful							Spontaneous			
	VMeim (F)	Mag (C)	Sal (C)	Lac (F)	SMar (F)	Lab (F)	Bug (C)	Cav (C)	Vir (C)	Qui (F)	Mag (F)	Nag (F)	Tim (F)
4. *Intercropping between seedlings*	no	no	yes	yes	yes	yes	no	no	no	no	yes	yes	yes
- site arability	±	±	±	+	+	+	-	-	-	-	+	+	+
- status of property regime		-	+	-	-	-	-	+	-	+	+	+	+
- farmholding need	-	-	-	+	+	+	-	-	-	-	+	+	+
- recognition of usufruct / tenurial right		-		+	+	+	+		+		+	+	
- approval of other land use combinations			+	+	+	+	-	-	+				
- assured access / property rights		-	+	+	+	+	±	-	-	+	+	+	+

Success condition	Unsuccessful		Successful							Spontaneous			
	VMeim (F)	Mag (C)	Sal (C)	Lac (F)	SMar (F)	Lab (F)	Bug (C)	Cav (C)	Vir (C)	Qui (F)	Mag (F)	Nag (F)	Tim (F)
5. *Assured access / property rights*	no	no	yes	yes	yes	yes	no	no	no	yes	yes	yes	yes
- site arability	±	+	±	+	+	+	-	-	-	-	+	+	+
- status of property regime		-	+	-	-	-	-	+	-	+	+	+	+
- DENR prescribed the forest land use					+	+	-	-	-				
- farmholding need	-	-	-	+	+	+	-	-	-	-	+	+	+
- recognition of usufruct / tenurial right		-		+	+	+	+		+		+	+	
- recruitment of 'on-site' participants	+	-	+	+	+	+	+	+	+				

Success condition	Unsuccessful		Successful							Spontaneous			
	VMeim (F)	Mag (C)	Sal (C)	Lac (F)	SMar (F)	Lab (F)	Bug (C)	Cav (C)	Vir (C)	Qui (F)	Mag (F)	Nag (F)	Tim (F)
6. *Interest in other related tree use*	no	no	yes	yes	yes	yes	no	no	no	yes	yes	yes	yes
- proximity and accessibility	+	-	+	+	+	+	-	-	-	+	+	+	+
- DENR prescribed the forestland use					+	+	-	-	-				
- meantime payment of labourers' wages	-	-	+				+	+	+				
- enterprising attitude	-	-	+	+	+	+	-	-	-	+	+	+	+
- approval of other land use combinations			+	+	+	+	-	-	+				
- assured access / property rights		-	+	+	+	+	±	-	-	+	+	+	+

Success condition	Unsuccessful		Successful							Spontaneous			
	VMeim (F)	Mag (C)	Sal (C)	Lac (F)	SMar (F)	Lab (F)	Bug (C)	Cav (C)	Vir (C)	Qui (F)	Mag (F)	Nag (F)	Tim (F)
7. *Community co-operation*	no	no	yes	yes	yes	yes	yes	yes	yes				
- meantime payment of labourers' wages	-	-	+				+	+	+				
- allows future communal use					+	+	+	+	+				
- promptness of DENR payment	-	-	-	-	-	-	-	-	-				
- recognition of usufruct/tenurial right		-		+	+	+	+						
- recruitment of 'on-site' participants	+	-	+	+	+	+	+	+	+				

Table 68.
Frequency of recurrence of the seven success conditions in the three sets of case studies on tree growing projects in the Philippines

Success conditions	Set 1 (N=4) Government		Set 2 (n=5) Government	Set 3 (n=4) Spontaneous	Total (n=13)
	2 negative	2 positive	(All successful)	Tree growing	
1. Wood products market prospects	-	-	-	2	2
2. Aspiration for good track record	-	2	3	-	5
3. Contractor's good financial situation	-	2	5	3	10
4. Intercropping between seedlings	-	2	2	3	7
5. Assured access/ property right	-	2	2	4	8
6. Interested in other related tree uses	-	2	2	3	7
7. Community cooperation	-	2	5	-	7

8.5 The Relevance of the Different Success Conditions

Based on the contrast analysis of the first two successful and unsuccessful projects in Cagayan Valley, it was first presumed that six success conditions should be present for project sustainability. 'Wood products market prospect' is excluded because it does not yet exist or has not yet been anticipated in government projects. However, further study conducted in other regions revealed that this is not always the case. From the tallied results in Table 67, it is clear that the seven conditions were all negative for the unsuccessful projects and generally positive for the first group of successful ones. However, some of the additional successful projects and the spontaneous ones appeared to function with fewer positive conditions, yet were still successful. On the overall rating, the success conditions for government reforestation in order of highest frequency are:

a. community cooperation and contractor's good financial situation;
b. aspiration for good track record;
c. assured access/property right, intercropping and interest other related tree uses.

On the other hand, the success conditions for spontaneous tree growing projects, in the order of the highest frequency are:

a. assured access/property right and contractor's good financial situation;
b. intercropping and interest in other related tree uses;
c. wood products market prospects.

The difference in the order of significance in success conditions between government and spontaneous projects reveals their distinctly different backgrounds. In this regard, it is interesting to examine closely the overall relevance of each success condition based on its effects in all case studies.

8.5.1 Wood products market prospect

Based on the present case studies, wood products market prospect seems important only for spontaneous tree growing activities. However, in the future it can also become a powerful incentive for contractors pursuing FLMA in government-sponsored tree growing projects. In the spontaneous tree growing, the wood market can become a direct incentive, whereas, in the present stage of the reforestation program, it has been rather remote. Other basic security conditions have to be met first before contractors think of the market as a drive for sustained participation in government tree growing projects. These more direct conditions will be discussed in the succeeding text.

8.5.2 Aspiration for good track record

Aspiration for good track record seems relevant only to government-sponsored projects, although it does not apply in all cases. For contractors who are driven mainly by the desire to obtain more project contracts for greater financial gain in the future, this condition is important. It appears to be unimportant if contractors have other considerations for participation apart from the direct project cash payment, in particular the 'assurance of access/property right'. On the other hand, in spontaneous projects, farmers do not aspire for good track records at all. Their voluntary tree growing activities rather stemmed from direct needs for wood for household and cash income.

'Aspiration for good track record' does not operate by itself. It is rather complemented by another success condition (e.g., contractor's good financial situation) which will be explained later on. Although it does not recur very often in the case studies, it is still regarded as critically relevant in a sense that it can trigger another crucial success condition (e.g., community cooperation) on public tree growing (Fig. 6).

8.5.3 Contractor's good financial situation

Contractor's good financial situation topped the list of recurring success conditions, an indication of its overwhelming importance for both government and spontaneous tree growing projects (Table 60).

In government reforestation activities, cash remuneration is crucial because the program is premised on two noble goals: environmental rehabilitation and improvement of the financial situation of participants through employment generation. The second objective can be accomplished in three ways:

a. prompt and regular release of contract payment from the DENR: In practice however, this factor was not achieved;
b. contractors with cash surplus pay meantime their labourers' wages in times of delayed DENR payment;
c. the participants derive their subsistence and cash through intercropping simultaneously in the site. In this way they are less dependent on the direct cash income from the project.

If none of three possibilities is met, sustained project participation cannot be achieved since the majority of the reforestation participants are subsistent peasants in search of daily earnings for their basic food needs.

In this regard the financial situation of the contractors is considered to be critically relevant, especially in government tree growing projects. Also, such situation enhances the attainment of two other important success conditions

(e.g., 'aspiration for good track record' and 'community cooperation'). In itself, good financial situation cannot bring about the desired outcome. It has to be complemented by these two other conditions to trigger project success.

Also for spontaneous projects 'farmer's good financial situation' is of primary importance. It is a basic condition that warrants farmers to venture into a risky and long gestation means of livelihood like tree farming. Normally, farmers with cash surplus or those at least with an economic status above the subsistence level, have the availability of time and resources to invest in tree crops. Such investment for them is possible because they are not directly under the pressure of hacking out for their daily subsistence, like the subsistent farmers do.

8.5.4 Intercropping between seedlings

Although intercropping between seedling is formally allowed in all contract reforestation projects, in practice, it cannot be done in all cases. It is highly site specific and it cannot exert an influence by itself. It always goes with another fundamental condition (i.e., assured access/property rights). Although in both government and spontaneous tree growing it appears as just supplementary to other success conditions, it is still relevant especially in the former. For instance, participants who simultaneously intercropped in the project site had a higher threshold for project's cash flow problems. They were cushioned from the effect of delayed releases of government contract payment. If they did not benefit from this other use of the site, they might have aborted the project in the absence of immediate and regular payment from the DENR. It is particularly relevant in cases where 'assured access/property rights' is secured combined with 'site arability'.

8.5.5 Assured access/property rights

Assure access/property right ranked second on the list of most recurring success conditions which means that it is nearly always important, except for a few cases.

In both government and spontaneous tree growing projects, 'assured access/property rights' holds the rational basis for other success conditions to exist. For instance, 'intercropping between seedlings', 'interest in other related tree uses', 'community cooperation' and perhaps the effect of 'wood products market prospect' become meaningless, if assured access or property right is not first secured. Thus, it is regarded as a fundamental and critical element for other success conditions to build on. In those government reforestation projects in which 'assured access/property right' appeared to play no significant role in participants' motivation, the critical success condition was 'as-

piration of good track record'. Both conditions are considered precursor of other success conditions but in a different motivational setting. The former is directed to a situation in which the participant is becoming more and more independent from the government. The latter is directed towards continuous dependency.

8.5.6 Interest in other related tree uses

This condition is also site specific. It just supplements other conditions. It is not independent but is always backed up by 'assured access/property right' both in government and spontaneous tree growing projects. However, in the government reforestation scheme (in its present form), 'interest in other related tree uses' is considered to be a precondition for the pursuit of FLMA (a property right arrangement). Hence, it can be said that 'interest in other related tree uses' is complementary to 'assured access/property right' in as far as FLMA is concerned. On the other hand, in spontaneous projects, this condition is regarded as critically relevant only if tree growing stemmed from direct household needs and related uses other than cash payment.

8.5.7 Community cooperation

This condition is also similar to 'aspiration of good track record' which depends on the project context. In a government tree growing scheme, it is considered highly relevant because tree planting is done on public lands. In most cases it determines the long-term survival of reforestation projects. Although it appears to be mainly dependent on the site setting or participant's attributes, in practice it does not occur spontaneously however. Two other conditions must have to be satisfied first, namely: 'assurance of access/property right over the project' or 'aspiration of good track record' leading to contractor's voluntary payment of labourers' wages meantime (Figs 5 and 6). In spontaneous tree growing however, 'community cooperation' is not relevant since it is carried out on private or usufruct areas. As such, the needed care and protection for the trees are rather a household's responsibility.

8.6 Conclusion

In conclusion, four success conditions appeared to be the most critically relevant on participants' sustained project involvement. These are in the order of significance: 1) *good financial situation of contractors*, 2) *assured access/ property right* or 3) *aspiration for good track record* and 4) *community cooperation.*

8.7 The Project Background Settings

The project background settings were broadly categorized into three types: 1) site characteristics, 2) contractor's features and 3) project management characteristics. The interactions or blending of these three settings determine the occurrence of the success conditions in tree growing projects.

The site features comprise the biophysical and tenurial aspects of the project, while the contractor's features constitute the immediate socioeconomic setting. The project management characteristics represent the program implementation scheme or institutional setting.

The site's and contractor's characteristics set the opportunities or constraints to project success. These are regarded as the given background factors that have either positive or negative attributes. Both settings or their combined effects determine the range of possible project outcomes. They provide the climate for project success or failure. However, the project management is the crucial background setting because it either harmonizes or spoils the effect of both site and contractor's features.

In other words, it is not the site or the contractor's setting that matters most in a project, but rather the type of management intervention. It is well possible that a success opportunity will lead to failure, if it is spoiled by the management intervention. Similarly, a negative site or contractor's setting can still turn into a success, if the management intervention mitigates such constraints. Thus, it can either build on or ruin a given opportunity or it can either mitigate or reinforce a given constraint.

In this way in a government reforestation, the project management functions as the steering determinant factor of project success. There are instances that it mitigates a negative site setting and yet resulted in a project success. However, in most cases, it did the opposite and resulted in low performance, despite the positive site and contractor's settings. On the other hand, in spontaneous tree growing, the farmer's features play the prominent role. In two of the four observation sites, the DENR project management became subservient to the local farmers' whims and options which resulted in a good outcome. Although in this example there was no deliberate government's effort that was evident, still, it can play a very important role in rationalizing spontaneous tree growing at the farm level. By way of legislation or provision of institutional incentives (such as wood market securities, production loans, crop insurance, tenurial arrangements, etc.), private tree growing can become attractive to small farmers.

