

収集資料リスト

1. Report to the Pyithu Hluttaw on the Socialist Republic of the Union of Burma for 1981/82
2. Export list of Burma
3. State Economic Organization
4. Selected monthly Economic Indicators, Statistical paper No 3, November and December 1984
5. Notes on Forestry in Burma
6. Some Facts on Timber Corporation, September 1983

参 考 資 料

1. 灌漑技術センタープロジェクトに関するQuestionnaire 回答
2. 林業開発センターに関するプロジェクトプロポーザル

Questionnaire. I

1. Confirmation of the requests by the Government of Burma for Technical Cooperation.

(Ans:) It will be made soon.

2. Contents of the Project.

(1) Title of the Project

Irrigation Technology Centre.

(2) Executing Organization.

(Ans:) Irrigation Department (I.D)

Ministry of Agriculture & Forests (M.A.F)

(3) Objective & background of the Project Proposal.

(Ans:) Burma is an agricultural country and about 87 percent of its population is employed in agriculture.

To attain self sufficiency in food production to support the growing population, to stabilize the supply of agricultural raw materials to agro-industry, and to promote the export of agricultural produce, emphasis has been placed to achieve higher unit yield through intensive production of the most suitable crops in the selected land through double and triple cropping.

Toward this end, water resources programme has been formulated in Burma for irrigated agricultural development through domestic as well as international financing. Therefore, I D proposed to utilize I.T.C for the following:-

1. In order to utilize for planning and designing for the future projects, various data and informations collected from the completed projects are pigeon holed.
2. To prepare design standards conforming to the local conditions through the existing capacity for the development of technology.

3. Efficient implementation of projects through provision of reliable data and test results to be collected at ITC by consolidating the existing test and research facilities.
4. Strengthening of manpower through training in irrigation engineering for prospective engineers.
5. Reinforcement of workshop in order to conduct effective operation & maintenance for heavy construction machinery and training of mechanical engineers, mechanics, operators, etc. in the workshop.
6. To perform necessary testing of construction materials, analysing the results and give recommendation to the designers and Construction Engineers.
7. To conduct tests by using hydraulic model in order to verify the hydraulic phenomena of structures designed in the office whenever necessary.

(4) Total scope of the Project and its expected benefits.

(Ans:) Total scope of the Project is to establish following facilities in the I.T.C.

- | | |
|-------------------------|---|
| 1. Administration | - about 15-20 persons |
| 2. Library | - custody of documents related to project, about 20 reading decks |
| 3. Conference Room | - 2 rooms for 20 persons
1 room for 10 persons. |
| 4. Lecture Room | - 2 rooms for 40 persons
1 room for 20 persons. |
| 5. Central Lecture Room | - Accomodation of 200 persons for seminars lectures. |
| 6. Audio - Visual Room | - Accomodation of 40 persons |
| 7. Data Filing Room | - Filing of data.
microfilms & others. |

8. Information Service Room
9. Computer Room - Centre processing room
data and key punching room.
10. Technology Development
Room - Staffs' room
11. Soil Mechanic Engineering
Room
12. Concrete Engineering Room
13. Laboratory and Field for
Hydraulic Model Tests
14. Workshop house including
training room for mechanical
engineers, mechanic and
repairman.

These facilities would be enhance the develop-
ment of technology and staff training of 20 - 40
persons at one time.

(5) Scope of cooperation by the Government of Japan.

(a) Required fields and subjects.

(Ans:) As mentioned in 2-(4) above.

(b) Form and size of cooperation (i.e., expert,
training fellowship, equipment etc).

(Ans:)

(c) Duration and desirable starting time.

(Ans:) Project Implementation period is two years.

(d) Priority among required fields and subjects.

(Ans:) Serial number 1, 2, 3, ~~4~~, 6 and 7 of answer to
question number 2(3) are taken as priority one
and serial number 4 and 5 for priority two.

3. Justification of the Project.

- (1) Relation with the National Development plan and other Development Programs.
- (2) Priority of the Project in the National Development Plan.

