‘Indochina Tree Seed Programme’
Support to Institutional Capacity Building of the National Tree Seed Sectors in Indochina

Second Regional Consultation for Danish Supported Tree Seed Projects in South East Asia
Hanoi, 29 February - 3 March 2000

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1. Background

Three Danish supported Tree Seed and Gene Resource Management Projects are presently
being implemented in South East Asia:

- The Indochina Tree Seed Programme (ITSP) consists of three national components, the
  Cambodia Tree Seed Project (CTSP), the Lao Tree Seed Project (LTSP) and the Vietnam
  Tree Seed Project (VTSP); and a regional co-ordination and management unit based in
  Vietnam. ITSP, 1999-2003, is supported by Danida and the technical assistance is
  implemented also by Danida.
- The Indonesia Forest Seed Project (IFSP) 1998-2002 is supported by Danida and the
  technical assistance implemented by Danagro.
- The Thai Forest Genetic Resources Conservation and Management Project
  (FORGENMAP), phase I, 1997-2000 is supported by DANCED and the technical assistance
  implemented by Danagro.

Danida Forest Seed Centre (DFSC) provides short-term technical assistance to all three projects.
The three Project Documents all foresee and provide for regional collaboration.

Collaboration was initiated by a first consultation among the three projects in Bandung,
Indonesia in March 1999 organized by IFSP. The outcome of this workshop is documented in
the minutes from the meeting (IFSP 1999). The present meeting was thus the second
consultation intended to evaluate progress in and options for continued collaboration among the
three projects. DFSC was invited as the short-term technical backstopping agency, and in
particular to discuss which role DFSC could play in the regional collaboration.

2. Implementation of the consultation

The following topics were identified for discussion at the consultation:


b. Technical Issues including Priority Species, Conservation, Seed Quality and Research
   information.

c. Modality for future Regional Collaboration including Services from and collaboration with
   DFSC.

d. Share and Exchange Information including Extension Activities and Participatory
   Approaches

The first topic, as a result of last year’s consultation, is part of an effective and ongoing
cooperation and exchange of information and needed no further common elaboration. The
latter three topics were each debated in a working group, refer summaries in annex 5.

This report briefly describes the implementation of the meeting and includes annexes of country
papers, summary of group discussions as well as opening statements.

Opening

H. E. Nguyen Van Dang, First Vice-Minister of Ministry of Agriculture and Rural Development
(MARD) was guest of honor during the opening address delivered by Dr. Prof. Nguyen Ngoc
Lung, Director General, Forestry Development Department, MARD. He mentioned the need for
introduction of advanced techniques and exchange of information in seed procurement
programmes for the benefit of the large plantation programmes planned for the participating
countries. He expressed appreciation of the effective support of organisations such as Danida.
Invited paper

Dr. Nguyen Huy Phon, Deputy Director, Forest Inventory and Planning Institute (FIPI) delivered a presentation on 'Priority species in contemporary Vietnamese forestry and tree seed aspects' which enlightened us on the forest types of Vietnam, the abundant flora of 12,000 plants of which 1,000 are endemic. More that 1000 plants are commercial (NTFP’s). Of the 1000 larger trees 354 are commercial. Fauna entails over 11,000 species. Then followed a summary on forest loss which occured up to 1995 ameliorated by two national planting programmes 327 and current 661, or '5 mill ha programme', which aims at re-greening barren land and bring it into production. This includes rehabilitation of protected areas and other Gene Resource Conservation measures. A list of 34 priority species was presented as result of work in 1995 by FIPI, FSIV and CFSC. Seed needed for 1998-2010 to produce 6.5 billion plants is 1.7 tonnes.

Country presentation (summaries)

Indonesia: Mr. Bambang Priyono, Project Manager, IFSP presented a brief of the purpose of IFSP including Objectives and Outputs, Institutional setting and staffing and Planning and Implementation Modality. Major achievements since last consultation were four training courses for primary and secondary target groups, seminar on Policy on Human Resource Development in the Forest Tree Seed Sector, outline for Masterplan of Tree Seed Sector, sponsorship of M.Sc. students and contacts established to Universities. A newsletter is published regularly. And the project participated in meeting on establishment of a Tree Breeding Association in Indonesia. In conclusion was given an impressive plan of activities for remainder of 2000 including courses, study tours, information and extension activities. Examples of advanced materials such as CD-ROM’s, posters and PR-material were handed out to participants.

Thailand: Mr. Vichien Sumantakul, Assistant Director, Silviculture Research Division presented the report, which took us through the deliveries in 1999 on each of the 11 outputs of the project. This included courses in ex situ and in situ conservation and study tour to Denmark. A register of seed suppliers and seed sources has been established. Seed stock was 26.4 tons and consumption was 4.5 tons. Planned procurement of 11.3 tons from 38 species. Seed source identification in natural stands continues. The project advocates framework species (refer annex 5.d). Work on a seed supply structure was endorsed and marketing aspect studies undertaken. Throughout the meeting the participants were able to review a substantial poster area created by FORGENMAP. In conclusion was mentioned that the current phase would end September 2000 and a review was imminent, for consideration of a two-year extension.

Lao PDR: Mr. Douangphet Lattanasouk, Deputy Director Forestry Research Centre and National Project Manager, LTSP elaborated a paper on the situation of forestry in Lao PDR and tree seed aspects. Since last meeting the Seed Project has been well established in Nam Souang, 45 km from Vientiane. Buildings have been renovated and equipped and staffing completed. Training courses have been held in Seed Source Identification and Management and recently in Seed Procurement and Laboratory Routines. Of particular interest was the implementation of three workshops on 'Priority Species Identification' which will be adapted for Vietnam and Cambodia during 2000. Work was also started on estimation of seed demand including initial considerations on marketing. Decentralised seed supply through e.g. provincial forestry offices were emphasised.

Cambodia: Mr. Ma Sok Tha, Head of Reforestation Office and National Project Manager, CTSP presented the first national report of Cambodia as the project agreement only was signed
in July 1999 and this was his first participation in the Consultations. Work had commenced with HRD sending participants to other countries and implementation of one Start-up course in Seed Procurement facilitated by Adviser to VTSP. Three candidates were enrolling at UPM, Malaysia for M.Sc. and high level participation in the Study Tour to Denmark was also ensured. Work is ongoing to find appropriate or temporary project localities, some offices are foreseen at the Forestry Department. A request has been forwarded to Danida for a permanent adviser. Plans were elaborated for 3 technical courses and a national priority species workshop for 2000.

**Vietnam:** Dr. Nguyen Duong Tai, Director General, Central Forest Seed Company (CFSC) and national Project Manager presented a comprehensive report on VTSP and basic activities of CFSC, refer also annex 8a. Three consultancies from DFSC related to establishment of a tree seed network, undertaking tree seed source evaluation and management and finally to consider marketing of seed. A substantial training programme of 14 modules will be completed by end of 2000 having then trained the majority of CFSC's 340 staff and several provincial representatives. Upgrading of library and seed laboratories was ongoing. CFSC manages approximately 2750 ha seed stands and orchards including several indigenous species. Introduction and demonstration ongoing for Camelia oleosa, Pinus elliottii and Khaya senegalis. 42 tonnes of seed produced from 16 main species, 15 tonnes used for aerial direct sowing programme. 7 mill tree plants were supplied. In 2000 a series of priority species workshops will be held in the regions, pilot study of stakeholders will continue in Thanh Hoa Province and a National Seed Source Register will be initiated.

**Statement on past year activities**

The programme included a status on the outcome of collaboration agreed upon at the first consultation covering three selected technical subjects:

1. **Common seed source classification,** by Dr. A P Pedersen (annex 5f)
   In fact all 3 projects apply same system i.e. modified old OECD system. Refer Lecture note B1 from DFSC. Identification upgrading classification of valuable seed sources in natural stands would normally equal to seed zones (Z), which is lowest category of OECD. There was a proposal for a subdivision of the selected stand (SS) in natural forest into SSF and SSB, referring to the use for Forestry and Biodiversity purposes, respectively. This was proposed in recognition of growing importance of the genetic value of good natural forest due to its high biodiversity richness.

2. **Definition of forest products and seed quality,** by E Lauridsen (annex 5e)
   The projects should consider widening the concept of seed testing, refer “Seed handling Manual - Guidelines and logbook for seed processing” by K Poulsen and K Thomsen, Technical Note No. 54, DFSC, 1999. The concept of an additional (genetic) dimension to seed quality is old, but has received new attention, amongst others raised in recent regional Conference in Chiang Mai by John Turnbull, Australia.

3. **Species technical notes,** by L H Schmidt
   There are in Vietnam 350 major species of which CFSC collects seed of 80 to some extent. Technical knowledge of how to procure and handle many of these species is scarce, resulting in much working 'in the blind'. Prototype species note (Azadirachta indica) and guidelines were distributed last year. An example was elaborated for Vietnam on Canarium album that illustrated how ‘thin’ the knowledge was presently. Of the 5 countries only Vietnam is active on species level and it is recommended that notes are co-ordinated with DFSC (Dorthe Jøker). Currently CATIE, the most advanced institution in the field, has completed over 100 notes.
4. Framework species strategy, additional topic by Jens Granhof

In Thailand issues of conservation are becoming dominant. There are 400 priority species for 4 end-uses and 150 priority species for Biodiversity. The concepts of community building species and selected framework species were mentioned, refer annex 5.d for details. Examples of species were Ficus sp. and Quercus sp. It was also noted that substantial research was needed in implementation of this concept, which could be seen as silviculture par excellence.

Presentation by DFSC

A presentation by Deputy Director Lars Graudal focused on possibilities for collaboration with DFSC within the framework of the new DFSC Strategy 2000-2010, refer the distributed ‘Challenges and priorities in management of forest genetic resources 2000-2005’.

Field visit

Visit to the Forest Seed Enterprise of the Central-North Region and the Red River Delta in Phu Tho Province 150 km north of Hanoi included welcome and briefing in newly constructed offices by the Acting Director, Ms. Le Thi Tuu. The Enterprise has 44 staff and manages 1,354 ha, of which 245 ha are seed stands and orchards. Then the group proceeded to the field to see BSO of Canarium album established on 10 ha in 1995. Then 1 ha of introduced Pinus oocarpa from 1978 with N = 300 (N is number of trees per hectare). Next was 2 ha of introduced Pinus caribaea from 1976 with N = 200. Then a converted seed stand of Manglietia glauca of 40 ha from 1984, after 2 thinnings N = 300. A 20 ha demonstration plot of introduced Camelia sasanqua from 1998 had N = 1000. Final visit was a replication of a provenance trial of Chukrasia tabularis and C velutina with 22 provenances established 1999 in collaboration with CSIRO. Similar trials elsewhere in Vietnam established with FSIV/RCFTI.

Central Forest Seed Company in Hanoi.

A morning was spent familiarizing the group with host organization, CFSC, that was founded in 1963 and now a public service enterprise relating to Ministry of Agriculture and Rural Development. It has a Hanoi headquarters and 7 production units or Enterprises covering the entire country. Total staff is 340 of which 88 with B.Sc. and 5 with M.Sc. or Ph.D. Duties include establishment and management of seed sources, production of seed and plants, supply of tools and materials, import & export, international cooperation, and training in seed handling. It manages close to 13,000 ha of which 2,750 ha are seed stands. Production capacity is 54 tons of seed per year, plants 5 mill/year and seedlings ‘as demanded’.

Modalities of collaboration

Three working groups were formed:

- group one dealt with identification of technical subjects for possible collaboration
- group two discussed exchange of information and related subjects
- group three covered modality for the regional collaboration and DFSC support

Summaries of conclusions and recommendations presented in annex 5.

3. Conclusions and agreed collaborative events
DFSC committed itself to join the regional collaboration as an equal partner in the implementation of activities that fall within the framework of the DFSC Strategy 2000-2010. In practise this arrangement means that all proposals for regional collaboration will be subject to a brief ‘description’ including objective, output, activities, implementation modality and inputs required. Based on such descriptions, each Tree Seed Project and DFSC will decide on their participation and allocate the resources required when implementation is agreed upon.

Initially, such briefs will be prepared for four activity areas identified and recommended by working group 1 and committed to by the present National Project Managers. The briefs should be circulated before the end of April. **IFSP** would prepare two (species priority setting, seed quality), **FORGENMAP** one (conservation of forest genetic resources) and **ITSP** one (seed research).

### 4. Other issues

There was a general quest for DFSC to focus more on providing information of a practical ‘down-to-earth’ nature.

The IFSP posters and Photo CD-ROM could perhaps serve as inspiration for production at DFSC of material of a similar nature for distribution.

TeakNet in Indonesia will organize a Teak Conference of high quality.

Earlier announced Conservation Workshop in March 2000 (for Degree Level) by FORGENMAP has been postponed to August or later in 2000, pending outcome of Review.

It was agreed to have the next meeting in Thailand in February 2001. How this meeting is going to be prepared and implemented will depend on whether FORGENMAP is extended beyond September 2000, where the present Phase I ends. However, IFSP and ITSP foresee possibility of co-funding a specific proposal from Thailand.

**Closing**

At the end of the second day of meetings, Dr. Tai, on behalf of Government of Vietnam extended his sincere thanks to the delegates for enthusiastic participation. He closed the Consultation with best wishes to all for the coming year and particularly to Thailand who will strive to organise our next event.
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Annex 1.1

Programme for entire event of

**Second Regional Consultation for Danish Supported Tree Seed Projects in SE Asia**
Hanoi, 27 February - 4 March 2000

**Sunday 27 February 2000**
Arrival of participants from Denmark, Indonesia, Thailand, Cambodia and Lao PDR

**Monday 28 February 2000**
Arrival of participants from Indonesia, Thailand and Cambodia
Sub-meeting of LTSP & VTSP on Thailand Study Tour (p.m.) and Species Workshops in Vietnam (a.m.)
Sub-meeting of Technical Advisers on ongoing and future cooperation.
19:00 Informal dinner for group at 'Phu Dong' 47 Tran Xuan Soan St.

**Monday and Tuesday:**
Meeting, see annex 1.2

**Thursday 2 March 2000**
7:00 Departure for Phú Tho Seed Enterprise NW of Hanoi, seed sources and seedling production
18:30 Back at Hotel Guoman
19:30 Dinner at Cafe Phó, 15 Ly Thuong Kiet St.

**Friday 3 March 2000**
9:00 Visit to Central Forest Seed Company: Tissue culture & seed lab and other facilities
12:00 Lunch at HITC Club and return to centre of Hanoi.
14:00 Free for sight seeing etc.