8.8 The Determinant Factors

In total, 15 determinant factors appeared to have a bearing on the seven success conditions. Some of these are not as critical as the others. However, each factor has its own distinct contribution. To highlight their relative importance, each determinant factor will be evaluated in terms of its effect on the success conditions.

8.8.1 Site characteristics

1. Arability

This factor supposedly ranked top most in relevance under site characteristics because it is directly linked with seedling survival. However, if it is assumed that project sustainability primarily depends on people's activity, arability factor becomes significant only when *intercropping* is practised by the contractor. Also, it can become a motivation to aspire for *assured access/property right* over the project in the future. However, by itself, it cannot trigger the two aforementioned success conditions. It is always associated with other intervening determinant factors, such as: 1) with contractor's farm holding need, 2) clear site's property regime, 3) project management's recognition of usufruct/tenurial right.

2. Proximity and accessibility

This factor is the alter equivalent of 'on-site' or 'in-place' recruitment of participants which can trigger *community cooperation*. However, in itself, it cannot result into such success condition. It must be backed up by more critical determinant factors such as 'promptness of DENR payment' or at least contractor's practice of 'paying meantime their labourers' wages and 'recruitment of 'on-site' participants'. Site proximity or accessibility also influences contractor's option to aspire for 'assured access or property right' over the project in the future.

3. Status of property regime

This is a critical factor that determines contractor's current option (i.e., *intercropping*) and future plan (i.e., *aspiration for assured access or property right*) over the site. Although conflict of tenurial status is not common in most reforestation sites, it is crucial in a sense that it validates the relevance of other factors such as; 1) site arability, 2) site proximity and accessibility, and 3) contractor's enterprising attitude.

4. DENR prescribed the forestland use

This factor which defines the possibilities for production or protection forestry is site specific and is not as crucial as the others. However, it gives no option for the contractor to aspire for *assured access or property right* over the project or limit his *interest in other related tree uses*. For instance, if the contracted project site has been delineated by DENR as part of a critical watershed area, definitely it cannot be turned over for FLMA in the future.

8.8.2 Contractor characteristics

1. Subsistence level

This factor defines the *financial situation of the contractors*. It is only relevant when the condition for participation is exclusively tied to participant's interests in project's cash earnings. In instances wherein DENR payments were delayed as in the past, it played a very critical role in sustaining both contractor's and labourers' project involvement. However, by itself, it cannot independently a success condition. It functions rather as the contractor's economic basis for making future options or determining the extent of his current project participation.

2. Farmholding need

This factor is directly linked with the contractor's practice of *intercropping* and with his aspiration for *assured access or property right* over the project in the future. However, it is affected by other site factors like 'site arability', 'status of site's property regime' and 'DENR prescribed the forestland use'.

3. Meantime payment of labourers' wages

Although this *meantime payment of labourers' wages* was not a prescribed contractor's obligation, its practice proved to be effective in fostering *community cooperation*. It is regarded as one of the very crucial determinant factors to success because it can surmount the negative effects of other background factors, such as 'non-recruitment of "on-site" participants' and 'non-promptness of DENR payments'. This factor is either induced by or associated with the other success conditions, namely: *aspiration for good track record*, *contractor's good financial situation*, and *interest in other related tree uses*.

4. Contractor's enterprising attitude

This is another critically relevant factor, in particular, for spontaneous tree growing activities because it triggers farmer's *interest in other tree related uses* and enables him to respond to *wood products market prospect*. In government reforestation projects, it is closely linked with contractor's aspiration for *assured access or property right* over the site. But this factor, by itself, it

cannot do anything. It must be backed up by other factors such as participant's 'above subsistence level', having 'high farmholding need', 'good site arability', and 'clear status of site's property regime'.

5. Willingness to allow future communal resource use

This factor is one basis for *community cooperation* because it provides access for the local residents to benefit from the future produce of the project. However, its applicability has yet to materialize in the future. As such, it is not as relevant now as the other factors.

8.8.3 Project management characteristics

1. Provision of market security

This factor appeared to be one basis for the sustainability of some spontaneous tree growing activities. Although it was not deliberately created through government's initiative, individual farmers responded very actively to tree growing to meet local market demand for wood. In the current government reforestation program, *wood products market prospect* has not yet been introduced. As such some prospective FLMA holders were reluctant to assume longer project involvement, for fear that they might lose in the end, if there will be no sure future wood market.

2. Assurance of future project prospects

This factor was not deliberately expressed by the project management. However, in some instances, it was used to condition contractor's motivation to perform well in their first contracted project. It is only relevant for contractors who aimed at *making a good track record* in order to gain more future project contracts. This factor has a short-range effect on contractor's motivation, and it tends to make him continually dependent on the government.

3. Promptness of DENR payment

Of the six management determinant factors of project success, this is the most critical factor because the sustainability of participants' project involvement in the present program set-up was premised on the direct cash incentive they expected to gain. Its relevance is directly linked with two other success conditions of great importance, namely: improvement of the *financial situation of the contractors* and *community cooperation.*

4. Recognition of usufruct or tenurial right

For successful reforestation to take place on squatted public lands, *recognition of the usufruct or tenurial right* of the local occupants is a strategic and wise approach. This also holds true for areas with overlapping tenurial

regime. Such factor is closely associated with 'recruitment of 'on-site' participants'. Also, its relevance is directly linked with the following success conditions: 1) contractor's practice of *intercropping*, 2) his aspiration for *assured access or property right* and 3) *community cooperation.*

5. Approval of other land use combinations

This factor proved to be relevant for contractors who signified beforehand their plans to further develop the project site in the future. However, this factor cannot be applied, unless it is backed up by another management interventions, i.e., 'recognition of usufruct or tenurial right' of contractors. Two success conditions are affected by this factor, namely: contractor's practice of *intercropping between seedlings* and his *interest in other related tree uses.*

6. Recruitment of 'on-site' contractors

This is another most relevant determinant factor because it is the main basis of *community cooperation.* In some cases it does not automatically result in strong community involvement in fire fighting. Rather, it plays a complementary role with other factors to bring about the desired result. These other factors are as follows: 1) promptness of DENR payment, 2) meantime payment of labourers' wages by contractors, 3) contractor's allowance of future communal resource use, 4) recognition of usufruct or tenurial right of local occupants. In other words, recruitment of 'on-site' contractors is not sufficient in itself, rather, it only provides the fundamental requirement for the other aforementioned positive determinant factors to build on.

8.9 Conclusion

In terms of relative significance, based on the current reforestation experience in general, the order of priority according to highest relevance is as follows:

With respect to the site's characteristics, we have: 1) clear status of property regime, 2) good arability, 3) proximity and accessibility, and 4) DENR prescribed the forestland use.

With respect to the contractor's characteristics, we have: 1) meantime payment of labourers' wages, 2) enterprising attitude, 3) above subsistence level, 4) with farmholding need, and 5) allowance of communal resource use.

With respect to the project management characteristics, we have: 1) promptness of DENR payment, 2) recruitment of 'on-site' participants, 3) recognition of usufruct/tenurial right, 4) approval of other land use combinations, 5) assurance of future project prospects, and 6) provision of market security.

With respect to the over all rating, the following determinant factors appeared to have the greatest bearing on project success (in the order of highest significance): 1) 'on-site' recruitment, 2) DENR prompt release of contract payments, 3) meantime payment of labourers' wage by the contractors, and 4) good site arability.

8.10 Relevance of Findings Compared with Literature Study

The field results of the study were reflected in relation to the literature review. The aim is to compare the success conditions and determinant factors of sustainable tree growing as identified in the present study with those listed earlier from the literature. Specifically, the objective is to find out whether they may or may not apply in a more general way.

8.10.1 Motivations for spontaneous tree growing at the farm level

There were three possible conditions or farmer's motivations for voluntary tree growing at the farm level that apply for all cases, both in the literature and in the present study, namely:

1. *meeting direct household tree needs*: Tree growing driven by immediate felt need for tree products tends to be spontaneous and sustainable even with none or limited external incentives.
2. *cash from wood products sale*: Earning an income from home grown trees provides continuous incentive for tree growers to maintain their established woodlots.
3. *security of land and tree tenure*: If farmers are more certain of the benefits from the trees they planted, they will likely invest in tree crops than if they are not certain. The degree of land and tree tenurial security is directly related to farmer's spontaneous interest in tree growing.

Another factor concerns *soil conservation.* This factor as mentioned in the literature as a tree growing motivation was not mentioned at all by farmers in the present study. However, in some government reforestation projects, a number of prospective FLMA holders hinted the need for trees as watershed protection.

8.10.2 Incentives for tree growing on public lands

Under the government-sponsored projects, there are four incentive systems proved to be consistently relevant in the literature for all cases. Two of these

incentives seemed to have the same effects in the current study. These incentives are:

1. *paid labour*: This incentive is powerful to stimulate instant and massive participation. However, by itself, it cannot sustain participation, especially after it is withdrawn. Worse, it may well become counterproductive if the participants directly depend so much on it for subsistence.
2. *market incentive*: The presence of a sure wood market encourages private tree growing. Its absence or remote creation (although perceived as crucial) will lessen the participants' motivation in public tree growing, even though if they were assured of benefiting from the project.

On the other hand, two other incentives for public tree growing have different effects comparing the literature with the present study:

1. *land tenure*: In the literature study, apart from the positive effect of secured land right on farmer's confidence in tree investments, some farmers grow trees to earn rights on lands under dispute. In the present study however, some participants in one problematic reforestation project (Maguirig Case) did not take advantage of the tenurial security through the FLMA. Instead, they deliberately abandoned the project prematurely because of the conflicting property regime of the site. In practice, the present tenurial arrangement (FLMA) which the government offers does not suffice completely the quest of most participants for property right security over the project.
2. *access to future produce*: In the literature study, assurance of access to future produce from public tree growing increased local people's participation in tree maintenance and protection. However, in the current study, some prospective FLMA holders who were assured of similar rights and benefits were reluctant to pursue the FLMA. They were constrained by the absence of a sure or ready market.

Five other incentive systems appeared to be relevant in the literature survey were not validated in the present study because in practice, they are not yet applied in the projects that were investigated. These incentives are: 1) cost-benefit sharing, 2) loans and credits, 3) subsidy, 4) crop insurance, and 5) tax exemption.

8.10.3 Newly identified success variables for sustainable tree growing on public lands

Interestingly, there were new conditions and motivating factors surfaced in the study. Some of these are not really new but a variation or an extension of other already known incentives. These factors are the following:

1. *Aspiration for good track record*: some successful contractors of the three-year contract reforestation project attributed their sustained participation in seedling maintenance and protection to their aspiration for a good track record. This goal stemmed from their desire to obtain more future project contracts. In the long-run however, this can supposed to be unsustainable, because participation depends greatly on the continuous availability of future projects.
2. *Contractor's initial financial situation*: although this condition has nothing to do directly with participation, it is important in the sense that it provides the economic basis for contractor's investment options in tree growing. Also, it makes participant's unaffected by the possible problem of irregular project payment from the implementing agency.
3. *Interest in other related tree use*: tree growing on public lands becomes sustainable if aside from the cash incentive for participation, contractors have other interests over the project. To accommodate contractor's other future development options for the project, a flexible reforestation plan may well be adopted, which includes the free selection of tree species, seedling spacing ad incentive system.
4. *Community cooperation*: this is one of the most critical factors that determines tree growing sustainability on public lands. Grassland fires are rampant in almost all reforestation areas. Without strong community cooperation in fire protection as well as in regulation of open grazing, the chance for long-term project survival is slim. In the literature study, this factor was not given much attention unlike the others. It was only implicitly regarded as an important element to abate grassland fires in the past regular reforestation projects (Section 3.3.3).

Finally, there are a number of determinant factors, the relevance of which are seldom mentioned in the literature survey, and yet, are critically important in setting the success conditions for government reforestation projects.

1. Under the *practice of intercropping*, the determinant factors are: 'site arability' and project management's 'recognition of contractor's usufruct or farming right in the project area';
2. Under the *aspiration for a good track record*, the determinant factors are: the 'provision of a future incentive' for good performance or the imposition of a sanction for problematic performance by the project management;
3. Under the *contractor's good financial situation*, the determinant factors are: project management's 'prompt and regular release of labourers' wages', 'practice of paying meantime labourers' wages' by contractors in

case of late payments from the project and the level of financial situation of the participant (either 'above or below the subsistence level'); and

4. Under the *interest in other related tree uses*, the determinant factors: the relevance of participant's enterprising attitude.

