

GROUP WORKING OUTPUTS

Introduction

Several group working sessions were held during the workshop. These were divided into two phases. In the first, the delegates were assigned to four groups:

- Group A: Criteria for priority setting.
- Group B: Species links/common priority species.
- Group C: Utilization/domestication and partnerships in conservation of forest genetic resources.
- Group D: Regulation/management of forest genetic resources.

Group A focused on criteria, how to weigh criteria, the value and importance of species and a priority-setting system. Group B processed and linked the species lists from the country reports. This group also identified gaps and prepared a summary list of priority species. Group C discussed utilization, domestication and partnerships in conservation, based on Southeast Asian experiences and lessons learned to date. Group D discussed the management of forest genetic resources in Southeast Asia, with special reference to laws and policies.

In the second phase, Groups A and B merged into Group 1 to further discuss priority setting and species selection in a regional context. Similarly, Groups C and D merged into Group 2 to discuss overlapping issues and find a balance between top-down and bottom-up approaches in conservation.

Group A: Criteria for priority setting

Members: Dr Marzalina Mansor (chairperson, Malaysia); Mr Jens-Peter Barnekow Lillesø (secretary, DFSC); Mr Jutitep Bhodthipuks (secretary, Thailand), Mr Suwan Tangmitcharoen (rappoteur, Thailand), Ms Pathum Boonarutee (Thailand); Mr Chann Sophal (Cambodia); Mr Sisavang Vonghachack (Lao PDR); Dr Hoang Thanh Loc (Vietnam); and Dr Lex Thomson (CSIRO).

The group concluded that the following steps should be taken:

- Decide on a number of regional, sub-regional and national priority species (these will represent only a small proportion of the species needing research, development and conservation);
- Identify the actions needed to conserve priority species;
- Identify means of implementing these activities and assign interest in activities by species and country;
- Identify requirements for implementing plans;
- Identify core institutions at the national level;
- Foster collaborative exchange of information and genetic material; and
- Suggest other networks and collaborative agreements.

The group developed Table 1 below for setting regional priorities according to four major objectives. This table was used subsequently by Group 1 to format its outputs (see below). The group also developed species information lists to further process the priority species identified in the workshop. Owing to time constraints, however, this task was not completed.

Table 2 below provides an example of species information lists for three commercial species (*Tectona grandis*, *Hopea odorata* and *Pinus merkusii*).

Table 1. *Classification of regional priority species*

Objectives:	National economy	Sustainable rural Development	Environmental protection	Biodiversity conservation
Types of species:	Commercial species	Multipurpose species and non-wood species	Protection species	Endemic, endangered, rare
Types of use:	Large-scale plantation species; natural forest management	Small-scale plantations by farmers; Natural forest management by farmers	Watersheds and soil erosion; Wind and sand protection of seashores; mangroves	Over-exploited or endangered for other reasons

Group B: Species links/common priority species

Members: Dr Mohammad Na'iem (chairperson, Indonesia); Mrs Rebecca B. Aguda (secretary, Philippines); Dr Lee Soon-Leong (secretary, Malaysia); Dr Jarkko Koskela (rapporteur, IPGRI); Mr Ma Sok Tha (Cambodia); Mr Vichien Sumantakul (Thailand); Mr Nguyen Xuan Lieu (Vietnam); Mr Bounhoum Theppavong (Lao PDR); Dr Anders P. Pedersen (FORGENMAP).

The task of this group was to compile a regional species list from the national lists given in the country reports. All of the country reports (except that of Myanmar) gave such lists. Before compiling the regional list, the group analysed and discussed the process of species selection followed by each country.

Species selection processes

The species list for Cambodia is based on a national workshop held in August 2000 with a large group of different stakeholders (120 participants in all). Species are divided into four categories; i) industrial species; ii) wood for communities; iii) non-timber species; and iv) endangered/rare species. In case of the Philippines, no national workshop has been held on this subject, and the species list in the country report is based on existing documents and agreements (e.g. IUCN and CITES), as well as feedback from different stakeholders. The emphasis of this list is on commercially important exotic species and some endemic species.

