

APPENDIX II

TBFRA-2000 Enquiry Tables

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Symbols used

ha	- hectare
cm	- centimetre
m	- metre
m ³	- cubic metre, solid volume
m ³ o.b.	- cubic metre overbark, solid volume
m ³ u.b.	- cubic metre underbark, solid volume
m.t. o-d.	- metric tonne, oven-dry
*	- unofficial figure or estimate
-	- nil or less than half a unit
..	- figure unknown or not available.

Section I

General Forest Resource Information

(Tables 1 to 7)

The basic parameter of the forest resource assessment, to which all the others refer, is the area of forest and of other wooded land. This first section of the TBFRA-2000 therefore concentrates on the size and basic nature of the forest resource and of changes over the last decade or so. Attributes such as ownership, “naturalness”, intensity of management (or lack of it) and basic silvicultural characteristics, will influence to a large degree the forest’s biological diversity, its ability to supply wood or sequester carbon, its vulnerability to certain forms of damage and its ability to carry out its social and protection function. For that reason, these basic parameters are grouped together at the beginning of the TBFRA-2000.

Correspondents' attention is drawn to two major aspects:

- the definitions of “forest” and of “other wooded land” have been changed from those in FRA-1990, in order to achieve comparability with data for the tropical regions, notably with regard to the dividing line between “forest” and “other wooded land”. Every effort should be made to ensure that national data are adjusted to fit the agreed international definitions. In the interests of transparency and scientific accuracy, correspondents are requested to record, in detail, the source of the original data, how they have been adjusted to the international definitions, and the likely range within which the true value is likely to be. Taken together, these pieces of information will make it possible to make a quantified and objective assessment of the inter-country comparability of the TBFRA-2000 data and of the range of uncertainty surrounding the final aggregations.
- in the global forest policy debate, the extent of forest undisturbed by man, which it is being converted to other types of forest or non-forest land use have received much attention: however even in the tropical regions, there has been little objective information to measure trends, while in the temperate regions, the situation is complicated by many centuries of low intensity management or disturbance, affecting almost all forest areas. There are no reliable and comprehensive sets of internationally comparable data on the extent of natural forest in temperate regions (the question was not asked in FRA-1990). Correspondents are therefore requested to make every effort to provide information on forest and other wooded land undisturbed by man, which correspond to the agreed definition, and to provide the requested information on the criteria used and choices made, so that the data published in TBFRA-2000 may be as comparable between countries as possible. Likewise, the same care should be taken for the identification of “plantations”, as the definition agreed is new and does not necessarily coincide with normal usage in many countries.

TABLE 1
Total area by main classes

Purpose: (a) To show the relative importance of forest and other wooded land as compared with other land cover; and (b) to provide the reference area for many other parameters covered in the enquiry.

Country:

Reference period:

Ref.		Area (1000 ha)
1.1	Total area	
1.2	– Inland water	
1.3	– Land area	
1.4	– Forest and other wooded land	
1.5	– Forest	
1.6	– Other wooded land	
1.7	– Other land	

Check: (1.2) Inland water + (1.3) Land area = (1.1) Total area OK
 (1.4) Forest and other wooded land + (1.7) Other land = (1.3) Land area OK
 (1.5) Forest + (1.6) Other wooded land = (1.4) Forest and other wooded land OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Forest: Yes/No

Other wooded land: Yes / No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Forest: from to thousand ha

Other wooded land: from to thousand ha

Comments:

TABLE 2
Forest and other wooded land according to “naturalness”

Purpose: To provide an indication of the extent to which the natural forest cover has been modified by man, and the intensity of management.

Country:

Reference period:

Ref.		Area (1000 ha)
2.1	Forest	(=1.5) 0
2.2	– Forest undisturbed by man	
2.3	– Semi-natural forest	
2.4	– Plantations	
2.5	Other wooded land	(=1.6) 0
2.6	– Other wooded land undisturbed by man	
2.7	– Semi-natural other wooded land	

Please describe on a separate sheet:

- The trends in the area of the above classes over the last 100-200 years, concentrating on trends since 1950s, with quantitative estimates, if possible.
- The nature and driving forces of these structural trends and underlying circumstances.

Check: (2.2) Forest undisturbed by man + (2.3) semi-natural forest = (2.4) Plantations = (2.1) Forest OK
 (2.6) Other wooded land undisturbed by man + (2.7) Semi-natural other wooded land = (2.5) Other wooded land OK

Data source and quality	
Source:	
Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?	
Forest undisturbed by man:	Yes/No
Semi-natural forest:	Yes/No
Plantations:	Yes/No
Other wooded land undisturbed by man:	Yes/No
Semi-natural other wooded land:	Yes/No
If adjusted, description of adjustment process:	Attached/Not attached
Specifications of known deviations from TBFRA-2000 definitions:	Attached/Not attached
Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:	
Forest undisturbed by man:	from..... to thousand ha
Semi-natural forest:	from..... to thousand ha
Plantations:	from..... to thousand ha
Other wooded land undisturbed by man:	from..... to thousand ha
Semi-natural other wooded land:	from..... to thousand ha

Comments:

TABLE 3

Forest and other wooded land according to availability for wood supply

Purpose: To provide an estimate of wood supply potential, broken down by species groups.

