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MINUTES OF MEETING

THE JOINT EVALUATION COMMITTEE

ON

THE FORESTRY DEVELOPMENT PROJECT-WATERSHED MANAGEMENT

IN

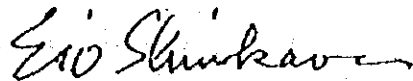
CARRANGLAN AND PANTABANGAN, NUEVA ECIJA, PHILIPPINES

The Evaluation Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") headed by Mr. Eio Shimokawa visited the Republic of the Philippines from 12th to 25th February 1992 for the purpose of Monitoring and Evaluating Forestry Development Project-Watershed Management in Carranglan and Pantabangan, Nueva Ecija (hereinafter referred to as "the Project").

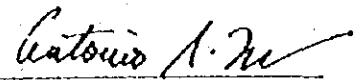
The Team and the Philippines Evaluation Counterpart Team headed by Mr. Policarpio A. Najera of the DENR formulated a Joint Committee chaired by Mr. Najera and carried out the concise monitoring and evaluations on the progress of the Project Phase II.

The representatives of both DENR and JICA endorsed to convey to their respective authorities concerned the Summary Report of the Committee attached herewith.

Manila, The Republic of the Philippines  
22 February 1992



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Japanese Evaluation Team  
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THE SUMMARY REPORT  
OF  
JOINT MONITORING AND EVALUATION COMMITTEE  
THE FORESTRY DEVELOPMENT PROJECT-WATERSHED MANAGEMENT  
CARRANGLAN AND PANTABANGAN, NUEVA ECIJA

I. INTRODUCTION

Watershed management is the comprehensive approach to promote sustainable socio-economic development and environmental protection of both the upstream rural areas and the downstream urban cities. These issues have been of great national interests to the Republic of the Philippines. Reforestation, erosion control, and social forestry activities have been considered as the major subjects of addressing watershed management in the Philippines since some critical watersheds are not sufficiently covered with forests.

These days, the international community starts to recognize the global environmental issues. Forestry has been one of the important agenda to date.

In consonance with these, the Government of the Philippines requested the Government of Japan to provide a comprehensive technical cooperation project-base support to promote watershed management in Nueva Ecija, where the catchments are of critical importance. Initial joint-project was commenced in June, 1976 under the sponsorship of Japan International Cooperation Agency (JICA). In July, 1987, an extension period of five (5) years was agreed as Phase II of the specific project based on the request made by the Philippine party, with some adjustments on its objectives and designs.

According to the Record of Discussion signed by Mr. Philip Ella Juico, former Undersecretary of the Department of Environment and Natural Resources (DENR), and Mr. Moriya Miyamoto, former Resident Representative of JICA, on July 10, 1987 in Manila, Phase II of this Project will be terminated on July 23, 1992. At the end of this period, the full responsibility of managing this Project will be turned over to the Philippine authority. Phase-out plan is expected to be finalized by the DENR before its termination date.

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term. This will allow both parties to create visions on what are desired to be accomplished as the next steps. Therefore, the terms of reference of this joint monitoring and evaluation committee are:

- To monitor and evaluate the progress made in Phase II of the Project, in relation to Phase I; and
- To recommend the downstream actions to be taken to the relevant authorities.

One of the invisible results gained through this 16 years cooperation project is the close relations between the Philippine and Japanese foresters. This will certainly be beneficial to both parties in many ways in the future.

## II. SUMMARY OF MONITORING AND EVALUATION

Appropriate contributions to support the execution of this cooperation project were inputs (as of date) coming from both parties (see Annex). Especially, considerable financial contribution was done by JICA to compensate for the constraints of the local costs for the relevant activities, in addition to its ordinary technical cooperation framework.

Following is the concise monitoring and evaluation summary in accordance with the items stated in the Master Plan agreed upon in the Record of Discussion signed on October 6, 1988 between Undersecretary Ricardo M. Umali of DENR and Mr. Moriya Miyamoto of JICA.

### A. Silviculture

Forest plantation establishment principles and methods had already been available on the research basis in the Philippines like elsewhere. It is common in most of the forestry practices that further research and development works are needed to optimize the formula for the specific site.

The large-scale new forest plantation areas of 1,106 ha. in Phase II and a total of about 8,200 ha. within the cooperation project were planted in the project site to identify the optimum formula of the silvicultural treatments applicable to this specific site on a large base characterized by poor soil. Plantations with fast-growing forest vegetations were established to allow the introduction of and the transition to the native species variety. Therefore, because of its adaptability to the site, the drought-resistant Acacia auriculiformis was chosen as the dominant species to be planted in this pioneer demonstration. Seven hundred fifty (750) ha. of the plantation failures were converted with this species also. The next step was to conduct species alteration to native forests based on the ongoing research results.

Growth Prediction Table of A. auriculiformis was developed. Prediction of the volume became available with respect to the soil fertility and the number of years after planting. This became possible because a large database was available in the historical records from the plantations of A. auriculiformis throughout the Project.

Survival rate was observed to be higher in Parcel III as compared to the other Parcels of the Project. As revealed by the Project counterparts, this was mainly due to the low forest fire occurrences in the Pantabangan side coupled with the natural vegetative cover present in the adjacent areas which enhanced tree growth.

Forest Protection was given much emphasis particularly in the aspect of Forest Fire Prevention which was considered the most important. Rigorous activities were conducted to promote public awareness:

- Distribution of T-shirts, leaflets, posters for forest fire prevention; and
- Conduct of sports events, propaganda and essay-writing contests and others for forest fire prevention.

JICA contributed the following facilities and equipments for fire control:

- Fire-fighting equipments (fire trucks, fire rangers, fire extinguishers, etc.);
- Radio communication systems; and
- Fire Lookout Towers

Some fire prevention activities such as establishment of firebreaks, firelines and greenbelts were undertaken.