Table 2. Example species information lists for three commercial species, developed by Group A

SPECIES INFORMATION LISTS									
<input checked="" type="checkbox"/> Commercial species <input type="checkbox"/> Multipurpose species & non-wood species <input type="checkbox"/> Protection species <input type="checkbox"/> Endemic, endangered, rare, scientific									
Species (draft examples only)	Exploration & Germplasm Collection			Evaluation, Improvement & Germplasm Supply			Conservation		Remarks (including countries and related species)
	Biological information	Gene- cological studies	Germplasm collection & research	Field testing & evaluation	Selection and breeding	Seed Sources	<i>Ex situ</i> conservation	<i>In situ</i> conservation	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Tectona grandis	● T, Ma, V, P ○ I 1 C, L	● V ○ T, Ma, I 1 C, L 2 P	○ T, Ma, I 1 L 2 V, P	○ T, Ma, L, I, P 2 V	○ T, L, I, P 1 Ma 3 V	○ T, Ma, L, V, I, P 2 C	○ T, I 2 Ma, L, V, C, P	● T ○ I 2 L, P	Native to Thailand, Lao PDR and Myanmar (no information available from Myanmar)
Hopea odorata	● Ma 1 T 2 L, V, C, P	● Ma 1 T, P 2 C, L, V	1 T 2 C, P 3 L, V	1 T 2 L, P, C, V	1 T, P 2 L, C, V	1 T, L, C, P	1 T, L, C 2 P, V	1 P, C 2 V	Native to all countries
Pinus merkusii	● T, I 1 C 2 L 3 P, V	● T ○ I 1 P, C, V 2 L	● T ○ I 1 C 2 L, P 3 V	○ T, I 1 L 2 P, C 3 V	○ T, I 1 P, C 2 L 3 V	○ T, I, P 1 L, C 3 V	○ T, I, P, C 1 L 3 V	○ T, I, P, C 2 V	Native to Thailand, Cambodia, Lao PDR, Vietnam, Philippines and Indonesia

Notes:
Country codes: C = Cambodia; I = Indonesia; L = Lao PDR; Ma = Malaysia; My = Myanmar; P = Philippines; T = Thailand; V = Vietnam.
Rating: ● = Information completed; ○ = Action in progress.
 1 = Top priority, action urgently needed; 2 = Action within next five years; 3 = Action within next ten years; Blank = Action not required.
Exploration & Germplasm Collection: a) Biological information, includes natural distribution, ecology, phenology; b) Geneecological studies = morphology, isozyme, DNA; c) Germplasm collection and research for evaluation and *ex situ* conservation; research on seed physiology and storage regimes.
Evaluation, Improvement & Germplasm Supply: d) Field testing & evaluation includes trials at provenance, progeny and clonal levels; e) Selection and breeding in a tree improvement programme; f) Seed sources refers to development of various types of planted or natural seed production stands, clonal hedges, etc. for production of reproductive materials for general plantings.
Conservation: g) *Ex situ* conservation; h) *In situ* conservation.

The report by Thailand uses information from four in-country regional workshops and one national workshop held in 1998. These workshops had a wide range of participants. The list of species is organized into five different categories. The country report for Indonesia uses information from a series of workshops related to priority setting, held in 1978, 1995 and 2000. In Lao PDR, three regional in-country workshops were organized in 1999 with a wide range of stakeholders. The species list in the Lao PDR country report includes eight groups of species. The species list in the Malaysian country report is based on existing and available literature as no national workshop has been held. This list includes six categories of trees and other species. In Vietnam, a national workshop was held in 2000 and, before this, several in-country regional workshops. These workshops also involved different stakeholders.

The following regional list of common priority species was compiled according to two criteria; i) a species should be indigenous to Southeast Asia; and ii) a species should have been mentioned in two or more country reports. Sixty-five species met these criteria, seven of which were listed in five or more country reports (Table 3).