Country:

Reference period:

Ref.		Area (1000 ha)
3.1	Forest, total	(=1.5) 0
3.2	– Predominantly coniferous	
3.3	– Predominantly broadleaved	
3.4	– Predominantly bamboos, palms, etc.	
3.5	– Mixed	
3.6	Forest available for wood supply	
3.7	– Predominantly coniferous	
3.8	– Predominantly broadleaved	
3.9	– Predominantly bamboos, palms, etc.	
3.10	– Mixed	
3.11	Forest not available for wood supply	
3.12	– For conservation/protection reasons	
3.13	– For economic reasons	
3.14	Other wooded land	(=1.6) 0
3.15	– Predominantly coniferous	
3.16	– Predominantly broadleaved	
3.17	– Predominantly bamboos, palms, etc.	
3.18	– Mixed	

Note: If the area of forest voluntarily excluded from wood supply, i.e. forest which is legally economically “available for wood supply” but where the forest owner has decided not to harvest wood, can be quantified, please specify.

Check: Sum of (3.2+3.3+3.4+3.5) = (3.1) Forest, Total OK
Sum of (3.7+3.8+3.9+3.10) = (3.6) Forest available for wood supply OK
Sum of (3.12+3.13) = (3.11) Forest not available for wood supply OK
Sum of (3.15+3.16+3.17+3.18) = (3.14) Other wooded land OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Predominantly coniferous: Yes/No

Predominantly broadleaved: Yes/No

Predominantly bamboos, palms, etc.: Yes/No

Mixed: Yes/No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Predominantly coniferous: from..... to thousand ha

Predominantly broadleaved: from..... to thousand ha

Predominantly bamboos, palms, etc.: from..... to thousand ha

Mixed: from..... to thousand ha

Comments:

TABLE 4
High forest and coppice

Purpose: The wood supply potential, the biodiversity and other factors are strongly affected by whether the forest is managed as high forest or as coppice.

Country:

Reference period:

Ref.		Area (1000 ha)
4.1	Forest available for wood supply	(=3.6) 0
4.2	– High forest	
4.3	– Coppice and coppice with standards	
4.4	Forest not available for wood supply	(=3.11) 0
4.5	– High forest	
4.6	– Coppice and coppice with standards	

Check: (4.2) High forest + (4.3) Coppice and coppice with standards = (4.1) Forest available for wood supply OK
 (4.5) High forest + (4.6) Coppice and coppice with standards = (4.4) Forest not available for wood supply OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

High forest: Yes/No

Coppice and coppice with standards: Yes/No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

High forest: from..... to thousand ha

Coppice and coppice with standards: from..... to thousand ha

Comments:

TABLE 5
Ownership and management of forest

Purpose: To provide data on the distribution of forest by ownership categories and the extent of which it is under management, as both these factors strongly influence silvicultural treatment, if any, and wood supply potential. They are a crucial element in policy formulation.

Country:

Reference period:

Ref.		Total area	Of which: Managed
		(1000 ha)	
5.1	Forest, total	(=3.1)	0
5.2	– In public ownership		
5.3	– Ownership by indigenous or tribal peoples		
5.4	– In private ownership		
5.5	<i>Of which :</i> Forest available for wood supply	(=3.6)	0
5.6	– In public ownership		
5.7	– State ownership		
5.8	– Owned by other public institutions		
5.9	– Owned by indigenous or tribal peoples		
5.10	– In private ownership		
5.11	– Owned by individuals		
5.12	– Owned by forest industries		
5.13	– Owned by other private institutions		
5.14	Other wooded land		
5.15	– In public ownership		
5.16	– Owned by indigenous or tribal peoples		
5.17	– In private ownership		

Note: This table refers to *ownership*, which may differ from *use*, especially in the case of indigenous and tribal peoples. For forest use by indigenous and tribal peoples, see table 22.

Check: Sum of (5.2+5.3-5.4) = (5.1) Forest, Total OK
Sum of (5.6+5.9-5.10) = (5.5) Forest available for wood supply OK
Sum of (5.7 and 5.8) = (5.6) In public ownership OK
Sum of (5.11+5.12+5.13) = (5.10) In private ownership OK
Sum of (5.15+5.16+5.17) = (5.14) Other wooded land OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

In public ownership: Yes/No

Owned by indigenous or tribal peoples: Yes/No

In private ownership: Yes/No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

In public ownership: from..... to thousand ha

Owned by indigenous or tribal peoples: from..... to thousand ha

In private ownership: from..... to thousand ha

Comments:

TABLE 6

Number and size of holdings of forest and other wooded land

Purpose: To provide information on the structure of holdings, which is useful for policy formulation relating to wood supply potential, nature conservation and the socio-economic functions of the forest.

