

AN IPARD-CIRAD COOPERATION ON

Rubber Research Institute of Indonesia programme of

**MULTILOCATION TRIALS NETWORK FOR RUBBER CLONAL
RECOMMENDATIONS IN VARIOUS AGROCLIMATIC CONDITIONS OF
INDONESIA**

REPORT OF ACTIVITIES

March to November 1993

Eric Penot
(Balai Penelitian Sembawa/CIRAD)

INTRODUCTION : main activities and meetings.

After one month of bahasa language training in Yogyakarta, from the 29th March to 26th April, I took up my position at Sembawa Research Station on 3rd May, having contacted Pusat Penelitian Tanah dan Agroklimat (PPTA/Bogor), in Bogor, on behalf of Pak Soedarsan from IPARD.

In May, most of the time has been spent in making contacts with the researchers of Sembawa and gaining information about the different programmes of Research, as well as visiting the trials (especially the Sembawa's clones field trials), Sembawa's plantation, Sembawa's factory (under construction), and assessing the data collection facilities. Some time has been allocated to the purchase of a car and find an house in Palembang. I also visited farmers' plots, as well as jungle rubber, and the trials of Pak Gede Wibaya (Intercropping research programme/STD III) in south-Sumatra. This also includes a visit to the TCSDP project in Prabumulih accompanied by Mr Ph Leterme from CIRAD-CP, during his visit to the STD III project.

A work programme has been circulated with the objective of identifying the task of the Sembawa team (see annex 1).

A meeting in Sungei Putih, on 27th May, between Pak Amin, Pak Yoyo, Pak Rasidin and Mr P. Rondot, the delegate of CIRAD for Indonesia, establish contact between Pak Rasidin, the project team leader, the researchers of Sungei Putih and myself and Pak Thomas. The latter is the researcher who has been assigned as my counterpart for the project in Sembawa. An initial identification of the team members for the project has been made, and the dates for the team's first meeting in Sembawa has been decided. A decision has been taken for a trimestrial meeting between Pak Rasidin, Pak Amin, and Mr E Penot and P. Rondot, in order to follow-up and monitor the evolution of the project.

I made a second visit to PPTA/Bogor, on 3rd and 4th June in order to collect information, maps and data on climate and soils.

The first "team meeting" was held on 14th to 16th June permitting us to identify a programme of work and the principal tasks : each team member was allocated a specific task. The tasks included :

- data collecting (including available maps),
- establishment of the criteria for the definition of the agro-ecological zones (AEZ), identification of a typology, in order to create a working map of AEZ

- create a database with data of soils and climate for AEZ mapping.
- definition of a methodology for the project, identification of the type of trials adapted to the needs of each zone, definition of trials protocols.
- the writing of the project proposals (to be submitted to BAPPENAS for financing by external donors),
- the identification of the components of the 1993 budget.

The team has been formed and every researcher has been assigned a task. A work programme and a time table of scheduled activities has been decided, for data collection, data processing, and the dates of team's meeting.

Mr Ph. Guizol, from CIRAD Forest department, visited us 22th and 23rd June. His objective was to identify the problems linked specifically to the jungle rubber.

Mr Campaignolles, vice president of IRRDB, visited us 25th June.

A meeting in Jakarta was organized 30th May to 2nd June with Mr D. Nicolas, head, Plant Breeding Research Unit of CIRAD-CP (Tree crop Department of CIRAD), to discuss the first draft of the project's methodology. Some improvements have been made to adapt the available methodology to the specific conditions of Indonesia and some other suggestions was made.

Contacts was made in Jakarta to collect data and information with various institutions (ORSTOM/Transmigration and PPTA/Bogor, others researchers of CIRAD, French Embassy.....).

May and June have been allocated to collect data, information, maps and reports on soils and climate, and to review the existing and available information on clones performances in Indonesia.

A questionnaire has been sent to PTP to obtain information on clones performances and climatic data.

In July, the main activities were : writing the methodology with team members in Sembawa, collecting and analysing data, preparing the database to be used for AEZ mapping, and identifying the criteria to be used for AEZ zoning.

A meeting with Pak Yoyo was held in Sembawa the 22th of July, in order to clarify the definition of the project.

I visited France from 3rd August to 10th September. During this period, I attended the CIRAD-CP seminar in Montpellier, and had meetings with CIRAD officials.

September, and October, the project proposals were identified discussed and finalized. Some specific problems addressed were : trial locations linked to AEZ, identification of partners (PTP, estates, TCSDP...), clonal purity, clones budwood availability, costing, mission of the CIRAD portable electrophoresis laboratory. The objective of this mission will be a complete transfert of technology on clone identification using electrophoresis and test the new budwood gardens.

The second team meeting was held from 11th to 13th October. A review of the existing information, data, and maps was made, as well as discussing the project methodology. The last team meeting is scheduled for 29th November to 3rd December, in Sungei Putih, to finalize the project proposal document prior to submission to BAPPENAS. Following that second team meeting, a second trimestrial meeting between Pak Amin and Mr Rondot was made. Mr Omont, the CIRAD-CP Rubber Programme director, who was visiting Sembawa Research Center the 14th and 15th October (including a field trip in Sembawa plantation and in farmer's plots) also attended. The project's progress has been presented to Mr Omont, Rondot and Pak Amin. Some specific points were discussed with the members of the team.

I assisted to the ICCE seminar in Bali from 18 to 22th of october.

Then Pak Rasidin and myself undertook a 5 days field trip (from 26th to 30th October) to West kalimantan to visit existing trials, private rubber estates, TCSDP and PTP plantations. Furthermore, to have discussions with partners to identify possible future colaboration for the establishment of the trials network. Contacts have been made with PTP XIII, ROKKAN group, KPD group, TCSDP and DINAS PERKEBUNAN.

OUTPUTS

The main outputs for 1993 are the following :

- collection of information on soils and climate, data, reports and maps for the implementation of the AEZ zoning (not yet fully completed).
- implementation of a database (climatic data) on PARADOX (by Pak Thomas).
- collection of litterature and other published information on clones and their performances.

Working papers published:

- a methodological paper on the establishment of multilocation trials network for clonal recommendations in Indonesia (first draft of the definition of the methodology of the project).
- Presentation paper on the research project for the establishment of a multilocation trials network for clonal recommendations in Indonesia.
- Criteria for the definition of agro-ecological zones for rubber and further clonal recommendations.
- Certified budwood production for the multilocation trials network project for clonal recommendations in Indonesia (including a proposal for a mission by the CIRAD portable laboratory).
- Cost calculations of budwood gardens, nurseries and trials, budwood requirements for the establishment of the trials from "1st level budwood gardens".

All these papers will be used in the Project Proposals to be submitted to BAPPENAS for the financing by a donor. This final document will be available at the beginning of December.

Remarks

The availability of the budget allowed the team to make data collection field trip in August and part of September. I would like to thank IPARD for making a budget and terms of reference available at very short notice. Members of the Sembawa team have visited Jambi province, Bengkulu province, Jakarta and Bogor, and West Kalimantan province, to collect data and review the existing means for implementation of the trials network.

We took delivery of the project's computer, in Sembawa the 25th October allowing us to transfer the database and compute data. The data entry is still underway and will take several months. There is a considerable amount of data to be processed. Moreover the project is still in the process of collecting data. The objective is to create an accurate map of agro-ecological zones. This will take more time than initially estimated. The map should be published towards the end of the first semester of 1994. The database will be a very useful tool having systematic information on locations where rubber is grown, further clonal recommendations, including soils, climate, diseases, and other pertinent information (socio-economical factors...).