Table 3. List of common priority species. Note: species are not in order of priority.

Common and Priority Species	Ma	I	P	L	C	T	V	Total
1. <i>Afzelia xylocarpa</i>				✓	✓	✓	✓	4
2. <i>Agathis borneensis</i>	✓	✓						2
3. <i>Albizia lebbeck</i>				✓	✓			2
4. <i>Albizia procera</i>			✓	✓				2
5. <i>Alstonia scholaris</i>	✓	✓	✓	✓		✓	✓	6
6. <i>Anisoptera costata</i>	✓		✓	✓	✓		✓	5
7. <i>Aquilaria crassna</i>				✓	✓	✓	✓	4
8. <i>Artocarpus heterophyllus</i>		✓		✓			✓	3
9. <i>Avicennia alba</i>	✓		✓				✓	3
10. <i>Azadirachta excelsa</i>	✓	✓				✓		3
11. <i>Azadirachta indica</i>				✓	✓	✓		3
12. <i>Calamus manan</i>	✓	✓					✓	3
13. <i>Cassia siamea</i>		✓		✓	✓		✓	4
14. <i>Casuarina equisetifolia</i>	✓	✓	✓					3
15. <i>Chukrasia tabularis</i>	✓			✓			✓	3
16. <i>Dalbergia bariensis</i>					✓		✓	2
17. <i>Dalbergia cochinchinensis</i>				✓	✓	✓	✓	4
18. <i>Dipterocarpus alatus</i>			✓	✓	✓	✓	✓	5
19. <i>Dipterocarpus grandiflorus</i>	✓	✓	✓				✓	4
20. <i>Dipterocarpus tuberculatus</i>					✓	✓		2
21. <i>Dryobalanops aromatica</i>	✓	✓						2
22. <i>Durio</i> sp.	✓	✓					✓	3
23. <i>Dyera costulata</i>	✓	✓						2
24. <i>Eusideroxylon zwageri</i>	✓	✓						2
25. <i>Fagraea fragrans</i>	✓	✓		✓	✓	✓		5
26. <i>Gonystylus bancanus</i>	✓	✓						2
27. <i>Hopea odorata</i>	✓		✓	✓	✓	✓	✓	6
28. <i>Intsia bijuga</i>		✓	✓					2
29. <i>Intsia palembanica</i>	✓	✓				✓		3
30. <i>Koompassia malaccensis</i>	✓	✓						2
31. <i>Lagerstroemia ovalifolia</i>				✓	✓		✓	3
32. <i>Litchi sinensis</i>					✓		✓	2
33. <i>Melaleuca cajuputi</i>		✓			✓		✓	3
34. <i>Metroxylon sagu</i>	✓	✓						2
35. <i>Palaquium rostratum</i>	✓	✓						2
36. <i>Parashorea stellata</i>	✓			✓		✓		3
37. <i>Parkia speciosa</i>	✓	✓				✓		3
38. <i>Peltophorum ferrugineum</i>				✓	✓		✓	3

Table 3. (continued)

