

- (1) Exemption from income taxes and charges of any kind imposed on or in connection with the living allowances remitted from abroad in relation to implementation of the Project;
- (2) Exemption from import and export duties and any other charges imposed on personal and household effects which may be brought in from abroad or taken out of the Republic of Indonesia;
- (3) Exemption from import taxes, import sales taxes, sales taxes and other taxes and charges of any kind imposed on or in connection with the purchase in the Republic of Indonesia by the Japanese experts of one motor vehicle per each expert;
- (4) Free local medical services and facilities for the Japanese experts and their families;

III. PROVISION OF MACHINERY AND EQUIPMENT

1. In accordance with laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense such machinery, equipment and other materials necessary for implementation of the Project as listed in Annex III, through normal procedures under the Colombo Plan Technical Cooperation Scheme.
2. The articles referred to in 1. above will become the property of the Government of the Republic of Indonesia upon being delivered C.I.F. to the Indonesian authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for implementation of the Project in consultation with the Japanese experts referred to in Annex II.
3. All equipment, machinery and materials provided by the Government of Japan through JICA during the period from January, 1985 to December, 1989 for the implementation of the Tropical Rain Forest Research Project will be utilized for the implementation of the Project.



IV. TRAINING OF INDONESIAN PERSONNEL IN JAPAN

1. In accordance with laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to receive at its own expense the Indonesian personnel connected with the Project for technical training in Japan through normal procedures under the Colombo Plan Technical Cooperation Scheme.
2. The Government of the Republic of Indonesia will take necessary measures to ensure that the knowledge and experience acquired by the Indonesian personnel from technical training in Japan will be utilized effectively for implementation of the Project.

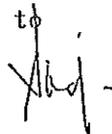
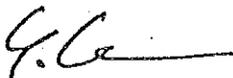
V. SERVICES OF INDONESIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. In accordance with laws and regulations in force in the Republic of Indonesia, the Government of the Republic of Indonesia will take necessary measures to secure at its own expense the necessary services of Indonesian counterpart and administrative personnel as listed in Annex IV.
2. The Government of the Republic of Indonesia will allocate the necessary number of suitably qualified personnel corresponding to each Japanese expert to be dispatched by the Government of Japan as specified in Annex II for effective and successful transfer of technology under the Project.

VI. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE REPUBLIC OF INDONESIA

1. In accordance with laws and regulations in force in the Republic of Indonesia, the Government of the Republic of Indonesia will take necessary measures to provide at its own expense the following:

(1) Land, buildings and facilities as listed in Annex V;



- (2) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than those provided through JICA under III. above;
 - (3) Transportation facilities and travel allowance for the official travel of Japanese experts within the Republic of Indonesia;
 - (4) Suitably furnished accommodations for the Japanese experts and their families.
2. In accordance with laws and regulations in force in the Republic of Indonesia, the Government of the Republic of Indonesia will take necessary measures to meet
- (1) Expenses necessary for the transportation of articles referred to in III above, within the Republic of Indonesia, as well as for the installation, operation and maintenance thereof;
 - (2) Customs duties, internal taxes and any other charges imposed in the Republic of Indonesia on the articles referred to in III above;
 - (3) All running expenses necessary for the implementation of the Project;

VII. ADMINISTRATION OF THE PROJECT

1. The Director General of Higher Education of the Ministry of Education and Culture will bear overall responsibility for the implementation of the Project.
2. The Director of the Research and Community Service Development who is nominated as the Project Manager, will be responsible for administrative and managerial matters of the Project.
3. The personalities listed below or their representatives, will assist the Project Manager in detailing with the administrative and managerial matters arising in the day-to-day operation of the Project.



- (1) Rector, Bogor Agricultural University
 - (2) Rector, Gajah Mada University
 - (3) Rector, Mulawarman University
4. The Japanese Team Leader will provide necessary recommendations and advice on technical and administrative matters concerning implementation of the Project to the Project Manager and the Director of PUSREHUT.
 5. The Japanese experts will give necessary technical guidance and advice to the Indonesian counterpart personnel on matters pertaining to implementation of the Project.
 6. For the effective and successful implementation of the Project, a Joint Committee and a Research Committee will be established with the functions and composition as referred to in Annex VI and VII.
 7. The Project will be implemented in collaboration with relevant organizations in line with the organization chart as shown in Annex VIII.