8.10.4 Relevance of the four theoretical bases of farmers' response to tree growing

The four theoretical bases of farmers' response to tree growing described in the literature survey were also examined with respect to their relevance in explaining the results of the present field study (see Section 3.1.3 for reference).

1. Risk-Averse Theory

Throughout the whole study, the Risk-Averse Theory became evidently displayed in the attitudes of most poor and non-performing contractors. Their erratic and conditional participation during the middle and later parts of their contracts stemmed from fear that they may not be able to receive what they laboured for as a result of DENR's delayed payments. The relevance of the theory applies especially in finding an explanation for the reluctance of some successful contractors to pursue the FLMA instrument.

2. Rational Peasant Theory

The application of this theory was more evident in the spontaneous tree growing activities than in government reforestation projects investigated. Some enterprising farmers voluntarily raised trees even without government incentives, but mainly driven by their direct needs or by an existing local market demand. On the other hand, some contractors in government projects were regarded as 'opportunity conscious'. Often, they made tree growing as a trade-off to gain or prolong farming access on public lands. Others viewed successful tree growing as a means to further legitimize their property rights over the project site. They took the risk of spending meantime personal resources for their labourers' wages during DENR irregular payments in order to ensure sustained project participation.

Behaving according to the Rational Peasant Theory however, does not preclude one's tendency to be risk-averse at the same time. This means that a reforestation contractor can be both a risk-taker and a risk-averse depending on the situation which he may choose to be either the former or the latter. A case in point is the behaviour of the rich contractors in Bugallon, Cavinti and Virac who took the risk of paying meantime their labourers' wages during DENR's delayed contract payments but disinterested to pursue FLMA because

of the many uncertainties and some related perceived legal difficulties associated with tree farming.

3. Moral Domains Theories

The two analogous theories by Goodin (1982) and Jack and Jack (1987) explained very well the dilemma confronting the the poor and subsistent contractors and labourers as far as their quality or long-term participation in the project is concerned. Their employment-driven motive which redounded to a superficial project involvement during DENR late payments coincided with the 'homo economicus' domain which the two theories regarded as one of the two modes that every investment decision be based on.

De Groot's (1992) concept of 'honoris' or quest for prestige as another motivation for a voluntary compliance besides the two others already identified earlier fits exactly the success strivings of some influential contractors, partly to maintain a good public image. However, the hidden agenda was to bait bigger contracts in the future for economic reason. Contrary to the claim of Goodin (1982) and Jack and Jack (1987) that there is only one possible basis for every decision made, this logic does not hold for the case of those contractors with dual motivations. In here, De Groot is right in claiming that things and situations may be treated in one or vaguely more modes rather than seeing each motivation as incompatible with the others.

4. Olson's Logic of Collective Action

Olson's Logic of Collective Action Theory only applies to a very limited degree in the present study. For one thing the kind of research problem investigated is not a very appropriate case for the theory. It fits more in an open access to resource situation wherein the focus of analysis centers on extraction or utilization activities which is often termed as the incentives or benefits from participation.

To explain further, in Contract Reforestation in the Philippines, the access to the incentives or benefits (monetary payments) are preconditioned by selective participation. Only those who contribute physical labour will get paid. Thus, the selection of participants is based on their physical capacity and sometimes political acceptability. Furthermore, the limited flow of incentive (payment) circumscribed the extent of public participation. In contrast to open logging, access to the incentive is not preconditioned by selective participation. There is no screening of resource takers and everybody gets what he wants according to his capacity. The flow of incentive may continue for as long as there is still something to extract.

Another reason for the limited applicability of the theory is the vague or absurd use of the term 'community contract' in reforestation. The term 'community contract' is a misnomer. Although there is supposed to be a col-

lective level of activities or participation ('de jure') in all aspects of the project, in practice, this is rarely taking place in the field ('de facto'). For example, people are enlisted as members comprising the community contract with 'de jure' rights to share equitably from the project's payments. However, later on, they will be treated as daily hired labourers once the contract will be awarded. The one who heads the group often takes the biggest share of the contract payment.

An exception to this prevailing misconception however, is observed in a number of successful projects where there is a voluntary community participation in fire fighting activities and observance of open grazing restriction.

In contrast to what Olson's presumed to be conditions for the rise of collective action, there was no state intervention nor pressure coming from outside that induced local people to voluntary participate in protecting the projects. His emphasis on the size of the selective benefits or cost (punishment) as means to discrimate between people who cooperate and who do not as condition for collective action also did not hold for a number of cases in the study. There were instances wherein the locals cooperate in protecting or willing to assume responsibility in maintaining the reforestation project in the future even without payment because they realized the watershed value of the project to the community.

In essence, Olson's Logic of collective action seems to apply strictly to an 'open access to resource' situation. Then, the state plays a crucial role in protecting the resource.

9

Implications for DENR Reforestation Policy

This chapter consists of three sections. The first covers the immediate translation of the research findings into prospective reforestation strategies and guidelines. The second one deals with the tree growing organizational aspect, highlighting the specific function of local actors according to their interests and resource capacities. The third section focuses on the procedural aspect of program planning and implementation.

9.1 Proposed Intervention Measures

Based on the integrated research results of the 13 tree growing projects, three major types of incentive were identified as crucial for the sustainability of the reforestation program in the Philippines. These incentives are: *financial*, *tenurial* and *social*. These three incentives can guide project management to the highest advantage of the program by proper matching of the management interventions with site and participants' given settings. The management characteristics as the main determinant steering factors of project success play a crucial role in building on the opportunities or mitigating the constraints generated by the given site and participants' settings. In discussing these three types of incentive, all issues and implications are directed towards improvement of project management.

9.1.1 Financial

The financial incentive pertains to the direct and immediate benefits gained from project participation in the form of paid labour. In most cases, it is the bottomline that draws people to the tree planting activity in the first stage of the program, particularly those who are mainly after employment. In the intermediary and later stages however, there are in principle other financial in-

centives aimed at overcoming tree growers' risks and constraints associated with the long gestation of tree crops. These include production loans, crop insurance, price guarantees, subsidies, and many more. The use of a financial incentive, as far as paid labour is concerned has varying effects with respect to participants' socioeconomic condition and on the way in which the instrument is being applied.

ISSUE NO. 1:
The type of financial instrument that should be designed and the context in which it functions best

When using paid labour as instrument for participation, it is important to consider its effect on the actor's motivation and behaviour. This caution applies in the case of daily-wage subsistent participants who are mainly after project's direct cash earnings. The following questions serve as pointers to evaluate the soundness of the instrument's design and application:

1. How can the project involvement of subsistent participants be sustained?
2. What project management strategy could ensure the quality participation of contractors aspiring for more future project contracts?
3. How can a continuous dependence on project's paid labour earnings be avoided? A corollary question is 'how can spontaneous tree growing be encouraged among farmers?'

Proposed Measures/Interventions

For the financial incentive to function effectively, three project management or government interventions gleaned from the study should deliberately be executed (Fig. 10). These interventions correspond to the three questions raised above.

1. Promptness and regularity of DENR contract payment

The regularity of DENR payment determines largely the quality and consistency of subsistent participants' project involvement. This particularly applies to 'hand-to-mouth' marginal farmers, for whom the delay of compensation is a harsh offense. The delay in payment all the more perpetuates social inequity between those who have already much and those who have little. Participants who depend directly on the project's income for subsistence will be forced to opt for other income sources with immediate earnings. On the other hand, participants who belong to the above subsistence level can endure late payment often in lumpsum at the end of the year or the whole contract period. If the marginal farmers are not regularly paid, they might deliberately abandon or burn down the project.

It is important to know precisely participants' degree of dependence on the project earnings and the implementing agency must look for ways to pay the marginal subsistent labourers on a regular basis.

2. Assurance of future project prospects

Since direct cash earnings can motivate both the rich and subsistent contractors, further incentives, from their current contract, should be provided as a reward for good performance.

The contractor's continuous striving for three-year reforestation contracts should be encouraged, though it runs counter to the long-term objective of FLMA. The project management should assure contractors of future additional contracts for good performance. Likewise, those who simultaneously cultivate the area for short-term cropping and benefit at the same time from the project's income should be assured of additional areas to contract.

3. The provision of a market

Although direct cash incentives from the project may provide impetus for people's participation, it can also become counter productive if it promotes dependency. One example is the deliberate burning down of forest plantations prompted by participants' desire for continuous employment in government-administered regular projects in the past. Likewise, contractors who simultaneously farm the area may not be motivated to maintain the growing trees in the long-run but always would find reasons to clear the site for subsistent cropping.

The most stimulating incentive in the long-run is the effective demand of wood. With sure access and a sufficiently high price, participants may be encouraged to pursue longer tree growing activities both on private and public lands.

Under FLMA, a benefit-sharing arrangement between the government and the contractor is provided for but not a sure market. Contract growing could be a good strategy to boost tree growers' confidence in the absence of a ready market. Also, the improvement or provision of a transport system, road networks and other infrastructures leading to the market should be addressed by the government.

Also a market for secondary or minor forest products like fuelwood, charcoal, animal fodder from multipurpose tree species, medicinal items and other tree related goods, would encourage tree growing at the farm level. Agroforestry can become an attractive farming system, aimed at both meeting household's cash needs and providing incentives for continually maintaining the trees up to maturity. In addition, it would relieve the participant from continually being dependent on paid labour which the project will not be able to assure in the long-run.

9.1.2 Tenurial

The tenurial incentive deals with the aspiration for property rights rather than with immediate monetary benefits from participation. A longer project involvement could also be expected because the participants have a stake in other present or future development prospects in the site. In most instances, tenurial incentive can surmount disputes of claim in areas with problems of access or ownership right at the beginning.

Lessons gained from spontaneous projects underscored the critical importance of tenurial security for voluntary tree growing activities by individual farmers. In the case of the present government reforestation program, the FLMA as a 25-year forestland lease agreement was supposed to address the tenurial insecurity of tree growers in public lands. However, the responses appeared to be very different in this respect. Some contractors were still reluctant to pursue a longer project involvement beyond the three-year contract period. On the other hand, there were some who already asserted a sense of ownership over the project area even prior to the introduction of the instrument. In addition, some farmers were willing to grow trees in an abandoned reforestation areas as a pretext for usufruct, even without any formal tenurial agreement.

ISSUE NO. 2:
The type of tenurial instrument appropriate for each specific site context

Normally, the marginal, degraded and often remote or inaccessible areas are targeted for reforestation because of the fragile condition besides the high certainty that these portions are less inhabited by people who may impinge on the smooth implementation of the project. However, the high cost of maintenance under these conditions usually will lessen the chance of seedling survival. The objective of the program to mobilize more local people could hardly be attained if reforestation is done beyond participants' easy reach. Given these predetermined site preferences, the following questions can be drawn:

1. What type of tenurial instrument is best fitted for stimulating tree growing on open arable public lands?
2. What type of tenurial instrument is best fitted for stimulating tree growing on arable abandoned reforestation areas?
3. Can forestland be privatized for exclusive tree growing purpose?
4. What is the most appropriate setting or condition for the subsequent implementation of the FLMA instrument?

Proposed Measures/Interventions

Two management interventions are relevant in addressing these four questions: 'the recognition of usufruct or tenurial right (with respect to the first three questions) and approval of other land use combinations' (for the last question).

1. Recognition of usufruct or tenurial rights of local people

This can be applied under the following conditions:

a. Granting of usufruct on arable open public lands

On open public lands already occupied by migrant farmers prior to contract reforestation, 'on-site' or 'in-place' recruitment should be adopted. This means that there should be no spatial displacement or alteration of farmers' initial position and farm holding size in the project site.

Reforestating these types of land closely resembles the tree growing objectives of ISFP. However, despite the 25-year Certificate of Stewardship Contract awarded to ISFP participants, this had hardly triggered them to voluntarily grow trees on their 5 to 7 hectares farmlot. The farmers still felt insecured over their tenure of occupation in area since they regarded the stewardship instrument as having a limited term. Also, it is not bankable since it is subject to cancellation any time by administrative action (MPFD, 1990).

To resolve this problem of tenurial insecurity in ISFP farms, the following policy innovations are suggested for spontaneous tree growing to take place:

First: The tenurial status of the farm area could still start from stewardship agreement; then can be progressively elevated to a more secured tenure as the participant develops the site with tree crops. This conforms with the Master Plan of Forestry Development of the Philippines (MPDF) proposal to resort to privatization as an incentive for the development of sustainable land use systems in ISFP farms.