Common and Priority Species	Ma	I	P	L	C	T	V	Total
39. <i>Pinus kesiya</i>			✓	✓		✓	✓	4
40. <i>Pinus merkusii</i>		✓	✓	✓	✓	✓	✓	5
41. <i>Pterocarpus indicus</i>	✓	✓	✓		✓			4
42. <i>Pterocarpus macrocarpus</i>				✓	✓	✓	✓	4
43. <i>Rhizophora</i> sp.	✓	✓	✓		✓		✓	5
44. <i>Samanea saman</i>		✓	✓					2
45. <i>Schima wallichii</i>	✓	✓					✓	3
46. <i>Shorea cochinchinensis</i>					✓		✓	2
47. <i>Shorea hypochra</i>					✓		✓	2
48. <i>Shorea laevis</i>	✓	✓						2
49. <i>Shorea leprosula</i>	✓	✓						2
50. <i>Shorea macrophylla</i>	✓	✓						2
51. <i>Shorea ovalis</i>	✓	✓						2
52. <i>Shorea parvifolia</i>	✓	✓						2
53. <i>Shorea roxburghii</i>	✓					✓	✓	3
54. <i>Shorea stenoptera</i>	✓	✓						2
55. <i>Sindora cochinchinensis</i>				✓	✓		✓	3
56. <i>Sterculia lychnophora</i>					✓		✓	2
57. <i>Tarrietia javanica</i>					✓		✓	2
58. <i>Tectona grandis</i>		✓		✓		✓		3
59. <i>Terminalia chebula</i>				✓			✓	2
60. <i>Toona sinensis</i>	✓						✓	2
61. <i>Toona sureni</i>	✓	✓						2
62. <i>Vatica odorata</i>				✓			✓	2
63. <i>Vitex parviflora</i>		✓	✓					2
64. <i>Xylia dolabriformis</i>					✓		✓	2
65. <i>Xylia xylocarpa</i>				✓		✓	✓	3

Group 1: Priority species (groups A & B combined)

The overall objective of regional priority setting of indigenous species is to maximize the contribution of trees and other forest species to national economies, sustainable rural development, environmental protection and biodiversity conservation. Regional priority setting is necessary to identify species that are of regional or sub-regional importance, and to propose activities for these species that can best be implemented through joint regional efforts.

Steps taken during workshop

- Each country identified species of highest priority, in terms of objectives, in each of the following four groups: i) commercial species; ii) multipurpose and non-wood species; iii) protection species; and iv) endemic, endangered and rare species. The selected species represent only a small proportion of the species needing research, development and conservation. They constitute a group of species that are of high and direct importance to the development of the countries in the region.
- From the combined regional species list (see Table 3 above), Group 1 selected a shortlist of common and priority species. The criteria used for selection were that a species should occur in three or more countries, and be native to the region. In all, 34 species were selected.
- The group integrated these 34 species into regional species lists according to the four objectives identified above (commercial, multipurpose and non-wood, etc.) (see Table 4). These four lists show how the species are prioritized according to country and major purposes (but not prioritized within the groups).

- The species lists presented here are only tentative. More comprehensive lists should be developed to identify information gaps and needs.

The group proposed further steps to be taken:

- Identification of regional coordinating organizations.
- A regional consultancy to complete the species information lists in collaboration with each of the participating countries.
- After completion of this consultancy, a regional meeting should be held to evaluate and discuss its results with the following aims:
 - Identify actions required to conserve fully the priority species (operational priorities);
 - Identify means of implementing these activities and explore interest in activities by species and country;
 - Identify one core institution in each country to act as a focal point for coordinating regional efforts;
 - Identify requirements for implementing regional plans and needs for institutional strengthening, training and regional collaboration;
 - Foster collaborative exchange of information and genetic material;
 - Suggest other collaborative agreements;
 - Standardize methods; and
 - Support more surveys at the national level.

The discussion that followed the presentation by Group 1 pinpointed the need for more work on selecting regional priority species, because different criteria were used to compile species lists for the country reports. The discussion also focused on the fact that exotic plantation species with high economic values are excluded from the list of regional priority species. Some countries, such as Vietnam, felt strongly that these species should be included in regional efforts. It was pointed out, however, that regional programmes should emphasize indigenous species because national programmes are, in many cases, already focusing on economically important exotic species. The case of 'naturalized' species, such as teak in Indonesia, also generated some discussion.