Country:

Reference period:

Ref.		Total area (1000 ha)		Number of holdings
		Forest and other wooded land	Of which: Forest	Forest and other wooded land
6.1	In public ownership			
6.2	– Less than 3 ha			
6.3	– 3 to 5 ha			
6.4	– 6 to 10 ha			
6.5	– 11 to 20 ha			
6.6	– 21 to 50 ha			
6.7	– 51 to 100 ha			
6.8	– 101 to 500 ha			
6.9	– 501 to 10,000 ha			
6.10	– 10,001 to 100,000 ha			
6.11	– More than 100,000 ha			
6.12	In private ownership			
6.13	– Less than 3 ha			
6.14	– 3 to 5 ha			
6.15	– 6 to 10 ha			
6.16	– 11 to 20 ha			
6.17	– 21 to 50 ha			
6.18	– 51 to 100 ha			
6.19	– 101 to 500 ha			
6.20	– 501 to 10,000 ha			
6.21	– 10,001 to 100,000 ha			
6.22	– More than 100,000 ha			

Check: Sum of (6.2 to 6.11) = (6.1) In public ownership
Sum of (6.13 to 6.22) = (6.12) In private ownership

OK
OK

Comments:

TABLE 7

Changes in area of forest and other wooded land over time by main categories

Purpose: To provide information on changes over time for a few key parameters. (Because of changes in definitions, it is not possible to compare data for the TBFRA-2000 with those of FRA-1990 (temperate zones).

Country:

Previous reference period:

Latest reference period:

Ref.		Previous reference period	Latest reference period	Average annual change between reference periods
		(1000 ha)		
6.1	Forest		(=1.5) 0	
7.2	– Forest available for wood supply		(=3.6) 0	
7.3	– Forest not available for wood supply		(=4.4) 0	
7.4	Other wooded land			

Check: Previous reference period: (7.2) Forest available for wood supply + (7.3) Forest not available for wood supply = (7.1) Forest OK

Latest reference period: (7.2) Forest available for wood supply + (7.3) Forest not available for wood supply = (7.1) Forest OK

Comments:

Section II

Biological Diversity and Protection Status

(Tables 8 to 12)

It is now widely accepted that the conservation of biological diversity is a major function of forests, and that this aspect ought to be covered in quantitative assessments of the forest resource, at the national and international levels. However, this task is difficult, even from a conceptual point of view, as biological diversity as such is difficult to measure directly, except on a local scale and in the context of scientific research. Biological diversity as a concept may be applied at a number of different levels, notably the *ecosystem*, the *species*, and the *genetic* level. Naturally, species other than trees must also be considered. Even where promising concepts, such as biological diversity indices, are being developed they are often closely linked to a particular ecosystem type or region.

Furthermore, it is often difficult and expensive to capture the raw data necessary to construct the index. Therefore, in order to provide an indication of the status and trends for forest biological diversity at the international level, it is necessary at present to collect quantitative data on *proxies* for biological diversity, and on *actions* taken to preserve biological diversity. Furthermore, given the huge differences between regions and sub-regions, it appears desirable to concentrate on indicators of the *direction of change*, rather than attempting objective comparisons between forests in very different conditions. The parameters chosen to assess the situation and trends for forest biological diversity are as follows:

- *protection status*, which is a rather objective indicator of action taken to protect biological diversity (although not necessarily of the need for or effectiveness of the protection measures);
- the simplest measure of richness of forest biological diversity is the *number of tree species* (although some areas, such as boreal or mountain ecosystems, have naturally less species than others). The balance between native and introduced species is also a preliminary indication of the extent to which natural or semi-natural ecosystems have been replaced by more intensely managed forests;
- the extent to which *forest occurring species are at risk or endangered* is an important indicator of biological diversity in forest and other wooded land as well as threats to it;
- the way in which *forests are regenerated or extend to other land* is an indicator, both of the intensity of management (a major influence on biological diversity) and of the genetic diversity of forest tree species;
- genetic diversity in managed forests can be measured to some extent by the *provenance of genetic material used for planting*, with information by species: this gives a clear indication of the extent to which the forests being established coincide with the genetic material native to that region.

None of the above information has been requested in earlier forest resource assessments, and the concepts must of necessity be considered experimental. For that reason, correspondents are requested:

- to explore, if necessary new sources of information, notably academic research and environmental surveys;
- to make estimates if necessary, rather than providing no information at all;
- to comment on the format of the tables and questions asked, and to make suggestions for future international assessments of forest biological diversity.

TABLE 8
Protection status

Purpose: To provide information on how much forest and other wooded land is protected to conserve biological diversity and whether this area is increasing or not.

Country:

Reference period:

Ref.		Area (1000 ha)
8.1	Forest	(=1.5) 0
8.2	– In IUCN categories I and II	
8.3	– In IUCN categories III to VI	
8.4	Other wooded land	(=1.6) 0
8.5	– In IUCN categories I and II	
8.6	– In IUCN categories III to VI	

Check: Sum of (8.2 + 8.3) = (8.1) Forest OK
Sum of (8.5 + 8.6) = (8.4) Other wooded land OK

Please indicate trends over the last 10-20 years in the area of forest and other wooded land in the IUCN protection categories with quantitative information, if possible.