**Saturday 4 March 2000**
7:00 Visit to Perfume Pagoda - conservation issues. An optional day-trip

**Sunday 5 March 2000**
am Departures
Annex 1.2

agenda for

Second Regional Consultation for Danish Supported Tree Seed Projects in SE Asia
Guoman Hotel, Hanoi, 29 February - 1 March 2000

Guest of Honor
H. E. Nguyen Van Dang, First Vice-Minister of Ministry of Agriculture and Rural Development (MARD)

Tuesday 29 February 2000
9:00 Opening by Dr. Prof. Nguyen Ngoc Lung, Director General, Forestry Development Department.
9:15 Welcome by Counsellor Henning Nøhr, Royal Danish Embassy
9:30 Coffee break - group photo
10:00 Guest speaker, Dr Phon, Forest Inventory and Planning Institute, FIPI, 'Priority Species in Contemporary Vietnamese Forestry - and tree seed aspects'
10:40 Short discussion
11:15 Introduction to the Second Consultation by CTA of ITSP
12:00 Lunch at Guoman Hotel
13:55 Country presentation of major progress since last meeting
14:00 Indonesia
14:30 Thailand
15:00 Coffee
15:20 Lao PDR
15:40 Cambodia
16:00 Vietnam
16:30 Presentation of ongoing technical cooperation by Elmer Lauridsen
17:15 Short discussion
17:30 End of programme
19:00 'Consultation dinner' at 'The Gallery', Guoman Hotel

Wednesday 1 March 2000
8:30 'Services from and collaboration with Danida Forest Seed Centre', Deputy Director Lars Graudal
9:15 Establish topics and groups for discussion on further collaboration
10:00 Coffee
10:30 Work in discussion groups: e.g. Training courses, Technical issues, Papers.
12:00 Lunch at Guoman Hotel
13:30 Work in discussion groups continues
14:45 Coffee
15:00 Presentation from working groups, 20 mins each.
15:00 Group I:
15:20 Group II:
15:40 Group III:
16:00 Group IV:
16:30 Concluding discussions and recommendations
17:25 AOB - Next years meeting
17:30 Closing by Dr. Tai, Director General of CFSC
17:45 End of day
19:00 Dinner on boat, Hanoi West Lake. Meet in Lobby at 18:45 for transport
Annex 2:

**Opening speech of Prof. Dr. Nguyen Ngoc Lung, Director General, Forest Development Department**

Dear Mr. Nguyen Van Dang, vice minister of MARD

Dear Advisors from DANIDA organization, international organizations.

Dear participants from tree seed projects

On behalf of Forestry Development Department and colleagues, I warmly welcome representatives from the Tree Seed Projects and International consultants to Hanoi as participants of this workshop.

With the good arrangement of workshop organising board and its participants, I hope the workshop will get target results.

Vietnam, as well as your countries, highly appreciates the role of tree improvement, tree seed selection, seed procurement in term of afforestation/reforestation, especially in the large plantation programmes of the countries. However, in Vietnam, seed selection and tree improvement still require more attempts, more information exchange and advanced techniques as well as experience acquirement from other countries, international organisations, and especially the effective support of such a strong organisation as DANIDA.

I hope that you, participants will have a good time in Hanoi and the field trips. Thank for your attention.
Annex 3:

**Opening speech of Mr. H Nøhr, Development Counsellor, Danida**

Your Excellency Vice-Minister of Agriculture and Rural Development, Mr. Nguyen Van Dang, Distinguished delegates from Indonesia, Thailand, Cambodia, Lao PDR, Vietnam and Denmark, Ladies and Gentlemen.

I am pleased to be here today in this well attended regional meeting which is a concrete expression of our long term support not only to development in Vietnam but the re-emerging Indochina Region of SE Asia. The Tree Seed Programme is part of a Danish Environmental Facility established after the Rio Conference in 1992 with the objective to promote a sustainable use of the nature.

Here was further elaborated on EPSF/MIFRESTA programme.

Specific, national programmes have been build up for both Vietnam, Lao PDR and soon Cambodia and encompass industrial and urban anti-pollution measures as well as conservation of endangered species of plants and animals to ensure the bio-diversity also for our children and our children's children.

Today I am in a circle of highly specialized technical experts relating to forestry, to tree seed supply, use of indigenous species and conservation of gene resources and one can wonder how a small, temperate Scandinavian country became involved in this sector.

After the Second World War the Arboretum (north of Copenhagen) became quite a centre for tree improvement and subsequently in the 1960'ies involved in international seed collection with FAO. Through trading interests in Teak in Burma and Thailand the first tropical contacts were made and the first Teak tree seed centre established in Chieng Mai in 1967.

Since then Denmark has been actively supporting more than 10 centres from Nicaragua over East Africa to Nepal and lately Indonesia and Indochina. Through the support to these activities the Danida Forest Seed Centre developed and is now a world renown institution in its own field giving technical support and producing a good number of publications for field use.

I am pleased to see how increased collaborations between these centres are leading to self-reliance and further growth. In our part of the world, SE Asia, forestry is a highly commercial sector with substantial revenues. We hope your efforts will assist the process of transformation from mere exploitation of a seemingly endless resources to a sustainable use with replanting of forests, re-greening of cities and locally adapted community forestry plantings meeting the needs of a growing population.
Annex 4:

List of participants in Second Regional Consultation for Danish Supported Tree Seed Projects in SE Asia

Cambodia
Mr. Ma Sok Tha, Head of Reforestation Office & National Project Manager CTSP
Mr. Vong Sarun, Vice-Director of Forestry Research Institute & counterpart
Ms. Vong Sopanha, Secretary FRI & Counterpart staff of CTSP

Denmark
Mr. Torben Bellers, Counsellor, Danida
Mr. Henning Nøhr, Development Counsellor, Danida
Mr. Dao Nhat Dinh, Programme Assistant, Danida
Mr. Lars Graudal, Deputy Director, DFSC

Indonesia
Mr. Bambang Priyono, Project Manager, IFSP
Mrs. Henny Rachmawati, Counterpart, IFSP
Ms. Mulyawati Prasetyaningtyas, Counterpart, IFSP
Mr. Marcus Pedersen, Training & Extension Adviser, IFSP
Ms. Inge Pedersen *
Mr. Elmer Lauridsen, Seed Supply Adviser, IFSP
Ms. Hanne Lauridsen *
Mr. Fransiskus Harum, Liaison Officer, IFSP
Mr. Søren Moestrup, Chief Technical Adviser, IFSP
Ms. Rikke Korsgaard *
Mr. Kristian Moestrup *

Lao PDR
Mr. Douangphet Lattanasouk, Deputy Director Forestry Research Centre & National Project Manager, LTSP
Mr. Khamphone Mounlamai, Counterpart, LTSP
Mr. Anders Jensen, Technical Adviser, LTSP

Thailand
Mr. Vichien Sumantakul, Assistant Director, Silviculture Research Division
Mr. Bundit Ponoy, Project Director, FORGENMAP
Dr. Anders P. Pedersen, Technical Adviser, FORGENMAP
Mr. Jens J. Granhof, Chief Technical Adviser, FORGENMAP
Mrs. Anne Granhof *

…Continued overleaf
Vietnam
H. E. Nguyen Van Dang, First Vice-Minister of Ministry of Agriculture and Rural Development (MARD)
Dr. Prof. Nguyen Ngoc Lung, Director General, Forestry Development Department, MARD
Dr. Nguyen Duong Tai, Director General, Central Forest Seed Company (CFSC) and National Project Manager
Mr. Nguyen Xuan Lieu, Chief Technical Section CFSC & Network Co-ordinator VTSP
Mr. Nguyen Huu Hieu, Technical Section CFSC & Secretary of VTSP
Dr. Hoang Thanh Loc, Technical Section CFSC
Mr. Nguyen Duc To Luu, Technical Section CFSC
Dr. Nguyen Huy Phon, Deputy Director, Forest Inventory and Planning Institute (FIPI)
Dr. Ha Huy Thinh, Forest Science Institute of Vietnam (FSIV)
Mr. Lars H Schmidt, Technical Adviser, VTSP
Mr. Jens Aare Olsen, Chief Technical Adviser, ITSP
Annex 5.a

**Technical Collaboration in the Region**

**Identification of common indigenous priority species (for planting)**

**Objective:** To establish a common background for work on other issues, e.g. conservation and seed research.

**Output:** Matrix on species, country, end-use produce,

**Activities:**
1. Compile national species priority lists (exotic/indigenous)
2. Make matrix (species/countries/end-use)

**Lead Country:** **Indonesia**

**Conservation of forest genetic resources.**

**Objective:** Identify issues of common interest in conservation. Promote collaboration within conservation of forest genetic resources in the region, in respect of common methodology, documentation and exchange of genetic material.

**Output:** A proposal for an action plan on conservation of a limited number of common high priority species.

**Activities:**
1. Identification / adoption of common criteria for assessment of needs for conservation.
2. Identification of common species with high priority for conservation, by country-wise needs, country wise listing of priority species by main end-uses for planting (domestication)
3. Compile information on potential candidate species, according to guidelines in DFSC Technical Note No. 49 on ‘Planning a National Programme for Conservation of FGR’. (Distribution, Conservation status and other relevant technical data)
4. Drawing up of proposal for common action plan, including Collection plan, Ex-Situ stand establishment and Joint provenance testing (long term aspect).

A follow-up on this subject for collaboration is proposed as a basis for the FORGENMAP workshop on Conservation, refer section 4 ‘other issues’.

**Lead Country:** **Thailand**
Seed quality

1. Objective: A common understanding of seed quality parameters and common definition of critical parameters.

2. Output: Common guidelines for contents of seed documentation systems.

3. Activity: Assess existing documentation system in the region and propose common guidelines for seed documentation system.

Lead Country: Indonesia

Seed research information

1. Objective:
   Facilitate better planning of seed research

2. Output:
   List of seed research undertaken
   List of literature, reports and other material for reproduction

3. Activity:
   Establish priority species for seed research
   Compile list of existing seed research undertaken on indigenous priority species.
   Identify needs for further reproduction of selected material, literature etc.

Lead Country: Vietnam

The panel agreed that project proposal for each of the above should be prepared according to format of DFSC (refer Annex 5.c) and submitted to respective Lead Country Project management by end of April 2000.
Annex 5.b

Share and exchange of information

- Different objective between the projects
  - Indonesia: Strengthening giving advice to service center.
  - Another country: Thailand: Focus on seed supply and conservation.
    + Indochina: Focus on seed supply.

WHAT KIND OF RELEVANT MATERIAL?

- Training materials: handouts, manuals.
- Technical notes: Seed source, seed research, forest conservation, and documentation.
- Seed catalog
- Booklet, newsletter, leaflet, poster, journal, magazine, Television, Radio, Video.
- List of publication: what the project has sent to other projects, and the projects can then select which one that is interesting.

HOW TO GET THE MATERIALS:

- Personal contact: Seed Project (Counterpart, Project Manager, Adviser)
- Meeting
- Attachment, Study Tours
- Post, email, website
- Establishment of Network (species), e.g. on seed supply or conservation.

WHO IS THE RESPONSIBLE FOR EXCHANGE OF INFORMATION?

- From: Other project, DFSC, Institution
- To: Director
- Contact address.
Modality for the regional collaboration and the DFSC - support

The following issues were discussed in the group:

1. The institutional “level” of the regional collaboration
2. “Means and ways” for the regional collaboration
3. “Inputs” (commitments) to support the regional collaboration.
4. The role of DFSC in the regional collaboration.

The consultation recognizes the importance of the existing collaboration between the three projects (five countries) and supports the continuation and strengthening of the collaboration (reference is made to the three Project Documents).

Re 1. “Project to project” collaboration is recommended in the short term, whereas in the long term “Government to Government” collaboration may be considered, involving other national institutions and international organizations.

Re 2. The project will support regional collaboration through following means:

- Study tours
- Seminars/workshops
- Training courses
- Attachments
- Exchange of written material (including AWP/Progress Reports)
- Common publications
- Planting material (exchange)
- Newsletter
- Common R & D activities

For all specific collaboration to be initiated a brief “Project description”, including activities, timeframe and required inputs, has to be prepared and agreed upon.

Re 3. The three project documents for ITSP, FORGENMAP and IFSP all include funds for regional collaboration. The Projects commit themselves to provide inputs (manpower and finances) for specific collaboration according to agreed “Project descriptions”

Re 4. The DFSC will join the regional collaboration as an equal partner implying that DFSC is committed to contribute to the formulation, the financing and the implementation of the regional activities agreed upon.

It is further more recommended that:

DFSC makes available relevant information gathered from previous and ongoing projects.

DFSC considers preparing technical series of publications to be used for extension activities at project level.
FORGENMAP
Mr. Jens Granhof: Framework species strategy

CONSERVATION HAS OBTAINED MORE PROMINENT ROLE IN THE REGION FORGENMAP:

CONSERVATION OF FGR:
- ecotypes, endangered sources (in-situ and ex-situ)

CONSERVATION/ REHABILITATION OF BIODIVERSITY:
- Ecosystems (in-situ)

How?
- 400 priority species (4 end uses)
- 150 priority species for biodiversity

FRAMEWORK SPECIES STRATEGY MAY PROVIDE A SHORT CUT

Base on community building species (CBS), where:

“Different ecosystems have different CBS”
FRAMEWORK SPECIES

Introduced to FORGENMAP through CTR (CTR: Center of tropical research, Queensland; experience > 10 years) and FORRU (FORRU: Forest Restoration Research Unit (1996 -) cooperation between Chiang Mai University and RFD):

Among Community-building species, identify framework species, specific for different ecological conditions (forest types, ecosystems).

Criteria for selection of framework species:
- Seedling performance (survival, growth, ease of establishment)
- Ease of propagation
- Shading out of weeds
- Foster regeneration of other species
- Inhibited natural dispersal

Example: Evergreen hill forest/N. Thailand/ > 1000-1200m
400 species identified, of which
130 community forming species identified, of which
31 framework species chosen

Kind of research needed:
- Flowering
- Seed setting/maturity
- "Treatment for maintenance of viability"
- Nursery technique
- Planting
- Tending
- Management.

All in all development of background for ‘Silviculture par Excellence’.
Annex 5.e:

FOREST PRODUCTS AND QUALITY OF SEED1

Forest product and genetic variation

The **purpose** of tree planting operations is manifold, i.e. for production of:

- Structural timber, Chip-wood, Pulpwood, Firewood, Food (fruits, honey), Fodder, Extractive (turpentine, gum, resin), Medicine, or intended for:

- Nature and Gene Conservation, Shelterbelt, Protection of Environment, Soil and Water, Amenity (Landscape Development, Roadside Planting, Town Planting), and Other.

Having defined the purpose of planting, a choice of appropriate tree species, or sub-species, must be made.

For the chosen species or sub-species, a further choice must be made of any Eco-type, provenance, variety, or other genetic variation (e.g. selected trees), whose progeny will thrive best on the given planting site to ultimately produce the wanted product.

For the given choice of species an appropriate source of seed, which can provide the right **quality of seed**, must finally be identified.

The correct choice of species and specific genetic variation, which matches the planting-site conditions and the purpose, is the first condition and the best guarantee of a good result.

Quality of seed

The **right quality of the seed** to use is the second condition for a good result.

The **quality of seed** includes genetic, as well as physical, physiological, and health aspects.

The **genetic quality** means the degree to which a seed lot is representing the genetic variation, which is wanted from the chosen source of seed. This genetic variation may be wide or narrow according to the purpose.

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1 The term seed includes true seed as well as fruits.
The other quality aspects for seed is the sum of the physical, physiological, and health properties of the seeds in a seed lot:

- **The physical quality** concerns the degree to which the physical and morphological structures are well developed, intact, and un-damaged.
- **The physiological quality** concerns the degree to which the embryo and endosperm (mega-gametophyte) are alive and vigorous, i.e. in particular the degree to which the embryo can metabolize and grow under different environmental conditions.
- **Health** concerns the degree to which the seed is affected by pests or diseases. This concerns such pest and diseases that directly affect the viability and vigor of the seeds, or such that may cause problems in the nursery or plantation if transferred along with the seed; i.e. “Seed Borne Diseases”.

