The MPTS Research Network: Achievements and Challenges

Report of the second Research Committee meeting, held July 3-6, 1989 in Los Baños, Philippines

Forestry/Fuelwood Research and Development (F/FRED) Project

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Compiled by Suree Bhumibhamon

1989
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Appendices

1. Background

The first meeting of an *ad interim* MPTS Research Committee took place in September 1986, in Bangkok. At this meeting, decisions on priority species selection were made. The committee also discussed computer networking, as well as a prototype minimum data set and the need for standardization of methodologies.

A second *ad interim* Committee met in December 1986 in Kuala Lumpur, Malaysia to design the first set of network field trials, which were established in the humid and subhumid tropics the following year.

An MPTS Research Committee meeting was held in Kuching, Malaysia in April 1988, in conjunction with a meeting of the Network's Steering Committee. The main issues discussed at that time included the initiation of a program of small research grants, arrangements for twinning between institutions in the region, a traveling seminar focused on the network field trials, guidelines for collaborative research, and a protocol for the use of F/FRED-funded research data.

2. Executive Summary

Dr. Suree Bhumibhamon, Chairman of the Organizing Committee, called the meeting to order. Mr. Kenneth MacDicken, F/FRED Team Leader, gave the opening address and Dr. Cesar Nuevo welcomed all committee members to the Philippines. Dr. Lim Hin Fui was nominated to act as meeting Secretary.

A brief background on the origin and development of the MPTS Research Network was presented. The meeting in Los Baños was the first to be organized independently from the Steering Committee. It was emphasized that the meeting could contribute significantly toward the development of the MPTS Research Network at both regional and national levels and help shape the second phase of the F/FRED Project (1990-1995).

The Research Committee was briefed on the report of the Steering Committee meeting held March 20-22, 1989 in Thailand. The Steering Committee's recommendations dealt with the three main areas of research, training, and network development. With regard to research, an evolutionary shift to a problem-oriented approach was recommended, along with exploration of multidisciplinary, on-farm trials, marketing research, and further sharing of research data. The achievements of the MPTS Research Network are encouraging, as demonstrated by the fact that the representatives of the seven donor agencies attending the meeting in Thailand indicated keen interest in cooperating with future network activities.

A summary of the report of the last MPTS Research Committee meeting, held in Malaysia in 1988, was given. Among the important issues discussed at that meeting were research grants, priority research topics in the biological and social sciences, network development, twinning, and collaboration in research.

The mid-term evaluation of F/FRED activities was presented. Potential weaknesses of the Project were highlighted, and solutions to anticipated future problems were suggested.

The representatives from Bangladesh, India, Indonesia, Malaysia, Nepal, Papua New Guinea, Philippines, Sri Lanka, and Thailand presented reports on National MPTS Research meetings in their respective countries. Because the representatives from the Republic of China could not attend this meeting, a report on their progress was presented through the Chairman of the Research Committee.

While the needs and progress of MPTS projects vary among the countries, there was general agreement on:

- the importance of farmers' needs, interests, preferences, and awareness levels to successful project implementation
- the need to develop national-level networks in research and to disseminate information and research findings
- the need to involve more social scientists in MPTS research

The status of regional research was presented and is summarized here.

- The 1987 Humid/subhumid zone trials involve participants from Indonesia, Malaysia, Philippines, Taiwan, and Thailand. Data collected from these trials at 12 and 18 months are being analyzed. The arid and semi-arid trials beginning this year involve participants from India, Nepal, Pakistan, and Sri Lanka.
- Participants in the regional socioeconomic study include scientists from Bangladesh, India, Indonesia, Nepal, Philippines, Sri Lanka, and Thailand. The study concerns farm and village land- and forest-use practices. Much of the field research is completed.
- A multidisciplinary research project on tree-breeding objectives intends to define and describe ideotypes of MPTS desired by small farmers in Asia. Field research has started

The Committee discussed issues related the Leucaena psyllid (*Heteropsylla cubana*). It was felt that a need remains for the regional coordination initiatives taken by F/FRED.

Members of the Committee were told that 25 provenances of *Acacia auriculiformis* are being evaluated at 10 sites in 8 countries in an international provenance trial. Standard methodology is being applied and data are to be exchanged using the Information and Decision Support System (IADSS).

Regarding small research grants, a total of 120 applications were submitted in 1988. Twenty-three applications were approved for funding in the biological and social sciences, with results expected later in 1989.

The use of IADSS in the 1987 humid/subhumid zone trials was discussed. The Committee was informed that a much-improved version (2.0) of the software is under development, and is expected to be available for use in October 1989.

IADSS and its use was considered an important part of the curriculum in the computer course on forestry research that was held June 12-30, 1989 at the Universiti Pertanian Malaysia. Sixteen participants from seven countries attended.

The compilation of national compendia of MPTS research in Asia is in progress. At present, Malaysia, Philippines, and Thailand are actively preparing compendia of ongoing studies for their respective countries. The compendia are to provide a comprehensive source of information on researchers, institutions involved, location of studies, and major findings. These findings will be shared through a computer database and a series of publications to be produced later in 1989.

An important means for increasing national-level networking activity is the exchange of information through newsletters, as planned by the MPTS research network of Malaysia. The F/FRED Project may provide limited assistance in starting this type of publication in Phase 2.

In countries where publication of national newsletters is not possible in the near future, or where there already exist related newsletters, researchers may contribute to other bulletins, such as the *Upland Research News* produced in the Philippines.

Forest research institutions may consider publishing their own journals to provide additional channels for sharing findings from MPTS research. Researchers should also be encouraged to publish the results of their research in existing relevant journals.

At the regional level, the importance of *Farm Forestry News* is beyond doubt. Country representatives should share primary responsibility for disseminating MPTS-related information through this newsletter. To ensure successful information exchange regionwide, MPTS researchers need to send materials, such as articles about ongoing research and photos, to the editor. The suggestion that *Farm Forestry News* consider including relevant abstracts of publications related to MPTS research will be given due consideration.