Despite the challenges brought about by such adverse site conditions and the level of efforts expended for the Project, there remains a vast area of opportunities for improvement. Further effort is necessary to ameliorate the area. Based on the suggestions of the Philippine counterpart and the Japanese experts, the social forestry approach is believed to be the key solution to the varied watershed problems.

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Major research development accomplishments are:

- Seed gathering, germination, seedling production and handling of Palosapis (Anisoptera thurifera) wildling for underplanting;
- Underplanting techniques of the local species, Palosapis and White Lauan (Pentacme contorta), in A. auriculiformis plantations; and
- A seed orchard of Dipterocarp species in Block 91, Parcel II-A was established in 1990 to cover future seed supply requirements of the Project.

Enrichment planting covering 750 hectares was carried out.

#### B. Erosion Control

The control of soil erosion is one of the major component in watershed management, and in order to achieve these activities, the following were emphasized:

##### a. Planning

A typical catchment of 235 hectares located in Block 54, Parcel I was selected for this purpose. Topographical analysis was conducted to identify highly eroded areas along hillslopes and torrents areas. Based on this data, comprehensive plans and designs, including cost estimates were prepared. For each work, methods and procedures were being followed.

This kind of establishment measures could be applied in a large scale plan in the future to upgrade better opportunities.

##### b. Optimization of the Hillside and Torrents Technology.

In order to optimize the rehabilitation of the area, the main technical issues are to reforest the bare slopes and rehabilitate the severely eroded areas in places of gullies, slides, streambank contributing to the siltation and sedimentation of water channels, including the Pantabangan reservoir.

There have been remedial measures that were already established in the area, but some research and development are still needed to optimize the formula for the specific development site.

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Rehabilitation works involved the application of two methods:

1. Structural/Mechanical Measures - The main purpose is to immediately control/minimize concentrated velocity of water runoff flowing along streams, gullies, and other water channels, including hillside eroded areas which are contributory to excessive soil erosion and sedimentation. Among the structural measures appropriate in the area which are locally available are as follows:
  - Gabion checkdam (established along gullies, slides, etc.).
  - Cogon matting covering (established along slides, on hillside bare soil).
2. Biological/Vegetative Measures - The main purpose is to revegetate the degraded portions which are practically bare or inadequately covered with soil cover. The advantage of these structures are very stable and large scale erosion can hardly occur.

Included in this structures are the appropriate application of silvicultural treatment as follows:

- Planting of appropriate species on bare sloping land to hold the soil in place. This was done by planting at different distances depending on the condition of the development site.
- Introduction of direct sowing and cutting is implemented where soil erosion is very evident. The advantage of this structure is found to be effective, easy to establish, fast progress of work, relatively low cost and the availability of local materials as well.

It was observed that these measures were found to be effective, low cost and it could be an integral part in the execution of social forestry projects.

Trial forest establishment of different species was also implemented in places of highly erodible slopes. This research and development is still under observation in the model areas. The introduction of planting techniques and identification of suitable species is the expected result.

#### C. Training

Development of human resources is one of the most important assignment for the joint-project. Considerable JICA funds were allocated for this activity. Training Center constructed by Japanese grant was by far the major focal point.

As envisioned in the Phase II of the Project, it will conduct and implement in-service trainings on forest protection, afforestation, social forestry and administrative courses.

The middle level management trainings were conducted in three (3) areas, namely: Erosion Control; Reforestation Planning; and Social Forestry. There were 234 Foresters who completed the training courses in Phase II, itemized as follows:

- a. Erosion Control/Watershed Management - - 113
- b. Reforestation Planning/Silviculture- - - 71
- c. Social Forestry - - - - - 50

A total of 605 graduates in technical training was produced in 16 years at the Training Center.

There were ten (10) project staff that undergo training abroad (Japan) to enhance their skills in their respective fields in the Project.

Comprehensive trainings which included theoretical and practical aspects of forest management were given to foresters and related personnel of DENR to upgrade the quality of services.

Forest fire prevention and fire suppression trainings were also given to the Project staff.

Two practical training programs in social forestry were offered to the family-participants in the following manner:

- a. Conducted practical trainings in social forestry program to 160 families; and
- b. "Barangay Caravan" - Project foresters made a series of farm and home visits to the villages in Carranglan to provide technical advise to promote social forestry practices.

Other general DENR training programs were also

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conducted in the Training Center.

The foregoing tangible accomplishments were made feasible by the existence of the Training Center, as it plays a major role in the technology transfer of specialized skills to DENR field personnel, project staff and also to nearby DENR family clients.

#### D. Social Forestry

Social forestry was introduced at the earlier stage of the Phase II. The objectives were:

- To develop and improve social forestry techniques in the areas;
- To create awareness among the forest occupants and the general public on the importance of forest through forestry extension;
- To activate sharing of responsibility of the participants in forest protection;
- To uplift the socio-economic conditions of the upland family occupants;
- To serve as buffer zones for fire prevention activities.

Therefore, trial social forestry activities, extension trials, and fundamental socio-economic research were conducted.

Community-based and family-based social forestry (UFBP/CBRP-I/CBRP-II) have been conducted using modified Integrated Social Forestry Program (ISFP) guidelines involving 255 families covering a total of 255 hectares as of February, 1992.

In March, 1990, a socio-economic research was conducted to determine the impact of the on-going social-forestry programs. The report will be available before the end of the joint-project. It is suggested to refine the designs of the programs based on the research results, in order to attain effectiveness and efficiency.

Extension works were considered to be one of the most important activity. The project was able to implement three activities along this line, namely: information dissemination, training of social forestry participants and establishment of a demonstration farm.