A seed lot of the right quality includes seeds, which adequately represent the genetic variation in the seed mother stand, and which are viable, vigorous, and healthy. The seed lot has a high potential to produce a population of usable and healthy plants with a genetic variation as close as possible to that wanted from the chosen source of seed.

The quality of a given seed lot may initially at collection be maximal, or it may be below maximum. The latter is typically the case when seeds are collected while still immature. In both cases, the quality may decrease due to the effect of adverse environmental conditions during handling or storage. The physical, physiological and health qualities of the seed lot are directly affected by adverse conditions, and will consequently deteriorate. When these qualities deteriorate, the genetic quality of the seed lot may indirectly be affected and deteriorate as well. Immature seeds are much more affected by adverse conditions than seed of maximum quality, hence they will deteriorate much faster. For immature seeds, a so-called after-ripening can improve the quality.

It is important to monitor the quality of a seed lot through the various steps of collection, processing, or storage. This is done by a variety of tests. Such tests must include all aspects of quality, as well as all operational steps from collection of the seed, through processing, nursery, transport, and planting!

Similar points of view as above can be used for vegetative reproductive material.
Background:

The OECD rules have been updated recently. As compared to the previous classification scheme, the strings have been tightened resulting in a more restrictive approach to allow tree breeding programmes getting rewarded for their efforts in terms of obtaining higher classifications. This approach has the disadvantage of grouping many (often the majority!) seed sources in the lowest categories. The exception to this may be for countries with a long plantation and silvicultural practice. Due to the fact that the OECD Classification builds on plantation forestry and tree improvement it does not fit well into classification of natural forest seed sources. Eventually, the OECD classification range may be insufficient and too narrow, as it relies on a process towards more and more genetically improved material, which in this region of the world (SE Asia) may be insignificant or less relevant for many species. This implies, that potential seed sources which are good, but undelineated and / or not fully surveyed in healthy natural forests, will as a result of this get the lowest OECD classification. This, despite they may possess quality or unique genes, adapted in various directions to persist selection pressure. Such sources may be very difficult to identify, delineate, collect, and virtually impossible to manage economically. However, their value, in respect of biodiversity, robustness, conservation and maintainance of genetic width can be of utmost importance and very significant.

One could argue that such seed sources, selected for Biodiversity and Conservation, may just be put in the broader and lower classified Seed Collection Zones. However, since the purpose and effort identifying those supercedes that of the Seed Collection Zones, credit must be given to upgrade them to a higher level. A solution, as suggested by FORGENMAP, is to classify them as selected populations under the category Selected Stands, see below.

Proposed Seed Source Classification in THAILAND

FORGENMAP has proposed for Thailand the use of the following classification of forest genetic resources. It reflects and builds on DFSC and the "old" OECD classification system.

Classification of Seed Sources

- Unclassified  
- Seed Collection Zone  
- Identified Stand  
- Selected Stand  Forestry  
- Biodiversity and Conservation  
- Seed Production Area  
- Provenance Seed Stand  
- Seedling Seed Orchard  
- Clonal Seed Orchards

These are the categories of seed sources for collection of commercial quantities of seed as defined by FORGENMAP.
A Seed Collection Zone (also called a region of provenances) for a species is defined as the area or groups of areas subject to sufficiently uniform ecological conditions on which are found stands showing similar phenotypic or genetic characters (OECD, 1974). A Seed Collection Zone is an undelineated or inaccurately defined seed source within a single seed zone. Therefore it has to be somehow defined to ascertain its location in a particular zone. It has typically a focal point after which the provenance takes it name. It has a minimum extend making it impossible to survey from a single spot. Otherwise it could qualify as Identified Stand (IS). It has a maximum extend imposed by same overall ecological conditions.

Special patches may be omitted for this reason! The exact population size is unknown. The Seed Collection Zones system is intended for irregular, complicated or scattered tree occurrences and natural forests.

An Identified Stand (IS) is any stand of any minimal quality, occasionally used for seed collection, for which the location can be precisely described. It is obvious that the use of a stand within a seed collection zone as a collection unit will facilitate the identification of the seed source actually used.

A Selected Stand (SS) entails trees superior to the accepted expected performance regarding the prevailing ecological conditions when judged by selection criteria (OECD, 1974). It fulfils all the criteria qualifying as Identified Stand. This group is now suggested by FORGENMAP, Thailand, to consist of two:

A. Selected for Forestry  - the classic Selected Stand. Selection may occur on the basis of either phenotype of the stand in question or its offspring performance (if known). The provenance is either selected for its extraordinary good or superior appearance, its healthyness, vigour, stemform, growth rate, survival ability or other specific traits. All this leads to a suitable product for traditional forestry production-and-quality purposes.

[Picture not printed, text as below:] Classification to Seed Collection Zone is typical for complex, natural forests, where delineation and inventory efforts would become huge compared to the gain. Efforts here should be spend on exploration and biodiversity such as compilation of species lists and species frequencies. Seed collections could be carried out randomly according to minimum or otherwise specified criteria. Through seed collections and approval, the Seed Collection Zone could candidate for an upgraded classification as Selected Stand. Either for Biodiversity and Conservation or Forestry purposes, whatever would apply.

B. Selected for Biodiversity and Conservation This new term allows another type of "crosscutting" classification. It typically relates to Natural Seed Sources. It is a broad term and concerns wider purposes than just forestry. To mention a few, rareness, vulnerability, safety, genetic, deviation, ecotype, genetic width, biological value, etc. It has functions such as serving as a base population (e.g. as wild population), conservation (in broad sence, for basically all purposes), ecosystem maintainer, etc. As a commercial seed source it may be far from economically attractive due to scatteredness of trees, inaccessibility, inhomogenity, etc. Single trees may be labelled for easy reference / reidentification of the source.

Up to this level of Seed Sources, management efforts are not practised. Still three more, sofisticated seed source types exist, (SPA, PSS, SSO, CSO). Here, management is a basic concept. It should be emphasized, that many species are sensitive to be converted into these high
yielding seed producers: The ecosystem, which will normally not follow the species into this "seed production factory" may later show to be a precondition for pollination and seed development (Lillesøe, 1995). Therefore, for a wide range of species the effective seed production technique / management of seed source does not apply.

A Seed Production Area is a Selected Stand that is generally upgraded and opened by removal of undesirable trees and then cultured for early and abundant seed production. The stand shows (or has proven from its progeny) outstanding performance. Based on this it is converted into Seed Production Area with emphasis on seed production only. It is of a higher phenotypic standard than a Selected Stand.

A Provenance Seed Stand is a stand of known provenance which is under test or has been field-tested and found superior (Keiding, 1988). A special edition of PSS is the ex situ conservation stand. The management of the two are different, serving different purposes.

Zobel et al. (1958) have defined a Seed orchard as a plantation of genetically improved trees, isolated to reduce pollination from genetically inferior outside sources and intensively managed to produce frequent, abundant and early harvested seed crops. It is established by setting out clones or hedges (Clonal Seed Orchard, CSO) or seedling progeny (Seedling Seed Orchard, SSO) of trees selected for the desired characters. Seed orchards are often established while genetic evaluation of the parent material is still under way. In such cases components shown by progeny testing to be genetically undesirable will subsequently be removed from the seed orchards. The OECD definition reads (OECD, 1974): "a plantation of selected clones or progenies which is isolated or managed to avoid or reduce pollination from outside sources, managed to produce frequent, abundant and easily harvested crops of seed". A special edition of Clonal Seed Orchard is the Vegetative Propagation Orchard, where scions continuously are cut to mass produce cuttings, stumps, rootcuttings or grafts. Then, the role of seed has been taken over by vegetative and purely clonal propagation, which can be effective but may raise concern on the genetic variation and genetic recombination.

Literature:

Classification of Seed Sources. By H. Keiding. DFSC Lecture Note B-1. DFSC 1988, 23 p.
Annex 6:

**Description Form for Regional Collaborative Activities.**

Form for proposals for collaborative activities between one or more of the following projects and institutions: IFSP, FORGENMAP, ITSP and DFSC, within the framework for regional collaboration as agreed during the Second Consultation in Hanoi 29/2-2/3, 2000.

1. **Proposed activity (Title):**
   *The title for the proposed collaborative activity is presented here– there may be more than one activity for each activity area.*

2. **Background and justification:**
   *A short description of the background for the proposed collaborative activity and its relevance to the objectives and overall programmes of the projects/institutions proposed for participation.*

3. **Development objective:**
   *Long term, general – should reflect overall objectives of the projects/institutions proposed for participation. A development objective does not always have to be identified, you may refer to development objective of the overall project.*

4. **Immediate objective:**
   *Medium to short term – should reflect immediate objectives of the cooperation project proposed.*

5. **Output:**
   *A presentation of the major outputs in the LFA sense and how these outputs link to the outputs of the projects/institutions proposed for participation.*

6. **Focus area:**
   *A brief presentation of the major technical area being targetted: Conservation, tree improvement, seed procurement, seed research, management aspects, etc.*

7. **Activity area:**
   *A little more detailed presentation of technical area, incl. species, locations, collaborative concept, etc.*
8. Activities:
   Preparation:
   • Specification of activities to be implemented
   • Elaboration of proposal, work plan and budget with collaborators
   • Submit proposal for additional funding, as required

Implementation:
   Listing of all major activities to be implemented as part of the proposed collaboration:

9. Timeframe/schedule:
   Presentation of proposed time schedule/frame for implementation of the proposed collaboration

10. Implementation Modality:
    A short description of the expected roles and functions of the individual projects/institutions proposed for participation. Means and ways of communication, meetings, workshops etc.

11. Inputs:

    Presentation of best possible estimate of required inputs and a proposal for how much should be contributed by each participating project/institution. Inputs to be considered include manpower and finances.

Most of the above mentioned points can be included in a standard “LFA Planning Matrix”. A complete proposal for a regional collaborative activity should not exceed more than 3-4 pages.
Annex 7:

**List of papers and material distributed at the Second Consultation among Danish supported tree seed projects in South East Asia, March 2000**

Discussion on priority species in contemporary Vietnamese Forestry - and Tree Seed Aspects by Nguyen Huy Phon, 10 pp.
IFSP: Indonesia Forest Seed Project 1998-2002 with emphasis on progress up to February 2000, 7 pp.
Cambodia Tree Seed Project, 3pp
Vietnam Tree Seed Project/Central forest Seed Company, 5 pp.
Report of the Lao Tree Seed Project, 10pp
FORGENMAP Publication list (Revised 26/2/2000), 4 pp.
FORGENMAP in Forest Genetic Resources Conservation and Biodiversity Rehabilitation (in Thai and English, 2+3+7 pp.
Seed Catalogue, FORGENMAP, Jan. 2000
Quality Tree Seed Now Available! Pamphlet, FORGENMAP
Seed source classification (FORGENMAP), 4 pp.
Forest Products and Quality of Seed (IFSP), 2 pp.
Third Regional Seminar on Teak, Yogyakarta, 31/7-5/8, 2000 (first announcement, call for papers), 5 pp.
Consultancy and training plan for ITSP, 6 pp. from ITSP-PIP
Photo CD-ROM from IFSP
Posters from IFSP
National Forest Seed and Planting Material Company (NFSC) - pamphlet 1992
Central Forest Seed Company and Regional Forest Seed Enterprises, 8 pp.
Excursion notes (Central North and Red River Delta Forest Seed Enterprise), 6 pp.

The website [www.mekonginfo.org](http://www.mekonginfo.org) was mentioned as a relevant source of information for Indochina and Thailand


From FORGENMAP the following wall-posters were exhibited:
‘Glimpse of ongoing Conservation and Biodiversity activities in Thailand’ and ‘Seed Source Classification in Thailand’.
Vietnam Country Report by Dr. N D Tai, National Project Manager

Vietnam Tree Seed Project (VTSP) / Central Forest Seed Company (CFSC)

1999 is starting year of the implementation of Vietnam Tree Seed Project (VTSP), and at the same time the National 5 million Ha Reforestation Program are embarked upon, and Central Forest Seed Company (CFSC) work as a public-service one. Those situations are challenges that should be faced by VTSP staff. How can we outline project’s activities in year 1999 that will create basic background for next years.

This paper will present the following main items:
- Identifying VTSP’s operational environment and concerning subjects
- Set up and organize an intensive training program
- Physical infrastructure upgrading
- Pay attention to special activities of CFSC.

A. Identifying VTSP’s operated environment and concerning subjects.

- Initial study tours of CTA/NPM and TA/NNC were carried out on all regional seed enterprises and related institutions to identify practical situations and prepare annual plan in connection with project’s objectives and activities. On the base of these studies, Consultancy and Training Plans were prepared too.

- Seed source, seed network and seed marketing are main subjects which should be immediately started in 1999:

  + **Tree seed network:** Consultant Christian P. Hansen (1-19 March 1999). Consultancy included meetings with stakeholders in forest seed network such as NGOs, donor projects, MARD, FSIV and others, plus field surveys. Consultancy concluded with one-day workshop at CFSC.

    - In the report, consultant had special conclusions of great worth for the establishment a forest seed network, that the below activities should be implemented:
      1. Identification of focal points and establishment of a network of seed suppliers and seed source owners and users
      2. Identifying the role of the members in the network;
      3. Assist the network in establishing a forecast and prognosis system of seed demand by province;
      4. Management/planning tools to prepare annual plans for seed procurement;
      5. Training of network members;
      6. Assist the Regional Seed Enterprises in supervising seed collection and processing by network members;
      7. Support to managing the seed sources;
      8. Assist Regional Seed Enterprises to carry out seed testing;
      9. Assist in developing price policies;
      10. Assist network to upgrade seed documentation system (from collection to distribution);
      11. Assist in establishment of guidelines for movement of seed in Vietnam;
12. Development of certification system.

**Tree seed source evaluation and management:** Consultant Dr. Erik D. Kjær (2-21 May 1999). Main activities of consultancy was one week training course, field studies and visit to Forest Development Department, Forest Inventory Planning Institute and Forest Research Institute of Vietnam. Consultancy concluded with one-day workshop at CFSC.

- In the report, consultant identifies four areas where further work is recommended:
  1. To maintain and support the close links between tree improvement and seed procurement in order to increase the use of genetically improved planting material
  2. To domesticate important additional species by use of low input models including: New concepts for tree improvement; Conversion of natural forest to seed sources; Development of a seed zone system and planning, implementation and monitoring.
  3. To develop at common seed source database and issue national seed source lists
  4. To development national guidelines for clonal deployment

**Tree seed marketing:** Consultant Svend J. Christensen (12 September-1 October 1999). To prepare documentation for consultant, a CFSC’s group carried out a survey and gathered data on tree seed market in Vietnam. Consultancy included a training course, field studies and meetings with Pulp Row Material Company, Tree Seed Enterprise of the Southern Region and Forest Development Sub-department and one day workshop at CFSC.

- Marketing consultancy was implemented with establishment of a “Marketing working group” at CFSC to initiate studies and other actions.