Second: The government should create a wood market and other incentives (such as contracted sale), to make farm-based tree growing a viable subsidiary means of livelihood for tree farmers. Once they recognize the importance of the wood products both for direct household and cash needs, the participants will start desiring to take bigger areas for tree farms.

Third: The government should allow enterprising farmers to extend their activity over adjacent areas alongside with the provision of more incentives in kind, like fencing materials, farm animals, production inputs and technical support. This is in recognition of their creativity and good performance in tree growing or adopting soil conservation measures in their initial farmlots.

In other words, reforestation should start with the ISFP farms because in practice, the participants are 'on-site'. Subsequently, it will spread towards the less developed and inaccessible areas as the farmers find some institutional incentives for planting trees. By first securing their basic food needs through increased farm production and subsequently by turning tree growing as a legal requirement to attain a stronger land tenure, participants would be encouraged to move farther afield. In contrast to the current thrust of ISFP, tree growing is merely used as a condition to maintain the stewardship right. Psychologically threatened by eventual cancellation of their stewardship contract, farmers cannot do as much as what they wanted in a piece of land they were asked to manage. In principle, a superficial tenurial instrument (stewardship contract) may only tend to stifle farmers' initiative to grow trees. To reverse this effect, tree growing should be used as a means for farmers to gain stronger tenurial security over the land.

b. Granting usufruct or farming rights on arable abandoned reforestation sites

'On-site' farmers who are interested to turn abandoned but arable reforestation sites into croplands should be granted usufruct or a farming permit, on the condition that they will also interplant forest tree species with the short-term crops.

Contrary to the proposed DENR policy measure of lumping together all the tree growing tenurial instruments (such as the ISFP Certificate of Stewardship Contract, FLMA, Community Forestry Management Agreement, IFMA), various tenurial arrangements should rather be continued and strengthened. Different tenurial instruments could give more options for farmers to participate according to their land use preferences as defined by their resource capacities or interest and the site quality. The resulting tenurial status of the land should be adjusted to participants' intended land use. If the type of land tenure can sufficiently secure private individuals' interest, tree growing as one land use practice could become a spontaneous activity. However, tree growing as a disguise motive for farming the area with short-term crops could become superficial in the long-run. There is a probability that farmers will deliberately destroy the growing trees in favour of short-term cropping when interplanting will no longer be feasible because of the increasing height of the trees. To ensure that farmers will take care of the seedlings towards tree maturity, additional incentives for continuous seedling protection and maintenance should be given. Here, agroforestry technology and wood products market prospects are relevant intermediary incentives towards the promotion of farm forestry. More importantly, farmers should also be provided with security of tree tenure.

c. Releasing portions of forestland for private titling

Privatization of forestland (i.e., degraded or understock) should be explored with the condition that land use will be restricted to production forestry. If this is feasible, only individuals or groups who are capable and ready to venture should be granted forestland rights.

This scheme seems to discriminate the poor and may be viewed as similar to the old forestry practice of favouring the elite in the society. However, the distinction between those with and without financial capital stratifies the stakeholders according to their interest in tree growing. Those with capital will serve as the financiers and at the same time as stockholders of the project. The poor and subsistent participants, who are more after direct cash income from participation, may then comprise the labour force. A benefit-sharing arrangement of the future timber produce should include both financiers and labourers to ensure the latter's quality and sustained participation. The Forestry Department has to provide the necessary policy instruments to bring about a mutually beneficial partnership between the wealthy and rural sector of the society. With this modality, private funds can be expected to be infused into tree growing programs. In other words, the actor's financial needs and resources are matched with his appropriate role in the project. Failure to identify who has interest in what, how and when in government tree growing projects will continue to siphon off government funds. This type of benefit-sharing arrangement will be further elaborated in the succeeding second part of this chapter.

2. Approval of other future forestland use combinations

A flexible reforestation plan is needed if the varied land use options are to be utilized (such as agrosilvicultural, silvopastoral and multiple use forestry systems), as envisioned by most successful contractors seeking FLMA. The previous DENR predetermined reforestation plan tended to limit contractors future land use options under FLMA. A flexible plan means giving the contractors the prerogative to choose freely the tree species they want to plant, including spacing, silvicultural management and intended use of the tree produce.

A reforestation plan should be designed around participants' preferred land use in relation to tree growing. Contractors must be given the choice to determine the land use combination under FLMA, except if it is contrary to the higher societal value of forestry (e.g., for watershed or protected area). In contrast, if their preference is not integrated into the overall reforestation plan, it will be difficult to sustain their interest in the project. Another option is to award the FLMA right at the start for those who are determined to pursue property rights. Here, there is no need for an incentive in the form of paid labour to stimulate participants to grow trees.

For those who are intending to pursue a tree-based land use (such as agrosilvicultural, silvopastoral, agrosilvopastoral, and other agroforestry systems) in the future, the following incentives are appropriate: 1) provision of technical assistance, 2) promotion of agroforestry technology, 3) distribution of fencing materials, 4) introduction of a cattle dispersal program, 5) provision of improved strains of forage, 5) allowance for a broader choice of tree species with flexible seedling spacing, and 6) creation of a market outlet.

9.1.3 Social

The social incentive has never been thought of in the past because of the overemphasis on employment generation. Based on the results of this study, however, 'community cooperation' appeared to be one of the most crucial success conditions for the long-term survival of tree growing projects on public lands.

Previous studies attest to the fact that community cooperation in fire fighting is a fundamental condition for the project's long-term survival (ANGOC, 1991; Baldwin, 1992; UNAC, 1992).

ISSUE NO. 3:
The search of a social incentive that could sustain community cooperation

Considering the strategic importance of community cooperation, one indispensable condition that demands special attention in program designing is how to make or revive collective voluntarism as a community norm. The policy question would be 'what type of social incentive can stimulate community cooperation in reforestation projects on public lands?'

Proposed Measures/Interventions

There are four management imperatives that can address this question. The first one comes from the result of the present field study. The three other interventions were gleaned from the literature review, and are validated by the experiences of the successful development projects of the present study.

1. Recruitment of 'on-site' participants
This intervention satisfies the most basic requirement for community cooperation. It is crucial because it is the premise of other government initiatives towards local institution building (e.g., community organizing, leadership training, consensus building).

2. Local Management System

The local reforestation management function of the DENR should be completely transferred to the Local Government Units. However, this should be done gradually, until the necessary infrastructure for a sustainable self-management is installed at the community level. The Forestry Department should provide the needed technical assistance and other logistic supports to enable and strengthen Municipal and village officials in effectively implementing the program.

This modality, however, has also some limitations. There is the possibility of spoiling the project when ambitious local government officials try to use it as a political tool for gaining influence in the community. Bad experience with many community contract reforestation projects headed by politicians and local government officials exemplified this danger. In most cases, the common cause of project failure under this type of community contract stemmed from non-payment or unfair compensation of local people. Also, the limited technical skills of local groups in forestry could add to this danger.

Therefore, there should be some conditions set for transferring management responsibilities to the local unit. Among the important elements that should be present in a local group for project self- management are:

a. a strong internal control that emanates from a broad basis of the group's decision instead of just coming from one or a few individuals;
b. a strong check and balance mechanism to restrain abuses in the exercise of authority among local officials;
c. leadership by rotation under certain tenure and strict qualification, and which is chosen by a vote of confidence from the whole community;
d. a team management set-up rather than a one-man management system;
e. strong communal spirit which views the project as a community property;
f. technical training in managerial, social and silvicultural skills;
g. strong commitment to social equity and environmental cause.

Furthermore, the community should be accountable to the Forestry Department for the implementation of the project so that the tasks can be withdrawn from the local management if the desired performance is not met. In other words, there should be a mechanism to avoid haphazard project performance after relinquishing management responsibility to the Local Government Unit.

Another viable modality for local management is a 'resource user's group' (Cernea, 1992). Examples of this type of management group are: firewood gatherers, charcoal makers, furniture makers, carabao loggers, pasture owners, wood traders, business groups, cause-oriented local groups, civic organizations, and many more.

Such groups have a more or less homogeneous membership and they are organized on the basis of a common resource interest or development aspir-

ation. In a community organization, it is sometimes difficult to define who are the real beneficiaries of the project. Varied interest groups vie for control over the resource. Also, the benefit sharing arrangements are often skewed to the advantage of the influential members of the group. With a 'resource users' group', these problems can be addressed. However, these groups should still be directly accountable to the Local Government Unit. In other words, project management would just be delegated to them because of certain capabilities that they have. In principle they are entrusted to manage the project not for themselves but for the greater interest of the entire community. The development NGOs could serve as a catalyst in preparing the resource users' groups for self-management, particularly in the aspect of institution building.

In practice, a well-organized group has the capacity of functioning collectively for a common good. It is important that members have a common institutional base (consisting of shared norms, values, aspirations and behaviour) which is the main basis for social unity and the spirit of voluntarism (Fisher, 1992).

3. Benefit Sharing from the Project's Future Produce

Under the FLMA, 30 percent of the project's future revenue will go back to the government to cover the cost of seedling establishment for the first three years. To attract local people in protecting the project in long-term, a certain part of this 30 percent income (i.e., 5 to 15 percent) should be used as a 'seed money' to create other livelihood projects in the community. It could also serve as a community fund for loans at a low interest to abate local people's direct dependence on the 'middlemen'. Other uses may include the improvement of community roads, water system, construction of public buildings, social halls, schools and related infrastructure as decided upon by the community.

4. Allowing Communal Resource Use in the Future

Once the trees reached a certain stage of maturity, controlled grazing and collection of firewood by the local people should be allowed. Experience in many countries, including the Philippines, showed that local people hardly cooperated in government tree growing projects in communal areas because the conversion of a one-time communal grazing area or firewood gathering site into a reforestation project was usually viewed as a disadvantageous endeavour. For this reason, reforestation projects should as far as possible also satisfy the direct tree or grazing needs of the local people to win their cooperation. However, this kind of project arrangement should always be linked with the aforementioned interventions (e.g., localized management system) to avoid the 'tragedy of the commons' (Hardin, 1968).

Unless a reforestation project on public land is regarded as a *common property* by the local people and is being managed or controlled under shared values or aspirations (*communal institution*), community cooperation cannot be sustained apart from government's direct monetary incentives.

9.2 Organizational Aspect

Up to now we have distinguished three types of incentive that appeared to be crucial for project success, namely: financial, tenurial and social. But there is still another dimension that has only been considered in a descriptive way and not in terms of success condition (i.e., the type of project contract or in a broader sense, the *organizational aspects*).

In this section, the formal role of the different tree growing actors is highlighted with the appropriate blending of needs and interests as defined by their financial capacities. In addition, this dimension is related to institutional incentives aimed at strengthening local and private groups' formal role in tree growing projects.

There are three types of formal organization of tree growing engaged in reforestation activities in the Philippines: *farm-based*, *community-based* and *industry-based* (Table 69). The first two types of organization corresponded to the two current classifications of reforestation contracts that were studied namely: family contract and community contract. Although the third one was not studied, equal importance will be given to it because of its high prospect of making private and rural sectors become partners in tree growing.

Each tree growing organization is briefly described, highlighting the different actors' roles and resource interest in the project.

9.2.1 Farm-based tree growing

The farm-based tree growing scheme is appropriate on squatted arable public lands or abandoned reforestation sites concurrently under cultivation by migrant farmers. It can also apply to existing ISFP areas. In ISFP, the government requires at least 30 percent of the total farm area size to be planted with tree crops. Short-term cropping is the predominant concern of the farmers on these types of land. As such, security of land and tree tenure are the most crucial conditions for sustainable tree growing activities. Agroforestry should also be introduced so that the farmer could strive at a combination of tree and short-term subsistent croppings. A wood market must be accessible or if not in existence yet, it must be provided later on to sustain farmers' interest in tree growing entrepreneurship. One good market assurance would be in the form of contract growing arrangement with either

the government or private wood enterprise. Furthermore, continuous farmers' training on entrepreneurship should be conducted to equip them with managerial skills. This farm-based forestry can be regarded as the most strategic reforestation approach in the degraded, marginal remote areas; it concentrates first on the arable existing or potential upland farms where the local farmers are.