#### a. Information Dissemination

One thousand five hundred (1500) copies of the quarterly paper "Balik-gubat" were distributed free of charge to the participating families, various organizations (e.g. schools, barangay and local government officials, etc.).

The main objectives of the paper are:

- To disseminate the DENR social forestry policies;
- To disseminate the activities of this Project to the local public; and
- To disseminate the technical information.

Several slogan and poster design contests were likewise undertaken to generate people's awareness and cooperation towards forest rehabilitation and conservation.

Leaflets on drip irrigation, preparation and usage of A-frame, and soil conservation measures were prepared and distributed to various families in Carranglan in order to disseminate technical information and specifications for soil conservation works that can be done through social forestry approaches.

The information and education campaign (IEC) activities of the Project gained momentum in 1991 when the DENR adopted IEC as its banner programme for the year.

#### b. Demonstration Farm

A demonstration farm of 10 ha. showcasing various upland farming technologies was established to serve as venue for the local folks to observe the proper techniques on agroforestry and effective utilization of the forests.

The idea of a Project-sponsored demonstration farm should be evaluated soonest for its effectiveness. It is also recommended that on-farm trials based on the participant's needs and capabilities be considered by the Project in promoting social forestry in the future.

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## E. Forest Management

The target of this category was concentrated in preparing the Integrated Forest Management Plan to be finalized by the end of the Project term. It provides general guidelines to the forest management. This is the comprehensive summary of the learnings from the 16-year Project.

The current Draft Plan covers:

- Land classification;
- Standards for planting, tending and regeneration;
- Seedling production;
- Road systems;
- Erosion control works;
- Control of pests and diseases; and
- Fire prevention.

The Committee recommends that "land tenure security" will be added in close consonance with forest protection. It is also recommended that "land classification" will cover the utilization of the forests with respect to each classification. This is in response to the new policy under New Forestry Code that is expected to pass Congress soon. Forest utilization will be allowed in watershed areas under the 'Limited Production Forest' concept under the New Code in contrast to the present regulation of strictly no utilization policy.

The major initiatives required in the future seem to be the protection of the forests against fire.

### III. CONCLUSION

In general, the output of Phase II of this Project have well enhanced that of Phase I.

The general impressions of both parties are that some remarkable progress were made in the course of the Project. The obvious examples are:

1. Establishment and management of the trial forest plantations;
2. Promotion of soil and water conservation practices;
3. Some technology optimization;
4. The human resources developed;
5. Technology transfer to the Project staff; and

3. Improvement of training design to strengthen managerial skills of Project Managers such as integrating some of the specialized training designs.
4. Further extension of methodology and technology optimized in this Project throughout the area and throughout the Philippines;
5. Appropriate maintenance and utilization of facilities and buildings constructed for this Project;
6. Further development and improvement of social forestry approaches;
7. Legislative support to promote forest fire prevention at the community/municipality levels;
8. Development of the upland cooperatives in forest management; and
9. Seek for further RP-Japan forestry cooperation opportunities.

Specific recommendations with respect to each category are stated in Chapter II hereof.

Relevant Japanese authority may consider its possible support to DENR activities of the terminated Project after a few years from its phase-out, if requested by the Philippine authority.

The joint committee recommends to both governments that an experienced forester would be dispatched under JICA sponsorship to DENR-FMB as quickly as possible in order:

- To support the execution of the above recommendations by the local authorities; and
- To facilitate formulation of future forestry cooperation.

Official request needs to be submitted to Japanese authority through Philippine diplomatic counterpart agency.

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Summary of Input

I. Japanese side

(1) Dispatch of Japanese Experts

Fifteen (15) long-term experts in the fields of Chief Adviser, Tending and Forest Protection, Forest Management, Afforestation, Forest Conservation, Erosion Control, and two (3) Liaison Officers/Coordinators have been dispatched.

Eight (8) short-term experts on the relevant fields concerning the project activities had been dispatched. They have conducted technical transfer in each field of the Philippine counterparts.

(2) Training of Philippine personnel in Japan

Ten (10) Philippine personnel had been accepted in Japan for technical training, observation of Japan forestry/silviculture and systems.

The training was very useful for the trainees in obtaining productive experiences and it contributed to successful implementation of the Project activities.

(3) Provision of machinery and equipments

Almost all the necessary machinery and equipment have been provided as planned. Most of them has been well maintained and used effectively in the Project.

(4) Other financial supports

For effective and smooth implementation of the project, JICA shoulder the cost on Afforestation Promotion Program, Middle-Level Man Power Training Program and the relevant implementation of the project activities.

Cost of improvement works on the physical infrastructure of the project was paid by the JICA under its project managing expenditure account.

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## II Philippine side

### (1) Provision of counterparts and supporting staff

Philippine counterparts consisting of a Head of the Project, Project Director, Training Director, Deputy Project Director, Deputy Training Director, counterpart personnel in various fields and other supporting staff have been provided as planned.

### (2) Land, building and necessary facilities

The necessary facilities such as offices for Japanese experts, nursery beds, demonstration farms and other related facilities and so forth were provided for the Project activities.

The area for pilot artificial forest is about 8,100 hectares including the planted area established through the activities of the Forestry Development Project of the Pantabangan Area initiated in 1976.

### (3) Local cost

Necessary expenses such as operating costs were paid by the Philippine side as well as transportation cost from port to the project site and installation of equipment from Japan.

### (4) Joint committee

The steering committee as the joint committee was organized for consultation of both parties on any matter concerning the implementation of the project. It was held four times prior to August 28, 1991.

At the committee, the progress of the implementation was reviewed and annual work plan approved. Also, recommendations on the measures to be taken by both governments on matters concerning the implementation of the project.