B. Set up and organise an intensive training program

- List of 14 Training Modules issued: I.Seed biology-general module; II.Seed production in forest trees; III.Seed source management; IV.Seed documentation systems; V.Physiological Seed quality; VI.Planning Seed procurement; VII.Seed procurement; VIII.Seed testing; IX.Seed propagation; X.Vegetative propagation; XI.Forest tree improvement; XII.Conservation; XIII.Seed pests and diseases and XIV.Microsymbiont management.
  - 7 training courses of modules I; II; III; IV; V; VIII and tree seed marketing were organized with 112 participants (mainly CFSC’ staff).
  - 7 members of CFSC were trained in English.
  - 3 workshops on VTSP and project planning; Seed network and Seed source management were organized with 79 participants (include CFSC’ staff and concerning institutions).
  - 7 members of CFSC participated in 4 courses in abroad (Tree Seed Centre Management, DFSC; Community Forestry Extension and Gene Conservation, RECOFT).

C. Physical Infrastructure Upgrading

- Project office was rehabilitated and 8 computers installed at CFSC, Hanoi.
- Telephone system and Internet links were established.
- 8 vehicle’s purchased and allocated to head office and 5 seed enterprises.
- Laboratory equipment and books have been procured by project.
D. Special activities of CFSC.

The National 5-million Ha Reforestation Program was initiated in 1999. In order to implement this program and achieve good results, in 2 beginning years 1999 & 2000, the program concentrates on the land resource estimating, pilot establishing and management regulation completing which will be created for expanding reforestation area in the following years.

At the same time with the managing of 1,452 ha converted seed stands; 867 ha seed stands; 140 ha clonal seed stands and 287 ha seedling seed stands, CFSC also directed activities such as:

- Establishment of 90 ha seed orchards of 3 indigenous species and 5 exotic species.
- Domestication and demonstration: To produce species for enrichment of the reforestation program, some promising species have been domesticated in Vietnam by CFSC. Two year ago with 2 species, Camelia oleosa and Pinus elliottii and 1999 Khaya senegalensis. Hundreds years ago, Khaya senegalensis [A. Juss] was introduced into Vietnam. It is a large tree growing up to 40 m in height and 1 m in diameter. In Vietnam, Khaya senegalensis have often been planted along the roads and on public areas. The timber is moderately hard, strong and durable and has interlocking grain. It is used for furniture.

With new wood processing technology, Khaya senegalensis wood return great value in producing furniture for export. CFSC takes responsibility to establish 60 ha silvicultural demonstration areas of this species. Demonstration areas will be located in 3 regions (Northwest region and Central region of Northern Vietnam and North of Middle Vietnam). With different treatments of seedling norm, density and fertilizer, this can support to estimate abilities of the lager plantation establishment, good seedling norm and intensive cultivation method for species. In 1999, 30 ha were established in the 2 forest seed enterprises of Central Region of Northern Vietnam and the North of Middle Vietnam. Remaining area should be planted in year 2000.

- 15,000 kgs seed of 4 species were supplied for the ‘aerial seed sowing project’ to sow on 5,000 ha of Lai Chau and Son La provinces. Seed were treated and pelleted to protect and prevent insect attack.
- Production activity:
42,374 kg seed of 16 main species, 11,543 kg plastic tubes, over 5 mill. seedlings and 2 mill. cuttings were supplied for planting projects in 1999 on commercial term.

On the basis of examining consultancy recommendations and also the upgrading of technical and managerial knowledge of CFSC’s staff achieved by project’s training program last year, in the year 2000, VTSP should be directed its attention to following field activities:

+ To estimate priority species
+ Establish Demonstration plots:
  . Select indigenous endangered priority species in four regions (Northeast, Centre of the North, Northern Middle, and Central Highland).
  . Establish model breeding seed orchards, 3-5 ha/species, 2-3 species at one selected regional seed enterprises (Lang Son, Quang Binh, and DaLat).
  . Select the sites, species and prepare seeds and seedlings for ex-situ conservation model establishment and indigenous species testing. These activities link to surveying and describing seed zones, identifying the issues of conservation and the partners for collaboration plans for conservation.

Ordering of provenance seedlots of Khaya senegalensis from abroad for testing by CFSC with
help from VTSP.

+ A pilot study on seed network and seed source registration in Thanh Hoa province with following objectives:

. Identifying stakeholders and their role in seed production/seed demand in one province the pilot study will serve as baseline for similar studies of provincial forest seed network in other provinces in Vietnam.

Initiating collection of seed source information from Thanh Hoa province. The pilot study will serve as a baseline for registration of seed sources in other provinces.

The pilot study should lead to issuing of contents and implementing regulation for taking shape of seed network and seed source registration on the provincial level. Those results will be applied in 5 provinces of the Northern Middle Vietnam with support such as consultancies and training from VTSP.

In the second regional consultation, VTSP and CFSC expect to exchange experiences in seed source and quality management and seed supply activities.
Annex 8.b

Indonesia Country Report by Mr. Bambang Priyono, National Project Manager

Indonesia Forest Seed Project 1998-2002- with emphasis on progress up to February 2000.

I. Project Identification.

Country: Indonesia  
Sector: Forestry  
Project Title: Indonesia Forest Seed Project (IFSP)  
Implementing Agencies: Directorate General of Land Rehabilitation and Social Forestry (DGRLPS)  
Duration: Four (4) years (1998-2002)  
Starting Date: 1 May 1998  
Government Contribution: US$ (1,949,000) direct contribution, land and buildings.  
Danida Contribution: US$ (7,374,000)

II. Project Description.

The project follows up on the achievements of the Tree Seed Source Development Project (TSSDP). The project focuses on awareness raising related to use appropriate planting material for major tree planting activities in Indonesia. Emphasis will be placed on institutional development with particular reference to human resources. The target institutions are the Directorate of Forest Tree Seed (DFTS) and six Regional Tree Seed Centres (BPTHs). Seed producers and users will be reached through comprehensive training and extension activities.

III. Background.

The Ministry of Forestry and Estate Crops (MOFEC) is aware that the actual situation in the country regarding the supply of tree seed is inadequate and cannot presently meet the demands in quantity or quality. Present tree seed supply is characterised by a limited range of species; low physical and physiological seed quality; narrow genetic base of some seed lots; insufficient documentation of all steps comprising seed supply; no matching of seed source to planting site, and inefficient skills and techniques in seed procurement, seed processing, seed handling and distribution.

Two main problems have been identified as having a particularly severe influence on the forest seed sub sector:

1. A general lack of awareness among seed users and technocrats of the importance of using good quality seeds.
2. A lack of coordination and cooperation between, mainly government institutions working with tree seed and related subjects.

The IFSP will seek to remedy this situation by supporting specific technical activities, and by strengthening the human resources and enhancing the awareness of target groups relevant to tree seed supply in Indonesia.

IV. Objectives and Outputs.
The development objective for IFSP is:

**Improved wood production and provision of other benefits from growing woody plants, contribution to the rehabilitation of degraded environments and provision of national requirements for timber, poles, fuel, fodder, food, and shelter in Indonesia.**

*The project’s contribution to the achievement of the development objective will be made through the fulfillment of the immediate objective or purpose of the IFSP:*

*Production and provision of genetically suitable seed and plant material of good physiological quality from selected seed sources of both indigenous and exotic woody species to meet present and future needs for tree planting activities in Indonesia.*

IFSP has the following four outputs:

1. The institutional and human resources development of the Directorate of Forest Tree Seed in MOFEC towards becoming the national authority on tree seed.

2. The strengthening and further development of six Regional Forest Tree Seed (BPTHs).

3. The transfer of skills and knowledge within tree seed procurement to staff of tree seed producers, and of information to seed users.

4. The strengthening of Collaboration and coordination between the major institutions/organizations concerned with tree seed procurement, nationally and in the Southeast Asia region.

**V. Institutional Setting and Staffing.**

IFSP is implemented through the Directorate of Forest Tree Seed, under The Directorate General of Land Rehabilitation and Social Forestry, MOFEC.

*Organisation chart of IFSP:*

- **Project Management**
- **Administration**
- **HRD Unit**
- **Technical Unit**

**VI. Planning and Implementation Modality.**
The Directorate of Forest Tree Seed and the six Regional Tree Seed Centres comprise the priority target group of IFSP. The annual work plan for IFSP are prepared in close collaboration with DFTS and BPTHs and reflect directly the annual work plan of this institutions as IFSP is aiming at supporting and strengthen their institutional and technical capabilities. IFSP undertakes frequent planning meeting with in particular, the DFTS, but also with the BPTHs, with the aim to ensure that all IFSP inputs and activities are following the plans of the government institutions.

VII. Major Achievement as per 1/2/2000.

The following is a list of the major achievement of IFSP so far as:

1. The institutional and human resources development of the Directorate of Forest Tree Seed (DFTS) in MOFEC towards becoming the national authority on tree seed.
   a) Renovation of office facilities for IFSP Dago in Bandung.
   b) Purchasing of furniture and office equipment for new IFSP office in Dago, Bandung.
   c) Purchasing for nine IFSP project vehicles, incl. for the BPTHs.
   d) Employing IFSP counterparts and support staff.
   e) TORs for IFSP staff revised and a new organizational structure for IFSP prepared.
   f) An outline for the preparation of a Master Plan for the Tree Seed Sector has been prepared.
   g) A Seed Source Register is in the process of being finalized.
   h) Finalizing a guideline for seed source establishment and management.
   i) Monograph on teak has been prepared and is ready for publishing.
   j) A meeting on “Establishment of a Tree Breeding Association” in Indonesia was collaboration with MOFEC (November 1999).

2. The strengthening and further development of the six Regional Tree Seed Center (BPTHs).
   a) Purchase part of the technical equipment for the six BPTHs.
   b) Equipment for HRD activities has been provided to BPTHs.
   c) Support to library facilities at IFSP and BPTHs.
   f) Course in “Tree Seed Sources”, 2 weeks (October 1999) in Yogyakarta.
   g) Course in “Tree Seed Biology”, 2 weeks (February 2000) in Bogor.
   h) Study tour to Yogyakarta, Wonogiri, Cepu and Madiun, 1 week (July 1999).
   i) Management Course at DFSC Denmark, 4 weeks (July 1999).
   j) Study tour to Denmark, 1 week (September 1998).
   k) Study tour to Thailand, 2 weeks (December 1998).
   l) Study tour to Australia, 2 weeks (September 1999).
   m) Workshops at three BPTHs on “Planning and Implementation of Training and Extension Activities”, 1 week (October 1999).
n) Workshop on “Organization and Functions” of BPTHs, 2 days (September 1999).
o) Regional Management Course in Bandung, 2 weeks (November 1999).
p) Attachment for 3 persons to Danida Forest Seed Center, Denmark, 4 weeks (October 1999).

3. The transfer of skills and knowledge within tree seed procurement to staff of tree seed producers, and of information to seed users.

a) Strategy for IFSP support to establishment of demonstration plots and initiation on establishment of demo plot in West Java.

b) BPTH Newsletters and posters prepared with IFSP support.

c) Four IFSP Newsletters issued.

d) All IFSP courses and study tours had limited number of participants from secondary target group (seed producers and seed users).

4. The strengthening of collaboration and coordination between the major institutions/organizations concerned with tree seed procurement, nationally and in the Southeast Asia region.

a) Participated in and provide input to 3 workshop in Denpasar, Jakarta and Yogyakarta.

b) Some courses and study tour implemented in collaboration with university, Training Center, Seed Technology Center and FTRIDI.

c) Selected candidates will start to study Master for 1 person to Australian University and Indonesia 5 persons to Indonesian University (UGM and IPB).

d) Host of Regional Consultation on collaboration between Danish supported Tree Seed Project (Thailand, Laos, Cambodia, Vietnam and Indonesia), 3 days (March 1999).

e) Host of Regional Management Course (Thailand, Cambodia, Vietnam, Malaysia and Indonesia), 2 weeks (November 1999).

f) Participate in regular meetings/workshops (Second Regional Consultation) in Hanoi, 1 week (March 2000).

VIII. Major Activities Planned for Year 2000 (April – December).

The following is a list of the major activities planned so far planned for year 2000:

1. The Institutional the Directorate of Forest Tree Seed (DFTS) in MOFEC.

a) Planning-, budget- and reporting system for DFTS and the BPTHs.

b) More “follow-up” visits from IFSP to the BPTHs.

c) Support to preparation of a Master Plan for the Tree Seed Sector.

d) Support to preparation of a “guide line modality” in/from DFTS.

e) Organizational structure at the BPTHs, - and job descriptions.

f) Regional Workshops at the BPTHs.

A. Training courses and study tours to be organized by IFSP.

Repetition of previous activities:

a) “Course in Basic Forest Genetics”, 2 w., implemented by UGM and supported by IFSP. For Primary/Secondary Target Group 50/50.
b) “Training of Trainers Course”, 2 w., to be implemented by Pusdiklat, Bogor, with support from IFSP, PT/ST=50/50.
c) “Aspects of Seed Sources”. 1-2 w., to be implemented by IFSP in collaboration with UGM, IPB and local University, PT/ST=50/50.
d) “Seed Biology”, 2 w., to be implemented by Seed Technology Centre, Bogor, with IFSP-support, PT/ST=60/40.
e) “Study Tour on Tree Improvement” 1 w., Yogyakarta tour to be sponsored by IFSP, PT/ST=50/50.

New activities (training courses and study tours):

a) “Seed Procurement in General”, 1-2 w., to be implemented by IFSP especially for BPTH Ambon and Bali. PT/ST = 60/40.
b) “Seed Source Information and Documentation System”, 1 d., by IFSP and for BPTH staff only.
c) “Seed Collection & Seed handling”, 2 w., by IFSP. PT/ST = 40/60.
d) “Technical Management Course”, 10 d., by IFSP in collaboration with external consultants and implemented for BPTH staff.
e) “Technical Meeting on Managerial Aspects”, 1-2 d., to be developed by IFSP and implemented at all BPTHs.
f) “Seed Sources II”, 1-2 w., implemented by IFSP. PT/ST=50/50.
g) “Seed Testing”, 1 w., by IFSP in collaboration with one or two BPTHs for BPTH staff.

B. Training courses and study tours organized by the BPTHs with support from IFSP:

IFSP expects the BPTHs to:

a) Implement GOI-financed courses for their target groups. IFSP may support development of curriculum and materials according to application.
b) Develop and implement a few additional courses for selected target groups “Pilot Courses”. IFSP may support the development and the implementation according to application.
c) Implement Regional Workshops for their target groups. IFSP will support with funds and technical assistance.
d) Apply for support to study tours for staff and eventually target groups within Indonesia.
e) Apply for support to “Attachments” to seed institutions for selected staff (few).