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Forest

In IUCN categories I and II: Yes/No

In IUCN categories III and VI: Yes/No

Other wooded land

In IUCN categories I and II: Yes/No

In IUCN categories III and VI: Yes/No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Forest

In IUCN categories I and II: from to thousand ha

In IUCN categories III and VI: from to thousand ha

Other wooded land

In IUCN categories I and II: from to thousand ha

In IUCN categories III and VI: from to thousand ha

IUCN categories (see attached “Terms and Definitions”)

- I. Strict nature reserve/wilderness area
- II. National Park
- III. Natural monument
- IV. Habitat/species management area
- V. Protected landscape/seascape
- VI. Managed resource protection area

Comments:

TABLE 10
Forest-occurring species at risk or endangered

Purpose: To provide information on the number of forest-occurring species (plants and animals) that are rare or endangered, thereby giving an indication of the state of biological diversity in forest and other wooded land.

Country:

Reference period:

Ref.		All species in country				Forest occurring species		
		Total species	Of which: endangered	Endemic species	Of which: endangered	Total species	Endemic species	Of which: endangered
10.1	Trees (coniferous and broadleaved species)							
10.2	Other vascular plants (flowers)							
10.3	Ferns							
10.4	Mosses							
10.5	Lichens							
10.6	Mammals							
10.7	Birds							
10.8	Other vertebrates (fish, amphibians, reptiles, snakes)							
10.9	Butterflies							

Problematic introduced species: (Please note any introduced species which create problems for particular forest ecosystems, and indicate the type of problems posed, e.g. invasive alien species preventing the other tree species regenerating, or an introduced exotic deer species that out-competing indigenous species and thus causing an imbalance in the forest ecosystem).

.....

.....

.....

Endangered status categories: Please use the attached sheet to calculate how many species in your country are endangered. Include all species which would be ranked in the pre-1994 IUCN ranks "Ex/E", "E", "V", "R" and "I", or in the new ranks "EW", "CR", "EN" and "VU" (see annex to the table). The IUCN/WCMC publications "Threatened plants of the world" may be helpful, but many countries have national Red Lists which would be more appropriate.

Comments:

Definitions to Table 10**(New (post-1994) IUCN Endangerment Status Categories)****Extinct (Ex)**

A species is *Extinct* when there is no reasonable doubt that the last individual has died.

Extinct in the Wild (EW)

A species is *Extinct in the Wild* when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A species is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the species's life cycle and life form.

Critically Endangered (CR)

A species is *Critically Endangered* when it is facing an extremely high risk of extinction in the wild in the immediate future.

Endangered (EN)

A species is *Endangered* when it is not *Critically Endangered* but is facing a very high risk of extinction in the wild in the near future.

Vulnerable (VU)

A species is *Vulnerable* when it is not *Critically Endangered* or *Endangered* but is facing a high risk of extinction in the wild in the medium-term future.

Lower Risk (LR)

A species is *Lower Risk* when it has been evaluated, but does not satisfy the criteria for any of the categories *Critically Endangered*, *Endangered* or *Vulnerable*.

Data Deficient (DD)

A species is *Data Deficient* when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A species in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. *Data Deficient* is therefore not a category of threat or *Lower Risk*. Listing of species in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases, great care should be exercised in choosing between DD and threatened status. If the range of a species is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the species, threatened status may well be justified.

Not Evaluated (NE)

A species is *Not Evaluated* when it has not yet been assessed against the criteria.

For further information please write to: The Information Officer, World Conservation Monitoring Centre, 219 Huntingdon Road, Cambridge CB3 0DL, United Kingdom. Tel: + 44 1223 277 314; Fax: + 44 1223 277 136; E-mail: info@wcmc.org.uk

TABLE 11
Regeneration and extension of forest

Purpose: To provide information on the extent of regeneration and extension of forest over a recent 10-year period by natural or artificial means, in order to assess management methods and intensity and changes in genetic composition.

Country:

Ten-year period: 19..... to 19.....

Ref.		Annual average area over 10-year period	Of which: With introduced tree species
		(1000 ha)	
11.1	A. Regeneration of forest (reforestation), total		
11.2	– Natural regeneration		
11.3	– Natural regeneration enhanced by planting		
11.4	– Coppice sprouting		
11.5	– Planting or seeding		
11.6	B. Extension of forest, including afforestation and reforestation of other wooded land, total		
11.7	– Natural colonization of non-forest land to forest		
11.8	– Natural conversion of other wooded land to forest		
11.9	– Planting or seeding of non-forest land		
11.10	– Planting or seeding of other wooded land		
11.11	C. Natural colonization of non-forest land to other wooded land		

Check: Sum of (11.2+11.3+11.4+11.5) = (11.1) Regeneration of forest (reforestation), total OK

Sum of (11.7+11.8+11.9+11.10) = (11.6) Extension of forest, including afforestation and reforestation of other wooded land, total OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Regeneration of forest (reforestation), total Yes/No
Natural regeneration: Yes/No
Natural regeneration enhanced by planting: Yes/No
Coppice sprouting: Yes/No
Planting or seeding: Yes/No

If adjusted, description of adjustment process: Attached/Not attached
 Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Regeneration of forest (reforestation), total: from to thousand ha
Natural regeneration: from to thousand ha
Natural regeneration enhanced by planting: from to thousand ha
Coppice sprouting: from to thousand ha
Planting or seeding: from to thousand ha

Comments:

TABLE 12
Species diversity and origin of planting material used in the forest

Purpose: To provide information on trends in species diversity and origin of planting material used in managed forests.

Country:

Ten-year period: 19..... to 19.....