Table 4. Output of Group 1: Regional species lists according to four major objectives

Objectives:	National economy	Sustainable Rural Deve lopment	Environment Protection	Biodiversity Conservation
Types of species:	Commercial species	Multipurpose and non-wood species	Protection species	Endemic, endangered, rare
Types of use:	<ul style="list-style-type: none"> • Large-scale plantation species • Natural forest management 	<ul style="list-style-type: none"> • Small-scale plantations by farmers • Natural forest management by farmers 	<ul style="list-style-type: none"> • Watersheds and soil erosion • Wind and sand protection of seashores • Mangroves 	<ul style="list-style-type: none"> • Over-exploited or endangered for other reasons
Lists of Species				
Common in six countries	<i>Alstonia scholaris</i> <i>Hopea odorata</i> <i>Pinus merkusii</i>	<i>Alstonia scholaris</i> <i>Pinus merkusii</i>	<i>Pinus merkusii</i>	<i>Pinus merkusii</i>
Common in five countries	<i>Anisoptera costata</i> <i>Dipterocarpus alatus</i> <i>Fagraea fragrans</i> <i>Rhizophora</i> sp.	<i>Dipterocarpus alatus</i> <i>Fagraea fragrans</i> <i>Rhizophora</i> sp.	<i>Anisoptera costata</i> <i>Fagraea fragrans</i> <i>Rhizophora</i> sp.	<i>Anisoptera costata</i> <i>Dipterocarpus alatus</i> <i>Fagraea fragrans</i>
Common in four countries	<i>Afzelia xylocarpa</i> <i>Aquilaria crassna</i> <i>Cassia siamea</i> <i>Dalbergia cochinchinensis</i> <i>Dipterocarpus grandiflorus</i> <i>Pinus kesiya</i> <i>Pterocarpus indicus</i> <i>Pterocarpus macrocarpus</i>	<i>Aquilaria crassna</i> <i>Cassia siamea</i> <i>Dalbergia cochinchinensis</i> <i>Pinus kesiya</i> <i>Pterocarpus indicus</i> <i>Pterocarpus macrocarpus</i>	<i>Afzelia xylocarpa</i> <i>Aquilaria crassna</i> <i>Cassia siamea</i> <i>Dalbergia cochinchinensis</i> <i>Dipterocarpus grandiflorus</i> <i>Pinus kesiya</i> <i>Pterocarpus indicus</i> <i>Pterocarpus macrocarpus</i>	<i>Afzelia xylocarpa</i> <i>Aquilaria crassna</i> <i>Dalbergia cochinchinensis</i> <i>Dipterocarpus grandiflorus</i> <i>Pinus kesiya</i> <i>Pterocarpus indicus</i> <i>Pterocarpus macrocarpus</i>
Common in three countries	<i>Artocarpus heterophyllus</i> <i>Azadirachta excelsa</i> <i>Azadirachta indica</i> <i>Casuarina equisetifolia</i> <i>Chukrasia tabularis</i> <i>Durio</i> sp. <i>Intsia palembanica</i> <i>Lagerstroemia ovalifolia</i> <i>Melaleuca cajuputi</i> <i>Parkia speciosa</i> <i>Parashorea stellata</i> <i>Peltophorum ferrugineum</i> <i>Schima wallichii</i> <i>Shorea roxburghii</i> <i>Sindora cochinchinensis</i> <i>Tectona grandis</i> <i>Xylia xylocarpa</i>	<i>Artocarpus heterophyllus</i> <i>Avicennia alba</i> <i>Azadirachta excelsa</i> <i>Azadirachta indica</i> <i>Calamus manan</i> <i>Casuarina equisetifolia</i> <i>Chukrasia tabularis</i> <i>Durio</i> sp. <i>Lagerstroemia ovalifolia</i> <i>Melaleuca cajuputi</i> <i>Parkia speciosa</i> <i>Peltophorum ferrugineum</i> <i>Sindora cochinchinensis</i> <i>Tectona grandis</i> <i>Xylia xylocarpa</i>	<i>Artocarpus heterophyllus</i> <i>Avicennia alba</i> <i>Azadirachta indica</i> <i>Casuarina equisetifolia</i> <i>Chukrasia tabularis</i> <i>Lagerstroemia ovalifolia</i> <i>Melaleuca cajuputi</i> <i>Peltophorum ferrugineum</i> <i>Schima wallichii</i> <i>Shorea roxburghii</i> <i>Sindora cochinchinensis</i> <i>Xylia xylocarpa</i>	<i>Azadirachta excelsa</i> <i>Azadirachta indica</i> <i>Chukrasia tabularis</i> <i>Intsia palembanica</i> <i>Lagerstroemia ovalifolia</i> <i>Melaleuca cajuputi</i> <i>Parkia speciosa</i> <i>Parashorea stellata</i> <i>Shorea roxburghii</i> <i>Sindora cochinchinensis</i> <i>Tectona grandis</i> <i>Xylia xylocarpa</i>