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### MANAGEMENT STRATEGIES AFTER TERMINATION OF THE TECHNICAL COOPERATION AGREEMENT FOR THE RP-JAPAN FORESTRY DEVELOPMENT PROJECT, CARRANGLAN AND PANTABANGAN, NUEVA ECIJA

#### 1.0 INTRODUCTION

Pursuant to the Record of Discussions signed on June 16, 1976, between the Governments of the Philippines and Japan, the RP-Japan Technical Cooperation Project for Forestry Development of the Pantabangan Watershed - Phase I was implemented with the main objective of reforesting 8,100 hectares of open grasslands. The Project consisted of two (2) components, namely: afforestation component or Sub-Project I and training component or Sub-Project II.

The original duration of the Project was seven (7) years (1976 - 1982). However, by virtue of an amendment to the Record of Discussions, the Project was extended for another five (5) years and was officially terminated on July 23, 1987. Under Phase I, a total of 7,054 hectares have been reforested. Project expenditures converted to P102 million, where the Japanese Government contributed about P80 million in the form of equipment, vehicles and other inputs.

Recognizing the contribution of the Project in terms of technologies generated to the development and rehabilitation of the Pantabangan watershed, the Philippines and Japanese Governments agreed to provide a follow-through project in consonance with the recommendations of the Joint Evaluation Team for Phase I in 1986. Hence by virtue of the Record of Discussions signed on July 10, 1987, Phase II was established. The duration for the technical cooperation for the Project is five (5) years from July 24, 1987 to July 23, 1992.

Phase II has the following objectives and activities:

- Development and improvement of the techniques on tending, forest protection and species alteration.
- Development and improvement of the techniques on erosion control works applicable to the local conditions and the techniques on afforestation combined with erosion control works in areas of high erodibility.
- To conduct and implement in-service trainings on forest protection, afforestation, social forestry and administrative course,

- Development and improvement of the techniques to introduce Social Forestry, and
- Development of the integrated forest management system in the Pantabangan area.

Project achievements under Phase II are detailed in the Appendix \_\_\_\_\_.

## 2.0 RATIONALE

The Project throughout the period of joint cooperation has generated appropriate technologies on afforestation and forest conservation measures, and community-based resources management activities. The project has likewise put in place the participatory mechanism necessary for disseminating these technologies, and produced highly trained counterpart staff and farmers-cooperators. In addition, huge investments were made on various infrastructure, equipment and facilities. The training facilities for instance, are already benefitting the whole DENR in upgrading manpower skills and capabilities.

To take advantage of the resources and accomplishments in place, project activities have to be continued, especially follow-on undertakings that would address further improvement of the environment, and the socio-economic condition of the local communities.

Management strategies, therefore, had been developed to ensure the continued operation and maintenance of the investments poured during the past 13 years, and to sustain current efforts at rehabilitating the Carranglan-Pantabangan watershed areas. These strategies are in accordance with the following framework, as agreed by the Project's Joint Committee:

- a. to ensure continuous maintenance & protection of the project facilities and investments;
- b. to preserve and improve the gains and experiences of the project; and
- c. to promote and accelerate the transfer of technologies that has been generated by the Project.

Specifically, the management strategies aims to:

- undertake reforestation activities on identified open areas of the project through contract scheme under the NFP guidelines.

- intensify the protection and maintenance of established plantations
- develop and maintain the successful Community Based Reforestation Projects and Upland Family Based Program sites through the Forest Land Management Agreement approach.
- continue the maintenance and data collection of on-going researches in consonance with the research thrusts of the Department.
- maintain and operate the training center and physical venue, facilities and equipments, in support to the training needs of the Department, local government units and non-government organizations.
- maintain and operate all project facilities such as demonstration areas for social forestry, erosion control and research, infrastructure and equipment.

### 3.0 SPECIFIC STRATEGIES/ACTIVITIES

#### 3.1 Implementation Arrangement

The project will be turned-over as a regular project under the administration and supervision of the DENR Regional Office, Region 3, thru the FENRO/CENRO starting January, 1993. A transition period from August to December 1992 will allow full documentation and dissemination of phased-out activities, at the same time enable the project to realign its thrusts and activities under the new policies and guidelines of the NFP and Community Based Forestry Programs.

The present project management office will be maintained under the direction of the FENRO/CENRO.

#### 3.2 Contract Reforestation

The identified open areas of the project will be subjected to survey, mapping and planning (SNP) by contract under the NFP guidelines. Around 3,800 has. of open areas had been identified for contracting. For 1992, a total of 700 has. had been earmarked for SNP using project funds. The SNP for the remaining open areas will be funded by the NFP.

Areas that had undergone SNP will be contracted to various local community organizations and associations under NFP funds. Under this plan a minimum of 250 has. is targetted annually starting 1993. It is envisaged that former project personnel



who have been phased out/terminated will be encouraged to form themselves into associations and be given the priority to participate in the proposed contracting activities.

### 3.3 Awarding of Forest Land Management Agreement (FLMA) contracts to farmer-cooperators of Social Forestry Programs

All project areas that have been successfully developed through Social forestry Programs of the Project will be awarded through Forest Land Management Agreement (FLMA) by cluster. These programs were conceived to uplift the socio-economic conditions of the forest occupants and at the same time mobilizing them as active partners in forest rehabilitation and protection.

In 1989, as an initial step, the Project had launched the Upland Family Based Program combining contract reforestation scheme and ISF strategies. This involved 30 Upland families as farmer-cooperators living within and in the periphery of the project areas who entered into contract signed by both the Project and the participants with a duration of 3 years from 1989 - 1991. The contract stipulated the development of one (1) hectare area per participant into a woodlot and orchard plantation with the Project providing the technical assistance and other inputs. In 1992, twenty seven (27) out the thirty (30) participants are eligible for awarding through FLMA. These participants had faithfully adhered to the conditions of the contract and had their areas already fully developed.