VIII. CLAIMS AGAINST JAPANESE EXPERTS

The Government of the Republic of Indonesia undertakes to bear claims, if any arise, against the Japanese experts engaged in the Project resulting from, occurring in the course of, or otherwise connected with, the discharge of their official functions in the Republic of Indonesia except for those arising from the willful misconduct or gross negligence of the Japanese experts.

IX. MUTUAL CONSULTATION

There will be mutual consultation between the two Governments on any major issues arising from, or in connection with this Attached Document.



X. TERM OF COOPERATION

The duration of technical cooperation for the Project under this Attached Document will be five (5) years from January 1, 1990.

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A N N E X

I. MASTER PLAN

1. Objectives of the Project

The objectives of the Project are to promote the research activities of tropical rain forest at PUSREHUT, and thus to contribute to the sound management of tropical rain forest, in particular reforestation and rehabilitation of tropical rain forest, in East Kalimantan, Indonesia, and to support research activities in forestry by researcher of concerned universities Bogor Agricultural University (IPB), Gajah Mada University (UGM) and Mulawarnan University (UNMUL).

2. Activities of the Project

To attain the above mentioned objectives, the research activities will be implemented through following Research Areas and their Research Subjects.

(1) Research Area I : Evaluation of Forest Site Environment

Research Subject 1. Soil classification and productivity

Research Subject 2. Change of soil condition induced by swidden cultivation and conservation of forest site environment

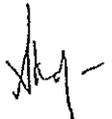
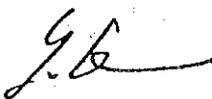
(2) Research Area II : Inventory of Forest Ecosystem

Research Subject 1. Regeneration process with reference to ecosystem disturbance caused by selective cutting, forest fire and swidden cultivation

Research Subject 2. Forest ecosystem function dynamics

Research Subject 3. Forest type classification and dynamics analysis

Research Subject 4. Wildlife ecology *



(3) Research Area III: Rehabilitation Techniques of Forest Ecosystem

Research Subject 1. Reproductive behavior in tropical tree species

Research Subject 2. Analysis of environmental factors as affecting tree growth and tolerance

Research Subject 3. Development of reforestation techniques

(4) Research Area IV: Inter-areal Studies

Research Subject 1. Establishment of experimental plantation

* Research Subject to further modification

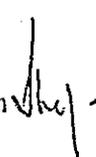
II. JAPANESE EXPERTS

1. Team Leader

2. Experts in the fields of:

- | | |
|----------------------|---|
| (1) Forest Soil | (in charge of Research Area I) |
| (2) Forest Ecology | (in charge of Research Area II) |
| (3) Wildlife Ecology | (in charge of Research Area II) |
| (4) Silviculture | (in charge of Research Area III and IV) |

3. Liaison Officer

Note: Short-term experts will be dispatched when the necessity arises, for smooth implementation of the Project. 



III. LIST OF EQUIPMENT

1. Machinery, equipment, tools, spare parts and materials for the Research Areas I~IV.
2. Books and other necessary printed matters related to the Project.
3. Vehicles and their spare parts.
4. Other materials necessary for implementation of the Project.

IV. LIST OF INDONESIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Counterpart personnel

(1) Project Manager

(2) Director of PUSREHUT

(3) Programme Officers who conduct research administration and management in each Research Area I~IV above mentioned I.2..

(a) Research Area I

(b) Research Area II

(c) Research Area III

(d) Research Area IV

(4) Counterparts who conduct research activities in each research subjects under the Research Area I~IV above mentioned I.2..

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(a) Research Area I

Research Subject 1.

Research Subject 2.

(b) Research Area II

Research Subject 1.

Research Subject 2.

Research Subject 3.

Research Subject 4.

(c) Research Area III

Research Subject 1.

Research Subject 2.

Research Subject 3.

(d) Research Area IV

Research Subject 1.