Group C: Utilization/domestication and partnerships in conservation of forest genetic resources

Members: Mr Lars Schmidt (chairperson, Vietnam); Ms Ida Theilade (secretary, DFSC); Dr Prasert Sornsatapornkul (secretary, Thailand), Mr Chana Piewluang (rapporteur, FORGENMAP), Mrs Sirin Tiyanon (Thailand); Mr Nguyen Huy Dzung (Vietnam); Mr Khamtan Khamphan (Lao PDR).

Table 5 and the list below summarize the discussions in this group.

Sustainable management (the case of resin tapping)

Technical aspects:

- Harvest methods
 - Rotation collection/minimum size
 - Technology transfer (e.g. resin tapping, safe logging methods, planning methods)
 - Protected zone (e.g. watershed area)
- Regeneration
 - Exclusion of fire, grazing, etc.
- Enrichment planting
- Productive buffer zone
- Domestication
 - Silvicultural practices
 - Contour planting, etc.
- Processing

Organizational aspects:

- Establishment of a committee (through existing institutions); and
- Legal backing by local and national governments.

Financial aspects:

- Marketing
- Economic valuation
- Sources of investment funds
- External subsidies

Discussions after the group presentation focused on how to put the recommendations into practice under varying social, economic and legal conditions. Not only local people but also commercial logging operations often have a strong influence on forest resources. It was suggested that local people should be consulted in the case of concessions, even though they are not directly involved in the utilization of concession areas. It was also pointed out that the acquisition of tenure and use rights by local people raises their interest in management and conservation of forests.

Table 5. Utilization and partnerships in conservation of forest genetic resources: an example from Thailand

User Group	Utilization of FGR	Problems/Conflicts	General Recommendations	Specific Approaches
<i>A. Direct users</i>				
1. Local people/community	Livelihood ➤ House construction ➤ Medicinal products ➤ Fuelwood ➤ Foods ➤ Water resources	Conflicting interests (between groups) ➤ Keep ➤ Remove/change Lack of benefit from conservation	Awareness raising ➤ Extension (training, workshops, meetings) Identification of stakeholders Organizational building (village committee)	Identification of stakeholders: Local level (traditional sharing of forest resources) ➤ Village headmen & committee ➤ Farmer association ➤ Woman groups ➤ Cooperatives ➤ Volunteer group ➤ Sub-district forest office ➤ Individual
2. Commercial Level (middle man)	Wood products Non-wood products Improved genetic materials	Lack of knowledge Shortage of lands Competition of resources	Conflict management Sharing of resources Alternative livelihood	Regional Level ➤ Regional Forest Office ➤ Provincial Forest Office ➤ Agricultural Land Reform Office ➤ NGO
3. Tourists/Visitors	Recreation	Over exploitation	Sustainable management (e.g. improvement harvest methods) Land tenure/user right	
<i>B. Indirect users</i>				
1. Consumers of forest products	Wood & non-wood products		Establishment of protected area e.g. buffer zone, National park, Wildlife sanctuary, protected stand, <i>ex situ</i> stand	National level ➤ Royal Forest Department ➤ Agricultural Land Reform Office
2. Water consumers	Water resources		Rehabilitation	➤ NGO
3. Global society	Genetic materials		Sharing of expenses e.g. DANCED, Danida Data collection Monitoring Sharing decision-making	

Group D: Regulation/management of forest genetic resources

Members: Dr Dachanee Emphandhu (first chairperson, Thailand); Mr Anders Jensen (second chairperson, Lao PDR); Mr Martin Greijmans (secretary, Thailand); Dr Eko Bhakti Hardiyanto (rapporteur, Indonesia); Ms Sam Yen Yen (Malaysia); Mr Chang Phaurin (Cambodia); Dr Nguyen Hoang Nghia (Vietnam); Dr Bundit Ponoy (FORGENMAP), Dr Kowit Chaisurisri (Thailand).