Ref.		Total, <i>of which</i>	Known local provenance	Known non-local provenance	Unknown provenance
		(ha/year)			
	Indigenous species (specify) ¹				
12.1					
12.2					
12.3					
12.4					
12.5					
12.6					
12.7					
12.8					
	(add more species, if necessary)				
	Introduced species: (specify) ¹				
12.11					
12.12					
12.13					
12.14					
12.15					
12.16					
12.17					
12.18					
12.19					
12.20					
	(add more species, if necessary)				

Note: ¹ Please provide local and scientific names.

Comments:

Section III

Wood supply and carbon sequestration functions

(Tables 13 to 17)

The volume of wood likely to be available in the short and long term on a sustainable basis has always been at the centre of concerns of forest inventory at the national and international level. The importance of this topic has not diminished in any way, even though this concern has been joined by others. This section includes detailed questions on how much wood there is (growing stock), how much and how fast it is growing (increment), when it will reach maturity (age class structure) and how much and how fast it is being harvested (fellings and removals).

For growing stock and increment, a clear distinction is made between forests “available for wood supply” and others. Taken together this information makes it possible to assess the level of sustainable wood supply. However the biological processes which determine wood supply are the same as those which “sequester” carbon: storing it in vegetation, notably wood, through the process of photosynthesis. Thus, the same information as for wood supply, converted into different units (tons of oven dry biomass), is an essential input for the work of those investigating global climate change and carbon flows.

Correspondents’ attention is drawn to the fact that the definitions of growing stock and a number of other parameters have been changed, to include all trees, with no minimum diameter size. The data should be adjusted to the agreed definitions.

TABLE 13
Age-class distribution of high forest available for wood supply

Purpose: To provide information on the distribution by age-class and species groups of high forest available for wood supply as an indication of the extent and timing of future sustainable wood supply and of the structure of the forest.

Country:

Reference period:

Ref.		High forest available for wood supply (1000 ha)				
		Predominantly coniferous	Predominantly broadleaved	Predominantly bamboos, palms, etc.	Mixed	Total
13.1	Total					
13.2	– Uneven-aged					
13.3	– Even-aged					
13.4	– Under regeneration					
13.5	– 10 years or less					
13.6	– 11 to 20 years					
13.7	– 21 to 40 years					
13.8	– 41 to 60 year					
13.9	– 61 to 80 years					
13.10	– 81 to 100 years					
13.11	– 101 to 120 years					
13.12	– 121 to 140 years					
13.13	– Over 140 years					
13.14	– Unknown age					

Check: Sum of (13.4 to 13.13) = (13.3) Even-aged OK
 (13.2) Uneven-aged + (13.3) Even-aged + (13.4) Unknown age = (13.1) Total OK

Note: The option to supply data on individual “commercial species” or species groups separately is open and would be welcomed.

Comments:

TABLE 14

Total woody biomass and the volume of growing stock

Purpose: To provide information on the mass and volume of tree and other woody biomass, thereby indicating the role played by forest resources in carbon storage; and the volume of growing stock as an indicator of the forest potential.

Country:

Reference period:

Ref.		Standing volume		Woody biomass
		Growing stock	Dead trees	
		(1000 m ³ overback)		(1000 m.t. oven-dry)
		(A)	(B)	(C)
	<i>Above-stump volume and biomass</i>			
14.1	– Trees on forest, total			
14.2	– Coniferous			
14.3	– Broadleaved			
14.4	– Other (bamboos, palms, etc.)			
14.5	– Trees on forest available for wood supply			
14.6	– Coniferous			
14.7	– Broadleaved			
14.8	– Other (bamboos, palms, etc.)			
14.9	– Trees on forest not available for wood supply			
14.10	– Other trees (on other wooded land and trees outside the forest)			
14.11	– Other woody biomass (shrubs and bushes) on forest and other wooded land			
14.12	<i>Total above-stump volume and woody biomass</i>			
	<i>Other woody biomass</i>			
14.13	Stumps and roots			

Check: Sum of (A:14.2 to A:14.4) = (A:14.1) Growing stock, Trees on forest, total OK
Sum of (A:14.6 to A:14.8) = (A:14.5) Growing stock, Trees on forest available for woods su OK
Sum of (C:14.2 to C:14.4) = (C:14.1) = Woody biomass, Trees on forest, total OK
Sum of (C:14.1+C:14.10+C:14.11) = (C:14.12) Woody biomass, Total above-stump woody biomass OK
Sum of (A:14.1+A:14.10) = (A:14.12) Growing stock, Total above-stump volume OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Growing stock of trees on forest, total: Yes/No

Growing stock of trees on forest available for wood supply: Yes/No

Woody biomass on forest and other wooded land: Yes/No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Growing stock of trees, total: from to thousand ha

Growing stock of trees on forest available for wood supply: from to thousand ha

Woody biomass, total above-stump: from to thousand ha

Comments:

TABLE 15

Increment

Purpose: To provide information on the increment, and natural losses as essential elements in the forest balance.