In 1990, recognizing the initial success realized in the implementation of UFBP and due to the persistent clamor of the upland communities to participate in the program, UFBP was continued under a Community Based Reforestation Program, with the participation of 150 family-cooperators. Generally, CBRP had the same program development features with UFBP. The difference lies only in the contract duration wherein the contract is good only for one (1) year renewed yearly for the succeeding two (2) years. By 1993, these participants are eligible for awarding through FLMA.

In 1991, CBRP was expanded into CBRP II with the participation of 75 farmer-cooperators. These were the families that signified their intention to participate but were left out in 1990 due to budgetary constraints. This program is in all aspects similar to

CBRP I. By 1993, these participants are eligible for awarding through FLMA.

### 3.4 Research, Social Forestry, Demonstration and Model Areas

Research studies that have valuable impact in the field of reforestation/afforestation will be continued to be conducted by the research sector. Foremost of these researches is the underplanting trials of dipterocarp species which showed very promising initial results.

Demonstration farm for social forestry, model area for erosion control, seed and scion orchard for dipterocarp species and seed production areas of fast growing and endemic species shall be continuously developed and maintained for use as field laboratories for training activities.

Two model areas on afforestation, which are fully planted with fast growing species funded by JICA will be maintained and protected by the project, i.e. Mankitkit area in Block 91, Parcel II-A and Central Trial Plantation (CTP) in Block 87, Parcel I.

### 3.5 Maintenance and Protection of Established Plantations

All established fully stocked project plantations will be awarded to local communities most preferably the barangays nearest to the plantation areas for protection and maintenance through the FLMA approach giving full responsibilities to the communities in the management and protection of said plantations.

### 3.6 Training Center for Forest Conservation

The Training Center for Forest Conservation is proposed to be transformed as a National Training Center, to cater to all sectoral training needs under the supervision and management of the DENR Central Office, thru its HRDS. To ensure the continued maintenance and operation of training facilities and equipment as well as implementation of training activities, DENR shall allocate budgetary requirements thru the provision of a separate item/appropriation in the Departments General Administration and Support Services. The training needs of the Regional Office for all level of personnel will be given priority implementation, and access to training facilities and equipment.

Likewise, local government units can avail the physical venue and facilities of the training center for its conventions, seminars and the like thru proper coordination with the center's director. Private organizations and associations could avail of the same by paying reasonable rental costs the appropriate rates of which shall be determined later under existing government rates to shoulder part of the overhead expenses.

### 3.7 Buildings, Other Structures and Equipments

#### 1. Training Center

- a. Part of the Administration building could be used by other DENR units most preferably the Forest Management Sector of the CENRO San Jose City.
- b. Housing blocks will be used in support to the needs of the Training Center.

2. Phase I Project Office formerly (Maringale District Office) buildings including the Japanese experts' dormitory will be turned-over to CENRO San Jose City for operation and maintenance.

3. Maringale Intensive Forest Nursery including its buildings and structures will be turned-over to the CENRO for operation and maintenance.

4. JICA Office in Talatalan Parcel II-B will be maintained by the Project in support to the contract reforestation activities.

5. Permanent look-out and communication towers specifically tower #147, located in Manablong, Conversion, Pantabangan will be turned-over to CENRO Talavera while 259, located in Mt. Carranglan will be maintained by the Project.

6. Existing plantation road networks will be turned-over to specific local government units for barangay use and to prospective reforestation contractors as part of their contracts. These government and non-government entities will assume full responsibility in the repair and maintenance of these roads.

7. Vehicles, communication equipments and office equipments that are needed in support to continued implementation of training activities, contract

reforestation, and the maintenance and protection of identified project areas are listed in Appendix No. \_\_\_\_\_.

All other vehicles, communications and office equipments will be turned-over to the Regional Office for use, safekeeping, maintenance and disposal if deemed necessary.

当初プロジェクトフェーズIIの実績

(1) 専門家派遣実績表 (長期・短期)

パンパシフィック林業開発計画(フェーズII) 1992年11月30日現在

分野	長・短	専門家氏名	派遣元	派遣期間		派遣期間				
				1987	1988	1989	1990	1991	1992	
畜産顧問	長	加藤 仁志	林野庁	1985.09.20 ~ 1988.09.19						
	長	土屋 利昭	林野庁	1988.09.06 ~ 1990.09.06						
	長	堀 博	林野庁	1990.08.24 ~ 1992.07.23						
造林 (TL)	長	改香 文雄	林野庁	1986.05.20 ~ 1989.05.19						
	長	村松 勝	林野庁	1989.05.30 ~ 1991.05.29						
	短	河原 珠彦	森総研	1987.06.20 ~ 1987.07.17						
森林経営(TL)	長	宮野 重光	林野庁	1987.10.20 ~ 1989.10.19						
	長	野 洋	林野庁	1989.10.05 ~ 1991.10.04						
	短	小坂 忠夫	林野庁	1987.06.20 ~ 1987.07.19						
拓山	長	高野 泰一	林野庁	1985.12.02 ~ 1988.07.23						
	長	牧野 利徳	林野庁	1988.07.12 ~ 1990.07.12						
	長	木村 康	林野庁	1990.07.02 ~ 1992.07.01						
森林協会(TL)	長	内ヶ島 光雄	林野庁	1986.03.23 ~ 1988.03.22						
	長	竹中 三成	林野庁	1988.03.08 ~ 1990.03.07						
	長	萩原 清志	林野庁	1990.01.20 ~ 1992.01.19						
採算改善	短	村上 公久	森総研	1988.05.19 ~ 1988.07.18						
	長	石谷 敏広	林野庁	1988.01.18 ~ 1990.01.17						
	長	小山田 孝二	林野庁	1990.01.08 ~ 1992.01.07						
業務調整	長	中沢 一郎	林野庁	1985.12.02 ~ 1987.12.01						
	長	山川 英征	JICA	1988.01.18 ~ 1990.07.17						
	長	鍋田 剛	JICA	1990.07.02 ~ 1992.07.23						
植林 建設 森林整備 拓山計画 樹種調査 林木管理 森林立法 社会林業	短	水戸 大助	林野自営	1986.11.22 ~ 1986.12.19						
	短	三浦 博之	小松ハクス	1987.01.24 ~ 1987.02.13						
	短	加藤 雄	森総研	1987.06.20 ~ 1987.07.17						
	短	村上 公久	森総研	1987.06.20 ~ 1987.07.17						
	短	河野 公威	九州管林	1988.06.26 ~ 1988.08.25						
	短	片岡 隆	北海道管林	1988.08.19 ~ 1988.11.16						
	短	白石 則彦	森総研	1988.11.15 ~ 1989.01.14						
	短	好田 治之	森総研	1988.11.15 ~ 1989.01.14						
	短	加藤 雄	森総研	1990.04.10 ~ 1990.06.09						
	短	冨田 征四郎	森総研	1989.01.13 ~ 1989.03.12						