This group identified the following issues of regulation and management of forest genetic resources from the country reports:

Table 6. *Regional issues of regulation and management of forest genetic resources*

Issues	Countries ^{a)}					
	V	L	C	T	Ma	I
1. Weak law enforcement	✓	✓	✓	✓	✓	✓
2. Laws too strict, not appropriate to ways of life	✓		✓	✓		✓
3. Management of protected areas (PAs) (emphasizes preservation over conservation)	✓		✓	✓		✓
4. Participation of local people	✓	✓	✓	✓		✓
5. More emphasis on wildlife conservation than plant conservation	✓	✓	✓	✓		✓
6. Lack of recognition for traditional rights		✓	✓			✓
7. Forest conservation/management decentralization (new in laws and policy but unclear how to implement)			✓	✓		✓
8. Lack of incentives/benefits for local people to participate		✓	✓	✓		✓
9. Improper/poor management (limited personnel, budget, techniques, etc.)	✓	✓	✓	✓	✓	✓
10. Insufficient alternatives for local people in forest use (most forests are declared as PAs)	✓	✓	✓	✓		✓
11. Management and decision-making without data or information		✓	✓	✓		✓
12. Lack of awareness	✓		✓	✓	✓	✓
13. Population increases, demand for forest products	✓	✓		✓		✓
14. Emphasis of conservation more on ecosystems than species or genes	✓	✓		✓	✓	✓
15. PAs not appropriate for meeting needs of a range of management options		✓	✓	✓		✓
16. Insufficiently pro-active approach		✓		✓	✓	✓
17. Lack of/no guidelines for participation	✓	✓	✓	✓		✓
18. Insufficient management objectives for forest conservation		✓				
19. Insufficient data, scientific information		✓	✓	✓	✓	✓
20. Institutional problems	✓	✓		(✓)	✓	
21. Inadequate information sharing, networking	✓	✓	✓	✓	✓	✓

^{b)} See Table 2 above for country codes.

Using the information in the country reports, the group identified the following six issues or problems as most common:

- Weak law enforcement;
- Lack of participation by local people;
- Improper or poor management (personnel, budgets, techniques, etc.);
- More emphasis is put on wildlife conservation than plant conservation;
- Conservation efforts emphasize ecosystems more than species or genes; and
- Insufficient scientific data, information sharing and networking.

The group's recommendations on these issues are given below (these are not ordered according to importance):

Weak law enforcement:

- Law enforcement should go hand in hand with participation.
- People must also be seen as custodians and as part of enforcement efforts (regulation).
- Training in techniques, and approaches and equipment, is needed to prepare for encounters with violators.
- Deal with middlemen who are often the source of illegal activity (local network to check on activities).
- Regulations and rules should originate from lower levels ('bottom up'—see below).
- Conflicting laws should be harmonized.
- Raise awareness of existing laws.

Lack of participation by local people:

- Create incentives for local people to participate; get them involved using outsiders as facilitators or builders, if necessary.
- Strong communities can control outsiders who do not have links to a forest area.
- Governments have little knowledge or understanding of the needs and interests of local people, or the identities of the main stakeholders. It is necessary, therefore, to work with local people to determine how participation should be structured, using action research used as a tool.
- After needs, possibilities and technical assistance options are recognized, local people must be allowed to implement actions themselves.
- The availability of land is an important factor in creating alternative forms of use.
- Different approaches are necessary as communities are organized in different ways or different kinds of intervention are needed at the same development stage. An initial survey of a community is needed to determine possibilities.
- Alternative income projects should be developed to decrease the pressure on forests.
- Increased benefits stimulate more protection and participation.