Twinning was regarded by the Committee as an important aspect of network development. It helps to strengthen collaboration between institutions through staff/researcher exchange and joint meetings, conferences, and training courses. The success of this type of collaboration is demonstrated by the recent Regional Symposium on Recent Developments in Tree Plantations of Humid/Subhumid Tropics of Asia, jointly organized by Universiti Pertanian Malaysia and Kasetsart University, Thailand in early June 1989. The Research Committee encourages twinning, primarily between institutions in Asian countries.

To promote national-level networks, researchers are encouraged to create national MPTS research committees (as done in Malaysia and Thailand), national MPTS secretariats (as in Indonesia), executive committees (as in Nepal), or formal linkages with other networks or associations (as in the Philippines). It is important to find means for ensuring that these committees are active and functioning. The committees formed should attempt to develop formal linkages with other networks and associations.

It was unanimously agreed by the Research Committee that national-level development should include F/FRED-sponsored site visits, improved ties between the Research Committee and the Coordinating Unit, and more visits by "foreign" members of the Research Committee to national MPTS research meetings.

The following paragraphs summarize the group reports and discussions. Details of these appear in Section 4.

I. Network Trials and On-farm Research

It was felt that additional species should be selected for network trials. The selection process should consider a species' uses (for domestic consumption and ability to generate cash income), ability to grow well with other crops and improve soil fertility, and most importantly its acceptability to farmers. Feedback from the regional socioeconomic study now under way will certainly assist in this process.

To enhance knowledge of the interaction of MPTS with arable crops, it was agreed that separate trials be initiated at four or five locations.

The importance of uniform research methods was stressed. For each trial, a program to familiarize investigators with the agreed methods is necessary.

In reviewing the species to be included in a network trial, species of regional importance should be given top priority.

Design of future network trials should consider farmers' existing practices, intercropping trees and crops, planting patterns, as well as the feasibility of proposed interventions incorporating both biological and social requirements.

A detailed design for the next set of network trials will be formulated in mid-1990.

To address the problem of seed shortages, it is important to ensure that sufficient seed materials for future trials are supplied promptly to participants.

The Committee encouraged careful maintenance of network trials for use in selection of "plus" trees, and for potential in superimposing additional experiments (such as isozyme studies and farmers' preference surveys).

It was suggested that on-farm network research focus on the development and testing of suitable methodologies for on-farm evaluation of MPTS.

II. Social and Economic Research

In reviewing the progress of regional studies and the program of small research grants, the Committee felt that:

1) the present research methodology and findings on farm and village land- and forest-use practices will help shape studies at regional and national levels in Phase 2 of F/FRED

2) both regional and national research should receive fair and balanced attention.

3) it is important to the compilation of the research compendia to share secondary materials

With regard to the remainder of Phase 1, the Committee agreed that:

1) cost analyses of the Plantek trials and other network trials should take place

2) a market study is needed to contribute to the development of a suitable research methodology

The importance of integrating social scientists into MPTS-related research activities such as planning, experimentation, analysis, and exchange of findings, must receive greater emphasis.

The Committee recommended that in Phase 2:

- regional studies should examine the demand side of MPTS, effects of introduced species on the rural poor, new markets for MPTS products, and new MPTS-based industries

- the program of small research grants should continue, encouraging multidisciplinary studies and the development of standard methodologies

- a sociological and economic "tool kit" should be developed for use by foresters

III. Utilization Research

It was emphasized that farmers use MPTS not only to fulfill household needs but also to generate supplementary income.

Suggested priority areas for research include: intra-specific variation in basic properties, species suitability as raw material for industrial use, problems affecting MPTS users, uses of non-wood products, harvesting, utilization, economics, and marketing.

IV. Training

Training in Phase 2 should include short-term and postgraduate training, support activities, and training for extension officers involving biological scientists, social scientists, and management/policy officials. The topics for short-term training should cover the range of these specializations.

It was proposed that the F/FRED Project sponsor further training, site visits, and study tours; and graduate training at the M.S. and Ph.D. levels, including thesis grants.

The Committee concurred with the proposal to continue support for institutional library development, maintenance and dissemination of an inventory of MPTS-related training courses, and development of training materials, particularly how to develop on-farm MPTS trials and demonstration plots.

V. Small Research Grants Program

The list of priority research topics, the system for recipient selection, and the application form were reviewed and revised. The group recommended that wherever possible, researchers should be allowed to purchase equipment locally, particularly where the cost is lower.

It was suggested that:

- applications for funds can be submitted directly to the Coordinating Unit or, alternatively, screened by the national MPTS research committee of the country before going to the Coordinating Unit
- copies of approved proposals should be sent to members of the Research Committee
- work in progress should be reported at the annual national research meetings
- directions for completing the application form and preparing reports require improvement
- a list of approved applications should be sent to all applicants

VI. Status and Role of the Research Committee

It was suggested that the period of Research Committee membership should be extended to two years.

There was debate on whether the national MPTS research meetings should select two alternate representatives to the regional Research Committee meeting in the event that the designated representative cannot attend.

National MPTS research meetings should be held between January and March each year.

The Committee encouraged more active communication among researchers at both the national and regional levels, through national newsletters and *Farm Forestry News*. It was hoped that F/FRED might be able to assist such national newsletters with financial support.

Research Committee members should assist in updating the IADSS Specialist Database.

According to the Network framework, a Research Committee Chairman and three additional representatives were elected to serve on the Steering Committee. Dr. Suree was re-elected to act as Chairman of the Research Committee. The other members selected to serve on the Steering Committee at its November 1989 meeting are Dr. Kamis Awang, Dr. Kailash Pyakuryal, and Dr. Marian de los Angeles. Dr. Cesar Nuevo was selected as the alternate.