2. Administrative personnel

(1) Clerical and service employees

(2) Drivers and labors

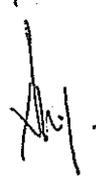
(3) Other necessary supporting staff

V. LIST OF LAND, BUILDINGS AND FACILITIES

1. Land for:

(1) PUSREHUT (including Research Training Center)

(2) Nurseries



(3) Experimental plantation (model Infra)
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(4) Other related facilities if necessary

2. Buildings and facilities

(1) Project Office and related facilities in the premises of PUSREHUT.

(2) PUSREHUT (including Training Center)

(3) Field facilities for research and survey

(a) Experimental forest

(b) Nurseries

(4) Other related buildings and facilities for effective implementation of the Project.

VI. THE JOINT COMMITTEE

1. Functions

The Joint Committee, composed of those members listed under 2 below, will meet at least once a year and whenever necessity arises, and work:

(1) To formulate the Annual Work Plan of the Project in line with the Tentative Schedule of Implementation formulated under the framework of this Record of Discussions;

(2) To review the overall progress of the technical cooperation program as well as the achievements of the above-mentioned Annual Work Plan;

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(3) To review and exchange views on major issues arising from or in connection with the technical cooperation programme;

(4) To submit reports containing their findings and recommendations by the Joint Committee to DGHE and JICA;

2. Composition

(1) Chairman; Director General of Higher Education

(2) Members ; Indonesian side :

(a) Director for Academic Affairs

(b) Representative of DGHE/Project Manager

(c) Representative of the Agency for the Assesment and Application of Technology

(d) Representative of Ministry of Forestry

(e) Representative of the Ministry of State for Population and Environment

(f) Representative of IPB

(g) Representative of UGM

(h) Representative of UNMUL

(i) Director of PUSREHUT

; Japanese Side:

(a) Team Leader



- (b) Expert(s) designated by the Team Leader
- (c) Liaison Officer
- (d) Resident Representative in the Indonesian, JICA
- (e) Personnel concerned to be dispatched by JICA, if necessary

Note: Official(s) of the Embassy of Japan in Jakarta, Representative of the National Planning Board (BAPPENAS) and Representative of the Cabinet Secretariat (SEKKAB) may attend the meeting of the Joint Committee as observers.

VII. THE RESEARCH COMMITTEE

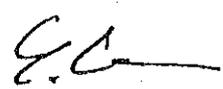
1. Functions

The Research Committee will be organized under the Joint Committee, and will meet whenever necessity arises, and work:

- (1) To execute the policy related Research Area made by the Joint Committee.
- (2) To coordinate research activities in the respective field among the three universities.
- (3) To prepare the agenda of the Joint Committee Meeting.

2. Composition

- (1) Chairman; Project Manager
- (2) Members ; Indonesian side :
 - (a) Representative of DGHE



(b) Representative of IPB

(c) Representative of UGM

(d) Representative of UNMUL

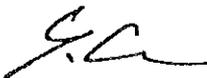
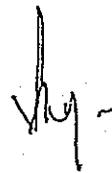
(e) Director of PUSREHUT

Japanese side :