C. Extension activities to be implemented by IFSP.

a) “Guidelines” on specific subjects to be provided in Bahasa Indonesia (3 are on the way).
b) IFSP-News to be issued, 6-7 editions.
c) Library facilities at the BPTHs: a) Provision of books, b) translation of
selected literature into Bahasa Indonesia.
d) Production of Video, Radio and TV spots to be initiated.
e) Production of posters to be continued (few).
f) Production of a “Mini Flip-over” about seed procurement for use by/through the BPTHs.
g) Photo series on CD Room on Agroforestry and selected Tree Species to be distributed.
h) Calendar year 2001 to be produced and distributed.
i) Video CD-ROM on Study Tour to Australia to be distributed.
j) PR-materials like caps, T-shirts to be distributed.

a) Continue establishment of demonstration plots.
b) Prepare demonstration-exhibition of operations in seed procurement for one BPTH, including equipment, models of equipment, posters, slide-show, etc.
c) Follow-up activities on seed zone system for Kalimantan i.e. arrange workshop on preparation of seed zones for other regions, i.e. Sumatra, Sulawesi, and NusaTenggara, Molluccas-Papua (Irian Jaya).
d) Model sheet for provision of summary information on research results in genetics, tree improvement, and seed biology and technology.
e) “Seed quality standards”.
   - Continue preparing or up-dating guidelines for all operations in seed procurement for uniform procedures.
   - Continue preparing standard formats for documentation in seed procurement operations.
f) Prepare guideline for ordering or importing seed.


a) Technical equipment for the BPTHs has been ordered abroad (arr. March/April).
b) Local technical equipment under purchasing and construction at the BPTHs.
c) Books (English) have been ordered for “hand-book-libraries” in DFTS and at the BPTHs.
d) Any other equipment requirements in the DFTS or at the BPTHs will follow the “Application/Provision-strategy”.
Cambodia Country Report by Mr. Ma Sok Tha, National Project Manager

The reforestation section is one part of Cambodia’s forest policy. The government has declared a policy aimed at strengthening forest practices and forest law reform makes forest management sustainable. There will also be serious reforestation programs through both participation of community and reforestation service of the Department of Forestry and Wildlife. Denmark government through DANIDA is supporting the tree seed project in Indochina including Cambodia. The Cambodia tree seed project was formulated during 1996 to 1997 and signed 14 July 1999. Preliminary activities of the Cambodia Tree Seed Project (CTSP) have been underway for six months. During this time it has concentrated on developing human resources by organising training course. The result and plan are outlined below:

I. Result

1. Human Resource Development
   A. Short Term Training Course
      - Five project staffs and two officials from Forest Research Institute, Department of Forestry and Wildlife are attending in English course in ACE school and Regent College School, Phnom Penh.
      - Three project staffs attended the training course on Regional Seed Centre Management in Bangdung, Indonesia.
      - One project staff attended the training course on Seed Procurement & Test in Laos
      - One project staff to joint the Seed Research Plan course in Vietnam.
      - Participation of twenty officers in the national training course on Seed Biology and Seed Procurement was held in Phnom Penh.

   B. Long Term Training Course
      Three project candidates applied for M.Sc. at University Putra Malaysia (UPM).

2. Seminar and Workshop
   - Participation of projects counterparts in the second the meeting of Regional Project Management Unit (RPMU) of ITSP in Vientiane, from 7-11/6/1999.
   - One project counterpart attended in the workshop of Marketing of Tree Seed from 27-30/9/1999, Hanoi.
   - Participation of project counterparts in the third meeting of Regional Project Management Unit (RPMU) of ITSP from 6-11/12/1999.

3. Study tour
   Two senior officials of Ministry of Agriculture and Forestry and Fishery participated in study tour programme in Denmark from 30/8 to 5/9/1999.

II. Plan

1. Education
   A. National Training Course
      The project will organise training courses such as:
      - Seed Collection and Procurement course, for one week, in Siem Reap province
      - The course on Physiological Seed Quality for one week, in Phnom Penh.
      - The course on Seed Documentation and Testing for ten days, in Phnom Penh.

   B. Fellowship
- A project staff will participate in Seed Source Documentation training course for two weeks in Hanoi, Vietnam.
- Two project staffs will participate in Training of Trainers course for ten days, in Hanoi, Vietnam.
- Two project staffs will attend the course of Practical Attachment for one month in Denmark.
- CTSP support three project staffs to get a one year M.Sc. in Forestry, University Putra Malaysia.
- Their project staffs will attend study tour in Thailand for ten days.

2. Workshop and Seminar
   Cambodia Seed Project will organise a workshop on National Species Priorities in August, Cambodia.

3. Implementation
   Initially, we find the target seed user group. We are going to set up seed centre with laboratory and storage. After we debate seed source area already, we are going to identify and organise five seed source areas in four provinces including Kompong Thom, Kompong Chham, Prey Veng, and Siem Reap.

III. Constrains
- Do not have Technical Advisor to work with Cambodia Tree Seed project yet
- Lack of place for seed centre.
- Lack of equipment and vehicle for project service.
- Lack of communication tool for project service.

IV. Recommendation
- We would like to urge the donor to provide technical adviser and office equipment and vehicles for Cambodia Tree Seed project as soon as possible.
Lao PDR Country Report by Mr. Douangphet Lattanasouk, National Project Manager

1. INTRODUCTION

The Lao Tree Seed Project (LTSP) is funded by the Danish International Development Assistance (Danida). LTSP is instrumental in developing the tree sector in Lao P.D.R under the mechanism of the three-country regional project Indochina Tree Seed Project (ITSP). This programme is titled “Support to Institutional Capacity Building of the National Tree Seed Sectors in Indochina” and commenced implementation in October 1998.

The project has duration of five years and a budget of approx. 0.9 mill. USD for Lao P.D.R. only (excludes one Technical Adviser). Further, the project has provision for technical assistance in the form of consultancies from the regional unit in Hanoi, Vietnam, which is mandated in the area of regional and international co-operation and networking.

The project is located in Nam Souang Forest Research Centre under the National Agriculture and Forestry Research Institute (NAFRI). Presently, nine government staff are attached to the project: National Project Manager, Deputy National Project Manager, Seed Procurement Officer, Seed Source Officer, Junior Seed Officer and 4 technical staff. Furthermore, there is a Technical Adviser and a Project Assistant. The project is allocated two offices and a seed laboratory and seed storage facility.

2. POLICY AND STRATEGY OF THE LAO GOVERNMENT

2.1 Recent Policy Initiatives

The First National Forestry Conference was convened in May 1989 and strategic guidelines for the forest sector up to year 2000 were set up. Among these was the target to increase the forest cover up to 70 % of total land area and to link afforestation and forestry development to food production.

During the years 1990-91, Laos participated in the Tropical Forestry Action Program (TFAP) exercise and the National Forestry Action Plan (NFAP) was endorsed in 1991. Since then the NFAP has been the guidelines for forestry development and an instrument to plan and coordinate donor input to the country. Six main areas have been pointed out for further development: institutional strengthening and human resource development, watershed protection sustained use of natural forests, plantation forestry and sustainable alternatives to shifting cultivation.

Following the TFAP exercise the DOF/MAF promulgated “Strategy Proposal for the Forestry Sector 1995-2000” and the “Vision 2020” in 1994 and with firm statements on objectives and clear target specified. With relevance to LTSP is the Framework 2 on Afforestation Program which states the targets of rehabilitation of 2 million ha degraded land and afforestation of some 0.5 million ha.

In 1994 the Decree No. 186/PM concerning Land Allocation for Tree Planting Purpose and Forest Protection was issued and in the same year the Forest Law in Laos was endorsed.

The decree promotes plantation development by the private sector and land can be allocated to organizations, companies and individuals. The right to use, transfer and inherit forest land on
which plantations are growing is granted. The owners of the plantations have the right to sell their plantation-grown wood without paying Natural Resource Tax. In addition, plantations are exempt from Land Tax if effective stocking is not less than 1,100 stems pr. ha (spacing 3 x 3 m).

In line with the policy and planning framework described above, DOF has drafted the National Plantation Strategy that has not yet been endorsed by GOL. The main purpose of the strategy is to define plantation areas and define species to be planted. Furthermore, MAF has issued instruction guidelines for the annual planting activities to inter-alia District Agriculture and Forestry Office (DAFO) and Provincial Agriculture and Forestry Office (PAFO) throughout the country.

2.2 Directions in Plantation and Tree-Planting Sector

It emanates from the above of plantation establishment and the overall strategy as formulated in the Framework 2 and the National Plantation Strategy that the future direction of the plantation sub-sector would be:

1. Establishment of plantations with exotic species, i.e. Eucalyptus and Acacia, and highly valued local species, e.g. teak, will continue and is targeted that 500,000 ha will be established by the year 2020. The size of the plantations would be 1-20 ha and established by foreign companies and Lao investors.

Most of the commercial plantations of fast growing species will be located in the lowland provinces, generally along the Mekong River in the provinces of Sayaboury, Vientiane, Bolikhamsay, Savannakhet, Champasak and Saravan.

This is a rather optimistic and ambitious target in view of the high pressure on fertile land for agriculture especially in the lowland areas.

2. Teak and other valued native species will be established in the provinces of Luang Phrabang, Sayaboury, Oudomxay, Luang Namtha, Bokeo, Saravan and Champasak. It is foreseen that these plantations will constitute 40% of the total plantation area, i.e. 200,000 ha and will mostly be small patches of 1-5 ha and established by local investors, villages, communities or households.

3. Plantations will be established in a mosaic pattern rather than concentrated in large blocks and will be situated so as to support other land-uses, i.e. agriculture. This pattern will be more environmentally sound and fit into the socio-economic structure of hill and lowland communities.
3. ESTABLISHMENT OF A LAO TREE SEED CENTRE

3.1 Background and Justification

In the national strategies mentioned above, there is only little mentioning on seed, and there are only notional statements as regards the supply of tree seed to meet the actual and future need and demand for seedlings for afforestation. Good quality seed is a major bottleneck, and the forestry sector is faced with great problems in satisfying the immediate demand for seed of desired species and provenances.

At present, there is only very little seed collected within the country and the tree seed sector is in a rather rudimentary stage as regards quality and quantity of supply as well as lack of adequate infrastructure for further development of the sector. Furthermore, there is no institution or centre, which has a clear mandate on tree seed and can perform the functions of an effective and efficient seed supply system.

3.2 Role and functions

It is against this backdrop and in response to governments’ decision to establish a national tree seed centre, that the project made a proposal for establishment of a centre. This centre should play a major role in supply of quality seed and to be a platform for development of decentralised seed supply. It should also be a technical centre in respect to seed procurement, tree improvement, and conservation of forest genetic resources and marketing.

To fulfill this role, the centre has two categories of functions:

1. Productive functions are related to the supply of seed, setting priorities in selection/choice of species, organise the supply system, and division of tasks and responsibilities in domestication, seed production and conservation of important forest genetic resources.

2. Normative functions covers a wide range of activities which inter-alia include but not necessarily limited to policy formulation, planning, creation of a sound regulatory framework, awareness raising, information dissemination, training and capacity-building, seed certification and documentation.

3.3 Criteria and indicators

Criteria and indicators for a functioning seed centre in Nam Souang are:
1) Organisation and implementation of seed collection
2) Testing and storage of seed lots
3) Seed sale and marketing
4) Identification of priority species and assessment of seed demand
5) Identification, management and protection of seed sources
6) Establishment and maintenance of a national seed source register
7) Development and implementation of a national seed documentation system
8) Advice on rules and regulations in transfer of seeds
9) Development of a national seed zoning system
10) Assistance to establishment of demonstration plots and field trials
11) Technical expertise in seed biology and physiology of selected indigenous and exotic species
4. IDENTIFICATION AND SELECTION OF PRIORITY SPECIES

4.1 Background

Identification and selection of priority species has two objectives:

1. To determine those species where an improved seed supply will have the highest impact;
2. To make the best use of the limited financial and human resource for development of the seed sector.

By impact is understood an increase in production of goods, services and benefits. This may be related to physical (e.g. m3 sawn wood) or financial objectives (e.g. USD earned), or related to other non-financial objectives, such as for instance improved watershed or improved welfare of women – for example less time spent in gathering firewood. Impact should be understood in a broad sense incorporating national, local and individual priority setting.

There are about 2000 native woody species in Laos of which about 2-300 species are suitable for planting or plantation establishment. These species should be included in a gross national priority list, which may be reduced to a net list based on priorities at policy-level.

A national seed centre may - on the other hand - only be able to supply seed of 20-30 species and should focus on:

1. Species that are important, difficult to procure or in need of breeding;
2. Species applicable in geographical and/or ecological regions that are more important than others due to population pressure, degradation, growing conditions, etc.
3. Multi-purpose species rather than single-purpose species;
4. User groups (e.g. economic considerations, political priorities; some groups are too small or too difficult to reach);
5. Time horizon: immediate seed procurement versus long term breeding schemes.

4.2 Methodology

Priority setting for tree species in Laos is severely hampered by the lack or poor availability of good data on the different species, for instance on distribution, wood properties, propagation, market value, etc.

A consultation procedure was developed to make initial screenings. This procedure builds on information, knowledge and demands from present users of seed and end-users of goods, services and benefit from forests. Hereafter the project will gradually collect and develop more specific information to make final decisions on what species to promote.

It is not cost-effective to collect information on all species, a user-perspective is applied and demand for products, goods and services as tool to reduce the large number of species into a manageable number. It is hoped that the proposed procedure combines logic, efficiency and precision in an acceptable manner.

The following activities were implemented:

− Interview with key-informants:
− Written questionnaire to potential customers at Start-Up Workshop
Implementation of three priority species workshops:
Direct contact to customers and seed user: companies, NGO’s, donor-funded projects, nurseries and farmers

4.1 Results

Trees are planted for a number of different and often interlinked purposes. These purposes include production of timber, fuelwood, pulpwood, poles, fruits, non-wood forest products, environmental protection (for example soil erosion, protection of watersheds, rehabilitation of degraded sites), rehabilitation of degraded sites (for example nitrogen-fixation), and recreational uses such as urban forests and nature recreation sites. Planting often takes place on adverse sites no longer suitable for agriculture or abandoned shifting cultivation areas, with variable and often harsh conditions without a feasible option of weeding, fertilising, etc.

A large number of groups and organisations are involved in tree planting: individual farmers, rural communities, NGO’s, private companies with or without wood-processing industries, government agencies: Department of Forestry, Provincial Agriculture and Forestry Office (PAFO) and District Agriculture and Forestry Office (DAFO) and State Forest Enterprises.

Only a tiny fraction of native species are planted and timber species dominate (in terms of number of seedlings planted): *Tectona grandis*, *Afzelia xylocarpa* and *Pterocarpus macrocarpus*. Further, one non-timer species is becoming increasingly popular: *Crotaria juncea*. Among the exotic two are primarily used: *Acacia mangium* and *Eucalyptus camaldulensis*. Eucalyptus and Acacia have almost become synonymous with plantation establishment with the notable exception of Teak. These two exotic species are often applied due to the fact that they are fast growing and perform well on degraded and adverse sites and often can yield considerable higher output than indigenous species (in volume). However, they are on decline now due to the diminishing market opportunities especially in Thailand.

Reasons for this limited choice of species relate to the following factors:

1. There is only limited awareness and information on possible alternatives in choice of species.

2. There is a low level of knowledge and technology on the domestication and wider use of other species.

3. The fact, that new or lesser-known species are characterised by the absence of principles and guidelines for their establishment and management.

4. There are limited opportunities for marketing of end products of other groups of species than timber.

5. There are severe constraints and barriers in seed procurement (especially as regards seed handling and storage)

6. The fact, that seed availability is a major deciding factor in choice of species for tree planting programmes and this has favored the use of orthodox species.