Table 69.
Proposed modalities of tree growing on public lands in the Philippines, featuring local actors' main project interest

Modality	Actors	Role	Objective	Distinctive	Incentive
Farm-based	- upland farmers - entrepreneurs - DENR	- tree growers - provide market - provides policy	- to gain security of rights on public lands for farming	- farmer's role is prominent	- land & tree tenure - agroforestry skill - market incentives
Community-based	- community /LGU resource user's group - NGO's - DENR	- provides labour and management - institution building - provides policy and capital	- to gain income - communal tree resource use	- local people's role is active	- paid labour - access to future produce - training - benefit-sharing
Industry-based	- private sector - subsistent labourers - DENR	- provides capital and management - provides labour - provides policy and technical assistance	- profit making and employment generation	- private sector's role is prominent	- paid labour - production loan - crop insurance - benefit-sharing - tax exemptions - market incentives - training

9.2.2 Community-based tree growing

The community-based tree growing scheme is best applied in communal sites and public lands considered as critical watershed areas. To harness the cooperation of the community, both direct cash incentive and benefit-sharing in the future produce of the project are the crucial conditions for sustained local participation. Such a benefit-sharing arrangement can generate cash revenue that can be used as a communal fund. Future access to tree

resource use should also be included as one benefit for the community. Here, the role of NGOs in local institution building is important to install the needed infrastructure for a community-based resource management system. The private sector should be given institutional incentives so that it can be encouraged to invest in the wood market. A sure market would add an incentive for community's sustained interest in tree growing. Also, the government should provide the necessary tenurial instruments as well as other policy measures in support for the local management system. In return, the Local Government Unit (LGU) or the resource user's group should be accountable to the Forestry Department. This community-based forestry, if it operates under a strong local institution, can best mobilize the general public in tree growing at the least cost.

9.2.3 Industry-based tree growing

The industry-based scheme can best address subsistent participants' needs for sustained employment from tree growing projects. Since this concerns a purely profit making and market-oriented investment, private capital will be infused in the project and the local people can provide the long-term labour requirements. The role of financial incentives is critical because it is the bottomline that draws the interest of both the private sector and the local people to the project. For the private sector, the wood market is a strong drive for participation, along with the provision of production loans, crop insurance, tax exemptions, price security, subsidies and other types of financial incentives. On the other hand, continuously paid labour and a benefit-sharing arrangement are essentially needed to sustain subsistent participants' project involvement. The Forestry Department should provide adequate policies and more incentives that could attract many capitalists and entrepreneurs to the program. In addition, the government could provide loans and other credit assistance to interested private groups with low interest. At the local participants' level, continuous training should be carried out to equip them with the necessary technical skills. In principle, this is a very attractive tree growing scheme from the government's standpoint, because it can direct the public funds in a very cost-effective way, enabling both reforestation and employment generation.

9.3 Procedural Aspects of Program Planning and Implementation

After dealing extensively with the incentives and organizational issues of reforestation, there is still another dimension that is of real importance: the *procedural aspects of program planning and implementation*. Although it is not distinctly exclusive from the policy issues directed to affect project management interventions, in this section, the dynamics of program planning and implementation are dealt with apart from its policy content. There are three procedural aspects to be examined here: 1) planning process, 2) implementation scheme, and 3) learning process.

9.3.1 Planning process

The reforestation program planning was characterized as highly prescriptive and 'top-down' with predictive outcomes. The field operational guidelines were all drafted by a special planning team at the DENR Central Office. These guidelines and directives were derived from professional expert's views and there was seldom any participation from the local people who are directly affected or involved in the activity. There were many written memoranda and administrative orders, emanating from the top. Most project participants had hardly understood the technical parlance of these guidelines. Often, plans were based on the available budget for the period rather than on participants' development options.

Since the upland farmers, community people and other locally-based participants are envisioned to be more or less permanently and directly involved in the project, their inputs and options should be incorporated in the plan. Thus, planning should be a two-way process based on government's objectives and participant's development preferences. Otherwise, if planning is purely the government's prerogative, project participation is often misconstrued by the local people as a condition for obtaining a direct project incentive. The withdrawal of such an incentive later on will then badly affect participation if there are no other motivations for project involvement. However, if the farmers are involved in planning themselves, their participation becomes meaningful. Their development options in this case are well attended to in the project. Also, if the community is involved, participation would become a social responsibility and not only an economic opportunity.

In concept, this prospect seems easy to operationalize. But in practice, this is a core issue which cannot be solved in a simple prescribed way. The DENR should adopt a creative way to decentralize the planning process thereby preferably a stepwise approach:

1. at the highest level, the DENR should start a dialogue with Local Government Officials in the province or town level,
2. at the local level, the project managers or DENR field officers should confer with the contractors, and;
3. at the actual field level, the contractors should speak to the labourers and even to the non-local participants in the community.

9.3.2 Implementation scheme

The program was characterized as structured and target driven. Pressured by the bank requirements to produce a substantial outcome as condition for the release of the second instalment of the loan, the DENR set unrealistic objectives beyond its institutional capacity. However, the unanticipated delays of funding in the end put the program in total disarray. Schedules were not followed, which resulted in a sharp budget cuts in the succeeding years. Since most participants were conditioned by cash payment, the delays in their wages adversely affected their participation.

The problem of late payment could have been mitigated if the program had a contingency fund or had anticipated such eventuality. In addition, considering the big bulk of work, the DENR should have coordinated with other line agencies like the Department of Agriculture, the Department of Public Works and Highways, the National Irrigation Program, the Department of Education and Culture, the Department of National Defense, and more. This inter-agency collaboration could have even pushed environmental protection as an important thrust also for the other departments. In addition, this scheme could have saved the DENR from 'over-burdening', resulting in inefficient personnel resource utilization and low program output.

9.3.3 Learning process

The program was carried out on a massive scale without participants' adequate technical and social preparations. The concern about meeting the targeted field accomplishments in a given period brought about haphazard tree planting. Everything was done according to the scheduled plan of activities, regardless of the quality of the work. The main emphasis centred on the number of hectares or seedlings planted.

The program should not have suffered so much disaster if contract reforestation started in a pilot scale, and gradually expanded nationwide as it gained experience by trial and error. Moreover, there should be more emphasis on the dynamics of community involvement rather than just the target physical accomplishments (Sajise, 1993).

10

Overview and Reflections

10.1 Background and Objectives of the Study

Originally, the study's major objective was to evaluate the performance of paid labour as a financial incentive for stimulating peoples' participation in the Contract Reforestation and the Integrated Social Forestry Program in the Philippines. It attempted to find an empirical explanation of why most participants performed differently from what was envisaged in these programs. In the case of contract reforestation, the deliberate burning and the premature abandonment of the project by participants in times of delayed payment from the DENR constituted the main problem. On the other hand, most ISFP participants were only motivated to build terraces and hedgerows in their hilly farms when payment was offered for the construction of the soil conservation structures. When payment ceased the adoption of terracing also stopped.

For the contract reforestation program, there were two specific research objectives. In the first year of data gathering, the aim was to evaluate the effect of paid labour on participants' level of project involvement. In the second year, the effect of shifting from paid labour to the FLMA instrument on participants' sustained involvement in the project was supposed to be the focus of the analysis.

For ISFP, the aim in the first year was also to investigate the effect of payment on participants' motivation for the construction of terraces in their farmlots. In the second year, the effect of withdrawal of payment was supposedly the focus of the analysis.

After the first year of exploratory study however, it was found out that the implementation of FLMA was held in abeyance. The DENR was still in the process of reviewing the implementation guidelines for the instrument. Also, it was found out that the coming of a bigger program (i.e., Community Forestry) would soon subsume ISFP and eventually could affect the implementation strategy. With these unforeseen developments, it was not feasible any more to carry out the transition to FLMA in the second year and impractical to further study ISFP.

This led to a major re-orientation of the focus and structure of the study in the second year with the following changes and aims:

1. The study discarded ISFP and focused fully on contract reforestation projects.
2. Instead of analyzing the effect of the transition to FLMA, the various success conditions to contractor's sustained participation in seedling protection and maintenance were identified and characterized. The new aim was to determine in more detail the contractor's bottomline motivations for sustained project participation.
3. Instead of analyzing the effect of the transition to FLMA, an extended similar investigation was carried out in five selected successful projects about to be turned over for FLMA, in other regions in the country. The aim was to validate the relevance of the success conditions and their background factors, as these were identified in the earlier case studies. Furthermore, it aimed at identifying new background factors or variables to success conditions.
4. In addition, the research was carried out in spontaneous tree growing activities by individual farmers. The aim was to validate whether the same success conditions and the corresponding determinant factors would hold for the spontaneous tree growing activities as for the government projects.
5. The ultimate and implicit objective of the study was to identify the various background factors to sustainable contractor's participation in reforestation projects and to link these to possible project management interventions.

These deviations from the intended initial objectives to the progressively developed final objectives revealed the following lessons on how to set research objectives of policy evaluation studies, involving time series observations:

1. There is a need to consult the concerned agency at which the research investigation is directed to. This is to be kept abreast of the prevailing policy directions which will affect the later field findings. Failure to do so will limit the chance of addressing the right issues and problems in the right time, thus will render the findings outdated. In idiomatic expression it is like 'hitting a dead horse by a powerful weapon'.
2. The rapid shift and generation of new Forestry Policies in the Philippines require relatively fast problem-oriented studies with direct results. Long-term studies may not be useful in the end when the findings generated are no longer relevant to the current needs of the time.
3. The project objectives are difficult to handle because of the many varying intervening and disguising background factors affecting the variables un-

der investigation. Hence, it is not advisable to have a predetermined fixed set of variables to be studied throughout the course of the study. This implies that adjusting the research scope and focus should not be viewed as a result of poor planning preparation. Instead, it should be regarded as a characteristic of a dynamic research process aiming at a maximum relevance.

4. It is important that preliminary findings are directly compared with other studies of similar or related research objectives. This is to maximize the utility of the findings in progress where there is a synergistic effect. First, it can enrich existing information gathered. Secondly, it can help to check the consistency or variance of one's own independent findings. Lastly, it can serve as a helpful signal whether or not the research is still progressing in the right direction.

10.2 Field Inquiry Approach

One distinctive feature of this research work as compared to other past studies conducted on the same subject is its clear departure from the usual way of doing field work in a fully predetermined and structured way.

Instead, Vayda's Progressive Contextualization Approach (PCA) in combination with De Groot's (1992) Problem-in-Context (PIC) paradigm were used as the main field inquiry techniques.

This section describes how the whole process of data formation was carried out using PCA and PIC. To highlight the lessons learned, Vayda's fundamental principles served as the bases in evaluating the usefulness of such field methodologies in this study.

PRINCIPLE 1

Avoid 'priori assumptions'; all human activities should be viewed as rational in their own context

This principle was not evidently applied at first because of the structured planning and assumptions were made at the beginning of the field work. As many disguised variables emerged as the research work progressed, the study resorted to an exploratory analysis, followed by an in-depth investigation building on the preliminary findings.

Since the exploratory stage is just a set of preliminary observations, the type of data need not necessarily be quantitative but can rather be qualitative. Also, in this step, there should be no fix list of research questions. Instead, there should be a very general focus to define the range of interesting issues to be probed in the succeeding set of investigation.

The in-depth investigation on the other hand should have research questions that are much more precise, structured and appropriate, i.e., direct to the core issues under study. The aim is to probe the validity of the earlier findings and to determine the context of actor's project behaviour. Here the various background factors determining actor's bottomline of participation are to be identified and examined. Since this aims to a real background analysis and a validation exercise, the data needed should be quantitative. However, this was not sufficiently acknowledged at the beginning of the study.

For this reason, field plans should be flexible or dynamic and must be guided by the context of the subject under study. However, there should be a clear research structure to follow right from the start which may possibly change as the field inquiry progresses with new realities which later may require some adjustments in the research plan.

PRINCIPLE 2
Set no fixed system boundary and pursue the 'element of surprise'

This principle led to the discovery of equally interesting aspects of the study that were not initially conceived in the research plan. The first one is the widening of the scope of relevant factors influencing actor's behaviour. In the beginning of the study, the influence of the contract payment was seen in isolation. In fact, there had been too much bias on the negative effect of 'paid labour', as a result of the DENR's late releases of project fund. As the study progressed however, many factors appeared to have effects on the performance of the financial instrument for participation. More interestingly, the financial incentive was sometimes even overshadowed by the other conditions to sustained project participation. This led to the broadening of the scope of the analysis from just one incentive (i.e., paid labour) to other success conditions for sustained participation, and a re-evaluation of the potentials of the paid labour as it has also positive results if applied under proper conditions.