Country:

Reference period:

Ref.		Gross annual increment	Natural losses	Net annual increment
		(1000 m ³ o.b.)		
		(A)	(B)	(C)
15.1	On forest, total			
15.2	– Coniferous			
15.3	– Broadleaved			
15.4	– Other			
15.5	– On forest available for wood supply			
15.6	– Coniferous			
15.7	– Broadleaved			
15.8	– Other			
15.9	– On forest not available for wood supply			
54.10	On other wooded land			
15.11	On trees outside the forest			
15.12	TOTAL INCREMENT			

- Check:**
- (B) Natural losses + (C) Net annual increment = (A) Gross annual increment OK
 - Sum of (A:15.2+A:15.3+A:15.4) = (A:15.1) GAI on forest, total OK
 - Sum of (B:15.2+B:15.3+B:15.4) = (B:15.1) Natural losses on forest, total OK
 - Sum of (C:15.2+C:15.3+C:15.4) = C:15.1) NAI on forest, total OK
 - Sum of (A:15.5+A:15.9+A:15.10+A:15.11) = (A:15.12) Total gross annual increment OK
 - Sum of (C:15.5+C:15.9+C:15.10+C:15.11) = (C:15.12) Total net annual increment OK
 - Sum of (A:15.5+A:15.9) = (A:15.1) GAI on forest, total OK
 - Sum of (C:15.5+C:15.9) = (C:15.1) NAI on forest, total OK
 - Sum of (A:15.6+A:15.7+A:15.8) = (A:15.5) GAI on forest available for wood supply OK
 - Sum of (B:15.6+B:15.7+B:15.8) = B:15.5) Natural losses on forest available for wood supply OK
 - Sum of (C:15.6+C:15.7+C:15.8) = (C:15.5) NAI on forest available for wood supply OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Net annual increment on forest available for wood supply: Yes/No

Natural losses on forest available for wood supply: Yes/No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Net annual increment on forest available for wood supply: from to thousand ha

Natural losses on forest available for wood supply: from to thousand ha

Comments:

TABLE 16
Fellings and removals

Purpose: To provide information on the volume of wood being cut and harvested annually as essential elements in the forest balance.

Country:

Reference period:

Ref.		Annual fellings		Annual removals		
		Total	Of which: Fellings of natural losses*	Overback	Underback	
		(Million m ³ o.b.)			(Million m ³ u.b.)	
		(A)	(B)	(C)	(D)	
16.1	On forest, total					
16.2	– Coniferous					
16.3	– Broadleaved					
16.4	– Other					
16.5	– On forest available for wood supply					
16.6	– Coniferous					
16.7	– For commercial use					
16.8	– Other					
16.9	– Broadleaved					
16.10	– For commercial use					
16.11	– Other					
16.12	– Other					
16.13	– For commercial use					
16.14	– Other					
16.15	– On forest available for wood supply					
16.16	On other wooded land					
16.17	On trees outside forest					
16.18	Total fellings and removals					

Note: * e.g., trees damaged by insects, pollution, fires, storms, avalanches

Check: Sum of (A:16.2+A:16.3+A:16.4) = (A:16.1) Forest, total, Annual fellings OK
Sum of (D:16.2+D:16.3+D:16.4) = (D:16.1) Forest, total, Annual removals, underbark OK
Sum of (A:16.5+A:16.15+A:16.16+A:16.17) = (A:16.18) Total, Annual fellings OK
Sum of (D:16.5+D:16.15+D:16.16+D:16.17) = (D:16.18) Total Annual removals, underbark OK

Data source and quality

Source:

Adjustment: Were source data for the following parameters adjusted to bring them into conformity with TBFRA-2000 definitions?

Annual fellings: Yes/No

Annual removals: Yes/No

If adjusted, description of adjustment process: Attached/Not attached

Specifications of known deviations from TBFRA-2000 definitions: Attached/Not attached

Likely range: Taking account of errors due to measurement, sampling, and adjustment, please indicate the range within which the true value is likely to be, for the following parameters:

Annual fellings, total: from to thousand ha

Annual removals, total: from to thousand ha

Comments:

TABLE 17
 Change in growing stock on forest available for wood supply

Purpose: To provide information on changes in growing stock, which give important indications of the extent to which the wood potential is being used.

Country:

Reference period: "1"

Reference period: "2"

Ref.		Reference period "1"	Reference period "2"	Average annual change
		(1000 m ³ over bark)		(1000 m ³ o.b./year)
17.1	Growing stock on "Forest", total			
17.2	<i>of which:</i>			
	Growing stock on "Forest available for wood supply"			
17.3	<i>of which:</i>			
	– Coniferous			
15.4	– Broadleaved			
15.5	– Other (bamboos, etc.)			

Check: Sum of (17.3+17.4+17.5) = (17.2) Reference period "1" OK
 Sum of (17.3+17.4+17.5) = (17.2) Reference period "2" OK
 Sum of (17.3+17.4+17.5) = (17.2) Average annual change OK

Note: The reference periods should correspond to those in tables 7 and 14

Comments:

Section IV

Forest Condition

(Tables 18 to 20)

Considerable concern has been expressed, especially since the 1980s, about damage to the temperate and boreal forest, from a wide variety of causes, including airborne pollution, fire and game damage. Although international data have been available for some time on forest fires and forest condition (defoliation), in the past this has not been included in the ECE/FAO assessments. It has been decided that, in the interests of presenting a complete picture of the forest resource, information on forest condition, notably fires and defoliation, should also be included in TBFRA-2000. The opportunity has been taken to collect data on a wider range of forest damage, to assess the whole range of damaging agents and their relative importance.