Based on the consultation procedure and its wider look at end-uses, it is envisaged that the future choice of species will fall into 8 broad groups:
1. Slow growing timber species  
2. Fast growing timber species  
3. Non-timber species  
4. Agro-forestry species  
5. Species suitable for rehabilitation of degraded sites  
6. Species suitable in watershed protection  
7. Firewood species  
8. Ornamental tree species

A summary of the findings is given in Appendix 1, which also incorporates the actual and derived demand.

**4.3 Implications**

Very interesting in the outcome of the consultation procedure is the high emphasis placed on native species and that local alternatives to fast-growing species do exist, e.g. *Alstonia scholaris* and *Anthocephalus chinensis*. The follow-up on this, however, requires a lot of work and investment in methods and approaches for domestication of lesser-known native species. There is presently no clear idea or concept on how these species will yield products and services, and what really can be expected using species normally found in closed forests or on forest fringes but now domesticated under different conditions, for example in community wood lots or on farm-land.

Furthermore, the outcome of the consultation procedure allows the identification of groups of species where seed users can be reached directly through improved seed supply by a seed centre (in terms of quantity and quality). This is mainly the case for timber and non-timber species and species for rehabilitation of degraded sites. Other groups of species will not be part of an organised seed supply and here improvements in quality and quantity of seed more efficiently and effectively can be achieved through extension: agro-forestry and firewood species as well as ornamental species.
5. **ESTIMATION OF SEED DEMAND**

5.1 **Methodology**

Seed demand is an expression not only of the quantity and quality of seed of species and provenances that are required or desired for a planting activity but also time and means of delivery, packing, price, etc. Seed demand estimation is an on-going and dynamic process that requires the application of different methods and that estimates are made both at local, regional and national level. Stakeholder and institutional analysis are an integral part of this approach. The seed demand has been assessed as part of the consultation procedure mentioned above.

It is difficult to produce exact and reliable quantitative figures on seed demand. Another issue is the distinction between immediate or actual demand – today’s requirements, against the derived demand, which arises in the future due to a number of underlying factors.

5.2 **Results**

The actual demand is translated from national programmes & strategies and expressed demand from private companies, projects, NGO’s, farmers and others. In the year 2000/2001 the planting target is 20,000 ha, which equals 35 mill. seedlings (spacing 3m x 3m) and includes private companies and households, state agencies and institutions and externally funded projects (e.g. Lao-ADB plantation project). This was also the target for last year but only 6,000 ha were achieved. Another problem is that there are no directions to what species should be planted.

However, it could be expected that it is those mentioned above, i.e. fast growing exotic species along with a few well-known and highly valued native species. Another finding is that most tree-planters do change their plans from year to year and it is even more difficult to estimate long-term seed demand.

Derived demand arises from a long-term view, and adheres to a changing scenario or paradigm due to:

− The expansion of tree-planting, e.g. plantation establishment, into new or changed sites for planting with different soil and climatic conditions;

− Increased knowledge, information and awareness of indigenous species;

− Adaptation and adoption of new exotic species;

− Introduction of improved genetic material, i.e. provenances;

− Change in user preferences and markets.

Based on these considerations, it was decided to estimate seed demand of a group of species as the relative proportion of total seed demand (but without any quantitative estimates): high, medium and low. This is not perfect but allows nonetheless focusing efforts in seed supply towards certain groups of species.
The present seed supply can be divided into three channels:

<table>
<thead>
<tr>
<th>Channel</th>
<th>Seed produced by:</th>
<th>Seed supplied by:</th>
<th>Seed for whom:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distribution:</strong></td>
<td>Government agencies</td>
<td>Government agencies</td>
<td>Government agencies</td>
</tr>
<tr>
<td>- Formal sector</td>
<td>Commercial suppliers</td>
<td>Commercial suppliers</td>
<td>Private companies</td>
</tr>
<tr>
<td>- Institutionalised</td>
<td>Private companies</td>
<td>Private companies</td>
<td></td>
</tr>
<tr>
<td>- Developed infrastructure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dissemination:</strong></td>
<td>Government agencies</td>
<td>Government agencies</td>
<td>Government agencies</td>
</tr>
<tr>
<td>- +/- Formal sector</td>
<td>Commercial suppliers</td>
<td>Projects</td>
<td>Rural communities</td>
</tr>
<tr>
<td>- +/- Institutionalised</td>
<td></td>
<td>NGO’s</td>
<td>Farmers</td>
</tr>
<tr>
<td>- +/- Developed</td>
<td>Rural communities</td>
<td>Rural communities</td>
<td>Farmers</td>
</tr>
<tr>
<td>infrastructure</td>
<td>Farmers</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diffusion:</strong></td>
<td>Rural communities</td>
<td>Rural communities</td>
<td>Rural communities</td>
</tr>
<tr>
<td>- Non-formal sector</td>
<td>Farmers</td>
<td>Farmers</td>
<td>Farmers</td>
</tr>
<tr>
<td>- Not institutionalised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No developed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>infrastructure</td>
<td></td>
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</tbody>
</table>

Fig. 1: Channels of seed supply

It is estimated that about half of the seed presently used in Laos is delivered through channel termed Diffusion and addresses tree-planting for subsistence needs (food, firewood, small timber, non-timber) and with very little attention to seed quality. Actors in the Diffusion channel will most probably not benefit from a central supply system but be responsive to information and awareness raising.

The seed supply in Distribution and Dissemination channels is often constrained by logistic, administrative, geographic, climatic or biological factors, and the seed supply is often confined (as mentioned earlier) to a few and well-known species. A central seed supply system will yield benefits to the actors both in terms of quality and quantity and they will be more or less able to and willing to pay for these benefits.

Reference is made to Appendix 1.

### 5.3 Implications

The issues of seed demand and priority species are closely related and the implications mentioned in the paragraph may be referred to.
6. MARKETING AND PRICING POLICY

The project participated in the sub-regional workshop arranged and implemented by VTSP with consultant Svend Christensen as lecturer on Marketing in October 1999. A marketing strategy is now under elaboration and aims at fully utilizing the opportunities in seed sale with the objective to strengthen the financial sustainability of the centre. The pricing policy of seed aims at

Research institutions are given small amounts of seeds free of charge and should in return provide the centre with data and information on establishment of the research plot (location, map, research results, etc.). Government institutions pay a cost price: variable cost (seed collection, storage, and package, etc. and overhead of 30 %). Private companies and projects pay the market price.

<table>
<thead>
<tr>
<th>PRICE</th>
<th>CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free of charge</td>
<td>Research institutions</td>
</tr>
<tr>
<td>Cost price</td>
<td>State agencies and institutions</td>
</tr>
<tr>
<td>(variable cost + 30 %)</td>
<td></td>
</tr>
<tr>
<td>Market price</td>
<td>Private companies and projects</td>
</tr>
</tbody>
</table>

Fig. 2: Pricing policy

7. COLLABORATION AND CO-OPERATION WITH PROVINCES

The first step to decentralise seed supply is achieved through close collaboration and co-operation with the forest administration at province level, e.g. Provincial Agricultural and Forestry Office (PAFO). Five provinces are selected based on high planting activity and/or high number of potential seed sources: Vientiane, Bolikhamsai, Khammouane, Savannakhet and Sayabouri Provinces and Vientiane Prefecture. Two staff from each province are provided basic training in seed source identification and management and seed procurement as well as other training. The objective is to enable them to identify and manage local seed sources and to do low cost seed collection and temporary storage to meet the demand for seed in the provinces. This staff is also involved in organising seed collection and transportation to Nam Souuang in cases where it is not feasible for the LTSP staff to do seed collection.
<table>
<thead>
<tr>
<th>GROUP SOME EXAMPLES</th>
<th>MAIN PURPOSE OF PLANTINGS</th>
<th>TYPE OF PLANTINGS</th>
<th>ROTATION PERIOD</th>
<th>ACTUAL DEMAND / CHANNEL</th>
<th>DERIVED DEMAND / CHANNEL</th>
</tr>
</thead>
</table>
| **1. Slow growing timber species**  
  Dalbergia cochinchinensis  
  Afzelia xylocarpa  
  Ptecocarpus macrocarpus                                                        | High value timber                             | Small and large plantations       | Long              | High ↔ distribution     | High ↔ distribution       |
|                                                                                   |                                                |                                   | Very long          |                        |                          |
| **2. Fast growing timber species**  
  Alstonia scholaris  
  Enthocaphalus chinensis  
  Wrightia tomentosa                                                             | High and low value timber                      | Spot-plantings                  | Short              | High ↔ distribution     | Medium ↔ dissemination    |
|                                                                                   |                                                | Wood-lots  
  Small and large plantations                                                   | Intermediate         |                        |                          |
| **3. NON-TIMBER SPECIES**  
  Styrax tonkinensis  
  Aquillaria sp.  
  Broussetenia papyrferia                                                          | Non-timber forest products                    | Single-tree  
  Wood-lots  
  Small plantations                                                             | Very short  
  Short  
  Intermediate  
  Long  
  Very long                      | High ↔ dissemination                      | High ↔ distribution       |
|                                                                                   |                                                |                                   |                   |                        |                          |
| **4. Agro-forestry species**  
  Gliricidia sepium  
  Azadirachta indica  
  Sesbania grandiflora                                                            | Support to agricultural production systems (food, fodder, fencing, etc.)  
  Single-tree  
  Spot-plantings  
  Wood-lots                                                                     | Intermediate  
  Long  
  Very long                                                                 | High ↔ diffusion  
  High ↔ diffusion                       |                        |                          |
|                                                                                   |                                                |                                   |                   |                        |                          |
| **5. Species suitable for rehabilitation of degraded sites**  
  Acacia mangium  
  Casuarina equistifolia  
  Albizzia procera                                                               | Soil fertility & improvement  
  Land reclamation                                                         | Small and large plantations       | Intermediate  
  Long  
  Very long                  | Low ↔ None                           | High ↔ distribution  
  Medium ↔ dissemination                        |                          |
|                                                                                   |                                                |                                   |                   |                        |                          |
| **6. Species suitable in watershed management**  
  (no particular species)                                                         | Water balance & retention  
  Erosion protection & stabilization                                                   | Spot-plantings  
  Wood-lots  
  Small and large plantations                                                     | Medium  
  Long  
  Very long                      | Low ↔ None                           | Medium ↔ distribution  
  Medium ↔ dissemination                        |                          |
|                                                                                   |                                                |                                   |                   |                        |                          |
| **7. Firewood species**  
  Chukrasia tabularis  
  Casuarina equistifolia  
  Cassia siamea                                                                   | Firewood                                      | Spot-plantings  
  Wood-lots  
  Small plantations                                                             | Intermediate  
  Long                      | High ↔ Dissemination               | High ↔ distribution  
  High ↔ dissemination                        |                          |
|                                                                                   |                                                |                                   |                   |                        |                          |
| **8. ORNAMENTAL TREE SPECIES**  
  Delonix regia  
  Samanea saman                                                                   | Amity, shade, etc.                             | Single-tree  
  Long  
  Very long                                      | High ↔ Dissemination               | High ↔ dissemination               | High ↔ dissemination       |
Annex 8.e

Thailand Country Report by Mr. Bundit Ponoy, National Project Director

Major Progress of FORGENMAP, Thailand, 1 April – 30 September 1999. The progress can be reported in terms of activities relating to the 11 outputs.

Output I: FORGENMAP units established upgraded and staffed.

1). Mr. Chana Piewluang has been appointed as Gene Resource Conservation officer and Dr.Supawadi Siriratanakorn as Outreach officer.

2). Orders shall be placed for supplemental seed processing / testing equipment, pending formal approval from DANCED of proposed equipment list. RFD supplied new carbine hooks and safety rope for tree climbing at 10 stations. Five sets for seed source survey were distributed to 4 SMC’s and CCU.

Output II: Project relevant knowledge and capabilities of project staff at all levels upgraded and maintained.

1). A training course in “Seed Source Development and Ex situ Conservation was held in May 1999 with 22 participants. A follow – up training in safe tree climbing was organized by SMC No. 4 at Had Yai in June, 99 with 12 trainees.

2). A training course in “In situ Conservation of Forest Genetic Resources and Rehabilitation of Bio-diversity” was held in August – September, 99 with 23 participants and 1 observer.

3). Chiefs of SMC 1&4 participated in an international training course on “Seed Centre Management” in Denmark during June – July 99.

4). Selected members of the Technical Advisory Panel (TAP), comprising 11 persons and headed by the Director – General of the RFD, made a study tour to Denmark and Sweden in June 99.

Output III: Methods and technology for collection, handling, storage and sowing forest seed (priority species) and vegetative propagation improved.

Nothing to report under this output.

Output IV: National seed demand, including buffer stocks for plantation programmes and other planting activities partly covered by Seed Management Centres and Seed Procurement Units with quality seed from appropriate certified sources.

1). Register for seed suppliers and available seed sources have been established by the Seed Documentation System and reported and are yearly updated.

2). Guidelines for seed crop assessment was presented, trained and published in a Manual (no.2).

3). Seed stock reported in September 99 was 26,415 kg for all species (46) at 4 SMC’s and CCU. Distribution of seed for 1999 to major consumer groups was 4,5317.7 kg. Total seed procurement planned for year 2000 is 11,342 kg. Covering 38 species.
4). Activity reports under Output IV including available seed stock as per end 4\textsuperscript{th} Quarter 99 and seed distribution have been prepared by Seed Management Centre.

Output V: Seed sources of priority species, sufficient to meet the country’s demand and representing major ecological zones, identified and described.

1). Updated check list with seed source registration numbers has been prepared and issued to all seed procurement units at half yearly interval.

2). Additional description of seed sources in natural stands and plantations is proceeding. Registered seed sources of the category Identified Source (IS), Selected Source/Stand (SS) and Seed Production Area (SPA) are 93, covering 33 species. 27 Provenance Seed Stands (PSS) / Ex situ Gene Conservation Stands as well as Seed Orchards (SSO/CSO) have been registered as sources for supply of “Better Quality” and “Improved Quality” Seed respectively.

3). “Tree Seed Sources – Guidelines & Definitions” has been translated into Thai for distribution to all stations responsible for registered seed sources.

Output VI: Existing breeding and seed production population of teak, pine and eucalyptus secured and managed.

1). Evaluation of progeny trials of Pinus kesiya, caribaea and oocarpa/tecunumani has been undertaken for thinning to be converted into seedling seed orchards.

Output VII: National and Regional Strategies for conservation of indigenous priority species in place and under implementation.

1). FORGENMAP advocates the use of Framework Species as a possible strategy for supporting bio-diversity rehabilitation and further research is recommended along the lines as laid out by FORRU. A training course on “In situ” Conservation and Bio-diversity Rehabilitation was conducted to indicate its support to this output.

FORGENMAP understands its mandate with regards to conservation/rehabilitation of bio-diversity of ecosystem, as to be covering areas outside the Protected Areas.

Overall objective for FORGENMAP activities in conservation / rehabilitation of endangered ecosystem has been reviewed during the training course and the meaning has also been defined.

Output VIII: In situ and ex situ conservation stands for selected priority species maintained / established, protected and managed.