注：森総研は森林総合研究所、日本探採(社)日本林業技術協会、林野自営は林業機構自営課、小松ハクスは小松ハクス、九州管林は九州管林支場土壌研究所、北海道管林は北海道管林支場、拓山は日本探採株式会社。

(2) カクオンターパート研究者受入実績表

年度	カクオンターパート氏名	区分	研修科目	研修期間	勤務先及び職務	
					研修前	研修後
1988	BSP. Marita G. Mosquito	一般	造林	1988.10.04 ~ 1988.12.14	パンタプロジェクト(造林技術補佐)	パンタプロジェクト(造林調査課長)
	BSP. Pacifico G. Crisolago	一般	池山	1988.10.04 ~ 1988.12.14	パンタプロジェクト(計画課職員)	莫那化カバナツアツ州出張所(計画課長)
	BSP. Romulo E. Corpeus	一般	造林	1990.03.05 ~ 1990.05.18	パンタプロジェクト(造林技術補佐)	パンタプロジェクト(経理部長)
1989	BSP. Edith J. Aragon	一般	造林	1990.03.05 ~ 1990.05.18	パンタプロジェクト(造林調査官)	パンタプロジェクト(造林調査課長補佐)
	BSP. Geoffrey E. Sa-ong	一般	池山	1990.03.05 ~ 1990.05.03	パンタプロジェクト(社会林業課長)	同 左
	BSP. Antonio F. Parci	一般	森林経営	1991.03.26 ~ 1991.06.05	パンタプロジェクト(計画課上級職員)	パンタプロジェクト(計画課長)
1991	BSP. Warlito A. Laza	一般	森林造営	1991.03.26 ~ 1991.06.05	パンタプロジェクト(森林上級専門官)	パンタプロジェクト(バーセル一人主任)
	BSP. Nestor P. Parado	一般	造林	1992.01.27 ~ 1992.03.31 予定	パンタプロジェクト(森林上級専門官)	
	BSP. Marlon R. Paderes	一般	森林保護	1992.01.27 ~ 1992.03.31 予定	パンタプロジェクト(森林保護係長)	
1992	BSP. Juanita G. Pascual	一般	社会林業	1992.01.27 ~ 1992.03.31 予定	パンタプロジェクト(社会林業普及係長)	
	BSP. Maximo F. Soriano, Jr	一般	森林経営	未 定	パンタプロジェクト(プロジェクトディレクター)	
	BSP. Mario M. Delizo	一般	森林経営	未 定	パンタプロジェクト(研修部長)	

BSE : Bachelor of Science in Forestry

BSE : Bachelor of Science in Education

(8) 機材供与実績

昭和62年度機材供与( FY1987 )

番号	機材名	仕 株	数		購入価		現地調達円	機材管理状況		備 考
			枚	処分	保有	価		管理	利用	
1	カービスジープ	TOYOTA L/C HT, BJ 70LV-KR(Diesel)	1	0	1	1,690,000		A	A	
2	ビークアップトラック	TOYATA L/C PU, BJ75LV-KR(Diesel)	2	0	2	3,340,000		A	A	
3	マイクروبバス	TOYOTA Hi-Ace, YH51LB-JR(12Seater)	1	0	1	1,232,000		A	A	
4	化学肥料	14-14-14 50kgs/bag×1,900bags=95,000kgs					414,200.00			
5	有機肥料	50kgs/bag×3,000bags=150,000kgs					330,000.00			
6	セメント(ポルトランドセメント)	40kgs/bag×2,000bags=80,000kgs					116,000.00			
7	布団籠	1box:0.6×1.2×2m (4mm×#8 Wire), 50boxes					34,200.00			
8	ポリエチレンパイプ(P.E.)	1piece:12 OX10.3mm×6m, 6m×70pes=420m					681,991.00			
9	チェーンブロッカ	KITO CB-5(5t) 1台					15,850.00			
10	グラインダー 1M	MAKITA 9306 商標グラインダー 1台	1	0	1		4,078.00	A	A	
11	:	MAKITA 9006 ハンドグラインダー 1台	1	0	1		3,738.00	A	A	
12	電氣溶接機	MILLER Roughneck200A 1台	1	0	1		53,190.00	A	A	
13	タイプライター	電子タイプライター&ディスクドライブ機 3組	3	0	3		98,295.00	A	A	
14	複写機	FUJI 5870 1台	1	0	1		92,000.00	A	A	
15	コンピュター	IBM Ps/2 Model50 1	1	0	1		264,956.50	A	A	
16	自動二輪車	SUZUKI GP-125 5台	5	0	5		145,500.00	A	A	
17	モーターグレーダー	KOMATSU CD 511A-1 1台	1	0	1		2,740,000.00	A	A	
18	バッテリー(重機用)	(4D 6個 8D 6個, 2SMF 3個) 計15個					35,211.00			
19	タイヤ (重機用)	825×20×14 w/tubes 6本					22,721.76			
20	:	10×20×14 w/tubes 4本					20,485.64			
21	:	9×20×14 w/tubes 6本					26,301.96			
22	:	8.25×16×12 w/tubes 5本					14,547.00			
23	:	7.5×16×10 w/tubes 4本					8,341.88			
24	発電機	KUBOTA DH 1101BC/12.5KVA 1台					115,500.00	A	A	
25	:	KUBOTA GS 130 A1400 1台					36,600.00	A	A	