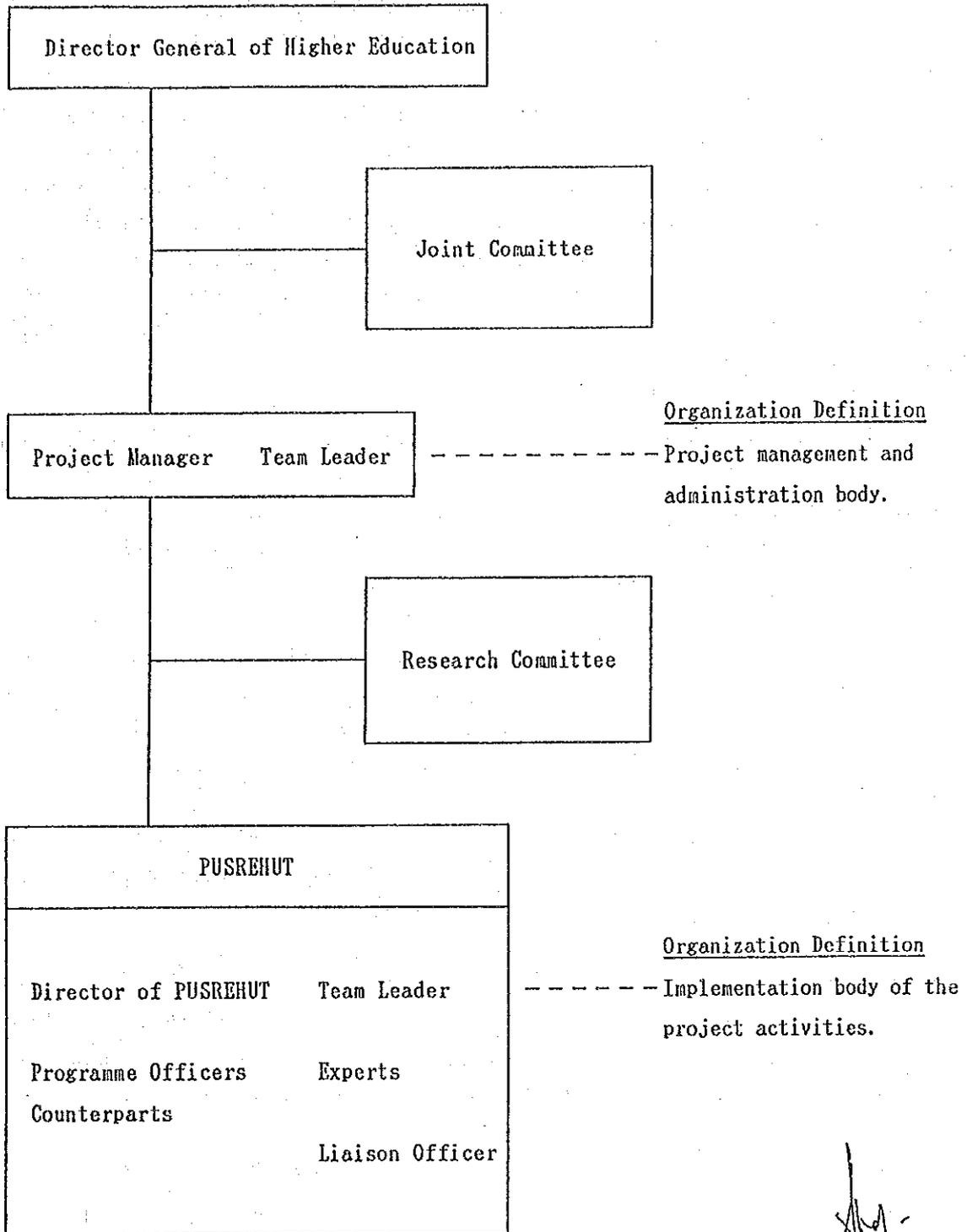
(a) Team Leader

(b) Expert(s) designated by Team Leader

(c) Liaison Officer



VIII. ORGANIZATION CHART FOR IMPLEMENTATION OF THE PROJECT



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9 MINUTES OF DISCUSSIONS

MINUTES OF DISCUSSIONS
FOR TENTATIVE SCHEDULE OF IMPLEMENTATION
ON THE TROPICAL RAIN FOREST RESEARCH PROJECT PHASE II

In response to a request from the government of Indonesia for an extension of the Tropical Rain Forest Research Project, the Japan International Cooperation Agency (JICA) started the Tropical Rain Forest Research Project Phase II (hereinafter referred to as "the Project"). Based on the Record of Discussions (R/D) signed on December 22, 1989, it will run from January 1st, 1990 for 5 years. Since then, JICA and Directorate General of Higher Education, Ministry of Education and Culture have continued communication through short-term experts sent to Indonesia by JICA regarding the research plan of the Project.

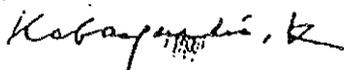
JICA sent a consultation team (hereinafter referred to as "the Team") headed by Dr. Kazumi Kobayashi, Director, Forest Biology Division, Forestry and Forest Products Research Institute, Ministry of Agriculture, Forestry and Fisheries, from July 25 to August 9, 1990 in order to conclude the 5-year research plan and schedule, not only within scope of R/D but also in reference to short-term experts results.