1). Registration of all Forest Genetic Resources Populations is being undertaken and continuous monitoring of their development shall be implemented. Computer based Conservation Documentation System shall be developed by modifying the Seed Documentation System.
2). A number of species, e. g. *Chukrasia velutina, Dalbergia cochinchinesis, Dipterocarpus alatus, Hopea ferrea, Pinus merkusii* / lowland N. E. Thailand, *Pterocarpus macrocarpus, Tectona grandis* and *Toona ciliata* have been looked into for further intensive *ex situ* and *in situ* conservation of forest genetic resources of important and / or threatened ecotypes.

3). The situation at two of the sites selected for the *In situ* Ecosystem Conservation Pilot Project was reviewed, i. e. Khong Chiam and Mae Sanaam.

4). Operational plans for thinning of the first compartments of *ex situ* conservation *cum* seed stands of pine at Huay Bong Experimental and Gene Conservation Station have been formulated. Thinning scheduled for coming dry season.

**Output IX: National seed procurement policy and strategy for utilisation of seed sources and seed prepared.**

1). The proposed FORGENMAP Seed Supply Structure was approved by the Project Steering Committee in its 3rd meeting in August, 99 for further endorsement.

2). A short-term consultancy on “Institutional Analyses of the Tree Seed Sector” was undertaken in support of formulating the organizational structure.

**Output X: Guidelines for regulation of seed utilisation prepared.**

1). Seed Information database established. (SEED DOC SYS)

2). Management procedures improved and regulations prepared to suit new conditions arising from networking.

3). Seed marketing based on quality / pricing systems under consideration. A short-term consultancy on “ Seed Distribution Mechanisms and Formulation of Marketing Strategies” was undertaken and included with a one-day workshop on market mechanisms and formulation of marketing strategy.

4). Formulation of a Revolving Fund for Seed is under consideration by the Ministry of Agriculture and Co-operatives.

**Output XI: Technologies and capabilities in appropriate tree seed procurement imparted to target beneficiaries through training and information.**

1). Two training courses, i. e. Seed Source Development and *Ex situ* conservation, and *In situ* conservation of Forest Genetic Resources and Bio-diversity Rehabilitation were conducted for key personnel of major stakeholders actively involved in seed supply.
## Annex 9

### Training Plans of ITSP for 2000

**Plan for 24 man-month of DFSC Consultancies to ITSP during 1999 – 2003.**

<table>
<thead>
<tr>
<th>Year No.</th>
<th>Topic and Country</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>Proposed Consultant</th>
</tr>
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<tr>
<td>1999-1</td>
<td>Institutional Survey – Tree Seed Network in VN</td>
<td>***</td>
<td></td>
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<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Christian P Hansen</td>
</tr>
<tr>
<td>1999-2</td>
<td>Seed Source Management Course and Seed Documentation, VN</td>
<td></td>
<td></td>
<td>***</td>
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<td></td>
<td></td>
<td></td>
<td>Erik D Kjær</td>
</tr>
<tr>
<td>2000-1</td>
<td>Tree Seed Research Plan, VTSP</td>
<td>***</td>
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<td>***</td>
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<td></td>
<td></td>
<td></td>
<td>Kirsten Thomsen</td>
</tr>
<tr>
<td>2000-2</td>
<td>Seed Procurement Course, LTSP</td>
<td>***</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Hans Hoyer</td>
</tr>
<tr>
<td>2000-3</td>
<td>Seed Source Registration &amp; Certification, VTSP</td>
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<td></td>
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<td>Erik D Kjær</td>
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<tr>
<td>2000-4</td>
<td>Training of Trainers (TOT), VTSP</td>
<td></td>
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<td>***</td>
<td></td>
<td></td>
<td></td>
<td>Arvid T Sloth</td>
</tr>
<tr>
<td>2000-5</td>
<td>National Tree Seed Supply Strategy, LTSP</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>***</td>
<td></td>
<td></td>
<td>Lars Graudal</td>
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<tr>
<td>2000-6</td>
<td>Marketing Action Plan 2001-10, VTSP</td>
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<td></td>
<td>***</td>
<td></td>
<td>Svend J Christensen</td>
</tr>
<tr>
<td>2001-1</td>
<td>Safe Tree Climbing Course, VTSP</td>
<td></td>
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<td>Skovskolen</td>
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<tr>
<td>2001-2</td>
<td>Seed Source Management in Concessions, CTSP</td>
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<td></td>
<td>EDK or HH, DFSC</td>
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<td>Advanced Seed Source Mgmt. Course, VTSP</td>
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<td>***</td>
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<tr>
<td>2002-1</td>
<td>Seed Collection, Storage and Test Course, CTSP</td>
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<td>DFSC</td>
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<tr>
<td>2002-2</td>
<td>Integrated Seed Procurement Strategy, CTSP</td>
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<td>***</td>
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<td></td>
<td></td>
<td>***</td>
<td>Lars Graudal</td>
</tr>
<tr>
<td>2002-3</td>
<td>Conservation Strategy - Regional, LTSP</td>
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<td>***</td>
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<td>***</td>
<td>Allan Breum</td>
</tr>
<tr>
<td>2003-1</td>
<td>Integrated Seed Procurement Strategy, VTSP</td>
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<td>***</td>
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<td></td>
<td></td>
<td>Lars Graudal</td>
</tr>
<tr>
<td>2003-2</td>
<td>Regional Marketing Course, VTSP</td>
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<td></td>
<td></td>
<td>Svend J Christensen</td>
</tr>
<tr>
<td>2003-3</td>
<td>Seed Zones, LTSP</td>
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<td>***</td>
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<td></td>
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<td>DFSC/KVL</td>
</tr>
</tbody>
</table>

? Policy for Seed Movements, VTSP

* = **Implemented**, x = plan (each mark symbolizes one week duration in field)
### 6.1 TRAINING PLAN FOR VTSP: National Training Courses and Workshops in Vietnam

<table>
<thead>
<tr>
<th>No</th>
<th>Course Title</th>
<th>Location</th>
<th>Time</th>
<th>Duration</th>
<th>Lecturer/Institution</th>
<th>Participants</th>
<th>Target group</th>
<th>Budget VND</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>National Training Course (NTC): Seed Research</td>
<td>FSE - HCMC</td>
<td>12-15 Jan. 2000</td>
<td>4 days</td>
<td>Kirsten Thomsen/Sigrit Ditlev / TA</td>
<td>15</td>
<td>Seed testing officers of FSEs and research institutions</td>
<td>35,000,000</td>
</tr>
<tr>
<td>2</td>
<td>NTC: Seed Research</td>
<td>CFSC - Hanoi</td>
<td>17-21 Jan.</td>
<td>4 days</td>
<td>Kirsten Thomsen / TA</td>
<td>15</td>
<td>Seed testing officers of FSEs and research institutions</td>
<td>23,000,000</td>
</tr>
<tr>
<td>3</td>
<td>Workshop: Seed Research</td>
<td>CFSC - Hanoi</td>
<td>25 Jan.</td>
<td>1 day</td>
<td>Kirsten Thomsen, DFSC consultant.</td>
<td>20</td>
<td>Technical section heads of CFSC and research institutions</td>
<td>21,000,000</td>
</tr>
<tr>
<td>4</td>
<td>NTC: Project formulation and management</td>
<td>CFSC - Hanoi</td>
<td>14-18 Feb.</td>
<td>5 days</td>
<td>TA / NNC</td>
<td>12</td>
<td>Coordinators of action plans and planning officers</td>
<td>19,000,000</td>
</tr>
<tr>
<td>5</td>
<td>(NTC) : Plant Propagation</td>
<td>CFSC - Hanoi</td>
<td>21-25 Feb.</td>
<td>1 week</td>
<td>TA, NNC, Hoang Thanh Loc.</td>
<td>12</td>
<td>Forestry Technicians, CFSC and FSEs</td>
<td>19,000,000</td>
</tr>
<tr>
<td>6</td>
<td>NTC : Seed Collection and Procurement</td>
<td>FSE - Dalat</td>
<td>27-31 March</td>
<td>1 week</td>
<td>TA, NNC</td>
<td>12</td>
<td>Forestry Technicians, FSEs</td>
<td>27,000,000</td>
</tr>
<tr>
<td>7</td>
<td>Workshop: National Seed Source Register</td>
<td>CFSC - Hanoi</td>
<td>13 April</td>
<td>1 day</td>
<td>Erik Kjær, DFSC consultant.</td>
<td>25</td>
<td>Heads of technical sections, MARD, and related instit.</td>
<td>23,000,000</td>
</tr>
<tr>
<td>8</td>
<td>NTC: Plant Propagation</td>
<td>FSE-Ho Chi Minh City.</td>
<td>12-16 June</td>
<td>1 week</td>
<td>TA, NNC, Banh Ngoc Tam.</td>
<td>12</td>
<td>Forestry Technicians, FSEs</td>
<td>28,000,000</td>
</tr>
<tr>
<td>9</td>
<td>Workshops: Species Priorities</td>
<td>Lang Son, Hanoi, Q Binh, Q Nhon, Dalat, HCMC</td>
<td>19 June - 7 July</td>
<td>6 x 2 days</td>
<td>TA, Anders Jensen (Laos), NNC.</td>
<td>20 x 6</td>
<td>Provinclal forestry units, NGOs and user groups</td>
<td>180,000,000</td>
</tr>
<tr>
<td>10</td>
<td>NTC : Training of Trainers</td>
<td>CFSC - Hanoi</td>
<td>21-31 Aug.</td>
<td>10 days</td>
<td>Arvid Sloth, Consultant.</td>
<td>20</td>
<td>Extension staff of CFSC, MARD and provinces</td>
<td>65,000,000</td>
</tr>
<tr>
<td>11</td>
<td>NTC : Tree Improvement</td>
<td>CFSC - Hanoi</td>
<td>18-29 Sept.</td>
<td>2 weeks</td>
<td>Dr. Nguyen Duong Tai, TA, H.T. Loc.</td>
<td>18</td>
<td>Forestry Technicians, CFSC and FSEs</td>
<td>65,000,000</td>
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<tr>
<td>12</td>
<td>NTC : Seed Collection and Procurement</td>
<td>FSE - Lang Son</td>
<td>23-27 Oct.</td>
<td>1 week</td>
<td>TA, NNC</td>
<td>12</td>
<td>Forestry Technicians, CFSC and FSEs</td>
<td>24,000,000</td>
</tr>
<tr>
<td>13</td>
<td>NTC : Conservation of Forest Genetics</td>
<td>FSE - Phu Tho</td>
<td>6-10 Nov.</td>
<td>1 week</td>
<td>Dr. Nguyen Duong Tai, TA.</td>
<td>10</td>
<td>Forestry Technicians, CFSC and FSEs</td>
<td>27,000,000</td>
</tr>
<tr>
<td>14</td>
<td>NTC : Conservation of Forest Genetics</td>
<td>FSE - Quang Binh</td>
<td>20-24 Nov.</td>
<td>1 week</td>
<td>Dr. Nguyen Duong Tai, TA.</td>
<td>10</td>
<td>Forestry Technicians, FSEs</td>
<td>31,000,000</td>
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<tr>
<td>15</td>
<td>English Courses</td>
<td>Hanoi, HCMC, Dalat</td>
<td>2000</td>
<td>ongoing</td>
<td>Apollo Centre a/o. institutions</td>
<td>6+</td>
<td>Le Thi Thuy Tien, Vo Thi Xuan Thanh, Nguyen Xuan Lieu, Nguyen Van Mai, Ton That Minh, Le Anh Ngan</td>
<td>150,000,000</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>52,000 USD equivalent to 747 mill VND</td>
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### Study Tour for VTSP

<table>
<thead>
<tr>
<th>Objective</th>
<th>Location</th>
<th>Time</th>
<th>Duration</th>
<th>Lecturer/Institution</th>
<th>Coordinator / Facilitator</th>
<th>Participants</th>
<th>Target group</th>
<th>Budget Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Study: Integrated seed procurement strategies and Tree seed network (and conservation?).</td>
<td>Thailand</td>
<td>November 2000</td>
<td>10 days</td>
<td>ASEAN Forest Seed Centre, Royal Forest Department Teak Improvement Centre</td>
<td>LTSP/TA Anders Jensen</td>
<td>10 (+8-10 from LTSP + CTSP)</td>
<td>Mr. Dang Dinh Hung, Vice Director, CFSC Mrs. Tran Thi Tuu, Director, Phu Tho Mr. Hoang Le Minh, Director, Lang Son Mr. Nguyen Van Ban, Vice Director, Hanoi Mrs. Luu Thi Ke, Director, Quang Binh Mr. Vu Van Khien, Director, Binh Dinh Mr. Nguyen Van Luong, Vice Director, Dalat Mrs. Banh Ngoc Tam, Vice Director, HCMC Mr. Huynh Thach, Specialist, MPI Mr. Nguyen Xuan Lieu, NNC, CFSC/VTSP</td>
<td>12,000 $</td>
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### Regional Training in ASEAN Region for VTSP

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<tr>
<th>Timing</th>
<th>Participant</th>
<th>Course</th>
<th>Venue</th>
<th>Organizer</th>
<th>Duration</th>
<th>Budget (USD)</th>
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</thead>
<tbody>
<tr>
<td>2000</td>
<td>1. Mr. Ton That Minh, Dalat 2. Mr. Hoang Thanh Loc, CFSC</td>
<td>Conservation</td>
<td>Thailand</td>
<td>FORGENMAP, Thailand</td>
<td>2 weeks, April</td>
<td>2,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,000$</td>
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### Fellowships through Danida Fellowship Centre for VTSP

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<th>Timing</th>
<th>Participant</th>
<th>Course</th>
<th>Venue</th>
<th>Organizer</th>
<th>Duration</th>
<th>Budget (DKK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000/3</td>
<td>1. Ms. Le Thi Thuy Tien (HCMC) 2. Ms. Vu Thi Xuan Thanh (Dalat) 3. Mr. Nguyen Xuen Lieu, NC</td>
<td>Practical Attachment (Tree Seed Procurement)</td>
<td>DK</td>
<td>Danida Forest Seed Centre, Denmark</td>
<td>1 month</td>
<td>100,000</td>
</tr>
<tr>
<td>2000/4</td>
<td>Mr. Nguyen Huu Hieu (CFSC)</td>
<td>Extension Co-ordination</td>
<td>Vejlby, DK</td>
<td>DFC, DK</td>
<td>2.5 months June -&gt;</td>
<td>90,000</td>
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<tr>
<td>2000/4</td>
<td>Mr. Nguyen Duc To Luu (CFSC)</td>
<td>Training Management</td>
<td>DK</td>
<td>DFC, DK</td>
<td>2.5 months (1/10-15/12 tbc.)</td>
<td>90,000</td>
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<tr>
<td>2001</td>
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<td>Seed Centre Management</td>
<td>DK</td>
<td>DFSC</td>
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### 6.2 Training plan for CTSP

#### National Training Courses and Workshops in Cambodia

<table>
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<tr>
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<th>Lecturer/Institution</th>
<th>Participants</th>
<th>Target group</th>
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<tr>
<td>1</td>
<td>Seed Collection and Procurement</td>
<td>Siem Reap</td>
<td>April</td>
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<td>Lars Schmidt, NPM</td>
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<td>Forestry Technicians, DFW</td>
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<tr>
<td>2</td>
<td>Physiological Seed Quality</td>
<td>Phnom Penh</td>
<td>September</td>
<td>1 week</td>
<td>Lars Schmidt, NPM</td>
<td>15</td>
<td>Foresters, DFW</td>
<td>4,000</td>
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<tr>
<td>3</td>
<td>Workshops: Species Priorities</td>
<td>Phnom Penh</td>
<td>August</td>
<td>3 days</td>
<td>LTSP/TA?, NPM</td>
<td>20</td>
<td>Provincial forestry units, NGOs and user groups</td>
<td>4,000</td>
</tr>
<tr>
<td>4</td>
<td>Seed Documentation and Testing</td>
<td>Phnom Penh?</td>
<td>December</td>
<td>10 days</td>
<td>Consultant?</td>
<td>10</td>
<td>Forestry Technicians, CFSC and FSEs</td>
<td>4,000</td>
</tr>
<tr>
<td>5</td>
<td>English training</td>
<td>ACE, Phnom Penh</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Project staff</td>
<td>4,800</td>
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**TOTAL** 20,800

#### Regional Events for CTSP

<table>
<thead>
<tr>
<th>No</th>
<th>Course Title</th>
<th>Location</th>
<th>Time</th>
<th>Duration</th>
<th>Lecturer/Institution</th>
<th>Participants</th>
<th>Target group</th>
<th>Budget USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seed Research Plan</td>
<td>HCMC, VTSP</td>
<td>11-5 Jan</td>
<td>1 week</td>
<td>DFSC, K Thomsen</td>
<td>1</td>
<td>Meak Vutthy, CTSP</td>
<td>500</td>
</tr>
<tr>
<td>2</td>
<td>Seed Procurement Course</td>
<td>Vientiane, LTSP</td>
<td>10-21 Jan</td>
<td>2 weeks</td>
<td>Hans Hoyer, DFSC</td>
<td>1</td>
<td>Suon Sovan, CTSP</td>
<td>1,000</td>
</tr>
<tr>
<td>3</td>
<td>Seed Source Documentation</td>
<td>Hanoi, VTSP</td>
<td>April</td>
<td>2 weeks</td>
<td>Dr. Erik Kjær, DFSC</td>
<td>1</td>
<td>Mr. Long Boung, CTSP</td>
<td>600</td>
</tr>
<tr>
<td>4</td>
<td>TOT - Training Of Trainers</td>
<td>Hanoi, VTSP</td>
<td>August</td>
<td>10 days</td>
<td>Arvid Sloth, DFSC</td>
<td>2</td>
<td>Vong Sopana, CTSP, Uon Samol, CTSP</td>
<td>2,200</td>
</tr>
<tr>
<td>5</td>
<td>Practical Attachment</td>
<td>DFSC, Denmark</td>
<td>October</td>
<td>1 month</td>
<td>DFSC/PL</td>
<td>2</td>
<td>Vong Sarun, FRI Ma Sok Tha, CTSP</td>
<td>15,000</td>
</tr>
<tr>
<td>6</td>
<td>Study tour</td>
<td>Thailand, RDF</td>
<td>November</td>
<td>10 days</td>
<td>LTSP/TA</td>
<td>3-5</td>
<td>Vong Sarun, Ma Sokha, ?</td>
<td>5,000</td>
</tr>
<tr>
<td>7</td>
<td>One year MSc. in Forestry</td>
<td>Kuala Lumpur, Malaysia</td>
<td>May -</td>
<td>1 year</td>
<td>UPM</td>
<td>3</td>
<td>So Thea, CTSP Chhum Suvanny, CTSP Suon Suvann, CTSP</td>
<td>20,000</td>
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</table>

**TOTAL** 44,300$

#### Danish / International Events for CTSP

<table>
<thead>
<tr>
<th>No</th>
<th>Course Title</th>
<th>Location</th>
<th>Time</th>
<th>Duration</th>
<th>Lecturer/Institution</th>
<th>Participants</th>
<th>Target group</th>
<th>Budget USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seed Centre Management Course</td>
<td>Humlebæk, Denmark</td>
<td>July 2001</td>
<td>4 weeks</td>
<td>DFSC</td>
<td>1</td>
<td>none?, CTSP</td>
<td>(12,000)</td>
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</table>

**TOTAL** (12,000$)
### 6.3 Training Plan for LTSP

#### National Training Courses for LTSP

<table>
<thead>
<tr>
<th>Activity</th>
<th>Subject</th>
<th>Venue</th>
<th>Dates (Duration)</th>
<th>Facilitator(s)/Organizer(s)</th>
<th>Participant(s)</th>
<th>Cost estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Training Course</td>
<td>Seed Procurement</td>
<td>Nam Souang</td>
<td>10-21/1 (2 weeks)</td>
<td>Hans Hoyer, TIS</td>
<td>10 technical staff 5 PAFO 2 technical staff Vientiane Prefecture 2 technical staff NuoL-Dept. For. Mr. Soumphou Niyom, Tech. Mr. Ketmany Khomphoumy, B.Sc.</td>
<td>3,100 USD + Regional budget</td>
</tr>
<tr>
<td>National Training Course</td>
<td>Seed Laboratory Routines</td>
<td>Nam Souang</td>
<td>10-21/1 (2 weeks)</td>
<td>Dorthe Jøker, DFSC</td>
<td>Seed Procurement Officer, B.Sc. Mr. Chanhoum Boulom, Tech. Mr. Outhong Vongxay, Tech.</td>
<td>Regional budget</td>
</tr>
<tr>
<td>National workshop</td>
<td>Seed demand &amp; priority species and Marketing of Seed</td>
<td>Vientiane</td>
<td>29 March (1 day)</td>
<td>NPM+TA</td>
<td>MAF (2) NAFRI (2) DOF (2) PAFO (5) NuoL (2) projects (3) NGO (3) private companies (3)</td>
<td>1200 USD</td>
</tr>
<tr>
<td>National Training Course</td>
<td>Seed Biology and Seed Production</td>
<td>Nam Souang</td>
<td>15-19/5 (1 week)</td>
<td>Lars Schmidt NPM + technical officers</td>
<td>10 technical staff 5 PAFO 2 technical staff Vientiane Prefecture 2 technical staff NuoL-Dept. For. 6 technicians &amp; B.Sc. of LTSP</td>
<td>3,500 USD</td>
</tr>
<tr>
<td>National training course</td>
<td>Management of Planted Seed Sources</td>
<td>Nam Souang</td>
<td>8-10/8 (3 days)</td>
<td>TA</td>
<td>2 technical staff NuoL-Dept. For. 3 Lao-ADB Plantation project 6 technicians &amp; B.Sc. of LTSP</td>
<td>500 USD</td>
</tr>
<tr>
<td>National Training Course</td>
<td>Seed Quality</td>
<td>Savannakhet</td>
<td>4-8/9 (1 week)</td>
<td>Lars Schmidt NPM + technical officers TA</td>
<td>10 technical staff 5 PAFO 2 technical staff Vientiane Prefecture 2 technical staff NuoL-Dept. For. 6 technicians &amp; B.Sc. of LTSP</td>
<td>3,500 USD</td>
</tr>
<tr>
<td>Seminar</td>
<td>Seed Supply Strategy</td>
<td>Nam Souang</td>
<td>28-29/9 (2 days)</td>
<td>Lars Graudal, DFSC</td>
<td>MAF (2) NAFRI (2) DOF (2) PAFO (5) NuoL (2) projects (3) NGO (3) private companies (3)</td>
<td>1,200 USD + Regional budget</td>
</tr>
<tr>
<td>Internal training course</td>
<td>Registration of Seed Sources</td>
<td>Nam Souang</td>
<td>25-29/9</td>
<td>TA</td>
<td>4 B.Sc. of LTSP</td>
<td>1,000 USD</td>
</tr>
<tr>
<td>National Training Course</td>
<td>General Management</td>
<td>Nam Souang</td>
<td>7-9/11 (3 days)</td>
<td>TA</td>
<td>10 technical staff 5 PAFO 2 technical staff Vientiane Prefecture 6 technicians &amp; B.Sc. of LTSP 2 technical staff NuoL-Dept. For.</td>
<td>1,500 USD</td>
</tr>
<tr>
<td>National Course</td>
<td>English</td>
<td>Vientiane</td>
<td>continuos</td>
<td>Commercial Inst.</td>
<td>All participants to Reg./Int. events</td>
<td>6,000 USD</td>
</tr>
<tr>
<td>Regional Events</td>
<td>Location/Duration</td>
<td>Organizers</td>
<td>Costs</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
<td>-----------</td>
<td>-----------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Consultation</td>
<td>Hanoi, Vietnam 28/2-3/3 (1 week)</td>
<td>VTSP Mr. Douangphet Lattanasouk (42), B.Sc., Mr. Khamphone Mounlamai (35), B.Sc.</td>
<td>15,500$</td>
<td>Regional budget</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Workshop</td>
<td>Thailand/Malaysia April (2 weeks)</td>
<td>FORGENMAP Mr. Khamthan Khamphan (36), B.Sc.</td>
<td>1,000 USD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Attachment</td>
<td>Seed Centre(s) in Thailand April (1 month each)</td>
<td>FORGENMAP Chanhoum Boulim, (35), Tech. Outhong Vongsay (35), Tech. Somphou Niyom (40), Tech.</td>
<td>4,500 USD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Meeting</td>
<td>Dalat City, Vietnam 29/5-2/6 (1 week)</td>
<td>VTSP Mr. Khamphon Mounlamai (35), B.Sc.</td>
<td>Regional budget</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship</td>
<td>AIT, Bangkok 1/11 (2,5 years-5 terms)</td>
<td>TA Mr. Khamphon Mounlamai (35), B.Sc. Mr. Khamthan Kamphan (36), B.Sc.</td>
<td>5,000 USD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Tour</td>
<td>Thailand 13-23/11 (10 days)</td>
<td>FORGENMAP+ TA/LTSP Mr. Khamphon Mounlamai (35), B.Sc. Mr. Keokham Douangmala(23), B.Sc. Mr. Keokham Douangmala(23), B.Sc. PAFO/Vientiane, DG/FRC (+ 10 Directors from VTSP, + 3-5 Senior officers from CTSP)</td>
<td>5,000 USD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International / Danish Events</td>
<td>Humlebæk, DK Nov 2000</td>
<td>DFSC (PL) None?</td>
<td>(12,000$)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>International course</td>
<td>Humlebæk, Denmark July 2001</td>
<td>DFSC Mr. Keokham Douangmala(23), B.Sc.</td>
<td>12,000 $</td>
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Annex 10

**Abbreviations and Acronyms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AAP</td>
<td>Annual Activity Plan (= work plan)</td>
</tr>
<tr>
<td>ACIAR</td>
<td>Australian Centre for International Agricultural Research</td>
</tr>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>AIT</td>
<td>Asian Institute of Technology, Bangkok, Thailand</td>
</tr>
<tr>
<td>ASEAN</td>
<td>Region of Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand, Cambodia, Lao PDR and Vietnam</td>
</tr>
<tr>
<td>ATSC</td>
<td>Australian Tree Seed Centre of CSIRO Forestry and Forest Products</td>
</tr>
<tr>
<td>AusAID</td>
<td>Australian Agency for International Development</td>
</tr>
<tr>
<td>BL</td>
<td>Budget Line</td>
</tr>
<tr>
<td>CDC</td>
<td>Council for Development, Cambodia</td>
</tr>
<tr>
<td>CIC</td>
<td>Committee for Investment and Cooperation, Lao PDR</td>
</tr>
<tr>
<td>CIFOR</td>
<td>Centre for International Forestry Research, Bogor, Indonesia</td>
</tr>
<tr>
<td>CF</td>
<td>Community Forestry</td>
</tr>
<tr>
<td>CFSC</td>
<td>Central Forest Seed Company, Vietnam (earlier NFSC)</td>
</tr>
<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organization, Australia</td>
</tr>
<tr>
<td>CTSP</td>
<td>Cambodia Tree Seed Project of ITSP</td>
</tr>
<tr>
<td>CTA</td>
<td>Chief Technical Adviser</td>
</tr>
<tr>
<td>DAFO</td>
<td>District Agriculture and Forestry Office, Lao PDR</td>
</tr>
<tr>
<td>Danida</td>
<td>Danish International Development Assistance</td>
</tr>
<tr>
<td>DANCED</td>
<td>Danish Cooperation for Environment and Development</td>
</tr>
<tr>
<td>DFSC</td>
<td>Danida Forest Seed Centre, Humlebæk, Denmark</td>
</tr>
<tr>
<td>DFC</td>
<td>Danida Fellowship Centre, Copenhagen, Denmark</td>
</tr>
<tr>
<td>DFW</td>
<td>Department of Forestry and Wildlife of MAFF, Cambodia</td>
</tr>
<tr>
<td>DKK</td>
<td>Danish Kroner, currency unit, 1 USD = 8 DKK</td>
</tr>
<tr>
<td>DOF</td>
<td>Department of Forestry of MAFF, Lao PDR</td>
</tr>
<tr>
<td>DOF</td>
<td>Department of Fisheries of MAFF, Cambodia</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>EDRF</td>
<td>see EPSF</td>
</tr>
<tr>
<td>EPSF</td>
<td>(Danish) Environment Peace and Stability Fund of Denmark (= MIFRESA)</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization of United Nations</td>
</tr>
<tr>
<td>FINNIDA</td>
<td>Finish Development Assistance</td>
</tr>
<tr>
<td>FORGENMAP</td>
<td>Forest Genetic Management Project of DANCED/EPSF in Thailand</td>
</tr>
<tr>
<td>FORB2</td>
<td>Monthly expenditure report to Danida</td>
</tr>
<tr>
<td>FRC</td>
<td>Forestry Research Centre of NAFRI (at Nam Souang), Lao PDR</td>
</tr>
<tr>
<td>FRI</td>
<td>Wildlife &amp; Forest Research Institute of DFW, Cambodia</td>
</tr>
<tr>
<td>FRIM</td>
<td>Forestry Research Institute of Malaysia</td>
</tr>
<tr>
<td>FSIV</td>
<td>Forest Science Institute of Vietnam</td>
</tr>
<tr>
<td>GOL</td>
<td>Government of Lao People’s Democratic Republic</td>
</tr>
<tr>
<td>GOV</td>
<td>Government of Socialist Republic of Vietnam</td>
</tr>
<tr>
<td>GRC</td>
<td>Gene Resource Conservation</td>
</tr>
<tr>
<td>GTZ</td>
<td>Gesellschaft für Technische Zusammenarbeit (German Technical Development Agency)</td>
</tr>
<tr>
<td>HCMC</td>
<td>Ho Chi Minh City (Saigon), Vietnam</td>
</tr>
<tr>
<td>HRD</td>
<td>Human Resource Development (including training)</td>
</tr>
<tr>
<td>ICRAF</td>
<td>International Centre for Research in Agro-Forestry</td>
</tr>
<tr>
<td>IFSP</td>
<td>Indonesia Forest Seed Project of Danida</td>
</tr>
<tr>
<td>IPGRI</td>
<td>International Plant genetic resources Research Institute, Italy</td>
</tr>
<tr>
<td>ISTA</td>
<td>International Seed Testing Association, Switzerland</td>
</tr>
<tr>
<td>ITSP</td>
<td>Indochina Tree Seed Programme (VTSP+LTSP+CTSP)</td>
</tr>
<tr>
<td>IUCN</td>
<td>The World Conservation Union</td>
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</table>