(Ans:)

4. Relation with other cooperation programs by other countries and/or international organizations.

(Ans:) It is not established yet.

5. Items concerning implementation of the Project.

- (1) Organization and system of project implementation.

(Ans:) ID wishes to organize a new division i.e. the establishment of I.T.C, where the experts having knowledge of advanced technology are to be stationed for performance of on-job training courses in computerization, simplification, standardization and unification of design and cost estimation. ITC will run as Divisional office Basis' and implementation by "Force Account" method in co-ordination with arriving experts working schedule.

- (2) Scope of the activities.

(Ans:) The scope of the activities are construction of the building, instrumentation and training for the Irrigation personnels.

- (3) Budget for the implementation of the Project.

(Ans:) It will be included in the annual budget of the department and proposed for the providing of facilities as mentioned in the ansure number 2-(4.)

(4) Personal program, number of counterpart personnel to Japanese experts.

(Ans:) It will be included when contract is drawn up.

(5) Duties of Japanese experts.

(Ans:)

(6) Working and living conditions of Japanese experts.

(Ans:) Similar to those experts working in similar areas in the country.

(7) Any facilities and conveniences provided to Japanese experts by Burmese Government.

(Ans:) It will be included and mentioned as approved by appropriate authorities at the time of drawing up the contract for the services of the expert.

Questionnaire II

1. Present Situation of Irrigation in Burma.

(A) Irrigation Department under the Ministry of Agriculture & Forests is Maintaining Irrigation Works, such as storage Dam and Diversion Works in the Country.

The Irrigable area under the two types of work in 1981-82 are as follow.

(1) Storage Dams	395341 ac
(2) Division Works	1020125 "
Total	<u>1415466</u> "

Under the Fourth Four Year Plan (FFYP) the increase irrigable will be:

(1) Storage Dams	79032 ac
(2) Division Works	24300 "
Total	<u>103332</u> "

The increase in irrigable area is due to the completed projects and partially completed projects.

(B) The present organization is essentially on the basis of division of the work load under twenty three charges headed by Six Superintending Engineers, Two Deputy Directors, Five Project Directors and seven Independent Executive Engineers, Three Independent Assistant Engineers, all twenty three of them being directly responsible to the Director General.

(a) Four Superintending Engineers, Seven Independent Executive Engineers and Three Assistant Engineers are responsible for the main function of operation and Maintenance,

(b) Two Superintending Engineers and Five Project Directors charges have the main function of construction of Projects,

(c) One Deputy Director is responsible for the survey, Investigation and Design.

(d) One Deputy Director is responsible for the Operation Maintenance and Repair of all the Major Equipment help by the Department.

Burma's territory covers some 260,000 square miles. About 45 million acres are considered arable but only some 19.8 million acres are presently under cultivation. Out of the remaining areas, 21 million acres are classified as cultivable waste land. To increase the agricultural products, new Irrigation Facilities are essential so as to fulfil the national income.

2. Present situation of Irrigation Technology in Burma.

(1) Present training facilities & content of training.

Very limited and rather general,.

(2) Number of personnel relating to irrigation development.

(3) Present technology.

3. Proposed training centre.

(1) Size of the centre.

The same as answers to question number 2.(4) of Questionnaire I.

(2) Organization of the centre.

This project should be organized with one Project Director, ten project engineers and ten office staffs.

(3) Personnel Assignment Program.

It will be made in line with the arrival and working schedule of the experts in the initial stage.

(4) Activity program of the centre.

Activity programmes of the centre are,

- (1) Technology Establishment of research and development system for appropriate technology necessary for effective performance of projects.

- (2) Technical training for prospective engineers through regular practical training courses.
- (3) Diffusion and effective use of technology developed in item (1) and findings of research on civil engineering & material tests.
- (4) Development and application of special technology in irrigation engineering through introduction of computer system.
- (5) Reinforcement of the workshop facilities for heavy construction machinery and technical training of mechanical staff.

(5) Budget Programme.

The same as question number 5 (3) of Questionnaire I.

4. Present situation of the project site.

Under inspection, review and discussion with the team leader of the J.I.C.A.

THE SOCIALIST REPUBLIC OF THE UNION OF BURMA
MINISTRY OF AGRICULTURE AND FORESTS

PROPOSAL FOR
CENTRAL FORESTRY DEVELOPMENT
TRAINING CENTRE PROJECT
UNDER
JAPANESE GOVERNMENT TECHNICAL COOPERATION

DECEMBER 1984

C O N T E N T S

<u>Serial No.</u>	<u>Description</u>	<u>Page</u>
1.	Name of Project	1
2.	Proposed grant amount	1
3.	Name of implementing agency	1
4.	Name of executing agency	1
5.	Project site	1
6.	Sector and development objective	2
7.	Project objective	2
8.	Background information	3
	(a) Forestry activities	3
	(b) Staff	8
	(i) Forest Department	8
	(ii) Timber Corporation	9
	(c) Present Training Facilities	10
9.	Proposed training and research programme.	11
10.	Project Implementation	12
11.	Cost Estimate and Financing	13
12.	Project benefit	14

APPENDICES

I.	Teak and other Hardwoods extracted during the 3rd and 4th Four-Year Plan.
II.	Plantations formed during the 3rd and 4th Four-Year Plan.
III.	Proposed list of Buildings and Installations.
IV.	Proposed list of Equipments -
	(a) For Forest Department.
	(b) For Timber Corporation.

PROPOSAL FOR
CENTRAL FORESTRY DEVELOPMENT TRAINING CENTRE PROJECT
UNDER JAPANESE GOVERNMENT TECHNICAL COOPERATION

1. Name of Project : Central Forestry Development Training Centre Project under Japanese Government Technical Cooperation.
2. Proposed Grant Amount : US \$10.00 million(J¥2.5 billion).
3. Name of Implementing Agency : Ministry of Agriculture and Forests, the Socialist Republic of the Union of Burma and the Japan International Cooperation Agency, Japan.
4. Name of Executing Agency : Forest Department and Timber Corporation.
5. Project Site : Hmawbi Reserve, Hmawbi Township, Rangoon Division.

6. Sector and Development Objective : (a) To promote Forestry Development in Burma.
- (b) To conduct training courses in Forestry for local community development, dendro-energy for rural areas, forest fire protection and Agro-forestry.
- (c) To conduct training courses in logging and primary wood processing.
- (d) To conduct job research and pilot experiments for the improvement of social forestry and activities of timber extraction.
- (e) To provide facilities for Forestry Development.

7. Project Objective

To set up a Central Forestry Development Training Centre including research facilities, for both Forest Department and Timber Corporation of the same Ministry, and establishment of demonstration

and pilot experiments in suitable parts of the country with the technical cooperation of Japan.

8. Background Information:

(a) Forestry Activities

Burma has an area of 261,228 sq.miles(676,577 sq. (km) of which 149,885 sq.miles (388,201 sq.km) or 57 % is covered by forests. About 15% of the total land area is classified as Reserved Forests and the remaining 42 % as the Unclassed Forests. A concise and sound forest policy and objectives had been laid down by the Burma Socialist Programme Party in its Short Term and Long Term Economic Plan Guide Lines, the essence of which is to meet the internal demand of forest produce and to export the surplus; to adopt advanced technology in the establishment of forest plantations; and to endeavor for better land use and increase production.

In accordance with that policy Forest Department and Timber Corporation are responsible for the conservation and proper management of the natural forest resources; creation of man-made forests for increased production in future and better extraction,

processing, distribution and export of forest produce of Burma.

To facilitate proper management of the forest resources, forest working plans are drawn up for a certain regions of the country, prescribing methods of treatment, annual allowable cuts, minimum girth limits, felling cycles and cultural operations.

Annual growth rate of forests had been carefully worked out, and annual extraction of timber is well controlled. At present, annual allowable cut for Teak is about 348,000 hoppus tons (492698 cu. metre app:) and for hardwoods other than Teak is about 1,300,000 hoppus tons (1,840,540 cu. metre app:). After agriculture, forestry sector is the main foreign exchange earner and Burma is abound with Teak and a large variety of other hardwoods. According to the studies by the Botanists and Foresters, there are more than 1000 species of hardwood trees growing in the forests of Burma.