The Team held a series of discussions and exchanged views with authorities concerned of the Government of the Republic of Indonesia and conducted a field survey to the Project site. As the result of the discussions and the survey, both sides agreed to formulate the Tentative Schedule of Implementation (TSI), attached herewith.

Research activities of the Project written on TSI should be monitored and reviewed every year at the occasion of the Joint Committee during the Project term. This TSI can be modified by the Joint Committee if necessary.

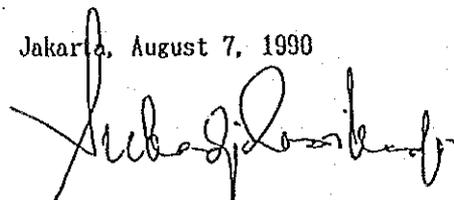
The implementation of research activities mentioned on TSI can be carried out in cooperation with other agencies concerned with forestry research and development including private sectors and/or other donors. The cooperation will be coordinated by the Directorate General of Higher Education, Ministry of Education and Culture.

Jakarta, August 7, 1990



Kazumi Kobayashi

Leader of Consultation Team
Japan International Cooperation Agency



Sukadji Ranuwihardjo

Director General, Directorate General of
Higher Education, Ministry of
Education and Culture

TENTATIVE SCHEDULE OF IMPLEMENTATION

1 RESEARCH AREA I

EVALUATION OF FOREST SITE ENVIRONMENT

1-1 Research Subject 1

Soil Classification and Productivity

Objective

This aims at accumulating the fundamental data on the soil for drawing up forest soil map in the future and investigating the soil and vegetation types related to soil productivity in the tropical rain forest.

Study Term

5 years

Expecting result

Obtained results of this subject may offer valuable information for site classification and land use.

Research Topic

- A) Study on the chemical and physical properties of soil
- B) Study on the evaluation of soil productivity
- C) Study on the relationship between soil productivity and vegetation type

1-2 Research Subject 2

Change of soil condition induced by swidden cultivation and conservation of forest site environment

Objective

This aims at analyzing the relationship between disturbance and site condition, investigating the degradation of soil fertility brought by swidden cultivation and investigating the change of the site condition by disturbance.

Study Term

5 years

Expecting result

Obtained results suggest the conservation and rehabilitation method of tropical rain forest and sound management of swidden cultivation.

Research Topic

- A) Study on the changes of soil fertility caused by traditional swidden cultivation system
- B) Study on the changes of site condition caused by disturbance such as natural and/or human impacts
- C) Study on the assessment of the soil erosion by natural and/or human impacts

2 RESEARCH AREA II

INVENTORY OF FOREST ECOSYSTEM

2-1 Research Subject 1

Regeneration process with reference to ecosystem disturbance caused by selective cutting, forest fire and

Objective	swidden cultivation This aims at investigating the population dynamics of natural seedlings, and the growth and structure of forest stand in different environment.
Study Term	4 years
Expecting result	Elucidation of regeneration process caused by various disturbance provides fundamental information for sustainable development on the tropical rain forest.
Research Topic	A) Study on qualitative and quantitative changes of the vegetation by the natural and human impacts
2-2 Research Subject 2	Forest ecosystem function dynamics
Objective	This aims at investigating the function dynamics from eco-physiological point of view, such as carbon fixation, potential transpiration and nutrient cycling in the forest ecosystem.
Study Term	5 years
Expecting result	Obtained results are essential for other Areas' research activities in the Project
Research Topic	A) Study on the carbon fixation in forest stand or individual tree B) Study on the water balance in forest stand or individual tree C) Study on the nutrient cycling in forest stand or individual tree
2-3 Research Subject 3	Forest type classification and dynamics analysis
Objective	This aims at clarifying the changing of the forest based on time series analysis of land use by remote sensing including aerial photograph in East Kalimantan.
Study Term	3 years
Expecting result	Obtained results or actual condition of forest resource in East Kalimantan would have direct effects upon the forest management and planning of this area.
Research Topic	A) Study on time series analysis of land use classification in East Kalimantan

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2-4 Research Subject 4 Wildlife ecology (Research subject to further modification)

Objective This aims at accumulating the fundamental data on the wild life including micro-organism on the tropical rain forest in East Kalimantan.