In closing, Committee members were encouraged to participate in the International Conference on Conservation of Tropical Biodiversity, to be held in Malaysia, June 12-16, 1990. The Research Committee will meet next in Nepal, June 2-7, 1990.

3. Reports on National MPTS Research Meetings

Bangladesh

N.K. Kar and M.Z. Abedin

Bangladesh, with only 9 percent of its land in forest cover, suffers a fuelwood shortage in which people collect cowdung, crop residues, and tree leaves for household energy. Recently a social forestry program was initiated on the encroached forest land, and a community forestry program began on the roadside. Several agroforestry modules are being tested. MPTS are receiving serious consideration, including *Dalbergia sissoo, Mangifera indica, Acacia nilotica, A. auriculiformis*, and *Artocarpus heterophyllus*. Training in improved management of MPTS and agroforestry research methods is needed.

India

N.G. Hegde

India gives more emphasis to nitrogen-fixing trees (NFTs). A database on NFTs is still required, as well as a widening of the genetic base for such promising exotic NFTs as *Prosopis juliflora, A. auriculiformis,* and *Leucaena leucocephala*. Tree-breeding programs and management practices are required, particularly for psyllid-resistant Leucaena. Microbiological research was mentioned. Public relations programs ensure farmer participation and public awareness.

A national workshop on research and extension needs for promotion of fodder and fuelwood trees took place, resulting in recommendations for policies encouraging soft loans, price controls, cottage industries, and agroforestry. India also encourages the establishment of a gene conservation and information center.

A training program on tree-crop research methodologies is needed. Key research areas are tree improvement, soil fertility and soil inoculation, physiology of trees under stressful conditions, management, harvesting, and marketing. Priority tree species for India include *Acacia auriculiformis, A. nilotica, A. leucopholea, Albizia amara, Albizia lebbek, Derris indica, Casuarina equisetifolia, Leucaena leucocephala, Dalbergia sissoo, Azadirachta indica, Melia azedarach, Ougeineia dalbergioides, Grewia optiva, Celtris australis, Gliricidia sepuim, Prosopis juliflora, and P. cineraria*. Annual meetings are required to update information. A system for people's participation was also suggested.

Indonesia

O. Satjapradja and J. Kartasubrata

F/FRED activities in Indonesia were outlined, including field trials and participation in the regional socioeconomic study. Four groups of priority species were proposed:

1) *Dalbergia sissoo* and *Leucaena leucocephala*
2) *Eucalyptus urophylla, Acacia leucophloea* and *Calliandra calythyrsis*
3) *Gliricidia sepuim* and *Albizia falcataria*
4) *Sesbania grandiflora, Artocarpus heterophyllus,* and *Gnetum gnemon*

Tree species preferred by farmers and those that generate income were also discussed. As with India, there is the need for greater public relations efforts to promote awareness of MPTS. The Indonesian scientists suggested that *Arenga* and *Metroxylon* species receive attention. The national meeting considered the need to establish relationships with agencies outside the forestry sector.

Malaysia

K. Awang and L.H. Fui

The Malaysian representatives reviewed the establishment of the 1987 network field trials. To promote the work of the regional Network, the meeting recommended the establishment of a Multipurpose Tree Species Network of Malaysia (MPTS-Malaysia), which would include activities in Peninsular Malaysia, Sarawak, and Sabah. MPTS-Malaysia will act as a national contact point and a network to promote information exchange. MPTS-Malaysia will also

act as a forum for research exchange, and will help coordinate research and development on MPTS-related topics. Presently, Malaysia would like to emphasize work with *A. mangium*, Bamboo, Rattan, Casuarina, and Leucaena.

Nepal

E.R. Sharma and K.N. Pyakuryal

The Nepal meeting considered the need for continued work with *Dalbergia sissoo*. Work there has also emphasized planting *Tectona grandis, Azadirachta indica, Melia azedarach, Cassia siamea*, and Bambusa. Calliandra was recommended for soil conservation, beekeeping, and latex production. Research on tissue culture of MPTS is being investigated.

Social scientists work very closely with foresters and farmers.

Papua New Guinea

S.M. Saulei and J. Kupa

Over 80 percent of Papua New Guinea's area is covered with forest, with 15 million ha of forestry operations. Problems with logging operations, shifting cultivation, mining, urbanization, and infrastructure development have depleted forest resources by 80,000 to 90,000 ha annually. Priority areas for research are production and silvicultural treatment of logged-over areas, natural regeneration and managed plantations, environmental impact assessment for logged areas, and social problems related to forest resources. Regarding MPTS, the meeting recommended a breeding program and use of MPTS in agroforestry and rehabilitation of degraded grassland areas. Indonesia is also monitoring the social effects of logging projects. Results will be used to guide development.

Philippines

C. Nuevo and M. de los Angeles

Philippine scientists have conducted many studies on man and trees and mycorrhizae. Over 50 percent of the land area is upland. The recent national meeting showed greater attendance by social scientists and economists. The primary research programs in the country are information bases, production, management, trend of wood demand, impact assessment on ecology and politics, and technology transfer. Training should take place on related subjects.

Sri Lanka

A. Wickramasinghe

Dissemination of information on MPTS is a primary need. Farmers prefer to grow traditional crops like coconut, areca nut, and mango. Small local industries, such as a tobacco company, are already growing trees for multiple uses. Growing MPTS in association with plantations of coconut, pepper, coffee, nutmeg, and cloves, was recommended.

Taiwan

T.W. Hu and S. Bhumibhamon

The meeting was informed of the 1987 network trials. The Leucaena psyllid problem compelled the introduction of other species such as *Eucalyptus camaldulensis, E. grandis*, and *E. urophylla*. A natural hybrid of *A. mangium* and *A. auriculiformis*, as well as *Leucaena leucocephala* and *L. diversifolia* will provide good genetic material. The national meeting recommended work on NFTs, Bambusa, Casuarina, and *A. confusa*.