昭和62年度機材供与(FY1987)

番号	機材名	仕 様	数 量		購 入 価 格		機材管理状況 管理 利用	備 考
			供与 処分	保有	本邦調達 単 位	現地調達 単 位		
26	スベアパーツ	KOMATU 変換用				1,492,365.00		
27	殺虫剤	スミチオン 1ℓ/bot X 100bots = 100ℓ				12,800.00		
28	除草剤	ラウンドアップ 4ℓ/bot X 12.5bots = 50ℓ				10,625.00		
29	;	ダウボン 2kgs/bag X 50bag = 100kgs				17,500.00		
30	種子	アカイアサ 1kgs				5,000.00		
31	;	ユウカリアトスガマンドウレンチス 4kgs				60,000.00		
32	;	ペンダットバイン 12ℓ				6,000.00		
33	無線機(ハンドタイプ)	ICON 1CH16 10台	10	0	10	173,690.00	A A	(10%VAT含む)
34	;	ICON V100 5台	5	0	5	143,246.50	A A	(10%VAT含む,無線基 地登録料込み)
			6,262,000			7,194,936.24		



昭和63年度機材供与(FY1988)

番号	機材名	仕 様	数 量		購入 価 格	機材管理状況		備 考
			供与 処分	保有		現地調達(円)	管理 利用	
1	小型バス	TOYOTA コースターバス BB21L-MDR 1台	1	0	2,722,000		A A	
2	ダンプトラック	ISUZU ダンプトラック HTW11K 1台	1	0	5,550,000		A A	
3	カーゴトラック	ISUZU カーゴトラック FSS12Q 1台	1	0	4,900,000		A A	
4	スベーパーブ	KOMATSU プラント用			3,360,000			
5	;	ISUZU用			4,100,000			
6	;	MITSUBISI用			3,779,000			
7	軍用工具	ソケットレンチセット、ナスター、グラインダー 他			597,200		A A	
8	日よけネット	#600 B-type 1.1mX10.3M 100巻			750,000			
9	土壤試験機器	PH値試験機・土質採取機 ワイヤゲージ 各2セット	2	0	276,000		A A	
10	ジェットジュエスター	PR-02 25台			692,500			
11	携帯用水容機(ジェット)	ウェットバッグ 75個			1,852,500			
12	印刷機	プリンタングマンーン RB400 1台	1	0	360,000		A A	
13	殺虫剤	マラソン 1L/bot X100bots=100L			13,300.00			
14	除草剤	ラウンドアップ 4L/bot X15bots=56L			13,650.00			
15	;	ダクマン 1kg/bag X100bag=100kgs			18,800.00			
16	化学肥料	14-14-14 50kgs/bag X1,500bags=75,000kgs			374,500.00			
17	有機肥料	50kgs/bag X4,700bags=235,000kgs			550,000.00			
18	セメント(ポルトランドセメント)	40kgs/bag X2,000bags=80,000kgs			130,000.00			
19	布団履	1box: 0.6X1.2X2.0m(4mmX#8 Wire) 50boxes			34,750.00			
20	噴霧器	16L Type 10台	1	0	14,500.00		A A	
21	種子	アサリアエラ 10kgs			50,000.00			
22	;	ユウカリアブスコマルドリンダス 2kgs			30,000.00			
23	;	ベグレットリン 20kgs			10,000.00			
24	造林用手工具	スコップ かわがてこ 他			156,000.00			
25	測量機具	コンパス けんばね他			121,950.00		A A	
					28,939,200	1,507,450.00		

平成元年年度機材供与 (FY1989)