Study Term 5 years

Expecting result This Subject is expected to elucidate that wild life including micro-organism in the forest plays supplementary role in the forest ecosystem.

Research Topic A) Study on the habitat of wild life in East Kalimantan
B) Study on the population dynamics of the wild life in the tropical rain forest

3 RESEARCH AREA III

REHABILITATION TECHNIQUES OF FOREST ECOSYSTEM

3-1 Research Subject 1 Reproductive behavior in tropical tree species

Objective This aims at investigating the characteristics of reproductive behavior and germination of the main tropical tree species.

Study Term 5 years

Expecting result Obtained data on the main tropical tree species will contribute to the storage of these seeds.

Research Topic A) Study on reproductive behavior and seed technology of the tropical tree species

3-2 Research Subject 2 Analysis of environmental factors as affecting tree growth and tolerance

Objective This aims at accumulating the fundamental data on the growing performance of tropical tree species under the various environment.

Study Term 5 years

Expecting result Obtained results of each tree species will contribute to make manuals which are needed to carry out reforestation and afforestation of useful tree species.

Research Topic A) Study on the eco-physiological characteristic of the tropical tree species
B) Study on the relationship between environmental

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condition and growth of the tropical tree species

3-3 Research Subject 3

Development of reforestation techniques

Objective

This aims at improving silvicultural technology in the tropical area, contributing technological development of tropical tree seedling production and contributing technological improvement of propagation and inoculation of mycorrhiza.

Study Term

5 years

Expecting result

As seedling propagation and silvicultural technique of tropical trees are not established till now, obtained data improves to systematization of reforestation and afforestation.

Research Topic

- A) Study on the technological improvement of vegetative propagation
- B) Study on the technological development of quality control on nursery stock
- C) Study on the propagation and inoculation of mycorrhiza

4 RESEARCH AREA IV

INTER-AREAL STUDIES

4-1 Research Subject 1

Establishment of experimental plantation

Objective

This aims at establishing the experimental plantation using regeneration process and mycorrhiza, and promoting the more practical research activities for reforestation and afforestation of Dipterocarpaceae comparing with previously settled plantation.

Study Term

5 years

Expecting result

The experimental plantation will be established to carry out inter-areal studies, such as reforestation and afforestation using regeneration process, micorrhiza, and integrated protection management.

Research Topic

- A) Study on the establishment of forest through the analysis of regeneration process
- B) Study on reforestation and afforestation in the tropical area using mycorrhiza

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3. 1 第1分野「立地環境の評価」

第1項 土壌分類及び土壌生産性

1) 研究目的

この研究項目は熱帯降雨林下の土壌の基礎的な資料を集積すること、将来の土壌図作成に向けての資料を集積することを目的とし、地力に関連した土壌と植生型を調査する。

2) 研究期間

5年間

3) 期待される成果

明らかにされた資料は立地区分と土地利用の基礎的な情報となる。

4) 研究課題

- A) 土壌の理化学的特性に関する研究
- B) 地力の評価に関する研究
- C) 地力と植生型の関係に関する研究

第2項 焼き畑耕作に伴う土壌条件の変化と森林立地環境の保全

1) 研究目的

焼き畑耕作に伴う地力の悪化を調査し、攪乱に伴う立地環境の変化を明らかにすることにより攪乱と立地環境との関係を解析することを研究目的とする。

2) 研究期間

5年間

3) 期待される成果

熱帯降雨林の保全と再生の基礎的な資料となる。また、焼き畑耕作の持続的な管理方法開発の基礎となる。

4) 研究課題

- A) 伝統的焼き畑耕作に伴う地力変化に関する研究
- B) 自然あるいは人為攪乱に伴う立地環境の変化に関する研究
- C) 自然あるいは人為攪乱に伴う土壌侵食に対する危険度評価に関する研究