In this field, the agencies responsible for TBFRA-2000 are working closely with those who have been responsible for collecting these data in other fora. In particular, to the extent possible, common definitions and concepts are used, and in one case, data will be collected directly from the international organisation responsible, the Intergovernmental Co-operative Programme on Forests under the Convention on Long-range Transboundary Air Pollution.

TABLE 18
Damage to forest and other wooded land

Purpose: To assess the condition of the forest and other wooded land, and the extent to which the forest is under threat, to provide information on damage to the forest from different causes.

Country:

Ref.		Most recent 5-year period (19..... to 19.....)	Year in most recent 10-year period in which the heaviest damage occurred	
		Annual average (100 ha)	Year	Extent of damage (1000 ha)
18.1	Total area of forest and other wooded land with damage by known causes			
18.2	– Primarily damaged by insects and disease			
18.3	– Primarily damaged by wildlife and grazing			
18.4	– Primarily damaged by fire			
18.5	– Primarily damaged from known local pollution sources			
18.6	– Primarily damaged by storm, wind, snow or other identifiable abiotic factors			
18.7	Total area of forest and other wooded land with damage from unidentified causes			

Check: Sum of (18.2 + 18.3 + 18.4+18.5 + 18.6) = (18.1)
 Total area of forest and other wooded land with damage attributable to known causes.

OK

Note: Where there have been major individual episode (e.g. a large wind blow, snow storm, etc.). Please provide information on date, extent, etc.

Other comments:.....

TABLE 19
Forest fire

Purpose: To provide information about the extent of fire damage and the average fire size, as well as about trends over time.

Country:

Ref.	Year	Total number of fires on forest and other wooded land	Area burned		
			Total	Area of forest burned	Area of other wooded land burned
			(1000 ha)		
19.1	1986				
19.2	1987				
19.3	1988				
19.4	1989				
19.5	1990				
19.6	1991				
19.7	1992				
19.8	1993				
19.9	1994				
19.10	1995				
19.11	1996				
19.12	1997				

Note: This table need be completed only by those countries which do not report annual data on fires in the UN ECE/FAO/Commission of European Communities questionnaire on forest fires (see Timber Bulletin, vol. ECE/TIM/BULL/48/4, (1995), Vol. XLVIII.

Other comments:.....

TABLE 20
Forest condition

Purpose: To provide information on defoliation as an indicator of the extent of tree damage from one or a combination of causes, including air pollution.

Country:

Ref.	Defoliation classes:	All species		Coniferous		Broadleaved	
		0 and 1	2, 3 and 4s	0 and 1	2, 3 and 4	0 and 1	2, 3 and 4
		(Percentage of sample trees)					
		(A)	(B)	(C)	(D)	(E)	(F)
20.1	1986						
20.2	1987						
20.3	1988						
20.4	1989						
20.5	1990						
20.6	1991						
20.7	1992						
20.8	1993						
20.9	1994						
20.10	1995						
20.11	1996						
20.12	1997						

Check: A + B = 100
C + D = 100
E + F = 100

Countries not able to provide information on forest condition in this form, i.e. countries not participating in the annual ICP surveys, are invited to describe the situation, provide relevant documentation and contact the secretariat.

Other comments:.....

Defoliation classes (UN/ECE and EU classification)

Class	Needle/leaf loss	Degree of defoliation
0	Up to 10 per cent	none
1	> 10-25 per cent	slight (warning stage)
2	> 25-60 per cent	moderate
3	> 60 per cent < 100 per cent	severe
4	100 per cent	dead

Section V

Protective and socio-economic functions

(Tables 21 to 25)

This section of the enquiry covers functions and benefits of the forest and other wooded land, which are widely recognized as extremely important and for which it is difficult to obtain reliable and internationally comparable data. These include soil protection, provision of non-wood goods and services, use by indigenous and tribal peoples, and access to forest, e.g. recreation.

The information to be provided by national correspondents in this section is to a great extent of a descriptive nature (*Enquiry Tables 22, 23 and 24*) and may well come from sources outside traditional forest inventory agencies. Some quantitative data are requested on changes in areas of forest and other wooded land managed primarily for soil protection (*Enquiry Table 21*), as well as on quantity and value of the main goods (wood and non-wood products), which have been collected or harvested (*Enquiry Table 25*).

The information to be provided in this section will probably be based on judgements of national correspondents, or even their estimates instead of hard figures. Still, it is considered useful to provide the best possible data on the importance and role of the forest in this area, provided sources and methods of estimation are clearly described.

TABLE 21

Protection

Purpose: To provide information on the situation and trends in management of forest and other wooded land for soil protection.

Country:

Previous reference period:

Latest reference period:

Ref.		Previous reference period	Latest reference period	Change
		(1000 ha)		
21.1	Area where forests and other wooded land are managed primarily for soil protection			
21.2	– Forest			
21.3	– Other wooded land			

Check: (21.2) Forest + (21.3) Other wooded land = (21.1) Area where FOWL are managed primarily for soil protection

Previous reference period OK

Latest reference priod OK

Change OK

Other comments:

TABLE 22
Indigenous and tribals peoples

Purpose: In addition to ownership by indigenous or tribal peoples (table 5), it is useful to have information about the area of forest and other wooded land used by these peoples and the way they use it.