番号	機材名	仕 様	数		購入価	現地調達率	機材管理状況		備 考
			供与処分	保有			管理	利用	
1	ピックアップトラック	MITSUBISI K24TUNSL (Diesel) 1台	1	0	1,050,000		A	A	
2	ファームトラック	ISEKI トラクター T7020F(加重セット込み) 1台	1	0	3,630,000		A	A	
3	円盤鋸(ファームトラクター用)	ISEKI Disc Plough MDP264-G 1セット	1	0	350,000		A	A	
4	円盤鋸(ファームトラクター用)	ISEKI Disc Harrow MTH2028 1セット	1	0	470,000		A	A	
5	無線機	HF SSB Transceiver FT-180A 2台	2	0	326,600		A	C	DENRのライセンス手続き中
6	パワーユニット(無線機用)	Electric Power FT-757HD(220V) 2台	2	0	77,000		A	A	
7	アンテナ(無線機用)	Antenna YA-30 2セット	2	0	44,000		A	A	
8	アンテナポール(無線機用)	Antenna Pole FP-10A 2セット	2	0	110,000		A	A	
9	アンテナベース(無線機用)	Antenna Base 2セット	2	0	97,800		A	A	
10	アンテナスタブ(無線機用)	Antenna Stay Kit 2セット	2	0	60,800		A	A	
11	日よけネット(Stade Screen)	#600, B-Type 1巻:1.1mX10.3m 100巻			750,000				
12	ファイヤーレンジャー	FR-02 75台			2,115,000				
13	水甲ポンプ	P-203 4台	4	0	337,600		A	C	
14	水中ポンプ竹製品	取水・排水ホース 50口径/50L 4セット	4	0	180,000	1	A	C	
15	水タンク	LK-1000, 1000L 4台	4	0	723,840	1	A	A	
16	肥料	NPK-22-10-10 15kg/bag X 934bags = 14,010kg			1,709,220	1			
17	車輪部品	ISUZU TOYOTA MITUBISI NISSAN			5,364,340	1			
18	椅子	ナラ 7002			21,000.00				
19	:	70口径カリカリホース 60kgs			15,000.00				
20	:	ヤマト 200kgs			12,000.00				
21	:	ベグレットペン 30kgs			15,000.00				
22	:	ニウカリプトスカルドレンソックス 1kgs			15,000.00				
23	:	アゴホ 2kgs			6,000.00				
24	:	マンキフェラインチカ 190kgs			47,500.00				
25	化学肥料	14-14-14 50kg/bag X 480bags = 24,000kgs			117,600.00				

平成元年年度機材供与 (FY1989)

番号	機材名	仕 様	数		入 価 格	機材管理状況		備 考
			供与 処分	保有		管理	利用	
26	有機肥料	50kg/bag X 3,500bags=175,000kgs			392,000.00			
27	肥料	Tablet Rhizobium 150,000 tablets			26,250.00			
28		Tablet Mychorriza 170,000 tablets			25,500.00			
29	殺虫剤	マラソン 100ℓ			16,250.00			
30		クロルゲン 300ℓ			97,500.00			
31	除草剤	ラウンドアップ 50gals=200ℓ			55,000.00			
32		ダクボン 76kgs			37,240.00			
33	布団籠	Cyclone Wire, Tire Wire #1 -#6			59,294.00			
34	草薙部品 (重機用)	KOMATSU			1,255,011.12			
35	プラスチックバッグ	4'X6' X .002			24,132.50			
36	オペレーターヘッドプロジェクター	KODAK Standard I Box Type (スクリーン付き) 1台	1	0	22,413.70	A	A	
37	スライドプロジェクター	KODAK M-BR	1	0	17,450.80	A	A	
38	ビデオカメラ	SONY Beta Movie CCD-V100K 1台	1	0	31,000.00	A	A	
39	ビデオデッキ	SONY Betamax SL-HF860D 1台	1	0	17,800.00	A	A	
40	テレビ (ビデオ用)	SONY Trinitron Color TV 1台	1	0	22,000.00	A	A	
41	ミュージック機器	SONY Musicmate HKDTP	1	0	16,500.00	A	A	
42	製図版	ドラフティングボード 90cm X 120cm 5枚	5	0	20,000.00	A	A	
43	トレス・レタリングセット	Quantum Printers USA, Satellite 800 1セット	1	0	35,000.00	A	A	
44	白板	PIRAMID Magnetic Type (4' X 8') 4枚	4	0	11,076.00	A	A	
45	黒板	PIRAMID Winged Type 4枚	4	0	11,827.92	A	A	
46	タイプライタイマー	OLIMPIA Semi-Standard 8台	8	0	38,360.00	A	A	
47	セメント (ポルトランドセメント)				161,150.00			
					17,387,000	2,641,856.04		

平成2年度機材供与(FY1990)

番号	機材名	仕 様	数 量		購入価 格	機材管理状況		備 考
			供与	処分/保有		管理	利用	
1	ターボシリンダー	TOYOTA L/C HZJ80L-GCKRS(Diesell)2台	2	0	4,012,000	A	A	
2	バックアップトラック(Wタンク)	MITSUBISI K24TUNSL+Water Tank 1台	1	0	2,845,000	A	A	
3	日よけネット(Shade Screen)	#600, B-Type 1巻: 1.1m X 10.3m 100巻			740,000			
4	ファイヤーレンジャー	FR-02 50セット			1,395,000			
5	肥料 SHIN MARURIN TOKUO	15kg/bag X 500bags = 7,500kgs			1,375,000			
6	燻子	アカンブアクリリホルミス 50kgs			32,500.00			
7	:	ユウカリプトスカマンドクレンシス 300grms			2,000.00			
8	:	ヤマホ 20kgs			2,000.00			
9	:	米櫃櫃子(マンゴ グワパン アボガド 他)			99,992.50			
10	肥料	14-14-14 50kg/bag X 500bags = 25,000kgs			172,500.00			
11	:	50kg/bag X 2,000bags = 100,000kgs			240,000.00			
12	殺虫剤	スミチオン 50L			13,250.00			
13	:	クロルシン 11gal = 44L			24,000.00			
14	メント	ポントラントメント 40kg/bag X 750bags = 30,000kgs			105,000.00			
15	帯田電	Cyclone Wire, Tire Wire #10 #16			134,990.00			
16	土壌薬	21X38 1,000枚			7,900.00			
17	プラスチックバッグ	4 X 6 X .002 1,000,000枚			150,000.00			
18	自動二輪車	SUZUKI X4-125 6台	6	0	273,600.00	A	A	
19	互換部品	KOMATU D60A-6用(重機)			271,369.16			
20	:	TOYOTA			99,120.00			
21	:	MITUBISI			33,180.00			
22	互換部品	HITACHI TOYOTA NISSAN SUZUKI			7,372,085			
					14,469,805			1,661,301.66







JICA