Improper management (personnel, budgets, techniques, etc.):

- Field personnel are multifunctional; they do not have clearly articulated roles and management is hindered by inappropriate transfers of personnel.
- Budgets are usually allocated to profit-making branches, and only rarely to conservation. Funding becomes available only when disasters have already happened.
- All of the benefits of forests (timber, tourism, air, water, etc.) must be demonstrated in economic terms.

More emphasis is put on wildlife conservation than plant conservation:

- The relationship between animals and plants needs to be emphasized.
- Plant conservation is becoming a more important issue and should be linked to networking and information sharing.

Emphasis of conservation more on ecosystems than on species or genes:

- Priority setting in conservation should be in the following order: ecosystem, species and genes.
- Model or indicator species, the dominant species in an ecosystem, can be used to conserve the whole ecosystem.
- Areas should not only be gazetted—species must also be identified for conservation.

- Wildlife conservation approaches can assist in conserving whole ecosystems.

Insufficient scientific data and information sharing and networking:

- More emphasis should be put on broader research topics instead of overly specific, often personal, research interests.
- Isolated researchers are not good research managers and often have poor links to decision makers. They must raise their profile.
- Poor availability and inadequate dissemination of information are common problems.
- The usefulness of data is limited if published in different languages; the use of English can overcome this.
- More funds are available for applied research and popular subjects than for basic research. Foreign funds, however, are often available for conservation.
- Through networking it is possible to overcome many constraints in this category. It is suggested that IPGRI investigate opportunities for a formal network.

Discussions after the group presentation focused on how to link management of forest genetic resources with national forest programmes. In many countries, these programmes are already in place and include the management of forest genetic resources or biodiversity conservation. They often face difficulties, however, in implementing activities, raising awareness, enforcing laws and creating inter-sectoral linkages.

Group 2: Conservation (groups C & D combined)

The aim of Group 2 was to identify areas of overlap between Groups C and D, and to find a balance between top-down and bottom-up approaches to conserving forest genetic resources. Discussions revealed a substantial amount of overlap between the two groups, and very few conflicting issues. The following issues were singled out for cross-cutting recommendations:

- Enhancing participation in conservation;
- Improving management, including research; and
- Information sharing and networking.

Recommendations were listed under top-down and bottom-up categories for each common issue, together with recommendations for balancing these two approaches (see Table 7).

Table 7. *Output of Group 2: Recommendations for balancing top-down and bottom-up approaches to conserving forest genetic resources*

TOP-DOWN	BOTTOM-UP
1. Enhancing participation in conservation	
a) Raise awareness:	
<ul style="list-style-type: none"> • orders • assuming a problem • extension 	<ul style="list-style-type: none"> • problems raised by village • needs-driven
<i>Balance: workshops, training, activities, research, meetings, dialogue.</i>	
b) Identify stakeholders:	
<ul style="list-style-type: none"> • through government organizations 	<ul style="list-style-type: none"> • through village headmen, committees, etc. • include all user groups
<i>Balance: accepted NGO, mediator, sharing decision-making.</i>	
2. Improving management, including research	
<ul style="list-style-type: none"> • apply sustainable management <ul style="list-style-type: none"> - resources → criteria and indicators (C&I) - data, monitoring • budget allocation • law enforcement • solving legal conflicts 	<ul style="list-style-type: none"> • involvement of local people in conservation • awareness of laws • custodians
<i>Balance: harmony between formal laws and local rules and regulations, participatory and rapid rural appraisal.</i>	
3. Sharing information and networking	
<ul style="list-style-type: none"> • one-way information • information distribution (multimedia) • circular/memo (instruction) • local administrative office • scientific reports • formal structural network 	<ul style="list-style-type: none"> • person to person • open, informal forum • newsletters • local announcements, headmen • extension leaflets • open/informal network
<i>Balance: open access to information, two (or more)-way communication, user-friendly media, demonstration plots.</i>	