End products from MPTS include pulpwood from Leucaena, Acacia, and eucalypts; logs for sawnwood and mushroom cultivation from Acacia spp., and products of secondary metabolites (Cinnamomum), and essential oils.

There is a need to include more of a socioeconomic perspective in forestry management in Taiwan.

Thailand

S. Bhumibhamon and C. Tingsabadh

The National Sub-committee on the Research and Development of MPTS has organized several working groups on Teak, Melia and Azedarach, Eucalypts, and the Leucaena psyllid.

The second National MPTS Research Meeting discussed the four items below.

1. Research and development on genetics and tree improvement

With more research funds required, the private sector was asked to join the national research program. The development of psyllid-resistant genetic materials is a key research area. Additional research needs include species trials of *Albizia falcataria, Anthocephalus chinensis,* and *Azadirachta indica*, hybridization of *A. manguim* and *A. auriculiformis*, registration of genetic material, and careful selection of eucalypt species and artificial seeds.

2. MPTS and the socioeconomics of rural areas

The meeting indicated strongly that farmers select species with multiple uses that provide cash and maintain good environmental conditions. It also recommended that on-farm research of MPTS be conducted.

3. MPTS and wood industry

Land problems and low economic returns have delayed increases in large-scale tree plantations. Policy research and increased MPTS productivity are recommended. More research on eucalypts is required.

4. MPTS and environmental problems

The meeting further recommended environmental impact assessments of planting fast-growing trees, and suggested that indigenous species be given preference over introduced species. Intensive extension programs are needed.

4. Group Reports

Network Trials and On-farm Research

The discussion group participants were:

Kamis Awang (chairman)
Suree Bhumibhamon
Narayan Hegde (rapporteur)
Kenneth MacDicken
Cesar Nuevo
Romero Raros
Ombo Satjapradja

Recommendations

1. Species selected for future network trials should fulfill at least three of the following criteria:

a. produce timber and fuelwood
b. produce food, fodder, and other useful commodities
c. grow well in mixed plantations without seriously competing with food crops planted beneath the canopy
d. improve soil conditions and prevent soil degradation
e. grow fast under short rotations and possess good coppicing ability

Before selecting additional species, these criteria should be tested with small-scale farmers to confirm that they are desirable characteristics. The regional studies on farmers' use of trees and tree-breeding objectives currently being conducted in Bangladesh, India, Indonesia, Nepal, Philippines, Sri Lanka, and Thailand should make this possible.

2. The current network trials do not answer questions such as the interaction of MPTS with arable crops. However, introduction of a crop component in the present trials is not feasible. Separate trials incorporating crops grown in the region should be initiated on four or five locations to study the tree-crop interaction.

3. Orientation of the principal investigators in trials methodology is extremely beneficial for ensuring that uniform research methodology is practiced on all network trial sites. This can be done with videotapes and possibly by national-level orientation programs.

4. The following tree species, which have already appeared on lists as priority species, were reviewed for inclusion in network trials.

Artocarpus heterophyllus
Sesbania grandiflora
Albizia falcataria
Gliricidia sepium
Calliandra calothyrsus
Acacia leucophloea
Anacardium occidentale
Caesalpinia sappan
Gnetum gnemon

Anacardium may be excluded, as it is already a cash crop under study by other agencies. *Sesbania grandiflora* has very limited use as fodder and food, but the wood quality is poor. In fact, *Sesbania sesban* provides superior fodder and fuel. Other species like *Azadirachta indica*, *Melia azedarach*, and *Albizia procera* are popular in certain parts of Asia.

One or two species of local importance should be included with the 1987 trials until other species are selected.

5. In the design of future network trials, the following points should be considered:

a. inclusion of farmers' practices
b. evaluation of intercropping trees with agricultural crops
c. evaluation of plant spacing and cropping pattern
d. assessment of economic feasibility of the practice under study
e. incorporation of both biological and social science elements in the design

6. It was agreed that a preliminary group meeting will be held to develop a detailed design (tentatively in June 1990) in Bangladesh, India, or Thailand. This will take place before the next meeting of the Research Committee.

7. Poor germination of seeds presented a serious problem on many sites. To avoid this,

greater quantities of seed material should be provided to future trial participants.

8. The cooperators in the 1987 humid/subhumid trials are encouraged to:

a) maintain the trials in good condition, beyond the three years specified in the original experiment design

b) use the trials for selection of "plus" trees and further work

c) superimpose additional experiments on the trial sites, including

   1) isozyme studies on *Acacia mangium* and *A. auriculiformis*

   2) studies of farmer preferences regarding the fuelwood use of biomass products harvested from the trials

   3) further studies on suspected hybrid trees of *A. auriculiformis* x *A. mangium*

   4) decomposition of Acacia phyllodes

   5) physiological studies on the trial species

   6) economic analysis of the trial species to determine direct and indirect benefits

d) pursue other opportunities that emerge as a result of analysis of the one-year data

Social and Economic Research

The discussion group participants were:

Marian de los Angeles (chairman)
Lim Hin Fui
Janis Kupa
Charles Mehl (rapporteur)
Charit Tingsabadh
Anoja Wickramasinghe

1. Progress of the two regional studies and the small research grants program, with reference to the F/FRED mid-term evaluation report

a. The group agreed that the regional study of farm and village land- and forest-use practices will be the basis for socioeconomic research in Phase 2 of the Project. The data set and methods for field research and analysis should be refined in future studies. The database and methods should also be used in appropriate studies supported by the small research grants program and in the social science and economic components of multidisciplinary research.

b. The group disagreed with the statement of the evaluation team that comparative research should be reduced in order to emphasize small grants for local research. The regional study examines a combination of micro- and macro-level issues that cannot be addressed in localized research. Other opportunities exist for support of localized research, but the MPTS Research Network provides a unique chance for multilocational, comparative studies that can address cross-cutting regional issues.

Although much can be gained from review of existing literature, the group disagreed with the report's recommendation for further literature reviews and analysis of on-the-shelf data. The study participants are familiar with on-the-shelf data in their respective countries. And while it is important that this information be shared both within countries and with researchers from other countries, the study researchers find the data from existing studies inadequate to address the comparative issues covered in the regional study.

c. National bibliographies of social and economic dimensions of farm and village forestry should be shared throughout the Network, and should form part of the MPTS research compendia.

2. Economic research for the remainder of Phase 1

a. The group approved plans for cost analysis of the Plantek tissue culture trials, and the development of cost analysis for network field trials.

b. The group questioned the need for training in marketing analysis at this stage, before methods for analysis are developed. The methods for analysis would depend upon the groups to be trained (whether economists, non-economic researchers, or extension agents). Thus far target audiences have not been identified.

c. Before Phase 2, the Network should develop a method to help determine the potential demand for tree products and the demand for various tree characteristics.

3. Role of the social sciences in MPTS research and integrated research

a. Planning of all network research should include input from all relevant disciplines. Biological scientists in the Network should help to plan future regional social and economic studies.

b. Results of the regional land/forest practice study and the tree-breeding objective study can help with species selection, site selection, and adoption of management systems for future network trials.

c. Economic analysis of network trials is needed. This will require adequate records of quantity and cost of inputs, including

labor, and the quantity and cost of the potential products derived from the trees.

d. Social and economic studies should be conducted in conjunction with the trials. For the next set of network trials conducted in the humid and subhumid zone, social scientists and principal investigators should conduct leading local farmers on tours of the trial sites at planting, and subsequently at each stage when management treatments are performed, as well as at harvest. The researchers would discuss with the farmers their perceptions of the trees at each stage, including where the farmers would plant and how they would use the trees. The farmers' communities will be included in future social and economic studies to determine how their socioeconomic conditions affect their response to and perception of the species tested.

e. Multidisciplinary analysis of the implications of the network field trial and socioeconomic study results should be encouraged. For example, combining the results of network trials and the regional land/forest use practices study could indicate potential niches for planting the priority species, as well as possible uses of the species in the study villages.

f. The development of methodologies for multidisciplinary, on-farm research should receive high priority attention. Implementation of on-farm research should await the development of such appropriate methods and identification of appropriate teams to conduct the research. The MPTS Research Network should seek funds from several sources to support on-farm research.

4. Social and Economic Research in Phase 2

a. The current regional socioeconomic research emphasizes the existing production and use of trees. It covers the supply side of MPTS, both existing supply and the potential supply given the tree management and use, land use, and other constraints faced by the rural poor. Further research is needed to refine the data set and to ensure that adequate relevant information is included in it.

b. The group strongly recommended that the next phase of regional studies also examine the demand side of MPTS, and the potential social and economic effects on the rural poor of the introduction of new species, of new markets for MPTS products, and of new MPTS-based industries.

c. Local, multidisciplinary studies should be emphasized to address critical national issues. F/FRED could support the planning and design of these studies, with co-sponsors or other donors funding the research.

d. Small research grants should be continued, and multidisciplinary studies should be conducted in the context of broad national interest to meet the national priorities established at the National MPTS Research Meetings.

e. Small research studies funded in Phase 2 and multidisciplinary teams should be encouraged to use the research tools developed through the regional social and economic studies.

f. Small research and multidisciplinary studies should stress methodology development as well as research results so that innovative research methods can be tested and adopted elsewhere to address similar conditions and issues.

g. The group strongly endorsed development of an approach for "forest extension research and development," or a sociological and economic "tool kit" for use by social forestry workers. For agricultural extension agents and other rural development workers, an MPTS "tool kit" would be useful.

MPTS Utilization Research

The discussion group participants were:

C.B. Briscoe
Nirmal Kumar Kar
Junus Kartasubrata (chairman)
C.B. Lantican
Kailash Pyakuryal
Simon H. Saulei (rapporteur)
Eka Raj Sharma

Introduction

The rationale for implementing a network program of MPTS utilization research is to better understand the suitability of MPTS products other than those presently used to address the needs of small-scale farmers. Most farmers require such products not only to meet their household needs (for example, fuelwood, contruction materials), but also for income gained through sales of raw and processed MPTS materials.

These requirements may be met by research into the development of new products and uses, as well as the improvement and development of MPTS processing.

Areas of Research

Because F/FRED's ultimate goal is to assist the rural poor to raise their standard of living, its program of MPTS utilization research should develop technologies that will be useful to farmers. This program should include a marketing component.

Areas of research into MPTS utilization have been identified and proposed for implementation, and are listed in Table 1 (adopted from Dr. Lantican's background paper).

Table 1. Areas for MPTS utilization research proposed for F/FRED.

Study area	Wood	Bark	Leaves	Flowers	Fruits
Harvesting	-	x	x	x	-
Basic properties	-	x	x	x	-
Product improvement/ development	x	x	x	x	x
Economics	x	x	x	x	x
Marketing	x	x	x	x	x

- = Omitted due to being more adequately researched by other programs

Priorities for the Network Program

1. Intra-specific variation in basic properties
2. Raw material requirements for small-scale enterprises
3. Suitability of MPTS as substitutes for species currently used by industries
4. Technical and management problems affecting MPTS users
5. Uses of non-wood parts of MPTS (for example, fertilizer, feeds, food, perfume, medicine, preservatives, pesticides)
6. Harvesting and utilization economics
7. Marketing

Recommendations

The utilization of MPTS products (including marketing) should be one of the focal aspects of future MPTS research. Initiating such research requires:

1. An inventory of MPTS products and utilization research programs already being carried out by other institutions in the region (to avoid duplication as well as to identify additional research needs)

2. An inventory on diversification of MPTS utilization and products

3. A survey of MPTS markets (regional and local)

4. Documentation of research results on previous MPTS utilization for dissemination to network members

5. Development of a research program for the utilization of priority species and species already identified as preferred by farmers

Issues for Discussion

- Regional vs. local or country requirements that may affect the MPTS Research Network program

- Identification of common problems that can contribute to the development of common methodologies

Training in Phase 2

The discussion group participants were:

C.B. Briscoe
Narayan Hegde
Celso Lantican
Cesar Nuevo (chairman)
Ombo Satjapradja
Simon Saulei
Charit Tingsabadh (rapporteur)

The group considered the proposed training plan for Phase 2 prepared by Celso Lantican, and concurred with the objectives of the proposal, namely:

Continue to enhance the capability of Asian institutions to 1) design, establish, and manage MPTS research and 2) package and transfer technologies to improve the production and use of MPTS on small farms.

The group identified three target audiences for which training must be appropriately designed:

o biological scientists
o social scientists
o management and policy people

Short-term Training

Topics suggested for short-term training, and the potential target audiences for each, are shown in Table 1.

In addition to providing the courses in the table, F/FRED should

o sponsor trainees to existing courses

o support visits by scientists, both Asian and American

o organize study tours for researchers to network trial sites

The group noted that visits by farmers to trial sites can be organized under a professional services agreement.

Graduate Training

The group supported the proposal to:

o continue support of the present Ph.D. fellows at Michigan State University

o provide thesis grants for M.S. and Ph.D. students

The group also proposes that post-doctoral support be provided to MPTS researchers.

Table 1. F/FRED shortcourses proposed for Phase 2.

Course Topic	Target Group
Forestry for Social Scientists	S
Social Science for Foresters	S
MPTS Research Techniques	S, F
MPTS Research Management	M
Technical Writing and Proposal Preparation	S, F
Problem Identification/ Rapid Rural Appraisal Technique	S, F
Microcomputer Application	S, F
Marketing and Economic Analysis	S, F
Tree Improvement and Seed Technology	F
Technology Transfer for MPTS Scientists	F
Instrumentation	F
Management Information Systems	all
MPTS Utilization	S, F

F=Foresters, S=Social Scientists, M=Managers

Support Activities

The group concurred with the proposal that F/FRED should

- o continue to provide library development support
- o make an inventory of MPTS-related course offerings and disseminate this through the Network
- o develop training materials such as manuals, video programs and slideshows, and interactive software packages

The development of F/FRED short courses should receive priority attention, particularly courses that focus on the establishment and management of on-farm MPTS experiments and demonstration plots

The group considered training for technology transfer to be very important.

Small Research Grants Program

The discussion group participants were the following:

Marian de los Angeles
Kamis Awang (chairman)
Junus Kartasubrata
Kar Nirmad Kumar
Charles Mehl
Eka Raj Sharma (rapporteur)

Recommendations

1. The group revised the priority research topics and the selection process and application (see below).

2. The group suggested that researchers under the program should be allowed to purchase equipment locally; USAID should waive its geographic source restriction for procurements.

3. Researchers in the program should report progress of their study at the National MPTS Research meetings.

4. Copies of the approved proposals should be distributed to the Research Committee.

5. Instructions for completing the proposal form and preparing study products should be clearly spelled out in the cover letter accompanying the form. The applicant should be informed that the research funds will be paid in three installments, the final installment conditional upon submission of the final report.

6. The list of approved proposals should be distributed to all applicants.

Statement of Program and Priorities

The F/FRED Project will provide matching or "seed money" research grants up to US$10,000 to institutions or individuals to conduct MPTS-related research. Proposals from participants in the MPTS Research Network will receive priority consideration. Proposed research must be consistent with and enhance the goals and objectives of the F/FRED Project, and of the Research Committee. The following topic areas will receive priority consideration.

- Increases in biomass yield through improved silviculture and management (for example, spacing, thinning, fertilizing, coppicing, watering, pollarding) for small farm use (fuelwood, fodder, poles, timber, etc.).
- Improvement and standardization of methods for nursery stock production (including vegetative propagation)
- Establishment of planting stock techniques for low-input, small-farm use
- Genetic improvement of MPTS
- Additional uses of MPTS
- Agroforestry techniques of MPTS grown in association with food, fodder, fiber, and medicinal crops (including diagnosis of land-use and farmer problems)
- Pest and disease control
- Nitrogen-fixing and mycorrhizal organisms for inoculation
- Effects of MPTS on soil and water conservation
- Use of MPTS within indigenous forest and other land management systems
- Local institutions, beliefs, and customs affecting production and use of MPTS by small-scale farmers
- Comparison of social forestry programs, especially *vis-a-vis* MPTS
- Demand for MPTS products produced by small farmers
- Economic and financial analysis of MPTS cultivation
- Adoptability of MPTS by small-scale farmers

- Infrastructure and organization required for promotion of MPTS use

Applications for research on species other than those studied in network field trials will also receive consideration, provided they are native species already used by farmers with potential for multiple uses and wider cultivation in the region.

Proposal Preparation

Proposals must be submitted in English. The institution or individual submitting the proposal is responsible for securing any necessary authorizations, for compliance with local and national laws, and for recordkeeping and reporting of grant money expenditures. Proposals should be submitted using the form distributed by the F/FRED Coordinating Unit and members of the Research Committee.

Proposal Submission

Proposals must be submitted with a postmark of no later than July 1, and addressed to:

F/FRED Coordinating Unit
P.O. Box 1038
Kasetsart Post Office
Bangkok 10903
THAILAND

Solicitation

In general, the process of solicitation shall include two means:

1) announcement for proposals in *Farm Forestry News*

2) announcement by members of the Research Committee to the institutions participating in the National MPTS Research Meetings

The solicitation for proposals will be made by members of the Research Committee, who will receive from the Coordinating Unit application materials early in May each year, for distribution to organizations in their respective countries. Proposals screened by Research Committee members should be submitted by the end of July.

Review

All proposals will be screened by the F/FRED Coordinating Unit for their appropriateness to the Network's research activities. Appropriate proposals will then be reviewed for technical content by up to four scientists with expertise in the proposed field of study. Research Committee members will serve as reviewers. A group of Research Committee members, in conjunction with the Coordinating Unit, will decide on those proposals that reviewers recommend to receive funding at a meeting in November.

General Guidelines for Grant Selection

1) It is desirable that the greatest number of countries in the three environmental zones be covered by the grant process.

2) There should be a balance between biological and social science recipients such that each discipline area shall comprise at least 25% of the successful proposals.

3) Interdisciplinary cooperation in this research is given priority.

4) Larger projects may be considered for small grant funds, provided that funds required above US$10,000 can be obtained from another donor. Plans for obtaining other funds must be included in the grant application.

Renewal

At the end of the grant period, a proposal for renewal may be submitted. However, each proposal of renewal will be treated as a separate project and must have its own verifiable objectives. Decisions on grant renewal will also depend on the achievement of objectives in the first grant, and the availability of funds.

Status and Role of the Research Committee

The discussion group participants were:

Suree Bhumibhamon (rapporteur)
Lim Hin Fui
Janis Kupa
Kenneth MacDicken
Kailash Pyakuryal (chairman)
Anoja Wickramasinghe

The group discussed the National MPTS Research Meetings and their organization. The terms of reference for the national coordinator appears in Appendix 1.

The group recommended that the term for Committee members be extended to two years.

Each National Research Meeting should select two country representatives (one each from the biological and social sciences) to participate in the regional Research Committee meeting.

The group recommended that the national meetings take place according to the following schedule, to ensure proper representation at the subsequent meetings of the Research and Steering committees.

Bangladesh	March (second week)
India	January (second week)
Indonesia	March (first week)
Malaysia	February (second week)
Nepal	March (second week)
Pakistan	March (fourth week)
Papua New Guinea	February (first week)
Philippines	January (fourth week)
Republic of China	February
Sri Lanka	March (third week)
Thailand	March (second week)

There is a need for more active communication within countries, using *Farm Forestry News*, as well as supplementary country newsletters that may be developed if needed. Where they are created, copies should be sent to the Coordinating Unit and other members of the Research Committee.

In addition, members of the Committee and other scientists in the network are encouraged to submit research papers to various journals like the *Journal of Tropical Forest Science* (published by the Forest Research Institute Malaysia), *New Forest* (published by Kluwer Academic Publishers in the Netherlands), and the *Journal of Tree Sciences* (published by the Indian Society of Tree Scientists). Publication will be one of the best means to bring participants and interested groups to understand the importance of MPTS and apply existing knowledge for practical application on farms.

Members of the Research Committee are advised to update the MPTS specialist database in their countries, sending the updated list to the Global Research Unit in Hawaii. The Global Research Unit should then revise its list when possible. The Coordinating Unit should ensure that specialists listed in the database receive *Farm Forestry News* regularly.

Regarding selection of representatives to the Steering Committee, the group felt that the current representation (four persons) is adequate. As in the past, the Chairman of the Research Committee and three other members nominated and elected by the rest of the Committee will serve.

Appendices

Appendix 1

Terms of Reference for Coordinators of National MPTS Research Meetings

The coordinator is to plan, organize, and conduct a National MPTS Research Meeting, and to see that the objectives of the meeting are achieved.

The objectives of the meeting are to:

1. select two representatives to serve two-year terms on the regional MPTS Research Committee

2. provide a forum for the exchange of information and views among scientists on network-related research

3. monitor ongoing network-related experiments and studies

4. develop a prioritized national research agenda of network-related topics to be presented and discussed at the following MPTS Research Committee meeting

"Network-related research" means research dealing with the production and utilization of MPTS on small farms and with social and economic conditions affecting small-farm use of MPTS. Priority species include *Acacia auriculiformis, A. mangium, A. nilotica, Azadirachta indica, Dalbergia sissoo, Eucalyptus camaldulensis, Leucaena* spp., *Melia azedarach, Prosopis cineraria,* and *P. juliflora.*

The coordinator is responsible for all logistics of meeting arrangements, including (but not limited to) extending invitations for participation, participant travel, lodging, per diem, and meeting facilities. The coordinator will prepare a cost estimate for this meeting and submit it to the F/FRED Coordinating Unit for financial support.

The coordinator will submit to the Coordinating Unit three copies of a final report, which at a minimum will include the names of the persons selected as Research Committee representatives, the prioritized research agenda, the meeting agenda, list of participants, and copies of any papers presented at the meeting.

Participants are to include scientists from all biological and social science disciplines who are involved in network-related research, including (but not limited to) agriculture, forestry, and the social sciences.

Participants

Bangladesh

Nirmal Kumar Kar
On-Farm Research Division
Bangladesh Agricultural Research Institute
Barind Station, Kazihata
Rajshashi - 6000
Telephone: 2261

India

Narayan G. Hegde
Vice President
BAIF Development Research Foundation
'Kamdhenu', Senapati Bapat Marg
Poona - 411 016
Telephone: 52621, 52466, (Res.) 50475
Telex: 145-283 BAIF IN
Cable: BAIFON

Indonesia

Junus Kartasubrata
Faculty of Forestry, Bogor
Agricultural University
P.O. Box 69
Bogor
Telephone: (0251) 21567
Telex: 48299 BIOTRO IA

or

Center of Development Studies
Bogor Agricultural University
JL. Widuri 5 Bogor
Telephone: (0251) 24789

Ombo Satjapradja
Director
Department of Forestry
Agency for Forestry Research and Development
Forest Research and Development Centre
J1. Gunung Batu
P.O. Box 66
Bogor
Telephone: 25111
Cable: PUSLITHUT

Malaysia

Kamis Awang
Dean
Faculty of Forestry
Universiti Pertanian Malaysia
43400 UPM Serdang
Selangor
Telephone: 9487835
Telex: 37454 UNIPER MA
FAX: 03-9482507

Lim Hin Fui
Forest Research Institute Malaysia
Kepong, Selangor
52109 Kuala Lumpur
Telephone: (03) 6342633
Telex: 27007 FRIM MA
Cable: FRIM

Nepal

Kailash N. Pyakuryal
Department of Sociology and Anthropology
Tribhuvan University
Kirtipur
P.O. Box 3635
Kathmandu
Telephone: 13277, ext. 28

Eka Raj Sharma
Chief
Forest Survey and Statistics Division
Ministry of Forestry and Soil Conservation
Babar Mahal
P.O. Box 3339
Kathmandu
Telephone: 2-24943, 2-22601

Papua New Guinea

Simon M. Saulei
Director
Forest Research Institute
P.O. Box 314
Lae
Telephone: 424-188 or 424-194
FAX: 424357

Janis Kupa
Economist
Department of Forests
Frangipani Street
P.O. Box 5055
Boroko
Telephone: 27 7800
Telex: NE 22360
FAX: 25-4433

Philippines

Cesar N. Nuevo
Director
Institute of Forest Conservation
University of the Philippines
at Los Baños
College of Forestry
P.O. Box 434
College 444031, Laguna
Telephone: 2258, 3340

Marian S. de los Angeles
Philippine Institute for
Development Studies
Third Floor, NEDA sa Makati Building
106 Amorsolo Street
Legaspi Village
Makati, Metro Manila
Telephone: 865-746
Telex: 63095 PIDS PN
FAX: 817-97-42 (PIDS)

Sri Lanka

Anoja Wickramasinghe
No. 4, Campus Quarters
Polgolla
Telephone: 08-99373
Telex: Message through telex 22787
Matsui CE
FAX: 94-8-32343

Thailand

Suree Bhumibhamon
Associate Professor
Department of Silviculture
Faculty of Forestry
Kasetsart University
Bangkhen, Bangkok 10903
Telephone: 579-0171
Telex: 21957 RECOFTC TH

Charit Tingsabadh
Chulalongkorn University Social
Research Institute
Chulalongkorn University
Phayathai Road
Bangkok 10500
Telephone: 252-7053
FAX: (662) 215-5523

F/FRED Project Staff

C.B. Briscoe
Forestry Program Officer
Winrock International
1611 N. Kent Street, Suite 600
Arlington, VA 22209
U.S.A.
Telephone: (703) 525-9430
Telex: 6491106 WIDC UW
Cable: WINROCK
E-mail: 41:TCN408
FAX: 703-525-1744

Celso B. Lantican
Training Officer
Winrock International - F/FRED
P.O. Box 1038
Kasetsart Post Office
Bangkok 10903
Telephone: 579-1977, 561-1041
Telex: 4900008037 MPT UI
Email: TCN 370

Kenneth G. MacDicken
Team Leader/MPTS Network Specialist
(same address as above)

E. Lee Medema
Forest Economist
(same address as above)

Charles B. Mehl
Land and Forest Management
Network Specialist
(same address as above)

Field Trip

The Committee members had the opportunity to visit three research institutes. At the Ecosystems Research and Development Bureau (ERDB), they were briefed on studies related to MPTS projects. A visit to the library, publications unit, and a computer room supported by Winrock International followed later.

A visit to the Institute of Plant Breeding, College of Agriculture, University of the Philippines, Los Baños enhanced the Committee's knowledge of the program of plant breeding research in the Philippines. Producing "new breeds for new needs," this institute caters not only to commercial interests but also to poor rural farming communities. Since the institute was established in 1975, scientists from various disciplines have been drawn to participate in research there.

The National Institute of Biotechnology and Applied Microbiology (formerly known as the Ferdinand E. Marcos Center for Biotechnology and Applied Microbiology), UPLB, focuses its research on agriculture and forestry. This institute looks forward to having more collaboration in research with other institutions in the region.

Program

July 3

Morning

Introductory Remarks

Report of the Steering Committee Meeting

Review of the Research Committee Meeting report of April 1988

Mid-term Evaluation of MPTS Research for Small Farm Use
- Biological Research
- Social Science Research
- Economic Research

Presentation of National MPTS Research meetings by representatives of participating countries

Afternoon

Regional Research Status Reports

Network Field Trials
- Humid/Subhumid Tropics
- Arid and Semi-arid zones

Regional Socioeconomic Study

Multidisciplinary Research: Tree-breeding Objectives Study

Leucaena Psyllid Control

Provenance Trials of *Acacia auriculiformis*

Small Research Grants
- Biological Research
- Socioeconomic Research

July 4

Morning

Discussion Groups

Group 1: Network Trials and On-farm Research

Suggestions for future network trials; applying lessons and results from network trials to on-farm research; opportunities for multidisciplinary research

Group 2: Social and Economic Research

Suggestions for future social and economic research; network development; multidisciplinary case studies; applying lessons and results of regional studies to MPTS research design

July 4
Morning (continued)

Group 3: Utilization Research

Role of utilization research in the MPTS Research Network; suggested Network program

Afternoon

The Information and Decision Support System (IADSS)

National Compendiums of MPTS Research

Publication and Information Exchange
Increasing the capability of network participants; the role of *Farm Forestry News*

Network Development
Twinning arrangements and suggestions for future twinning; national-level networks

July 5
Morning

Field Trip to the Institute of Plant Breeding and Institute of Biotechnology, ERDB

Afternoon

Discussion Groups

Group 4: Training

Identifying training needs for F/FRED Phase 2; prioritizing these needs

Group 5: Small Research Grants

Review and revise list of priority topics, grant application, and selection system; means to encourage interdisciplinary research

Group 6: Status and Role of the Research Committee

Selection and terms of Committee members; organization and schedule of National MPTS Research meetings; communications and coordination with the Coordinating Unit; selection of Steering Committee representatives; distribution by environmental zone

July 6

Presentation of Group Reports and Discussion

Selection of Research Committee Chairman

Selection of Steering Committee Representatives

Other Business