We have had some success in data collection however the availability of data, particularly concerning climate and clone performance, is often difficult to obtain. This necessitated the team members to visit plantations and the relevant local institutions. We still need to collect information on clone performance to be in a position to produce a complete review of the existing planting material performance. This review may lead to the writing of a "clone index card for Indonesia" which could be a very useful tool as knowledge forms the basis, with the trials network, of any improvements of clonal recommendations. The cooperation with PTP has been excellent ; PTP are ready to give to us reliable information. We strongly believe this will form the basis of the establishment of a systematic system of information on clone performance. I would like to thank in advance Pak Rasidin and Pak Amin to help us in that objective. Information will be required to update the "clone index card" (after being translated from french version) with data on clone performance in Indonesia.

For a better efficiency and a concentration of the available means, we suggest that the team should be restricted to the researchers of Sembawa and Sungei Putih,

CONCLUSION

So far, data collecting and data entry for the database, and the mapping, is still in process. The quality of the map will depend on this data, it is probable that a first working map should be circulated in the first quarter of 1994.

Further discussions, incorporating the various field experiences from the team members will lead to the drafting of project proposals. These will be finalized the first week of December, to be available to BAPPENAS for submission to a donor for financing. This represents the principal output for 1993.

Detailed information has been collected, future contacts for the establishment of the trials have been undertaken during the field trips to Jambi, Bengkulu, Jakarta and Bogor (for data collecting only), and in West Kalimantan. I was personally involved in the last field trip. I would like to thank DINAS PERKEBUNAN of Pontianak which provided to Pak Rasidin and myself with transport and other organization matter which led to a very successful mission.

It can be found in annex 2 the total list of persons encountered for the last 8 months.

I would also like to thank the members of the team, from Sungei Putih and Sembawa, in particular Pak Rasidin, project's headman and Pak Thomas, my counterpart, to accept me and include me into the existing team and who have provided me with full support to me for the implementation of our programme. I would like also to thank Pak Mahlil, director of Balai Penelitian Sembawa, for his support at Sembawa and for the provision of an office, appropriate means of work, and other necessary administrative support. I would like to thank Pak Amin, director of Pusat

Penelitian Karet of Sungei Putih for his support for the project and his participation to the team's meeting. Finally, I would like to thank Pak Soedarsan, IPARD, for his full support.

I personally appreciated it, to be considered as a full member of the team. I have no doubt that we will continue to develop a further cooperation based on mutual respect and trust, in order to create the optimal conditions for the success of the project .

LIST OF MEMBERS OF THE TEAM

From Sungei Putih :

Dr, Ir Rasidin Aswar, Msc, leader of the project, plant breeding
Ir Suggianto, Msc, soil scientist

From Sembawa :

Ir Thomas, MSC, agro-climatologist
Ir Mudji, plant breeding
Dr, Ir Donald Tanbunan, Msc, soil scientist
Ir Aron, phytopathologist
Ir C Nancy, economist
Mr E Penot, CIRAD-CP.

ANNEX 1

AN IPARD-CIRAD COOPERATION ON

IRRI programme of

***MULTILOCATION TRIALS NETWORK FOR RUBBER CLONAL
RECOMMENDATIONS IN VARIOUS AGROCLIMATIC CONDITIONS
OF INDONESIA***

**WORKING PROGRAMME FOR 1993
Proposals and methodology**

June 1993

1) PRESENTATION

OBJECTIVES :

The principal objective of the project is to have a better knowledge of clone performance in Indonesia and to characterize the rubber growing conditions in various areas in Indonesia. The result of the program, in the long term, should be a set of clonal recommendations depending on agro-ecological zones and a map of these zones and the consequent recommendations. The information will come from a national level trials network which will monitor the clone performance in major zones of current and future rubber cropping.

The immediate objective is to establish a network of trials to test the performances of rubber clones in various ecological and management conditions. The objective is to assess the suitability of promising rubber clones throughout the current and future zones where rubber is or can be cropped in Indonesia. The trials will allow us, in the long-term, to set up a map of detailed clonal recommendations taking into account the agro-ecological conditions of various locations.

The research will take into account the specific aspects of rubber production and management through estates and smallholders conditions, in order to identify the most suitable clones adapted to the final user (estates or smallholders) .

The IPARD-CIRAP cooperation will contribute to this national program, in the beginning mainly for two zones : Southern Sumatra (including South Sumatra, Jambi, Riau, West Sumatra and Bengkulu) and Kalimantan.

WORKING LOCATION : Rubber Research Station of Sembawa

LOCATION CONCERNED BY THE IPARD-CIRAD COOPERATION PROGRAM : Contribution for Southern Sumatra and Kalimantan to the national level project of multilocation trials network for clonal recommendations of IRRI.

DURATION : 1993-1998

MAN POWER : CIRAD will second to IPARD/IRRI Mr E. Penot to join the team composed of researchers of IPARD (Plant breeders, soils scientists and agroclimatologists) leaded by Mr Rasidin Aswar.

The team will be composed of :

Dr Rasidin Azwar, team leader, plant breeder, SP
IR YB Sugianto, soil scientist, SP
Mr E Penot, CIRAD, agro-climatologist, Sembawa
Dr Thomas, agro-climatologist, Sembawa
IR Mudji Lasminingsih, MS, plant breeder, Sembawa
IR Donald Tanbunan, soil scientist, Sembawa
IR Cecilia Nancy, economist, Sembawa
Ir Aron, pathologist, Sembawa.

EXPECTED OUTPUT FOR 1993 :

A collection of all data available on clones and soils and climate in rubber suitable zones of Southern Sumatra and Kalimantan.

A contribution to the document "Project proposals for the implementation of a network of multilocation trials for clone recommendation in South-Sumatra and Kalimantan", to be submitted to BAPPENAS for financing..

A methodology of working.

A bibliography on existing and promising clones in Indonesia.

A contribution to the mapping of agro-ecological zones of rubber growing or suitable zones in Indonesia.

A general review of the existing knowledge about the clones performances in Indonesia, trough the translation of the CIRAD-CP "Clones card index" and its adaptation to the case of Indonesia (for 1993 and 1994).

Location and implementation policy

The location of the trials will be chosen depending on the precedent criterias, both agro-ecological zones and current or prospected zones and management of rubber production.

The policy about the implementation of the trials will be decided in order to provide a wide range of possibilities for the future clones recommendations for different customers : adapted clones to the users and their specific conditions.

The main objective is to set up a network which is fully representative of these situations, covering the main zones of rubber production. A typology of these situations is roughly presented in table 1.

The methodology has to be defined trough several available tools (a network composed of clone field trials, performances field trials, monoclonal field trials, on farm trials.....) in order to fit the need of information and recommendations.

Depending of the type of trials, the team will propose a certain number of partners for the discussion (reconnaissance survey for primary information, and potential cooperation), and the implementation and the monitoring of the trials : governmental projects, international projects (ICRAF...), private sector (estates), smallholders....

Typology of different situation for the setting up of a trials network for clone recommendation

CUSTOMER	SITUATION		TRIALS	OBSERVATIONS
RUBBER ESTATE or	PRIVATE or GOVERNMENTAL	Currently existing	CFT MFT EPFT EPFT	Good control of implementation and management of the trial. Available man power for maintaining and monitoring the trial.
OTHER CROPS ESTATE (pioneer or new zones)	PRIVATE or GOVERNMENTAL	currently existing	EPFT	Give an accurate information about the performances of clones due to good control
smallholders	In project TCSDP, NES, PIR.... smallholders	Existing project	OFT	Presence of extensionists for monitoring and collecting data. Good knowledge about the
		Future project	OFT	Farming systems, good and easy contacts with the farmers.
		Replanting zones	OFT	Give accurate information concerning clone adaptation to farmers conditions. Farmers more sensitive to increase productivity.
		Pioneer zones	OFT	Adaptation of clones to pioneer situations
	Non project smallholders	Pioneer zones	OFT	Give specific information for particular conditions of farmers.
		Replanting zones	OFT	May be more sensitive to increase productivity.
		Jungle rubber	OFT	Farmers more focused on land acquisition, adaptation of clone to competition in jungle rubber. Difficult to control and monitor : but give information about performances in real condition