Teak is the most valuable species by far, and it constitutes about 12 % of the total growing stock. The method of silvicultural treatment adopted both for Teak and hardwoods has been the "Burma Selection

System" whereby trees of the fixed girth limit are harvested on a 30 years felling cycle.

The volume of Teak and other hardwoods extracted as input during the 3rd and 4th Four-Year Plan can be seen in Appendix I.

Regeneration of Teak is afforded by both natural and artificial means. Improvement Fellings for the benefit of Teak are carried out during girdling and selection marking operations so that suitable environment for better growth of teak is created in the region concerned.

Besides the operations for natural regeneration of Teak and other high value species under the "Burma Selection System", forest plantations by artificial means are also being formed.

As a dynamic approach to achieve increased production in many years to come, the Forest Department has launched a large scale plantation programme under the 4th Four-year Economic Plan. In accordance with specific objectives, forest plantations are classified into 4 main types at present. It includes -

- (1) Commercial plantation for export and internal consumption.

- (2) Village supply plantation for fuelwood, post and poles,
- (3) Industrial plantation for the paper mills and matchwood factories.
- (4) Watershed plantation for soil conservation.

Plantations formed during the 3rd Four-Year Plan (1978-79 to 1981-82) and the Plantation Programme for the 4th Four-Year Plan (1982-83 to 1985-86) are shown in Appendix II.

Besides the forestry activities undertaken by the State sector, the programme for extensive tree planting and formation of village woodlots by mass participation is also launched yearly under the supervision of the Peoples' Councils concerned. Millions of tree seedlings are distributed free of charge by the Forest Department in accordance with the system of allocation prescribed by the Peoples' Councils. Actual planting and maintenance is done by the community themselves and technology of tree planting and follow-up cultural operations is extended by the Forest Department.

In the area of agro-forestry, there is full cooperation among the Forestry, Agriculture and Veterinary

Services. Seedlings of suitable tree species for the establishment of wind-break forest to improve livestock breeding and to increase crop yield are also raised in the forest nurseries and distributed yearly for planting out in the field. Interplanting of agriculture crops and tree seedlings in forest plantation is also practised in various parts of the country.

In the endeavour to meet the need of the country for self-sufficiency and exportable surplus, it is considered that intensified strategies need to be introduced for the application of advanced and proven technologies for the development of forestry in Burma.

Although some proven technologies have been already adopted and transferred to forestry workers, there are still more rooms for further development. To replenish and update the present technologies, comprehensive training courses for various levels of workers in Forestry Sector are essential and some applied research and pilot experiments need to be conducted as laid down in the project objectives.

(b) S t a f f

(i) Forest Department

Director General is the head of the department and there are about eight thousand workers employed in Forest Department. About half of the present strength is mainly involved in management and administration of the natural forest resources and the remaining half in plantation works. Since there are 14 States and Divisions constituted in the Socialist Republic of the Union of Burma, 14 regional forest offices are formed, each under the charge of a forest officer at the director level. The States and Divisions are again subdivided into township levels and there are 168 township forest offices each under the charge of a township forest officer.

As for the forest plantation sector, the country is conveniently divided into three plantation zones and there is one Director for each zone. Again, these zones are subdivided into 20 sub-zones, each sub-zone being taken care of by one Deputy Director. As shown in the Appendix II, these twenty Deputy Directors with their plantation assistants will undertake the task of

plantation establishment up to 90,000 acres per year in future.

At the same time, five Seeds and Seedlings Centres are in the process of formation and development during the fiscal year 1984-85, with the four major functions as follows:

- (1) To provide tree seedlings for commercial and fuel-wood plantations being established in the nearby reserved forests.
- (2) To raise shade trees and ornamental trees for planting out at public centres in the major cities in the form of instant trees.
- (3) To establish small woodlots and experimental plantations with various tree species, both indigenous and exotic.
- (4) To serve as a Seed Centre for storage, testing and distribution of seeds of high value species and fast growing species.

(ii) Timber Corporation

Timber Corporation, which is the sole agent of the country for extraction, processing and marketing of timber employs about (41,000) workers and has four main departments, viz: Extraction Department, Milling and Marketing Department, Engineering Department and Accounts

Department. The former three departments are headed by each General Manager, and Accounts Department is headed by a Deputy General Manager. Managing Director is head of the Corporation, with a General Manager for Planning and Administration as his deputy. In seven States and seven Divisions constituted in the Socialist Republic of the Union of Burma, activities of Timber Corporation are carried out under consecutive supervision of Divisional Managers, Agency and Territorial Managers, Range Incharge Deputy and Assistant Managers, foremen and Technicians.

Forestry workers in both Forest Department and Timber Corporation have different levels of forestry and related knowledge ranging from University graduates to trained vocational workers.

(c) Present Training Facilities

There is a six-year Forestry training course leading to Bachelor of Science degree at Rangoon University. Forestry graduates are recruited both in Forest Department and Timber Corporation at professional level.

Vocational and Technical training courses are conducted at Burma Forest School, Maymyo, mainly for inservice personnels like rangers and foresters. Forest

Research Institute at Yezin also conduct specialised training courses, involving research findings and application.

Timber Corporation is giving its various levels of workers different categories of training course to up-keep their professional expertise. Recruits are given short induction training courses; technician staff is given refresher and on - job training courses; and managerial staff is given planning and management trainings. Although these training courses are running properly, advanced orientations and facilities are still in need to cover a wide range of training subjects, teaching aids research facilities and qualified teaching staff, so that forestry workers may keep pace with the leap of modern technology.

9. Proposed Training and Research Programme

With the implementation of the project, the following training courses and research programmes will be adopted:

- (1) Short courses in forestry for local community development, dendro-energy for rural areas and agro-forestry both for the forestry personnels and representatives of Village Tracts concerned;

- (2) In - service training for officers and staff members of different levels;
- (3) On - job trainings;
- (4) Special training for extension workers;
- (5) Operator training for mechanized equipments.

Applied research will also be undertaken in the areas of:

- (a) Protection of forest products in course of extraction;
- (b) Lops and tops utilization;
- (c) Handling of logs for export by water delivery;
- (d) Protection of logs exposed to tidal water;
- (e) Pathological assessment and control of elephant diseases.

10. Project Implementation

The project implementation period will be six years after the approval by the Governments concerned. Construction of main buildings including necessary installations of equipments, electricity,

sanitation, etc., will be born by the grant. Acquisition of land for training centre, construction of temporary buildings, provision of Burmese Counterpart personnels and operating and maintenance costs will be undertaken by the host Government.

Proposed list of buildings and equipments needed for the Project under the technical cooperation are mentioned in Appendices III and IV respectively. After proper negotiations and approval from both governments, building and installation programme will commence as soon as possible and will complete in two years period. Required equipments, after necessary negotiations and approval will be received from Japan as Colombo Plan technical cooperation facilities.

11. Cost Estimate and Financing:

The Japanese Government will cover the cost of buildings and necessary equipments for comprehensive trainings and research activities under technical cooperation scheme. Apart from technical services total grant amount is expected to be around Japanese Yen 2500 million (US \$10.00 million app:) for the establishment of the Centre and necessary installations. Detail cost estimate will be finalised after preliminary survey and appraisal by concerning agencies of the two governments.

12. Project Benefit:

After the implementation of the project, foresters and loggers in the forestry sector will be better equipped with appropriate and advanced technologies. At the same time workers and peasants through out the country will gain basic knowledge of the value in forestry community development through the effective extension services and as such, it will amount to promote forestry development in Burma.

Appendix I

Teak and other Hardwoods extracted during the Third and
Fourth Four Year Economic Plan in Burma

Hoppus Tons

Se- rial No.	Fiscal Year	Timber Extraction under Four Year Economic Plans					
		T e a k			Other Hardwoods		
		Dry	Green	Total	Group I	Others	Total
1	2	3	4	5	6	7	8
	3rd Four Year						
1	1978-79	363182	99231	462413	115551	353673	469224
2	1979-80	370487	107727	478214	199891	523296	723187
3	1980-81	366365	118716	485081	176099	547533	723632
4	1981-82	414167	102719	516886	149089	474954	624043
	4th Four Year						
5	1982-83	402918	86059	488977	162082	427165	589247
6	1983-84	254582	41821	296403	79043	318589	397632
7	1984-85 (Plan)	414500	61500	476000	157700	735100	892800
8	1985-86	*	*	433000	*	*	830000
	T o t a l			3636974			5249765

* Not available as yet.

Plantations formed during the 3rd and 4th

Four-Year Plan

Serial No.	Year	Types of Forest-Plantation and Area (Acres)					Total
		Commer- cial planta- tion	Village supply planta- tion	Indus- trial plan- tation	Water- shed plan- tation	Wood- lot plan- tation	
1	2	3	4	5	6	7	8
<u>3rd Four Year Plan</u>							
1	1978-79	5685	5190	50	-	-	10925
2	1979-80	7820	8283	645	-	-	16748
3	1980-81	20382	8130	520	3820	3232	36084
4	1981-82	28263	7984	700	6425	3475	46847
<u>4th Four-Year Plan</u>							
5	1982-83	36237	8626	1300	8780	4499	59442
6	1983-84	40850	15290	1500	10525	2985	71150
7	1984-85	46700	17900	3710	10100	3410	81820 ^{a/}
8	1985-86	41000	34100	4300	10600	2900	92900 ^{b/}
Total		164787	75916	10810	40005	13794	305312

a/ Under implementation.

b/ Provisisonal plan only.

Proposed list of Buildings and Installations

Serial No.	List of Buildings and Installations	No.
1	Main office building	1
2	Lecture Halls (24m x 24m) (two each for TC & FD)	4
3	Common Auditorium	1
4	Work-shop (14m x 30m) (one each for TC & FD)	2
5	Laboratory(14m x 30m) (one each for TC & FD)	2
6	Simulation room(14m x 30m)(one each for TC & FD)	2
7	Glass house and environment chamber for seed and seedling production	2
8	Dormitories (for fifty trainees each) (2 each for TC & FD)	4
9	Ware house (6m x 10m) (one each for TC & FD)	2
10	Electrical Power House (12m x 6m) (one each for TC & FD)	2
11	Water storage, pipe-lines and sanitation systems	
12	Other necessary installation	

Proposed list of Equipments

(a) For Forest Department

1. Road Construction Machinery.
2. Workshop Tools and Equipments.
3. Books, Periodicals and Publications.
4. Printing and copying facilities.
5. Photographic materials, cameras and developing units.
6. Audiovisual Equipments.
7. Internal Telephone System.
8. Radio-telephone net work.
9. Conference audio-system.
10. Laboratory Equipments.
11. Electrical Appliances.
12. Office Equipments.
13. Transportation Vehicles.
14. Machines, Tools for nursery and plantation.
15. Survey and Engineering Instruments.
16. Mapping Instruments.
17. Audio-visual Mobile Unit for extension services.
18. Soil Testing Kits.
19. Furniture (lot).

Proposed list of Equipments

(b) For Timber Corporation

1. Wood Anatomy and Pathology Laboratory equipments.
2. Elephant pathology laboratory equipments.
3. Logging machinery and equipments.
4. Road construction machinery.
5. Portable wood processing machinery and equipments.
6. Workshop tools and equipments.
7. Books, Maps and publications.
8. Printing and copying facilities.
9. Photographic materials.
10. Internal telephone system.
11. Conference audio-system.
12. Electrical tools and apparatus.
13. Transportation vehicles.
14. Office equipments.
15. Audiovisual equipments.

Notes:- Detailed list of above items will be specified after thorough negotiations between concerning agencies of the two governments.



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