3. 2 第2分野「森林生態系の解析」

第1項 択伐、山火事及び焼畑による生態系の攪乱に関わる更新過程

1) 研究目的

この研究項目は、異なる環境下において発生した稚樹の個体数消長、および林分構造の変化と林分成長の経過を調査し、比較検討する。

2) 研究期間

4年間

3) 期待される成果

異なる攪乱を受けた後の更新過程の解明は熱帯降雨林の持続的開発に対する基礎的な情報となる。

4) 研究課題

A) 異なる攪乱を受けた植生の回復過程に関する研究

第2項 森林生態系の機能とその動態

1) 研究目的

森林生態系における炭素固定能、水分動態および物質循環などの動態を生態生理学の観点から研究する。

2) 研究期間

5年間

3) 期待される成果

得られた結果は、本プロジェクトの他分野における研究活動の根本的、基礎的資料となる。

4) 研究課題

A) 林分レベルあるいは個体レベルでの炭素固定能に関する研究

B) 林分レベルあるいは個体レベルでの水分動態に関する研究

C) 林分レベルあるいは個体レベルでの物質循環に関する研究

第3項 森林型区分と広域動態解析

1) 研究目的

空中写真を含むリモートセンシングによって東カリマンタン地域の土地利用を時系

列解析し、森林の変化を明らかにする。

2) 研究期間

3年間

3) 期待される成果

東カリマンタンにおける森林資源の現実的な状況と変動の傾向が明らかになり、森林資源の管理、運営に直接的な効果をもたらすであろう。

4) 研究課題

A) 東カリマンタン地域の土地利用区分に関する時系列解析

第4項 野生生物の生態（本項は長期専門家の着任後、修正される）

1) 研究目的

東カリマンタンの熱帯降雨林に生息する各種の野生生物に関する基礎的な資料を蓄積する。

2) 研究期間

5年間

3) 期待される成果

熱帯降雨林に生息する各種の野生生物が森林生態系の中で果たす役割を明らかにすることが期待される。

4) 研究課題

A) 東カリマンタンにおける野生生物の生息圏に関する研究

B) 熱帯降雨林に生息する各種野生生物の固体群動態に関する研究

3. 3 第3分野「森林生態系の再生技術」

第1項 熱帯林樹種の繁殖様式の解析

1) 研究目的

主要な熱帯樹種の繁殖様式と種子発芽特性について研究を行う。

2) 研究期間

5年間

3) 期待される成果

主要な熱帯樹種についてのこれらの資料は種子貯蔵法の開発に貢献するであろう。

4) 研究課題

- A) 熱帯樹種の繁殖様式と種子取扱い技術に関する研究

第2項 樹木の成長・耐性に関する環境要因の解析

1) 研究目的

多様な環境要因下に生育する熱帯樹種の成長特性に関する基礎的データを蓄積する。

2) 研究期間

5年間

3) 期待される成果

それぞれの種の成長特性を解明することは有用樹種の造林に必要なマニュアルを製作する主要な資料となろう。

4) 研究課題

- A) 熱帯樹種の生態生理学的特性に関する研究
- B) 熱帯樹種の成長と立地環境の関係に関する研究

第3項 育林技術の開発

1) 研究目的

熱帯地域の造林技術を向上し、熱帯樹種の苗木生産技術およびマイコリザの増殖・接種技術の進歩、発展に貢献する。

2) 研究期間

5年間

3) 期待される成果

熱帯樹種の育苗および育林技術は未だに確立されていないため、ここで得られた成果は各種造林方法の体系化を促進する。

4) 研究課題

- A) 無性繁殖を利用した増殖技術に関する研究
- B) 苗木の品質管理技術に関する研究
- C) マイコリザの増殖と接種技術に関する研究

3.4 第4分野 分野間研究

第1項 実験林の造成

1) 研究目的

天然更新技術、マイコリザ接種苗などを利用した実験林の造成によって、これまで造成された各種の造林地との比較検討を通じて、フタバガキ科樹種の造林法に関するより実際的な研究の活性を高める。

2) 研究期間

5年間

3) 期待される成果

実験林は、更新過程あるいはマイコリザを利用した各種の造林法、造林地の保護管理などの分野間研究に利用される。

4) 研究課題

A) 天然更新過程を利用した森林造成法に関する研究

B) マイコリザを利用した熱帯地域の各種造林法に関する研究



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No.

Jakarta, 8 Dec. 1993

Prof. Dr. Bambang Suhendro
Director General of Higher Education,
Ministry of Education and Culture
J A K A R T A

Dear Professor Dr. Bambang Suhendro

On behalf of the members of the Japanese Guidance Team (hereinafter referred to as 'the Team') for the Tropical Rain Forest Research Project Phase -II, conducting in Tropical Rain Forest Research Center (hereinafter referred to as 'PUSREHUT'). I would like to express our sincere gratitude for all the efforts and assistance your staff kindly rendered during our stay in Indonesia from November 28 to December 8, 1993.

In this period, we had a series of discussions and exchanged views with Japanese experts, their counterparts, and Indonesian authorities concerned on the matters of the research activities and others relating to the Project.

Leaving Indonesia, I would like to inform you our comments on the Project as follows:

1. Joint research activities in the Project have been relatively well conducted in the condition of limited human resources, and the important results have already been disseminated through 'PUSREHUT Annual Report', publications, seminars in PUSREHUT, and Bio-Refor International Workshop held in Yogyakarta this year, etc.
2. Demonstration and experimental forests in Bukit Soeharto are well managed under PUSREHUT, and experimental plots established by the Japanese experts and their counterparts, are providing various silvicultural findings to lecturers of universities, foresters of Ministry of Forestry and timber companies. However, these experimental plots are limited in only planting methods such as line planting and under canopy planting. Practical silvicultural techniques, i.e., weeding, thinning, and selection cutting, etc., will be needed in future.

3. Although the intensive efforts of JICA to provide the experimental equipments, facilities, and other necessary measures for the smooth implementation of Indonesia/Japan joint research, PUSREHUT activities have not yet reached satisfactory level. The Team considers that the key problems are shortage of Indonesian permanent researchers of PUSREHUT and few utilization of researchers joining from two other universities to the Project.

Therefore, the Team would like to request strongly Indonesian authorities concerned to employ at least several permanent researchers in PUSREHUT and to encourage all counterpart researchers to utilize the facilities in order to conduct the smooth implementation of the Project.

4. According to the 'Minutes of Discussions' signed between the Consulting Team of JICA and Ministry of Education and Culture on August 7, 1990 at Jakarta, they permitted research activities mentioned on Tentative Schedule of Implementation to be carried out in cooperation with other agencies concerned with forest research and development, including private sectors and other donors.

Therefore, the Team would like to recommend you and PUSREHUT to involve other agencies as mentioned above in order to utilize PUSREHUT facilities and to enhance research activities more effectively and efficiently. At the same time, the Team suggests that PUSREHUT should establish, as soon as possible, its administrative structure capable of managing all these research activities.

5. The Team had opportunities to exchange opinions and views with Indonesian authorities concerned about next phase of the Project, including the necessity and needs, on non-committable basis.

The Team received strong interests in continuation of the Project from almost all counterparts concerned. Especially, Mulawarman University staff have the strong wishes and gave us ideas in writing for future development of PUSREHUT. They emphasized on their interest in the research on the improvement of degraded and/or secondary natural tropical forest, including social-economic aspects, and extension works in the following project. They also showed enthusiastic intention to self-help effort of PUSREHUT management to develop to the top-level institution of tropical rain forest research in Indonesia as well as in Asian countries.

Dr. Jajah Koswara, Director of Research and Community Service Development of Ministry of Education and Culture, also proposed a preliminary plan for the next project of PUSREHUT, which explains her

interest in human resources development at the master and doctorate levels.

On the other hand, the Team mentioned that PUSREHUT would be activated as tropical rain forest research center with participation of other agencies concerned with forest research and development under adequate administration of PUSREHUT, and that would inform the Indonesian interests to Japanese authorities for further consideration.

Yours faithfully



Mr. Seichi Mishima
Leader of the Guidance Team for
the Tropical Rain Forest Research - II
(J I C A)

JICA