Another example was the extension of the field investigation to the spontaneous tree growing activities. The idea of studying the spontaneous projects was first entertained when one non-participant of the Villa Meimban reforestation project happened to mention successful tree growing activities of his uncle outside the government-sponsored program in an abandoned reforestation site in a nearby village. The principle of 'pursuing the element of surprise' became the instigating drive to visit the site on the following day. This aspect of including the spontaneous projects in the analysis was further reinforced by De Groot's 'look for and enhance contrast' principle. While the problematic government reforestation projects were being investigated, at the very same location there appeared a number of successful tree growing activities at farm level. Such contrasting features evident in spontaneous tree grow-

ing activities became later on the focus of analysis in the study of the difference between government-initiated and voluntary tree farm projects.

PRINCIPLE 3

Start with the 'problematic or unusual' activity as a unit of analysis and then shift from one unit to another as the context of the problem under investigation progresses.

At first, the study made use of *paid labour* as the main focus of analysis. In fact, this was because of the preconceived bias about the bad effect of this *financial incentive* on local people's level of participation in the past.

The effects of late payments had been amplified by almost all contract reforestation projects in the country. However, studying the consequence of late payment, or in general the effect of cash incentive on actor's participation seemed to contribute less to the already existing information. What was more interesting, was the good number of projects which were affected by the same cash problem but were still performing well.

This led to a shift in the unit of analysis, i.e., from the financial instrument to the problematic or desirable activity. With this, other factors of sustained participation came also within the scope of the study in a much more balanced way and not only as just conditions affecting the performance of the financial instrument. In addition, it opened the perspective of different management tools and interventions, apart from the financial aspect for promoting participation.

In De Groot's Problem-in-Context Analysis, the participant's destructive behaviour (i.e., deliberate setting fire on the planted seedlings) was treated as the resultant of a chain of multiple actors' motivations and options. By further examining their links, this located the most critical factors determining the resulting actor's behaviour. For instance, at an instant thought, one can easily condemn the participant allegedly involved in deliberate burning down of the project by not examining where this problematic action started. Using De Groot's 'Actor's Field' schema however, one can easily recognize that the participant is just at the end of a multiple actor's chain. In other words, the problem of plantation burning is a network of many actors with roles or functions not harmonized towards the attainment of the desired project outcome. The contractor was not able to pay his labourers on time because the DENR had not fully received yet the budget appropriation for the project. The DENR blamed the Department of Budget (DBM) for having not programmed the release of funds and the DBM blamed the bank for their rigid conditions; and so on.

With this analysis, it provided an empirical explanation of why some participants behave problematically the way they do. However, what this method

could only explain was the cause of the problematic action. There is the danger that with heavy focus on the problematic action, one may well fail to see other interesting or contrasting aspects of the whole problem. For instance, there were a number of participants who experienced the same problem of late payments and yet performed very well in the project. In this particular case, the practice of simultaneous intercropping in the project area or presence of a financial status above subsistence level attributed this factor of success. Here, the issue of late payment was still there, but it did not develop into problematic behaviour. By now treating late payment as no longer relevant or not directly connected with the actor's alternative behaviour (meaning consistent project participation), it loses its fixed problematic nature. This eventually led to a further study of the inverse side of the problem. Identifying the variables to successful seedling establishment amidst project's cash flow problems became a more interesting focus of the study.

In general, it can be said that the Problem-in-Context approach has its highest strength in dealing with problematic situations having a direct relationship with actor's behaviour or option. In the study, the late payment (problematic situation) triggered actor's option (burning down of the project). However, in instances wherein the problematic situation has no direct relation to the resulting actor's behaviour or option, the Problem-in-Context approach is limited in its analytical attributes. Thus, the Progressive Contextualization is regarded as encompassing with general applicability, while the Problem-in-Context is specific to problem-oriented analysis.

In summary, both techniques appeared to be very appropriate for the study. The difficulty of dealing with actor's varied perceptions, motivations and options indeed required flexible analytical tools that are easy to operate. One thing more, the advantage of being guided by the 'element of surprise' and setting no fixed system boundary, paved the way for discovering equally important things not initially conceived in the study. Furthermore, starting the analysis with the actor's activity could direct the research inquiry to the core issues of the problem, thus evading the trap of examining the entire elements of the system. In other words, quantitative analysis has its specific place in the study but does not yield the sole determinant of a good research. There are instances in which statistical analysis does not apply and only through systematic and analytical reasoning on the explanation of a certain phenomenon can be achieved.

10.3 Research Structure

Perhaps one of the possible methodological traps of using Progressive Contextualization is the risk that the constant changing context of the problem

becomes a pretext to continuously change the research framework or not to make one at all. In practice, there should still be a clearly defined conceptual framework from the very start. However, it should not be rigidly fixed so that it can constantly be modified as the need arises.

What happened in this study was that, after bringing together all the data gathered from the 13 case studies under one conceptual working framework, a generalized result could be drawn out. This general tree growing model could have been stepwise developed, if there would have been no operational framework for the analysis to help in: 1) formulating the research questions, 2) structuring the data, 3) setting a working hypotheses in each stage of the research, 4) validating the previous findings in the earlier case analyses, and; 5) guiding the further field research. In practice, having a single working framework is necessary to bring all cases under one pattern of analysis so that their peculiarities and similarities can be identified and accounted for. Only then the basis can be provided for determining the dominant factors to project success which are common to all cases as well as those that are not so very conspicuous but are critically relevant in specific instances.

10.4 The Actual Field Work and the Making of a Dissertation

The past two years spent for data gathering in the study did not only serve as a learning experience but also a discovery of the struggle in staying too long in the research site. While participant observation is indeed a very effective way of getting through the respondents' world, a very long stay in the field may not necessarily result in a better data than a shorter stay. It was a big advantage to speak four different local dialects which are spoken in the study sites. Thus, the duration of the stays in the study sites was restricted. What hastened the pace in data gathering, besides knowing the local dialect, was the researcher's easy grasp of the respondents' 'soft spots' in their life, which provided a helpful hint on how to stimulate openness without necessarily antagonizing them. As a guide for rapid participant observation, it helps to first pay attention to the respondents' value system, because this will embody the most sensitive elements of their culture. Their value system resembles a map that can help one locate the entry point for a casual interview and that at the same time can direct one to the points where the actor is most vulnerable to comply with or resist to a certain external stimulus.

In line with this, it was noticeable that among participants below subsistence level, the economic survival is the main driving force for compliance. Anything that does not have something to do with this factor has no or little effect in moving the people to act. In contrast for cash surplus contractors, the

driving force for project compliance often is either profit making or the quest for property rights or maintaining a good public image.

In principle, one can save time in doing participant observation if one can speak the dialect. Also, starting with a focus on the sensitive psychological and cultural elements of the respondent's patterns of life style rather than on his activities will help one strategize effectively the interview approach.

On the aspect of dissertation writing, I was very excited writing many ideas and even thought of having found real solutions to the problem I am investigating. After performing the analysis and structuring the findings, the writing down of the policy implications and recommendations was a relatively easy task. But from the viewpoint of the end-users, implementing the findings will not be that easy at all.

Year after year many dissertations with promising results come out. If the student is fortunate enough to gain a promotion for a higher degree for a good scholarly work, this will eventually add to his credentials for a greater name and economic advantage. But the subsistent farmer who provided information for the study will not gain any benefit if nothing will come out as a result of the research work. There is no limit to the conduct of research and the writing of a dissertations. But the striking question is whether or not these dissertations will really bring change in the balance between the rich and the poor, between those who have power and who do not have, between the local and supra local actors and between not sound and sound management of the environment. It is therefore important to realize that writing a dissertation on a social problem is not an end in itself. It is just the start of a real struggle in trying to bring about a change as a result of the intensive actual field investigations.

I hope that this document will help in charting a new direction of the reforestation program in the Philippines. Likewise, I hope this study will provide an eye opener or will strengthen previous research findings in other places, directed towards a better strategy for obtaining sustainable people's participation in tree growing projects on public lands.

11

General Conclusions and Recommendations

Based on the results of the study, the following conclusions and recommendations are drawn.

1. The Contract Reforestation program in the Philippines has a dual concern: environmental rehabilitation and socioeconomic upliftment of the rural poor. However, paid labour as a common government's incentive to stimulate people's participation in tree planting, has generally not resulted in the desired outcome. This is manifested both by the marginal accomplishment of past regular projects as well by the poor initial performance of the present contract reforestation program.

2. This poor performance of the present contract reforestation program appears to be partly due to late payment. The generally incurring irregular payments had resulted in intermittent and problematic participation among subsistent labourers. The delayed payment is however not the only factor involved. Some projects appeared to be successful despite the occurrence of the same cash flow problems.

3. Moreover, at the very same locations of unsuccessful DENR projects, there are a number of successful spontaneous tree growing activities by individual farmers without government's cash incentive.

4. By comparing successful and non-successful government projects, six variables are identified as success conditions for a sustained contractor's participation. These conditions are related to contractor's project perception, motivations and options and are broadly categorized into three program dimensions; each one representing a major grouping of incentive system, namely: *financial*, *tenurial* and *social*.

5. Under the financial dimension, the predominant success conditions are: a) 'wood market prospect' (i.e., the presence of a current demand for wood or future market certainty), b) 'aspiration of a good track record' (which means that the contractor hopes to get also future project contracts for a good performance), and c) 'good financial situation of the contractor' (which means that whatever the contractor's income source is, it should be above the subsistence level).

6. Under the tenurial dimension, the success conditions are: a) 'intercropping between seedlings' (which means that apart from the tree crops, the contractors can interplant subsistent or cash crops in the same project site), b) 'assured access or property right' (i.e., the contractor's present usufruct or tenurial right over the site is recognized or a future project ownership right is being assured), and c) 'interest in other tree related uses' (the presence of future land use development prospects or tree benefits other than the wood products).

7. Under the social dimension, there is only one success condition identified: 'community cooperation' (local people's voluntary participation in grassland fire protection and strict regulation of open grazing inside the project area).

8. All aforementioned conditions have their own specific bearing on project's success, although they are not independent of each other. Also, they can support each other or can be complementary to one another. On the other hand, they need not necessarily be present all at the same time for project success to be achieved.

9. Four of the six success conditions in government projects also appeared to be relevant in the spontaneous cases, namely: a) the good financial situation of the farmers, b) intercropping between seedlings, c) assured access or property right, and d) interest in other tree related uses. In addition, 'wood products market prospects' turned out to be one important success condition in spontaneous tree growing. In the future, this condition may also become relevant in government projects.

10. In terms of their relevance, four success conditions are regarded as the most important, being considered as the main key bases or requisites to sustained contractor's participation, in so far as the current reforestation program is concerned. These conditions are enumerated in the order of significance: 1) the good financial situation of the contractor, 2) his aspiration for a good track record, 3) assured access/property right for the

contractor, and 4) community cooperation. The second and the third conditions can be alternative for each other.

11. The six success conditions are dependent on the determinant factors present or generated by the three components of the project setting, namely: a) site's characteristics (biophysical and tenurial settings), b) contractor's characteristics (contractor's socioeconomic, cultural and behaviourial settings), and c) project management characteristics (DENR policy directives or field management project operations).

12. Fifteen (15) determinant factors appeared to have bearing on the six success conditions. In terms of critical importance, the following factors are regarded to have the greatest effect on contractor's sustained participation in the first three-year period of seedling establishment. These are in the order of highest relevance: 1) 'on-site' contractor's recruitment, 2) promptness of DENR payments, 3) meantime payment of labourers' wages by the contractors, and 4) site's good arability.

13. From the viewpoint of possible government policy interventions, both the site's and contractor's characteristics are regarded as given or inherent factors, that determine the 'opportunities' and 'constraints' for project success. The project management, on the other hand, is crucial, being the steering determinant factor of the final project outcome. This means that the site's and contractor's characteristics are not the factors which matter most in setting the condition for sustained project participation. Rather, it is the type of project management schemes that mainly determine the final outcome.

14. It is thus well possible that a good opportunity will still lead to project failure if the management interventions spoil it. Also, a constraint may well turn out into success if the management schemes are able to mitigate the negative site's or/and contractor's settings.

15. Prior to designing any reforestation project in an area, there should be a thorough survey of the site's characteristics and the contractors' varied needs. This is to identify the appropriate incentive system as defined by the project setting and match it with the right policy instruments that the government should adopt.

16. Policy instruments that are linked with each of the three types of incentives for participation can be broadly categorized into *financial*, *tenurial* and *social* instruments.

17. The possible management schemes linked with the financial incentive are the following: 'prompt release of DENR payment', 'provision of future project prospect' and 'provision of wood market prospect'.

18. Continuous dependence on paid labour can in principle be avoided if there are livelihood opportunities linked with tree protection and maintenance, such as the provision of a wood market, the allowance of intercropping between seedlings in the case of arable sites, the introduction of agroforestry technology, and other related income-generating activities.

19. The possible management schemes linked with the tenurial incentive are the following: 'recognition of usufruct/tenurial rights' and the 'approval of other land use combinations'.

20. Usufruct/tenurial right can best sustain participation when contractors are allowed to use the project area simultaneously for short-term cropping. In this case, reforestation may not necessarily be cash-induced. The granting of tenurial right can also be effective especially when contractors have other future land use development prospects along with tree growing. As such, the FLMA can be awarded right from the start of the project.

21. Agroforestry and silvi-pastoral systems were preferred by most contractors as possible land use combinations under FLMA in the future. Such preconceived land use options should be matched with a flexible reforestation plan for as long as it is not at variance with the desirable forestland use practice and principles. A flexible reforestation plan should include a free choice of tree species to plant, the spacing of tree rows, silvicultural management and incentives in kind (such as the provision of technical assistance, promotion of agroforestry technology, distribution of fencing materials, introduction of a cattle dispersal program, provision of improved strains of forage, and the provision of market outlets or a contract growing agreement).

22. The use of tenurial instruments can result in a more sustainable private individuals' participation in tree growing on public lands. However, its effectiveness can only be enhanced if it is backed up by other financial incentives like wood market prospects, production loans, crop insurance, price securities, subsidies, and tax exemption.

23. There appeared to be four possible management schemes linked with the social incentive and are the following. The first one was identified from

the result of the present study (i.e., 'recruitment of "on-site" contractors'). This intervention satisfies the most basic requirement for community cooperation because other government initiatives towards local institution building were grounded on this requirement (e.g., community organizing, local leadership training, the development of a local resource management system and many other community-based development endeavours).

The other three interventions were derived from the literature study and from other development projects' experiences. These are the following:

a. *localized management system*. This means that the DENR management responsibilities should be turned over to the Local Government Unit or to the resource user's group representing the local people. But this provision for community-based management should be subjected to certain conditions to guard against possible abuse or incompetence in project management,
b. *benefit-sharing arrangement*. Part of the future government revenue from the project should be given to the community as a communal fund or for the establishment of social services and related infrastructure; and
c. *allowance for future communal resource use*. The local people can gather tree products from the project subject to the local community management rules. Also, they should be allowed to use the area for other purposes, for as long as it is not at variance with the ultimate aim of the project.

24. In the past, community cooperation was often taken for granted, yet it is considered a critical condition for the long-term survival of government tree growing projects on public lands. It is the most strategic way of arresting episodical environmental hazards such as grassland fires, open grazing, illegal encroachment, poaching, etc., that may threaten to wipe out newly established forest plantations.

25. Lumping together all existing tenurial policy instruments into one as proposed by the DENR (e.g., ISFP, FLMA, CFMA, IFMA) seems inappropriate, considering the varied project site's settings and the contractor's development options. Instead, different tenurial instruments should be pursued according to the participant's needs, resources and expected benefit preferences.

26. Incentives in reforestation programs should be designed around the actors' needs, interest in tree growing and consistent with their financial capacities.

27. For contractors who are motivated by access or property rights over the project, a tenurial instrument is best applicable, along with the introduction of agroforestry and other tree-based farming technology. These types of incentive are appropriate for farm-based tree growing on open public lands.

28. For community groups with a strong sense of collective participation and with interest in the communal future use of the trees, a localized management system alongside with a benefit-sharing arrangement should be adopted. This type of incentive system is best fitted for community-based tree growing on public and communal lands.

29. Private individuals or corporations with substantial capital could serve as project financiers and main stockholders. The subsistent labourers in search of direct cash earnings will then form the labour force. Apart from cash payment, there should still be sharing of the future produce from the project between stockholders and labourers to ensure the latter's quality and sustainable participation. This type of institutional arrangement is appropriate for industry-based tree growing on both public and private lands.

30. Such a selective application of specific instruments according to participant's needs and future project options is considered to be an effective and a rational policy for successful project management. Failure to identify who has interest in what, how and when, and the inability to recognize the uses of the varied site qualities, coupled with the faulty prescription of tenurial arrangements will continue to siphon off government funds put into reforestation.

Glossary

Actor

General term to mean any type of participant (i.e., contractor or labourer), including DENR and other government or non-government personnel involved in the project

Actor's behaviour

Refers to participant's or DENR personnel's perception, attitudes and activities towards the project or the incentive system for reforestation

Contract

A binding instrument between the DENR and any party who is interested to reforest a public land

Contractor

The person who enters into a contract with the DENR, i.e., a family head, a representative of an organization or a corporation. It can also be an 'on-site' farmer, or can also come from outside

Farmholding need

Contractor's striving to acquire or cultivate an arable land for subsistence or cash cropping

Incentive

Any external assistance given to reforestation participants that could motivate them to participate in reforestation projects

Instrument

Any government policy or program aimed to affect a desired public action

Intervention

Any intended scheme, plan or action set to affect a desired public action

Itinerant wage earner
Labourer who moves from one place to the other in search of a daily wage earnings

Labourer
A person hired by the contractor to perform a specific task in the project without a definite tenure. Often he does not own a land. He may come from inside or from outside the project site

Meantime payment
Contractor's voluntary act of paying cash or meeting labourers' need in kind as a project compensation in the absence of DENR regular payments

Participant
Refers to both the contractor and the labourer

Prescribed forestland use
A predetermined use of the project site by the government or DENR by virtue of its fragile or unique nature. Example of this includes critical watershed, protected area, natural parks, forest reserves, etc.

Project performance
This is measured in terms of seedling survival (at least 80 percent of the total seedlings planted) and the required tree height corresponding to a certain period

Regular
Past government's tree growing program that hired people on a regular basis for tree planting and maintenance but without giving future ownership rights over the project to its participants

Seedling establishment
The first three-year period of the contract reforestation program covering the nursery operations to tree planting and early stage of maintenance and protection

Seedling protection and maintenance
A reforestation phase that requires intensive periodic patrol works, construction of firelines and cultivation of the seedlings

Spontaneous tree growing

A voluntary tree growing activity by individual farmers who are not part in the government-sponsored reforestation projects

Usufruct

Informal access to use any public good such as a forestland without any legal ownership right

Appendix 1

Qualitative Measurements of Participant's Response, Attitudes and Involvement in the Contract Reforestation Project

1. Percentage number of local participants - total number of local people recruited from within the immediate community where the project is located.

2. Participant's degree of project involvement - measures both the attitudes and actual project participation.
   a. *passive* - unmotivated and uninvolved
   b. *conditional* - intermittent participation without definite period of engagement in the project. Because participants are just hired as a daily wage worker, they only perform specific type of job as agreed upon. Involvement in grassland fire activity is not reliable because most of the participants are itinerant daily wage workers who associate any work being done in the project with payment.
   c. *meet DENR's minimum expectation* - ability to comply with the prescribed activities required in the contract but fire fighting is not organized as a communal activity, rather it is localized. This low group participation stems from the notion that 'each one has to protect and keep his own lot since everything is under contract.'
   d. *voluntarism at limited or local scale* - strong sense of involvement in all project activities with high degree of group participation in fire fighting activities within the local domain.
   e. *strong collective cooperation* - strong spirit of voluntarism and community cooperation in fire fighting activities because of strong sociocultural bond among local people.

3. Sense of future ownership over the project - feeling of possession over the planted site followed by strong sense of moral responsibility to protect and maintain it.
   a. *none* - superficial care and protection of the project because participants view their involvement as transient and contractual on a daily wage basis.
   b. *care-free* - no future ambition or interest towards the project because of 'come what may' mentality.
   c. *conditional certainty* - participants are not yet sure of the future ownership of the project because it all depends on their current project performance as they are made to believe. Motivation to maintain the project is either conditioned by their desire to attain FLMA or to obtain the remaining payment from the project.
   d. *deterministic confidence* - high expectation to obtain FLMA based on their assessment of their current project performance. FLMA is an acceptable option.
   e. *absolute confidence* - perceives strongly his ownership and moral responsibility to protect and maintain the project regardless of the outcome of his concurrent performance in the project.

4. Working morale - measures the level of enthusiasm and loyalty to the project.
   a. *conditional* - demands immediate payment to participate in any activity in the project.
   b. *income-motivation* - motivation to work is conditioned by wage income derived from project participation. Can work even with delayed payment.
   c. *objective* - motivated to work not only because of payment. Environmental considerations and future economic benefits are among the other factors that condition participants to take part in the project.
   d. *creative* - high motivation to work coupled with desire to experiment or innovate, if given the opportunity and necessary support to do so.
   e. *unconditional* - objective and creative, and most of all, can work even without payment.

5. Emotional threshold - ability to contain irritations, stress and discouragement resulting from project-related problems.
   a. *manifested anger* - dare to fight, furious and indignant.
   b. *minimal* - easily provoked to anger or makes harsh comments when asked about problems and needs related to project implementation.

c. *suppressed* - restrained anger and can objectively raise comments and criticisms without feeling of indignation. He can distinguish program limitation from personnel moral value-related problem.
d. *high* - endure and overlook program implementation -related problems. Most often is reserved to make any side comment regarding the project. He is always hopeful that the best will still come out from the project.
e. *tension-free* - no trace of inner struggle regarding project implementation-related problems.

6. Response to actual amount of cash incentive obtained - refers to the level of satisfaction on the actual income obtained from the project.
a. *strongly dissatisfied* - resentful, indignant and no longer interested to participate in the project.
b. *dissatisfied* - obvious feeling of resentment and disgust over project-related problem particularly on the issue of delayed and under payment, but still interested to go for another contract in the future.
c. *'good enough' feeling* - accepts the amount of payment joyfully and sees it as better than having none at all but with a doubtful feeling.
d. *satisfied* - willingly accepts any amount of payment and considers any problem arising from project implementation as part of the risk he has for participating in the project.
e. *highly satisfied* - very grateful for the income gained from participation and considers it as a useful saving or investment for the household.

7. Program policy awareness - degree of understanding of the terms and conditions of the reforestation contract.
a. *total ignorance* - zero knowledge about the program because he is merely hired as daily wage labourer or he just took over the project from another contractor.
b. *not understood everything* - greater aspect of the contract is not clearly understood.
c. *partly understood* - aware of the project objectives and strategies but not the entire policy guidelines.
d. *fully understood* - almost all the important aspects of the contract are clearly understood, including the concept of the program.
e. *extended thought* - comprehend very well the whole program concept and has the ability to analyze the intention of the policy instrument.

8. Environmental consideration - concern about the success of the project because of its soil and water conservation potential.
a. *unconcerned* - only after the cash income being derived from participation.

b. *peripheral concern* - recognizes the importance of tree growing in the rehabilitation of their immediate environment, although the main motivation is the immediate cash income.
c. *balanced concern* - income and environmental protection are of equal weight in his consideration.
d. *strongly concerned* - environmental consideration precludes all other concerns.
e. *environmental bias* - pure concern for the environment, even without cash payment from participation.

9. Level of organization - measures the degree of communal participation among project participants.
   a. *non-existent* - 'dummy' or 'fly by night'
   b. *loosely organized* - without strong communal control and coordination.
   c. *partly organized* - consists of many sub-groupings but not interacting and cooperating with one another.
   d. *strongly organized* - presence of communal identity and sense of belongingness in the group. Strong communal concern is evident in addressing individual members' project-related problems and needs.
   e. *culture-based* - strong bond of socio-cultural affinity with collective power to act as a community. Stable, sustainable and dependable.

10. Relationship with DENR - working rapport between participants and DENR program personnel or project management.
   a. *abrasive* - there is a strong sense of antagonism towards DENR.
   b. *remote* - feeling of social distance and wide communication gap. Not personally familiar with each other.
   c. *casual and conditional* - there is certain degree of personal familiarity but working relationship revolves around the terms and conditions of the contract. Structured and semi-formal characterized with the practice of protocol.
   d. *close and informal* - high degree of personal interaction with high sense of mutual respect. Working relationship revolves around strong trust and commitment.
   e. *growing harmony* - growing sense of mutual interest between participant and project management or DENR personnel.

Appendix 2

Chi-square Test Raw Data

Parameter	Number of contractors with their corresponding ICM performance							
	Salinas (n=16)		Meimban (n=9)		Lacan (n=12)		Maguirig (n=15)	
1. Practiced of intercropping	High	Low	High	Low	High	Low	High	Low
- yes	6	0	0	0	10	2	0	0
- no	4	6	0	9	0	0	3	12
2. Interested in other related tree uses								
- yes	7	5	0	0	10	0	0	0
- no	3	1	0	9	0	2	3	12
3. Assured access / property right								
- aspire for	8	1	0	2	10	0	3	10
- not aspire for	2	5	0	7	0	2	0	2
4. Sense of community concern								
- with	5	5	0	0	9	2	3	0
- without	5	1	0	9	1	0	0	12
5. Aspire for good track record								
- yes	4	2	0	0	8	0	3	4
- no	6	4	0	9	2	2	0	8
6. Financial situation of participants								
- high	7	0	0	1	8	0	2	9
- low	3	6	0	8	2	2	1	3
7. Awareness of FLMA concept								
- aware	3	2	0	0	10	0	0	11
- not aware	7	4	0	9	0	2	3	1
8. Working relationship with DENR personnel								
- with respect and trust	5	2	0	9	10	0	0	9
- abrasive and skeptical	5	4	0	0	0	2	3	3

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Summary

Tree Growing on Different Grounds
An Analysis of Local Participation in Contract Reforestation in the Philippines

Alarmed by the country's worsening ecological condition, the Philippine government launched the National Reforestation Program in 1986. It aimed to rehabilitate 6.5 million hectares of degraded areas by the year 2000. To stimulate participation, people are paid to plant trees on public lands in the first three-year period. In the second phase, the Forest Land Management Agreement is awarded. This 25-year forest stewardship instrument gives the contractor a usufruct over the area and a 70 percent share of the future produce from the project, under the condition that the plantation is continuously maintained and protected.

This study examines success conditions and background factors leading to sustained contractor's participation after the three-year contract payment period will expire. These conditions provide a basis for a smooth transition from the paid labour arrangement to the FLMA phase of the program.

Chapter 1 deals with the study's background and rationale. Poor reforestation performance in the past raised some doubts of how the current program could reach its aims, using the same cash incentive as instrument for participation. Specifically, the objectives of the study are: 1) to determine the various success conditions with their corresponding determinant factors leading to contractor's sustained participation in some selected contract reforestation projects in the Philippines, 2) to analyze which of these success conditions and determinant factors are considered critically relevant in sustaining participation in seedling protection and maintenance after the three-year contract payment expires, 3) to derive an optimal tree growing model from the analysis of the study, and 4) to draw policy recommendations from the research results.

Chapter 2 briefly introduces the contract reforestation program's concept, objectives and strategies. Local and private participation are regarded as crucial. The program addresses the poor and the marginal peasants' cash needs as condition for participation.

Chapter 3 is a literature survey aimed at studying the various conditions and background factors to sustained farmers' tree growing motivations in other countries and in the Philippines. Among the various farmer's motivation leading to successful tree growing at the farm level include the following considerations of uses or factors: a) direct household needs, b) income from wood sales, c) land tenure, d) management arrangement, and e) soil conservation measures. In addition, among the identified common government incentives meant to stimulate participation in most forestry and environmental projects are: a) cost-benefit sharing arrangement, b) paid labour, c) short-term subsidies, d) loans, e) market incentives, f) land tenure, and g) access to future produce from the project. There is much known indeed about these conditions, but as loose points. It is not in one encompassing picture about their relevance; not about when some factors do apply and when they are not; and how the different factors act together.

Also, there is a rather varying but predominantly insufficient and even negative results initially reported about the contract reforestation program in the Philippines. In addition, there is a dearth of information about the conditions which are essential for the successful implementation of paid labour as an instrument for participation. Given the assumption that paid labour is still a powerful tool, which can or has to be profitably used in the Philippine reforestation program, the following research questions was formulated: 1) What is the bottomline of actor's sustained participation in the three-year contract reforestation period of the program? 2) What are the various success conditions for and the determinant factors of farmers'/participants' sustained project involvement after the three-year contract payment expires? 3) To which extent can these success conditions and determinant factors be differentiated with respect to different situations? 4) How can these success conditions to sustainable tree growing be possibly enhanced and sustained in the Philippines?

Chapter 4 describes the research structure and methodology. The study comprises of three parts. The first part contrasts two successful and two not-successful projects in Cagayan Valley. The second validates the findings of the first part in five additional successful projects in other regions in the country. The third investigates four spontaneous non-government tree growing activities by individual farmers. Vayda's Progressive Contextualization and De

Groot's Problem-in-Context Analysis consist the main social inquiry techniques.

Chapter 5 contains the results of the contrast analysis. Six success conditions that appear to have sustained contractor's participation were identified: 1) 'aspiration for good track record' (which means that the participant hopes to get also future project contracts for a good performance), 2) 'good financial situation of participants' (which means that whatever the income source is, the participant should be above the subsistence level), 3) 'intercropping between seedlings' (which means that apart from the tree crops are subsistent or cash crops interplanted by the participants in the same project site), 4) 'assured access/property right' (i.e., the participant's present usufruct or tenurial right over the site is recognized or that he is being assured of a future project ownership), 5)'interest in other tree related uses' (the presence of future land use development prospects or tree benefits other than the wood products), and 6) 'community cooperation' (i.e., local people's participation in fire protection and strict regulation of open grazing inside the project site). Also, the determinant background factors contributing to project success are identified and were categorized under the following broad project settings:

1. *Site Characteristics*, which comprise the physical, biological and tenurial settings of the project
2. *Contractor Characteristics*, which refer to the local actor's socio-economic condition, personal traits as well as his project perception, motivations and future options.
3. *Project Management Characteristics*, which represent the supra-local actor's (which is the government or DENR) management schemes, interventions and the whole aspects of the reforestation program implementation.

Under the site characteristic, the following determinant factors are:

a. 'site arability' (soil, climate and physiography);
b. 'accessibility' (distance and ease of reaching the project site from the contractor's residence);
c. 'status of property regime' (tenurial status).

Under contractor's characteristics, the following determinant factors are:

a. 'subsistence level' (degree of food or cash security);
b. 'farmholding need' (demand for farmholding);
c. 'meantime payment of labourers' wages' (contractor's practice of providing the cash or in kind needs of his labourers during late releases of DENR project payment);

d. 'enterprising attitude' (a characteristic of having initiative, foresight, business inclination, exploratory nature, and dare to take the risk in new ventures).

Under project management characteristics, the following determinant factors are:

a. 'assurance of project prospects' (a promise of future projects for the contractor or assurance of his secured stay in the site as a condition for good project performance);
b. 'promptness of DENR payment' (regularity and timely release of participant's contract payment);
c. 'recognition of usufruct or tenurial right' (respect for 'on-site' participant's or local farmer's claim over the land which falls within the domain of the project area);
d. 'approval of other land use combinations' (allowance for varied tree crop combinations or future physical site developments other than for forest production);
e. 'recruitment of "on-site" participants' (hiring of local people or farmers who are already positioned in the project site).

The findings in this analysis serve as baseline information for the succeeding sets of case studies.

Chapter 6 deals with the results of the validation study. The six success conditions identified in the contrast analysis appeared to be also relevant in the five additional case studies. Furthermore, two additional determinant factors were found to have an effect on contractor's future project options. The first one is 'DENR prescribed forestland use' (i.e., the initial intended use of the site as predetermined by the government; whether for watershed or for production forestry). The second one is 'allowance for future communal resource use' (which means that the contractor is also willing to allow the local residents gather forest products or use the project site under certain conditions in the future).

Chapter 7 presents the findings obtained from a number of spontaneous tree growing activities by individual farmers. Most success conditions and background factors present in government projects also appeared in the spontaneous tree growing activities. In addition, 'wood market prospect' (i.e., the presence of a current demand for wood or future market certainty) surfaced as one important condition for spontaneous tree growing. This condition may also have relevance in government tree growing programs in the future, which should be translated as one important aspect of project management intervention.

Chapter 8 synthesizes all findings. A conceptual tree growing diagram is developed based on the various success conditions and background factors derived from all case studies. The relevance and relative importance of the different success conditions and background factors are discussed. In government projects, the site and participant's features are regarded as given determinant factors, while the project management characteristics are viewed as the steering determinant factors. Both site and participant's characteristics set the opportunities or constraints for project success. The project management factors on the other hand either build on or reinforce such settings respectively to bring about corresponding success or failure. Hence, project management has a prominent role in defining the desired outcome in government projects. In spontaneous projects, however, it is the participant's characteristics that play the primary role. The study's findings are compared to the literature review.

Chapter 9 contains the possible policy contributions of the study. Three major dimensions of the current reforestation program are discussed: financial, tenurial and social. These dimensions correspond to three possible types of incentives (i.e., financial, tenurial and social) which are regarded of critical importance for project management interventions. For labourers driven by cash needs, continuous employment from the project is essential. For private entrepreneurs, market security is utmost needed to sustain their interest in tree growing. Those motivated by access or property rights over the project, a tenurial instrument could suffice. For all tree growing modalities, social incentive is indispensable because the long-term project survival depends greatly on community cooperation. Coinciding with the three types of incentive are three possible organizational schemes of tree growing with their main instruments for participation. These are: a) farm-based tree growing with tenurial incentive, aimed to secure participant's usufruct or property rights over the land), b) community-based tree growing with social incentive, aimed to assure the local people of a share from the future project benefits or allow them to have access of use over the produce under certain conditions, and c) industry-based tree growing with financial incentive, aimed to provide continuous employment for the rural poor.

Chapter 10 evaluates the effectiveness of Vayda's Progressive Contextualization method and De Groot's Problem-in-Context Analysis in the study. Both techniques appear to be appropriate for the study. The advantage of being guided by the 'element of surprise' and setting no fixed system boundary paved the way for discovering equally important aspects, not initially conceived in the study. Furthermore, by starting the analysis with the actor's

activity, it directed the research inquiry to the core issues of the problem, thus, evading the trap of examining the entire elements of the system.

Chapter 11 contains the study's concluding part. Since contract reforestation on public lands cannot take place without accompanying incentives, it should be designed around the actor's needs, interest in tree growing and financial resources, for maximum program efficiency. Those with substantial capital could serve as the project's financiers and the main stockholders. Subsistent participants in search of direct cash earnings may well comprise the labour force. For those motivated by access or property rights over the project, a tenurial instrument is best applicable. Such a selective application of specific instruments according to participant's needs and future project options is considered to be an effective and a rational policy for successful project management. Failure to identify who has interest in what, how and when; and the inability to recognize differences in site qualities along with the appropriate required tenurial arrangements for tree growing will continue to siphon off government funds put into reforestation.

About the Author

The author was born on January 15, 1956 in Enrile, Cagayan, Philippines. He finished his B.S. in Forest Products Engineering at the University of the Philippines at Los Baños in 1978 and his MSc in Environmental Studies in the same university with social forestry as his cognate field in 1988.

He first worked as a Science Research Associate at the Forest Products Research and Development Institute, College Laguna, Philippines from 1978 to 1980. The following year, he joined the Faculty Staff of the then College of Forestry, Isabela State University, Cabagan Campus, Cabagan, Isabela. He served as a chairman in the Wood Science Department from 1981 to 1985 and in the Social Forestry Department from 1988 to 1990.

In 1991, he pursued his PhD program at the Centre for Environmental Science, Leiden University, The Netherlands as a research fellow under the Program of Environment and Development.

Prior to his PhD schooling, he has been involved in several field researches and development activities. He obtained an IDRC research grant under the Renewable Resource and Economics Management Program to pursue his MSc thesis entitled, 'Environmental Impacts and Some Factors Affecting Firewood Extraction: The Case of Callao Caves National Park Watershed Area, Penablanca, Cagayan'.

He participated in many regional network projects in the Asia and the Pacific Region. Twice he was granted a USAID research fund through the Forestry/Fuelwood Research and Development-Winrock International for a study on the social acceptability of Multipurpose Tree Species for farm-based tree growing project. He also participated in the FAO Regional Wood Energy Development Program in the promotion of fuelwood-based agroforestry system in Cagayan Valley, Philippines. Another FAO project under the Forestry Research Support Programme for Asia and the Pacific (FORSPA) was carried out by him in connection with his dissertation. He travelled occasionally in the Asia and Pacific region to attend and present papers during network meetings and workshops. Also, he authored a number of published technical articles both local and international.

The author is concurrently a member of the Technical Advisory Team (Philippines) of the Southeast Asian Regional Center of Graduate Study and Research in Agriculture (SEARCA)-Australian Centre for International Agri-

cultural Research (ACIAR) Project entitled, 'Improving Smallholder Farming Systems in *Imperata* Areas of Southeast Asia: A Bioeconomic Modelling Approach'.

He is a professor of the Social Forestry Department, College of Forestry and Environmental Management, Isabela State University, Cabagan, Isabela, Philippines.