Notes :

CFT = clone field trial

EPFT = Environmental assessment of clones Performances field trial

MFT = monoclonal field trial

OFT = On-Farm-Trial

Methodology

The team will propose different type of trials adapted to the different possible situations :

- the " Environment assessment clones Performances field trial" (EPFT) in order to assess the rubber tree performances of known clones in unknown situations and the consequently production and adaptation to the local conditions (for Kalimantan and some places in southern Sumatra as Bengkulu... for example).

- the clone field trial (CFT) in order to assess the potentiality of not yet widely used clones or new clones in known situations (for South-Sumatra and West Kalimantan for example). The CFT could be implemented as estate trial.

Both can be used for clonal recommendations. The first type of trials (EPFT) will provide information about the potentiality of well known clones in new zones or in new conditions (Region of Kalimantan without currently well developed rubber cropping, or jungle rubber...). The BFT suppose a good knowledge of the clones used in the trials and a high level of management , monitoring and data collecting. These EPFT will provide the basic information for clone recommendation.

The second kind of trials (CFT) will give the opportunity to strenght the knowledge on new clones or really promising clones in order to have more accurate recommendation information in zones were rubber has been cropped for a while. The local conditions of cropping and the management will be taken in account in these recommendations. The objective of these CFT is to improve the current clonal recommendations. The CFT suppose also a high level of management , monitoring and data collecting, which can be easily obtained in estate situation.

It is possible to include some monoclonal field trial (MFT), with a first level of recommendation in order to give more accurate information on very promising and allready well-known clones in order to gain some time in the experimentation process. The MFT could be implemented as estate trial and as on-farm-trial.

The specificity of smallholders rubber cropping systems (from the in-block-plantation SRDP type to the jungle rubber and all in-between situations) lead to identify a specific adapted methodology of trial close to the on-farm-trial

(OFT) concept in order to have information under real smallholders conditions (and not only academic or more fundamental information about the clones). This smallholders focused methodology will include specific protocols and analysis. Surveys should be implemented in order to have a complete knowledge of the farming systems to define the problematic of clones adoption in these conditions.

A general methodology of the trials network and the protocols of the trials will be released.

The technical programme of implementation and the feasibility study will be presented :

- clonal purity (visual testand with clones identification using electrophoresis technique)
- budwood garden development programme : an assessment of the necessary amount of fully certified budwood sticks for each clone will be done in order to provide sufficiently in planting material the different scheduled locations for the trials.
- recognition of possible trial locations in Southern Sumatra and Kalimantan.
- assessment of the trials network requirements : land, labour, manpower for monitoring and collecting the data....
- programme of data collecting and data analysis.

A cost estimation and a Perth implementing programme of the project will be provided.

The team will have to search for potential partners for the implementation and the monitoring of the trials : TSCDP, NES/PIR and others smallholders development schemes, PTP, others private or governmental estates, research stations.....

3) IMPLEMENTATION OF THE STUDY FOR 1993 : EXPECTED PARTNERS AND OUTPUT.

The partners, roughly currently identified can be :

- *IRRI with the PUSAT penelitian of Sungei Putih and CIRAD: plant breeders, technical support, and Balai Penelitian of SEMBAWA :*

- replanting program (socio-economy/GAPKINDO)

- smallholders surveys : in order to know the specificity of the rubber smallholders production conditions and their needs.

- the STD III program, through intercropping trials.

- *Pusat Penelitian Tanah dan Iklim/Bogor :*

- soils map and soils surveys of Sumatra and, partly, Kalimantan.

- agroclimatological zones map of Sumatra.

- Land suitability map for rubber (LREP project). A collaboration could be developed in order to produce more accurate map including the land suitability and the clone suitability related to ecological conditions.

- climatic data on Sumatra and Kalimantan.

- *TCSDP/DGE : Tree Crop Smallholders Development Project (ex SRDP) :*

This project has a wide network of extensionist throughout Sumatra and Kalimantan. They can provide climatic data (rainfall distribution) and information about the farmers monitored by the project.

They probably can implement a part of the trials, especially the On-Farm-Trials..

- *NES/PIR or other governmental smallholders development scheme.*

- *PTP and and others estates of the private sectors* : they have to be contacted in order to collect information about the current yield of clones and polyclonal seedlings and, in the future, to help to the implementation locally of the trials, in particular EPFT, CFT and MFT.

- *GAPKINDO (Replanting program.....)*

- *ORSTOM/BIOTROP and ICRAF* : as they deal mainly with agroforestry topic, a collaboration programme can be proposed in order to improve the productivity of jungle rubber.

Output for 1993

The main expected output will be the document of Project Proposals for the implementation of a network of rubber clones trials in South-Sumatra and Kalimantan".

The other outputs could be :

- a bibliography of the available data and maps for soils and climate in order to prepare a map of clonal recommendations.

- a contribution for the first draft of a working map of agro-ecological zones.

- a text about the methodology used in the project.

- a general review of the potential of clones and polyclonal seedlings currently used in Indonesia.

- a general review of the existing knowledge about the clones performances in Indonesia, through the translation of the CIRAD-CP "Clones card index" and its adaptation to the case of Indonesia.

ANNEX 2

List of persons encountered :

Pusat Penelitian Tanah dan Iklim/Bogor

Dr Istiqlal Amien, headman of agroclimate division.
Ir Aris Pramudia, assistant of DR Istiqlal.
Ir D Subardja Sutaatmdaja MSC, LREP Project.
Dr Ir Soekardi Msc, Senior soil scientist, soil division.

Sanata Dharma Research center, Yogyakarta.

Dr James Spillane, SJ, Director, autor of "Karet komoditi".

ORSTOM, Indonesia

Hubert de Foresta and Genevieve Michon, botanists, Jungle rubber.
Alain G. Beaudou, geograph, transmigration programme, Jambi project.
Michel langlois, economist, transmigration programme, Jambi project.

CIRAD Indonesia

Pierre Rondot, delegate for CIRAD in Indonesia.
Raymond Bourgoïn, Coconut programme, for his knowledge of Kalimantan.
Dominique Boutin, Coconut programme TCSDP.
P Berthaud, Forestry department, for information on East Kalimantan
J M Eschbach, agronomist, Good-year, North Sumatra, information on clones.

CIRAD FRANCE (in visit in Indonesia)

Ph Leterme, Research unit of Agronomy, Tree Crop Departement, in charge of STD
III and follow up of our project.
Ph Guizol, forestry departement, jungle rubber.
Hubert Omont, director of Rubber programme of CIRAD-CP.

TCDSP South Sumatra

The director of TCSDP Prabumulih.

PRIVATE OPERATORS

Rosihan Nuch Bajami, director of PT Bumi Rambang Kramajaya, South Sumatra..

NRI

Hugh Bagnall-Oakeley, Sembawa, Imperata project.

FIELD TRIP to Kalimantan

Dr Achmad MB, director of DINAS PERKEBUNAN Pontianak

Pak Karsan S, deputy director, Sub DINAS, Pontianak

Pak HAIAYSUYAKHA, DISBUN Mempawah.

Pak Lee Shangin, PT ROKKAN GROUP, Staff director, Pontianak.

Pak Zainan Achmad, PT ROKKAN ROUP, deputy director.

Pak Clemens D Suryadi, KPD group, assistant executive director

Pak Lim Tian, PT Lahan Tangga pinioh, KPD group, PT director

Pak R Sudhiarso K, PTP XIII, director, Sintang.

GAPKINDO

Rd Ir A.F.S. Budiman, Executive Director.