Country:

Reference period:

22.1 It is understood that not all responding countries have indigenous or tribal peoples. For those that do, please give an actual figure or estimate of the population number meeting the definition used in this enquiry:

22.2 Please give an estimate of the area of forest and other wooded land used by indigenous or tribal peoples for the collection and harvesting of wood and non-wood goods and the provision of services:

22.3 If the area used is either more or less than the combined figures in table 5 for forest owned by indigenous or tribal peoples, please give an explanation for the difference: ,000 ha

22.4 What are the main uses of forest and other wooded land by indigenous or tribal peoples? If actual figures or estimates of the quantities or values involved, please provide them:

Other comments:.....

TABLE 23

Access to, and use of, forest and other wooded land by public

Purpose: With increasing demand for non-wood goods and services, including recreation, it is important to know how much of the forest and other wooded land is legally accessible to the public for these purposes, and the trends in access and uses.

Country:

Reference period:

1. Please give an estimate of the area of forest and other wooded land to which the general public is legally NOT allowed access

23.1	– Publicly owned forest and other wooded land,000 ha
23.2	– Forest and other wooded land owned by indigenous or tribal peoples,000 ha
23.3	– Privately owned forest and other wooded land,000 ha

2. Has there been a long-term change in the area to which the public has legally had access:

23.4	– Yes*/No* If “YES”, what has been the trend in the area to which the public is legally allowed access:	
23.5	– Publicly owned forest and other wooded land	INCREASING*/STABLE*/DECREASING*
23.6	– Forest and other wooded land owned by indigenous or tribal peoples	INCREASING*/STABLE*/DECREASING*
23.7	– Privately owned forest and other wooded land	INCREASING*/STABLE*/DECREASING*

** Delete whichever are not applicable*

.....

3. What are the reasons for not allowing public access, and for the long-term change (if any) in the situation?:

.....

4. For a recent year or period, please describe pattern of visitor use of different ownership categories of forest and provide any quantitative data you may have, e.g. give actual figures or estimates of areas of forests with high visitor intensity or the number of visitors/days by the public to forest and other wooded land (year/period:):

– State owned	
– Other publicly-owned	
– Owned by indigenous or tribal peoples	
– Owned by individuals	
– Owned by forest industries	
– Owned by other private institutions	

5. Please describe if appropriate, regimes of access to forest for non-wood goods (e.g. mushroom gathering/services/recreation/hunting) when they differ from the general access regime.

.....

TABLE 24

Goods (wood and non-wood) and selected services provided by forest and other wooded land

Purpose: To provide qualitative and, where available, quantitative information on the importance of the role of forest and other wooded land in providing wood and non-wood goods and certain social, cultural and environment services

Country:

Reference period:

Please provide on separate pages **short description** (not more than 10 lines) of the most important types of goods and services provided by forest and other wooded land, whether demand for them is increasing, stable or decreasing; likewise their supply potential; and so on, under each of the following heading:

Goods (products)

- 24.1 Wood
- 24.2 Products for human consumption: food, beverages, medicinal plants and extracts (e.g. fruits, berries, nuts, honey, game meats, mushrooms, tec.)
- 24.3 Fodder and forage (grazing, range)
- 24.4 Other non-wood goods (products) (e.g. cork, resin, tannins, industrial extracts, wool and skins, hunting trophies, Christmas trees, decorative foliage, mosses and ferns, essential and cosmetic oils, etc.)

Services

- 24.5 Protection (against soil erosion by air or water, avalanches, mud and rock slides, flooding, air pollution, noise, etc.)
- 24.6 Social and economic values (e.g. hunting and fishing, other leisure activities, including recreation, sport and tourism)
- 24.7 Aesthetic, cultural, historical, spiritual and scientific values (including landscape and amenity)

Other comments:.....

TABLE 25

Quantity and values of goods (wood and non-wood products) collected or harvested from forest and other wooded land

Purpose: To provide quantitative information on the importance of the role of forest and other wooded land in providing wood and non-wood goods.

Country:

Reference period:

Please provide on separate page(s) factual information or estimates on the quantity and/or value of the main goods (products) collected or harvested from forest and other wooded land in a recent year (or annual average of a period of years). The focus of this table is on non-wood products, but information is also requested on the value of wood produced in order to estimate the relative importance of the different products.

Ref.	Goods (products)	Official data (OD) or estimate (EST) mark OD or EST	Quantity harvested/collected		Value
			Unit:	Total	(Please provide data to the extent possible)
					National currency (.....)
25.1	Wood				
25.2					
25.3					
25.4					
25.5					
25.6					
25.7					
25.8					
25.9					
	(add more goods, if necessary)				

Note: Please provide consistency in the list of major goods (products) with table 24.

Remarks: Please indicate for each product what the nature of the value estimate is: market price, or measured at roadside or at retail price, income to forest owners, etc., and how this information was obtained.

Other comments:

