

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

**Pakistan**

Rome, 2014

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Global Forest Resources Assessment (FRA). This country report is prepared as a contribution to the FAO publication, the Global Forest Resources Assessment 2015 (FRA 2015).

The content and the structure are in accordance with the recommendations and guidelines given by FAO in the document Guide for country reporting for FRA 2015 (<http://www.fao.org/3/a-au190e.pdf>). These reports were submitted to FAO as official government documents.

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## Report preparation and contact persons

### Contact persons

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N/A	N/A	N/A	N/A

### Introductory Text

Place an introductory text on the content of this report

No report has been received from the country. This report is the result of a desk study prepared by the FRA secretariat in Rome, which is based on the existing available information using the established format for FRA 2015/CFRQ format

### Desk Study?

Check "yes" if this survey is a Desk Study, "no" otherwise	
Desk Study?	yes

## 1. What is the area of forest and other wooded land and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 1.1 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as "Forest" spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of 5-10 percent or trees able to reach these thresholds ; or with a combined cover of shrubs bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as "Forest" or "Other wooded land".
...of which with tree cover ( <i>sub-category</i> )	Land considered as "Other land", that is predominantly agricultural or urban lands use and has patches of tree cover that span more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity. It includes bothe forest and non-forest tree species.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.
Forest expansion	Expansion of forest on land that, until then, was not defined as forest.
...of which afforestation ( <i>sub-category</i> )	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not defined as forest.
...of which natural expansion of forest ( <i>sub-category</i> )	Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).
Deforestation	The conversion of forest to other land use or the longterm reduction of the tree canopy cover below the minimum 10 percent threshold.
...of which human induced ( <i>sub-category</i> )	Human induced conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold.
Reforestation	Natural regeneration or re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.
...of which artificial reforestation ( <i>sub-category</i> )	Re-establishment of forest through planting and/or deliberate seeding on land already in forest land use.

### 1.2 National data

#### 1.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	GOP. 1992. Forestry Sector Master Plan 1992. Reid, Collins and Associates, Canada, and Silviconsult Ltd. Sweden.	Area	1990	N/A

2	GOP. 2004. National Forest and Rangeland Resource Assessment Pakistan Forest Institute, Peshawar. 2004.	Area	1990, 2000	N/A
3	FAO 2009. PAKISTAN FORESTRY OUTLOOK STUDY. Working Paper No. APFSOS II/WP/2009/28	N/A	2009	N/A
4	N/A	N/A	N/A	N/A

### 1.2.2 Classification and definitions

National class	Definition
Coniferous Forests	These forests mostly grow in the north and north west hilly regions of Pakistan between an elevation of 1000m and 3500m.
Sub-Alpine	Betula utilis (Birch, Bhuj), Abies pindrow (Fir, Paludar)
Himalayan Moist Temperate	Abies pindrow (Fir, Paludar), Picea smithiana (Spruce, Kachal), Cedrus deodara (Deodar), Pinus wallichiana (Kail, Biar), Taxus baccata (Yew), Aesculus indica (Bankhor), Juglans regia (Akhrot, Khor), Populus ciliata (Palach), Quercus dilatita (Oak), Acer caesium (Tarkan), Prunus padus (Kalakath).
Dry Temperate	Pinus wallichiana(Kail, Biar), Cedrus deodara (Deodar), Juniperus excelsa (Shur, Shupa), Pinus gerardiana (Chilgoza), Quercus ilex (Bani, Breh).
Sub-Tropical Pine	Pinus roxburghii (Chir, Chil), Quercus incana (Rin, Ring), Rhododendron arboreum (Chahan, Bras).
Scrub Forests	These forests grew upto 1000m in elevation in the north and north western regions of Pakistan. Main Species are following Acacia modesta(Phulai), Olea ferruginea (Kau), Acacia nilotica (Kikar, Babul).
Tropical Thorn	Acacia nilotica (Kikar, Babul), Acacia modesta (Phulai), Prosopis cineraria (Jand, Kandi), Salvadora oleoides cineraria (Wan, Pilu), Zizyphus mauritiana (Ber), Tamarix aphylla (Farash, Ghaz), Tecoma undulata (Lahura), Nannorrhops ritchieana (Mazri)
Riverain Forests	Acacia nilotica (Kikar, Babul), Dalbergia sissoo (Shisham, Tali), Prosopis cineraria (Jand, Kandi) Tamarix dioica (Lei, Dilchhi), Populus euphratica (Bahn).
Mangrove Forests	Avicennia marina (Timur), Ceriops tagal (Chowree or Kirree).
Irrigated Plantations	Dalbergia sissoo(Shisham, tali), Morus alba (Toot), Salmalia malabarica (Simal), Populus deltoides (Sofeda, Poplar), Eucalyptus camaldulensis (Lachi, Safeda), Acacia nilotica (Kikar, Babul).
Linear Plantations Along Canals, Roads And Railway Lines.	Same as above and some ornamental species such as Bauhinia variegata (Kachanar), Jacaranda mimosefolia (Nila Gul Mohr, Jacaranda), Cassia fistula (Amaltas), etc.

## 1.2.3 Original data

**Forest area****A. For 1990**

Landuse (000 ha) in Forest Sector Master Plan, 1992

<b>Country classification</b>	<b>Area (000 ha)</b>
Conifer –Dense	138
Conifer –Sparse	1775
Scrub	1191
Riverain – Dense	115
Riverain – Medium	58
Mangrove – Medium	87
Mangrove – Sparse	120
Irrigated Plantation	103
Other Plantation (Linear Plantation 16 + Misc.155+Farm trees 466)	637
Rangelands	28507
Agriculture	20580
Other land (Barren 26893+ Urban 138 + Unclassified 6725)	33756
Water Bodies	913
<b>Total land area (000 ha)</b>	<b>87980</b>

(Source: GOP, 1992)

**B. For 2000**

<b>Country classification</b>	<b>1990</b>	<b>1996</b>	<b>2000</b>
Conifer	1913	1479	1512
Riverain	173	144	150
Mangrove	207	159	158
Plantation	103	165	174
Scrub	1191	1652	1323
<b>Grand Total</b>	<b>3587</b>	<b>3599</b>	<b>3317</b>

(Source: GOP, 2004)

### C. Updated Figures on Plantations

<b>Year</b>	<b>Plantation area in ‘000 ha</b>			<b>Total</b>
	<b>Irrigated</b>	<b>FarmLand</b>	<b>Linear Plantation</b>	
1992	234	466	16	716
2000	296	663	21	980
2004	318	781	17	1116

(Source: Email communication NC)

## 1.3 Analysis and processing of national data

### 1.3.1 Adjustment

#### Forest area

##### (i) Classification of Forest Areas



**A. For 1990**

<b>Category</b>	<b>Allocation to a FRA Class</b>
Coniferous	Forest
Riverine	Forest
Coastal	Forest
Irrigated plantations	Forest but this figure is not used
Scrub	Other Wooded land
Mazri lands	Other land
Linear plantations	Other land
Other Plantations (Linear, Private, Farm trees, Misc. Plantings)	Other land
Rangelands	Other land
Agriculture	Other land
Other land (Barren + Urban + Unclassified)	Other land
Water Bodies	Inland Water bodies

**B. For 2000**

<b>Category</b>	<b>Allocation to a FR A Class</b>
Conifers	Forest
Riverain	Forest
Mangrove	Forest
Plantation	Forest but this figure is not used

Scrub	Other Wooded Land
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### C. Plantations

The updated figures on plantation have been used. The “irrigated plantations” have been treated as forest plantations and classified as forests. Their figures for 1992 are being assumed for 1990 and that for 2004 for 2005. There is no information available regarding minimum area and width etc. of farm plantations and the linear plantations to qualify them as “other land with tree cover”, therefore these plantation areas are being added to “other land”.

#### (ii) Area Calibrations

The country area figure (79610000) and inland water area figure (2522000 ha) of Pakistan maintained by U.N Statistical Division at New York do not match with the area figures reported above. Therefore, there is a need to calibrate the area. This has been achieved by adjusting all the differences in area of the other land as shown in the table below.

Category of landuse	Area in 000 ha	
	1990	2000
Forests (Excl. Plantation)	2293	1820
Irrigated Plantation ( Forests)	234	296
Other Wooded Land	1191	1323
..of which Other land with trees		
Other land	73370	73649
Inland water bodies	2522	2522

<b>Total Country Area</b>	<b>79610</b>	<b>79610</b>
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### 1.3.2 Estimation and forecasting

### 1.3.3 Reclassification

Reclassification has been done prior to estimation and forecasting.

## 1.4 Data

Table 1a

Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
CFRG	Forest	2527	2116	1902	1687	1472
CFRG	Other wooded land	1191	1323	1389	1455	1521
CFRG	Other land	73370	73649	73797	73946	74095
CFRG	... of which with tree cover	N/A	N/A	N/A	N/A	N/A
CFRG	Inland water bodies	2522	2522	2522	2522	2522
	<b>TOTAL</b>	<b>79610.00</b>	<b>79610.00</b>	<b>79610.00</b>	<b>79610.00</b>	<b>79610.00</b>

Table 1b

Categories		Annual forest establishment / loss (000 hectares per year)				...of which of introduced species (000 hectares per year)			
		1990	2000	2005	2010	1990	2000	2005	2010
CFRG	Forest expansion	0	0	0	0	0	0	0	0
CFRG	... of which afforestation	0	0	0	0	0	0	0	0
CFRG	... of which natural expansion of forest	0	0	0	0	0	0	0	0
CFRG	Deforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRG	... of which human induced	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CFRG	Reforestation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	... of which artificial	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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## Tiers

Category	Tier for status	Tier for reported trend
Forest	Tier 1	Tier 1
Other wooded land	Tier 1	Tier 1
Forest expansion	Tier 1	Tier 1
Deforestation	N/A	N/A
Reforestation	N/A	N/A

## Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> <li>• Forest</li> <li>• Other wooded land</li> <li>• Afforestation</li> <li>• Reforestation</li> <li>• Natural expansion of forest</li> <li>• Deforestation</li> </ul>	<p><b>Tier 3</b> : Data sources: Either recent (less than 10 years ago) National Forest Inventory or remote sensing, with ground truthing, or programme for repeated compatible NFIs <b>Tier 2</b> : Data sources: Full cover mapping / remote sensing or old NFI (more than 10 years ago) <b>Tier 1</b> : Other</p>	<p><b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other</p>

## 1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	N/A	According to Landsat-based assessment of forest cover change, the annual rate of deforestation in natural forests was estimated at 27,000 ha, which is regarded as the official figure. However, other organizations report different figures as they use widely different definitions of forests and methodologies for monitoring of forests. FAO 2009. PAKISTAN FORESTRY OUTLOOK STUDY
Other wooded land	N/A	N/A
Other land	N/A	N/A
Other land with tree cover	There is no information available regarding minimum area and width etc. of farm plantations and the linear plantations to qualify them as "other land with tree cover", therefore these plantation areas are being added to "other land".	N/A
Inland water bodies	N/A	N/A

Forest expansion	N/A	N/A
Deforestation	N/A	N/A
Reforestation	N/A	N/A

**Other general comments to the table**

The names of tree species in parenthesis are local/English. - There are some positive indications of farmers' interest in tree plantings. The Government of Pakistan is trying its best to reduce the current deforestation rate through community participation, allocating more funds for forestry projects in the country, offering more incentives to the tree growers to raise plantations under agro-forestry and social forestry programmes and finding suitable tree species for waterlogged, saline and arid lands.

## 2. What is the area of natural and planted forest and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 2.1 Categories and definitions

Term	Definition
Naturally regenerated forest	Forest predominantly composed of trees established through natural regeneration.
Naturalized introduced species	Other naturally regenerated forest where the tree species are predominantly non-native and do not need human help to reproduce/maintain populations over time.
Introduced species	A species, subspecies or lower taxon occurring <b>outside</b> its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
Category	Definition
Primary forest	Naturally regenerated forest of native species where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Other naturally regenerated forest	Naturally regenerated forest where there are clearly visible indications of human activities.
...of which of introduced species ( <i>sub-category</i> )	Other naturally regenerated forest where the trees are predominantly of introduced species.
...of which naturalized ( <i>sub-sub category</i> )	Other naturally regenerated forest where the trees are predominantly of naturalized introduced species.
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding.
...of which of introduced species ( <i>sub-category</i> )	Planted forest where the planted/seeded trees are predominantly of introduced species.
Mangroves	Area of forest and other wooded land with mangrove vegetation.
...of which planted ( <i>sub-category</i> )	Mangroves predominantly composed of trees established through planting.

### 2.2 National data

#### 2.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	GOP. 1992. Forestry Sector Master Plan 1992. Reid, Collins and Associates, Canada, and Silviconsult Ltd. Sweden.	Area	1990	N/A

2	IUCN. 1998. Changing Perspectives on forest policy. Editor: James Mayers. Authors Javed Ahmed and Fawad Mahmood. IUCN in Collaboration with Government of Pakistan. 1998.	Area	1990	N/A
3	FAO. 2007. Mangroves of Asia, working paper 137	Mangroves	N/A	Secondary source
4	An assessment of status and distribution of mangrove forest cover in Pakistan Sawaid Abbas, Faisal Mueen Qamer, Ghaffar Ali, Nitin Kumar Tripathi, Khurram Shehzad, Rashid Saleem, Hammad Gilani Journal of Biodiversity and Environmental Sciences 01/2013; 3:2222-3045.	Mangrove area based on 2009 ALOS data	2013	N/A

### 2.2.2 Classification and definitions

National class	Definition
N/A	There are national classification and definitions relating to this Question
N/A	N/A
N/A	N/A
N/A	N/A

### 2.2.3 Original data

No data is available about the characteristics of forests and other wooded lands. All the information incorporated in this Question has been derived from other Questions mainly Question 1 and 4-5-6 with following assumptions.

(a) There are no primary forests.

(b) Most of the forests are disturbed. These forests are under great pressure because of human activities, population pressure and increasing demand for fuelwood and timber. Unfortunately, in the past enough efforts were not made to raise the productive or protective plantations in those areas, which were earlier over harvested or cleared. All forests, excluding irrigated plantations have been classified as “other naturally regenerated forest”.

(c) All irrigated plantations are for productive purposes. (See 1.3.2).

Data for mangroves come from the FAO study on Mangroves which reports the followings:

Mangroves area ha	1997	2001
Area ha	159 000	158 000

Original source 1997: **Pakistan Forest Institute**. 2004 *National Forest and Rangeland Resource Assessment Study. Final Report*. Peshawar, Pakistan.

Original source 2001: **Pakistan Forest Institute**. 2004 *National Forest and Rangeland Resource Assessment Study. Final*.

For mangroves linear interpolation for 1990 and linear extrapolation for 2000 and 2005 has been used. For 2010 and 2015 due to lack of updated figures same figure as 2005 has been used.

FAO 2009. “ **Mangrove forests:** The linear models predicted that the total area of mangrove forests in Sindh and Balochistan will decline from 158,000 ha (2001) to 52,000 ha by 2020 at the rate of 4,900 ha per annum with complete deforestation by 2030, which is unlikely in the wake of ongoing efforts of governments and NGOs to protect and rehabilitate mangrove forests. According to smoothing trend analysis, Pakistan will be able to retain at least 100,000 ha of mangrove forests by 2020 despite high rates of deforestation during the last decade.”

## 2.3 Analysis and processing of national data

### 2.3.1 Adjustment



## 2.3.2 Estimation and forecasting

## 2.3.3 Reclassification

## 2.4 Data

Table 2a







Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	0	0	0	0	0
	Other naturally regenerated forest	2293	1820	1584	1347	1110
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
	... of which naturalized	N/A	N/A	N/A	N/A	N/A
	Planted forest	234	296	318	340	362
	... of which of introduced species	N/A	N/A	N/A	N/A	N/A
TOTAL		2527.00	2116.00	1902.00	1687.00	1472.00

Table 2b

Primary forest converted to (000 ha)								
1990-2000			2000-2010			2010-2015		
Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land	Other natural regeneration	Planted	Other land
0	0	0	0	0	0	0	0	0

Table 2c

Categories	Area (000 hectares)				
	1990	2000	2005	2010	2015
Mangroves (forest and OWL)	207	158	128	98	95
... of which planted	N/A	N/A	N/A	N/A	N/A

Tiers

Category	Tier for status	Tier for reported trend
Primary forest	Tier 1	Tier 1
Other naturally regenerated forest	Tier 1	Tier 1
Planted forest	Tier 1	Tier 1
Mangroves	Tier 1	Tier 1

### Tier Criteria

Category	Tier for status	Tier for reported trend
Primary forest/Other naturally regenerated forest/Planted forest	<p><b>Tier 3</b> : Data sources: Recent (less than 10 years) National Forest Inventory or remote sensing with ground truthing or data provided by official agencies or programme for repeated compatible NFIs</p> <p><b>Tier 2</b> : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years) <b>Tier 1</b> : Other</p>	<p><b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other</p>

### 2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend
Primary forest	N/A	N/A
Other naturally regenerating forest	N/A	N/A
Planted forest	N/A	N/A
Mangroves	Value for 2010 is taken from 2013 paper cited above. 2005 is interpolated value only. 2015 is solely expert opinion.	N/A

#### Other general comments to the table

N/A

### 3. What are the stocks and growth rates of the forests and how have they changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

#### 3.1 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.
Net Annual Increment (NAI)	Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock".
Above-ground biomass	All living biomass above the soil including stem stump branches bark seeds and foliage.
Below-ground biomass	All biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood	All non-living woody biomass not contained in the litter either standing lying on the ground or in the soil. Dead wood includes wood lying on the surface dead roots and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in above-ground biomass	Carbon in all living biomass above the soil including stem stump branches bark seeds and foliage.
Carbon in below-ground biomass	Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm ) lying dead in various states of decomposition above the mineral or organic soil.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a soil depth of 30 cm.

#### 3.2 National data

##### 3.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	FSMP. 1992. Forestry Sector Master Plan 1992. Reid, Collins and Associates, Canada, and Silviconsult Ltd. Sweden.	Growing Stock	1990	N/A
2	GOP. 1999. Biodiversity Action Plan. Government of Pakistan. Prepared with support from IUCN/WWF and financed by World Bank/GEF. August 1999	Growing Stock rate of decline	1992	N/A

3	HESS. 1992. House Hold Energy Strategy Survey 1990 to 1992. Pakistan	Growing Stock	1990	N/A
4	FSMP. 1992. Forestry Sector Master Plan 1992. Reid, Collins and Associates, Canada, and Silviconsult Ltd. Sweden.	Biomass	1990	N/A
5	GPG. 2003. Good Practice Guidance for Land Use, Land use Change and Forestry. IPCC.	Biomass	1990 and onwards	N/A
6	FRA 2010 Guidelines	N/A	N/A	N/A
7	FAO. 2008. Guidelines for Country Reporting to FRA 2005. Global Forest Resources Assessment 2010	N/A	N/A	Carbon conversion factor of 0.47

### 3.2.2 Classification and definitions

National class	Definition
Growing Stock	Volume over bark of all living trees more than 4 cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of 1 cm, and may also include branches to a minimum diameter of 5 cm.
N/A	N/A
N/A	N/A
N/A	N/A

### 3.2.3 Original data

<p><b>Biomass stock</b></p> <p>The growing stock figures have been used.</p> <p><b>Carbon stock</b></p> <p>No original data on carbon were available, so the carbon conversion factor of 0.47 recommended in the FRA guidelines has been applied to the biomass data.</p> <p>Further the default factor of 2.1 tonnes/ha of carbon in forest litter has also been assumed for this table.</p> <p><b>Growing stock</b></p>
---

A complete national inventory of forest growing stock is not available. The working plans of forest department cover approximately 50 % of coniferous forests and contain estimates of volume, but many of these are based on outdated inventories. The FSMP (1992) compiled data of 29 working plans in NWFP, 3 in Punjab and 4 in AJK, and 3 working schemes in Northern Areas to provide following estimates of the growing stock in coniferous forests.

### 3.3 Analysis and processing of national data

#### 3.3.1 Adjustment

### 3.3

#### Growing stock

A complete national inventory of forest growing stock is not available. The working plans of forest department cover approximately 50 % of coniferous forests and contain estimates of volume, but many of these are based on outdated inventories. The FSMP (1992) compiled data of 29 working plans in NWFP, 3 in Punjab and 4 in AJK, and 3 working schemes in Northern Areas to provide following estimates of the growing stock in coniferous forests.

Province	Coniferous forests		Weighted GS per ha (m <sup>3</sup> /ha)
	Area (000ha)	GS per ha (m <sup>3</sup> /ha)	
AJK	241	169	
Northern Areas	660	90	
NWFP	940	132	
Punjab	30	246	
Balochistan	42	n.a.	
<b>Total</b>	<b>1913</b>		<b>123.78</b>

The FSMP (1992) considered the estimates of growing stock of HESS (1992) for non-coniferous and non-farm areas and concluded that a national average of 39 m<sup>3</sup>/ha for broad leaved (non-coniferous areas) were reasonable.

The GOP (1999) highlights the FSMP (1992) estimate of annual rate (4%) of decline in growing stock in its National Biodiversity Action Plan (1999).

A complete national inventory of forest growing stock is not available. The FSMP compiled data for 1.3 million ha area of 29 working plans in NWFP, 3 in Punjab and 4 in AJK, and 3 working schemes in Northern Areas and estimated following species-wise composition of the growing stock of coniferous forests. These percentages are not for individual trees of these species, but for forest types dominated by one or two species.

Forest Types	Percent of Growing stock
Spruce/Fir ( <i>Picea smithiana</i> and <i>Abies pindrow</i> )	39
Kail ( <i>Pinus wallichiana</i> )	23
Deodar ( <i>Cedrus deodara</i> )	18
Fir ( <i>Abies pindrow</i> )	8
Spruce ( <i>Picea smithiana</i> )	6
Chir ( <i>Pinus roxburghii</i> )	4
Broad leaved	1
Scrub	1

Similar information on species composition for non-coniferous forests is not available.

Variable	Unit	1990	2000	2005	2010	2015
Area of coniferous forests	“000” ha	1913	1512	1312	1111	910
Growing Stock per ha	m <sup>3</sup> /ha	123.78	123.78	123.78	123.78	123.78

<b>Growing Stock in Coniferous forests</b>	<b>million m3</b>	<b>237</b>	<b>187</b>	<b>162</b>	<b>138</b>	<b>113</b>
Area of non-coniferous forests	“000” ha	614	604	590	576	562
Growing Stock per ha	m3/ha	39	39	39	39	39
<b>Growing Stock in non-coniferous forests</b>	<b>million m3</b>	<b>24</b>	<b>24</b>	<b>23</b>	<b>22</b>	<b>22</b>
<b>Total Growing Stock in forests</b>	<b>million m3</b>	<b>261</b>	<b>211</b>	<b>185</b>	<b>160</b>	<b>135</b>

The 39 percent of coniferous forest is dominated by a mixture of Spruce and Fir trees. In addition, about 8 percent of coniferous forest is dominated by Fir and about 6 percent by Spruce. Therefore to estimate total relative dominance of Fir and Spruce in coniferous forests the 39 percent figure is broken down as 22 percent under Fir and 17 percent under Spruce following the ratio of 8:6. This leads to a total of 30 percent for Fir and 23 percent for Spruce. Due to lack of information, it is not possible to provide species-wise breakdown of non-coniferous growing stock.

<b>Common Name</b>	<b>Scientific Name</b>	<b>Percent composition</b>	<b>Growing stock million m<sup>3</sup> (1990)</b>	<b>Growing Stock million m<sup>3</sup> (2000)</b>
Fir	<i>Abies pindrow</i>	30	71.0	56.1
Kail	<i>Pinus wallichiana</i>	23	54.5	43.0
Spruce	<i>Picea smithiana</i>	23	54.5	43.0

Deodar	<i>Cedrus deodara</i>	18	42.6	33.7
Chir	<i>Pinus roxburghii</i>	4	9.5	7.5
Broad-leaved in Coniferous forests		2	4.7	3.7
Total Coniferous forests		100	236.8	187.2
Non-coniferous forests			23.9	23.6

### Biomass stock

#### Assumptions

(a) The weighted density has been assumed to be 0.7 as indicated in FSMP (1992).

(b) The Biomass expansion factor has been calculated as under using Sandra Brown formula  $\{BEF = EXP(3.213 - 0.506 * LN(\text{Biomass/ha}))\}$ , which is mainly for Asian broad leaved forests.

Variable	Unit	1990	2000	2005	2010	2015
Growing stock	million cubic meter	261	211	185	160	135
<b>Weighted wood density</b>		0.7	0.7	0.7	0.7	0.7
<b>Stem biomass</b>	<b>Million ton</b>	183	147	130	112	95
Forest Area	000 ha	2527	2116	1902	1687	1472
Stem Biomass/ha	ton/ha	72	70	68	66	65
<b>BEF</b>		<b>2.85</b>	<b>2.9</b>	<b>2.94</b>	<b>2.98</b>	<b>2.86</b>



(c) The weighted root shoot ratios have been calculated for each of the reference years based on the relative percentage of conifers and non-coniferous forest using the default factors given in GPG, 2003 for coniferous and non-coniferous forests.

<b>Variables</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>
Default factor for Coniferous	0.32	0.32	0.32	0.32	0.32
% of coniferous	0.76	0.71	0.69	0.66	0.62
Default factor for non-coniferous	0.43	0.43	0.43	0.43	0.43
% of non-coniferous	0.24	0.29	0.31	0.34	0.38
<b>Weighted Root Shoot Ratio</b>	<b>0.347</b>	<b>0.351</b>	<b>0.354</b>	<b>0.357</b>	<b>0.362</b>

### **Biomass**

<b>Variable</b>	<b>Unit</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>
<b>Above Ground Biomass</b>	<b>Million tonne</b>	<b>522</b>	<b>426</b>	<b>382</b>	<b>334</b>	<b>272</b>
Root Shoot ratio		0.347	0.351	0.354	0.357	0.362
<b>Below Ground Biomass</b>	<b>Million tonne</b>	<b>181</b>	<b>150</b>	<b>135</b>	<b>119</b>	<b>98</b>
<b>Total Live biomass</b>	<b>Million tonne</b>	<b>704</b>	<b>576</b>	<b>517</b>	<b>453</b>	<b>370</b>

## 3.3.2 Estimation and forecasting

**Growing stock**

The weighted average growing stock per hectare has been used to estimate the growing stock. The area of coniferous forests in 2005 and 2010 and 2015 has been linearly forecasted using its original data for 1990 and 2000 in Question 1.

## 3.3.3 Reclassification

**3.4 Data**

Table 3a




Category		Growing stock volume (million m <sup>3</sup> over bark)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Total growing stock	261	211	185	160	135	N/A	N/A	N/A	N/A	N/A
	... of which coniferous	237	187	162	138	113	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	24	24	23	22	22	N/A	N/A	N/A	N/A	N/A

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	Abies pindrow	Fir	71	56	49	48
2 nd	Pinus wallichiana	Kail	54	43	38	37
3 rd	Picea smithiana	Spruce	54	43	38	37
4 th	Cedrus deodara	Deodar	43	34	30	29
5 th	Pinus roxburghii	Chir	10	8	7	6

6 th	N/A	N/A	N/A	N/A	N/A	N/A
7 th	N/A	N/A	N/A	N/A	N/A	N/A
8 th	N/A	N/A	N/A	N/A	N/A	N/A
9 th	N/A	N/A	N/A	N/A	N/A	N/A
10 th	N/A	N/A	N/A	N/A	N/A	N/A
Remaining			29	27	24	3
TOTAL			261.00	211.00	186.00	160.00

**THE PRE-FILLED VALUES FOR GROWING STOCK REFER TO THE FOLLOWING THRESHOLD VALUES (SEE TABLE BELOW)**

Item	Value	Complementary information
Minimum diameter (cm) at breast height of trees included in growing stock (X)	>4	N/A
Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y)	> 1	N/A
Minimum diameter (cm) of branches included in growing stock (W)	5	N/A
Volume refers to above ground (AG) or above stump (AS)	AG	N/A

**PLEASE NOTE THAT THE DEFINITION OF GROWING STOCK HAS CHANGED AND SHOULD BE REPORTED AS GROWING STOCK DBH 10 CM INCLUDING THE STEM FROM GROUND LEVEL UP TO A DIAMETER OF 0 CM, EXCLUDING BRANCHES.**

Table 3c




Category		Net annual increment (m <sup>3</sup> per hectare and year)				
		Forest				
		1990	2000	2005	2010	2015
	Net annual increment	N/A	N/A	N/A	N/A	N/A
	... of which coniferous	N/A	N/A	N/A	N/A	N/A
	... of which broadleaved	N/A	N/A	N/A	N/A	N/A

Table 3d

Category	Biomass (million metric tonnes oven-dry weight)	
	Forest	Other wooded land











		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Above ground biomass	522	426	382	334	272	N/A	N/A	N/A	N/A	N/A
	Below ground biomass	181	150	135	119	98	N/A	N/A	N/A	N/A	N/A
	Dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		703.00	576.00	517.00	453.00	370.00	.00	.00	.00	.00	.00

Table 3e

Category		Carbon (Million metric tonnes)									
		Forest					Other wooded land				
		1990	2000	2005	2010	2015	1990	2000	2005	2010	2015
	Carbon in above ground biomass	245	200	180	157	128	N/A	N/A	N/A	N/A	N/A
	Carbon in below ground biomass	85	71	63	56	46	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Living biomass</i>	330	271	243	213	174	N/A	N/A	N/A	N/A	N/A
	Carbon in dead wood	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Carbon in litter	5	4	4	4	4	N/A	N/A	N/A	N/A	N/A
	<i>Subtotal Dead wood and litter</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Soil carbon	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL		335.00	275.00	247.00	217.00	178.00	.00	.00	.00	.00	.00

## Tiers

Variable/category	Tier for status	Tier for trend
Total growing stock	Tier 1	Tier 1
Net annual increment	Tier 1	Tier 1

Above ground biomass	Tier 1	Tier 1
Below ground biomass	Tier 1	Tier 1
Dead wood	Tier 3	Tier 1
Carbon in above-ground biomass	Tier 1	Tier 1
Carbon in below ground biomass	Tier 1	Tier 1
Carbon in dead wood and litter	Tier 1	Tier 1
Soil carbon	Tier 1	Tier 1

### Tier criteria

Category	Tier for status	Tier for reported trend
Total growing stock	Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources	Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other
Net annual increment	Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other	Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier: 1 Other
Biomass	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>Carbon in above ground biomass</li> <li>Carbon in below ground biomass</li> <li>Carbon in dead wood and litter</li> <li>Soil carbon</li> </ul>	Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors form from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

### 3.5 Comments on growing stock biomass and carbon

Category	Comments related to data definitions etc	Comments on the reported trend
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Total growing stock	N/A	N/A
Growing stock of broadleaved coniferous	N/A	N/A
Growing stock composition	N/A	N/A
Net annual increment	N/A	N/A
Above-ground biomass	N/A	N/A
Below-ground biomass	N/A	N/A
Dead wood	N/A	N/A
Carbon in above-ground biomass	N/A	A declining trend is evident in the above-ground carbon quantity because of shrinking forest resources in the country.
Carbon in below-ground biomass	N/A	N/A
Carbon in dead wood	N/A	N/A
Carbon in litter	N/A	N/A
Soil carbon	Soil depth for soil carbon estimates until 2010 is not available	N/A

**Other general comments to the table**

Generally, a declining trend in forest tree growing stock may be observed as a result of decrease in the forest cover in the country

## 4. What is the status of forest production and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 4.1 Categories and definitions

Term	Definition
Primary designated function	The primary function or management objective assigned to a management unit either by legal prescription documented decision of the landowner/manager or evidence provided by documented studies of forest management practices and customary use.
Non wood forest product (NWFP)	Goods derived from forests that are tangible and physical objects of biological origin other than wood.
Commercial value of NWFP	For the purpose of this table, value is defined as the commercial market value at the forest gate.
Category	Definition
Production forest	Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products.
Multiple use forest	Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function.
Total wood removals	The total of industrial round wood removals and woodfuel removals.
...of which woodfuel	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

### 4.2 National data

#### 4.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	WI. 1993. Review and Analysis of Forest Policies of Pakistan by Abeer Ullah Jan 1993. Winrock International, FPDP, Government of Pakistan.	Designation	1990	N/A
2	GOP. Economic Survey 1999-2000. Government of Pakistan	Designation	2000	N/A
3	WWF Pakistan. 2005. Website on Protected Areas	Protected Areas	2004	N/A
4	N/A	N/A	N/A	N/A

## 4.2.2 Classification and definitions

National class	Definition
Production Forest	Forests managed for timber requirements.
N/A	N/A
N/A	N/A
N/A	N/A

## 4.2.3 Original data

<b>A. Percentage of Productive and Protective Forests in 1990 and 2000 (GOP and WI)</b>					
Category	Productive		Protective		Total (000 ha)
	Area (000 ha)	Percentage	Area (000 ha)	Percentage	
<b>Forests</b>					
1990	837	28	2196	72	3033
2000	830	32	1780	68	2610
<b>Scrub Forests</b>					
1990	329	28	862	72	1191
2000	452	32	970	68	1422
<b>B. Area of Protected Areas (WWF- Pakistan Website)</b>					
National Parks	Region	Area in ha	Year of Establishment		
Lal Suhanra	Punjab	51,588	1972		
Kirthar	Sindh	308,733	1974		



Khunjerab	Northern Areas	227,143	1975
Hazarganji-Chiltan	Balochistan	15,555	1980
Margalla Hills	Federal Capital Territory	17,386	1980
Ayubia	North West Frontier Province	1,684	1984
Chitral Gol	North West Frontier Province	7,750	1984
Chinji	Punjab	6,070	1987
Deosai Plains	Northern Areas	363,600	1993
Handrap Shandhoor	Northern Areas	51,800	1993
Sheikh Buddin	North West Frontier Province	15,540	1993
Central Karakoram	Northern Areas	973,845	1995
Machiara	AJK	13,593	1996
Hingol	Balochistan	699,088	1997

In addition to national parks, there are 82 wildlife sanctuaries on 2,749,054 ha, and 82 game reserves on 3,535,284 ha ( [www.fao.org/docrep/003/x6900e/x6900e0o.htm](http://www.fao.org/docrep/003/x6900e/x6900e0o.htm) ) but their year of establishment is not available. It has been assumed that these were established before 1990.

Variable	Area in 000 ha			
	1990	2000	2005	2010
Protected Area	636	2753	2753	2753
Wild life Sanctuaries	2749	2749	2749	2749
Game Reserve	3535	3535	3535	3535
Total PA	6920	9038	9038	9038

## 4.3 Analysis and processing of national data

### 4.3.1 Adjustment

#### 4.3 Assumptions

- (a) The productive forest mainly serves productive function
- (b) The protective areas mainly serve conservation of biodiversity function
- (c) All forest areas less productive forests and those that are under “protected areas” are used as multipurpose forests.

#### Estimation

#### Productive forests

Following the original data, it is assumed that 28% of the “forests” and “other wooded lands” served production function in 1990 and about 32 % of them in the year 2000. It is assumed that the percentage for 2000 applies to 2005 and due to a lack of updated figures to 2010 and 2015 as well.

Variable	1990	2000	2005	2010	2015
Percent of Productive forest	28	32	32	32	32
Area of Productive Forests in “000”ha	708	677	608	540	471

#### Multipurpose Function

In view of non-availability of any documented data, the remainder of “forests” and “Other wooded lands” has been assumed to serve the multipurpose function.

## 4.3.2 Estimation and forecasting

## 4.3.3 Reclassification

## 4.4 Data

Table 4a



Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	708	677	608	540	471
	Multiple use forest	1599	1199	1078	931	785

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	na	na	N/A	N/A
2 nd	na	na	N/A	N/A
3 rd	na	na	N/A	N/A
4 th	na	na	N/A	N/A
5 th	na	na	N/A	N/A
6 th	na	na	N/A	N/A
7 th	na	na	N/A	N/A
8 th	na	na	N/A	N/A
9 th	na	na	N/A	N/A
10 th	na	na	N/A	N/A
TOTAL			.00	

2010	
Name of local currency	Pakistani rupee

Category
<b>Plant products / raw material</b>
1 Food
2 Fodder
3 Raw material for medicine and aromatic products
4 Raw material for colorants and dyes
5 Raw material for utensils handicrafts construction
6 Ornamental plants
7 Exudates
8 Other plant products
<b>Animal products / raw material</b>
9 Living animals
10 Hides skins and trophies
11 Wild honey and beewax
12 Wild meat
13 Raw material for medicine
14 Raw material for colorants
15 Other edible animal products
16 Other non-edible animal products

Table 4c Pre-filled data from FAOSTAT

Year	FRA 2015 category (1000 m <sup>3</sup> u.b.)	
	Total wood removals	...of which woodfuel
1990	23661	21043
1991	23791	21370
1992	24215	21575
1993	24188	21986
1994	24277	22352

1995	24218	22682
1996	28982	26920
1997	30860	28590
1998	31844	29515
1999	33055	30670
2000	33560	30880
2001	34194	31515
2002	34194	31515
2003	34194	31515
2004	28680	26000
2005	29320	26500
2006	29370	26500
2007	32481	29520
2008	32650	29660
2009	32650	29660
2010	32650	29660
2011	32650	29660

## Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 1	Tier 1
Multiple use forest	Tier 1	Tier 1

## Tier Criteria

Category	Tier for status	Tier for reported trend
Production forest Multiple use forest	Tier 3: Updated including field verifications national forest maps including functions Tier 2: Forest maps older than 6 years including forest functions Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 4.5 Comments

<b>Category</b>	<b>Comments related to data definitions etc</b>	<b>Comments on the reported trend</b>
Production forest	N/A	N/A
Multiple use forest	N/A	N/A
Total wood removals	N/A	N/A
Commercial value of NWFP	N/A	N/A

**Other general comments to the table**

In the absence of specific data, the above table is mainly based on assumptions

## 5. How much forest area is managed for protection of soil and water and ecosystem services?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 5.1 Categories and definitions

Category	Definition
Protection of soil and water	Forest area designated or managed for protection of soil and water
...of which production of clean water ( <i>sub-category</i> )	Forest area primarily designated or managed for water production, where most human uses are excluded or heavily modified to protect water quality.
...of which coastal stabilization ( <i>sub-category</i> )	Forest area primarily designated or managed for coastal stabilization.
...of which desertification control ( <i>sub-category</i> )	Forest area primarily designated or managed for desertification control.
...of which avalanche control ( <i>sub-category</i> )	Forest area primarily designated or managed to prevent the development or impact of avalanches on human life assets or infrastructure.
...of which erosion, flood protection or reducing flood risk ( <i>sub-category</i> )	Forest area primarily designated or managed for protecting communities or assets from the impacts of erosion riparian floods and landslides or for providing flood plain services.
...of which other ( <i>sub-category</i> )	Forest area primarily designated or managed for other protective functions.
Ecosystem services, cultural or spiritual values	Forest area primarily designated or managed for selected ecosystem services or cultural or spiritual values.
...of which public recreation ( <i>sub-category</i> )	Forest area designated or managed for public recreation.
...of which carbon storage or sequestration ( <i>sub-category</i> )	Forest area designated or managed for carbon storage or sequestration.
...of which spiritual or cultural services ( <i>sub-category</i> )	Forest area designated or managed for spiritual or cultural services.
...of which other ( <i>sub-category</i> )	Forest area designated or managed for other ecosystem services.

### 5.2 National data

#### 5.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A

3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 5.2.2 Classification and definitions

National class	Definition
Protection Forest	Forests managed for the biological stabilities.
N/A	N/A
N/A	N/A
N/A	N/A

### 5.2.3 Original data

Variable	2010	
Protected Area	2753	
Wild life Sanctuaries	2749	
Game Reserve	3535	
Total PA	9038	

## 5.3 Analysis and processing of national data

### 5.3.1 Adjustment

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### 5.3.2 Estimation and forecasting

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## 5.3.3 Reclassification

## 5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
CFRQ	Protection of soil and water	N/A	N/A	N/A	N/A	0
CFRQ	... of which production of clean water	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which coastal stabilization	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which desertification control	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which avalanche control	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which erosion, flood protection or reducing flood risk	N/A	N/A	N/A	N/A	N/A
CFRQ	... of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

## Other

N/A

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values	N/A	N/A	N/A	N/A	N/A
...of which public recreation	N/A	N/A	N/A	N/A	N/A

...of which carbon storage or sequestration	N/A	N/A	N/A	N/A	N/A
...of which spiritual or cultural services	N/A	N/A	N/A	N/A	N/A
...of which other (please specify in comments below the table)	N/A	N/A	N/A	N/A	N/A

### Tiers

Category	Tier for reported trend	Tier for status
Protection of soil and water	Tier 1	Tier 1
Ecosystem services, cultural or spiritual values	Tier 1	Tier 1

### Tier criteria

Category	Tier for status	Tier for reported trend
Protection of soil and water	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations or legislation relating to soil and water protection. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>Cultural or spiritual values</li> <li>Public recreation</li> <li>Spiritual or cultural services</li> <li>Other</li> </ul>	Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

### 5.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Protection of soil and water	N/A	N/A
Production of clean water	N/A	N/A
Coastal stabilization	N/A	N/A

Desertification control	N/A	N/A
Avalanche control	N/A	N/A
Erosion, flood protection or reducing flood risk	N/A	N/A
Other protective functions	N/A	N/A
Ecosystem services, cultural or spiritual values	N/A	N/A
Public recreation	N/A	N/A
Carbon storage or sequestration	N/A	N/A
Spiritual or cultural services	N/A	N/A
Other ecosystem services	N/A	N/A

<b>Other general comments to the table</b>
--

N/A
-----

## 6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 6.1 Categories and definitions

Category	Definition
Conservation of biodiversity	Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas.
Forest area within protected areas	Forest area within formally established protected areas independently of the purpose for which the protected areas were established.

### 6.2 National data

#### 6.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	WI. 1993. Review and Analysis of Forest Policies of Pakistan by Abeer Ullah Jan 1993. Winrock International, FPDP, Government of Pakistan.	Designation	1990	N/A
2	GOP. Economic Survey 1999-2000. Government of Pakistan	Designation	2000	N/A
3	WWF Pakistan. 2005. Website on Protected Areas	Protected Areas	2004	N/A
4	N/A	N/A	N/A	N/A

#### 6.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

## 6.2.3 Original data

**A. Percentage of Productive and Protective Forests in 1990 and 2000 (GOP and WI)**

Category	Productive		Protective		Total (000 ha)
	Area (000 ha)	Percentage	Area (000 ha)	Percentage	
<b>Forests</b>					
1990	837	28	2196	72	3033
2000	830	32	1780	68	2610
<b>Scrub Forests</b>					
1990	329	28	862	72	1191
2000	452	32	970	68	1422

**B. Area of Protected Areas (WWF- Pakistan Website)**

National Parks	Region	Area in ha	Year of Establishment
Lal Suhanra	Punjab	51,588	1972
Kirthar	Sindh	308,733	1974
Khunjerab	Northern Areas	227,143	1975
Hazarganji-Chiltan	Balochistan	15,555	1980
Margalla Hills	Federal Capital Territory	17,386	1980
Ayubia	North West Frontier Province	1,684	1984
Chitral Gol	North West Frontier Province	7,750	1984

Chinji	Punjab	6,070	1987
Deosai Plains	Northern Areas	363,600	1993
Handrap Shandhoor	Northern Areas	51,800	1993
Sheikh Buddin	North West Frontier Province	15,540	1993
Central Karakoram	Northern Areas	973,845	1995
Machiara	AJK	13,593	1996
Hingol	Balochistan	699,088	1997

In addition to national parks, there are 82 wildlife sanctuaries on 2,749,054 ha, and 82 game reserves on 3,535,284 ha ( [www.fao.org/docrep/003/x6900e/x6900e0o.htm](http://www.fao.org/docrep/003/x6900e/x6900e0o.htm) ) but their year of establishment is not available. It has been assumed that these were established before 1990.

Variable	Area in 000 ha		
	1990	2000	2005
Protected Area	636	2753	2753
Wild life Sanctuaries	2749	2749	2749
Game Reserve	3535	3535	3535
Total PA	6920	9038	9038

## 6.3 Analysis and processing of national data

### 6.3.1 Adjustment

#### 6.3 Assumptions

(a) The productive forest mainly serves productive function

(b) The protective areas mainly serve conservation of biodiversity function

(c) All forest areas less productive forests and those that are under “protected areas” are used as multipurpose forests.

### Estimation

### Protected Areas

Following tables indicates the area of forests serving specific function of the conservation of biodiversity. It is based on the assumption that the overall relative percentage between “forests” (4.2, 2.6 and 4.3) in the total area of the country in 1990, 2000 and 2005 as reflected in Question also holds good for “protected areas”.

Due to a lack of updated figures 2005 figure on protected forest has been used for 2010.

Variable	1990	2000	2005	2010
Percent of Forest in Question 1	3.2	2.7	2.4	
Area of Forests in PAs in “000”ha	220	240	216	216



### 6.3.2 Estimation and forecasting

### 6.3.3 Reclassification

## 6.4 Data

Table 6

Categories	Forest area (000 hectares)
------------	----------------------------

		1990	2000	2005	2010	2015
	Conservation of biodiversity	220	240	216	216	216
	Forest area within protected areas	N/A	N/A	N/A	N/A	N/A

## Tiers

Category	Tier for status	Tier for reported trend
Conservation of biodiversity	Tier 1	Tier 1
Forest area within protected areas	Tier 1	Tier 1

## Tier criteria

Category	Tier for status	Tier for reported trend
<ul style="list-style-type: none"> <li>Conservation of biodiversity</li> <li>Forests within protected areas</li> </ul>	Tier 3: Data obtained from national or state agencies responsible for conservation and protected area or legislation relating to area protection. Tier 2: Studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates Tier 1 Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

## 6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	N/A	N/A
Forest area within protected areas	N/A	N/A

## Other general comments to the table

N/A
-----



## 7. What is the area of forest affected by woody invasive species?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 7.1 Categories and definitions

Category	Definition
Invasive species	Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health.

### 7.2 National data

#### 7.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 7.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

#### 7.2.3 Original data

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### 7.3 Analysis and processing of national data

#### 7.3.1 Adjustment

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## 7.3.2 Estimation and forecasting

## 7.3.3 Reclassification

## 7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
1. na	N/A	N/A
2. na	N/A	N/A
3. na	N/A	N/A
4. na	N/A	N/A
5. na	N/A	N/A
6. na	N/A	N/A
7. na	N/A	N/A
8. na	N/A	N/A
9. na	N/A	N/A
10. na	N/A	N/A
Total	N/A	N/A

## Tiers

Category	Tier for status	Tier for reported trend
Invasive species	Tier 1	Tier 1

## Tier Criteria

Category	Tier for status	Tier for reported trend
----------	-----------------	-------------------------

Invasive species	Tier 3: Systematic assessment in forest inventory or other survey (e.g. by conservation department) within the last 5 years) Tier 2: Systematic assessment in forest inventory or other survey (e.g. by conservation department conducted more than 5 years ago) Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
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**7.5 Comments**

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	N/A	N/A

Other general comments to the table
N/A

## 8. How much forest area is damaged each year?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 8.1 Categories and definitions

Category	Definition
Number of fires	Number of fires per year
Burned area	Area burned per year
Outbreaks of insects	A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects.
Outbreaks of diseases	A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus.
Severe weather events	Damage caused severe weather events, such as snow, storm, drought, etc.

### 8.2 National data

#### 8.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 8.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

#### 8.2.3 Original data

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## 8.3 Analysis and processing of national data

### 8.3.1 Adjustment

### 8.3.2 Estimation and forecasting

### 8.3.3 Reclassification

## 8.4 Data

Table 8a

Category		000 ha, number of fires									
		2003		2004		2005		2006		2007	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	83.96	N/A	217.86	N/A	304.13	N/A	81.31	N/A	154.45	N/A
	... of which forest area burned	0.17	N/A	0.02	N/A	0.46	N/A	0.79	N/A	0.12	N/A
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	178.86	N/A	441.29	N/A	278.88	N/A	169.23	N/A	57	N/A
	... of which forest area burned	0.98	N/A	0.1	N/A	0.1	N/A	0.1	N/A	0.59	N/A

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

### Outbreak category

1 Insects

2 Diseases

3 Severe weather events

### Tiers

Category	Tier for status	Tier for trend
Area affected by fire	Tier 2	Tier 2
<ul style="list-style-type: none"> <li>• Insects</li> <li>• Diseases</li> <li>• Severe weather events</li> </ul>	N/A	N/A

### Tier criteria

Category	Tier for status	Tier for reported trend
Burned area	<b>Tier 3</b> : National fire monitoring routines <b>Tier 2</b> : Remote sensing surveys <b>Tier 1</b> : Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other
<ul style="list-style-type: none"> <li>• Insects</li> <li>• Diseases</li> <li>• Severe weather events</li> </ul>	<b>Tier 3</b> : Systematic survey (e.g. via inventory or aerial damage assessment) <b>Tier 2</b> : Management records <b>Tier 1</b> : Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

### 8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
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Burned area	N/A	N/A
Insects	N/A	N/A
Diseases	N/A	N/A
Severe weather events	N/A	N/A

**Other general comments to the table**

N/A

## 9. What is the forest area with reduced canopy cover?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

Category	Definition
Reduction in canopy cover	Forest that has undergone a reduction of canopy cover of more than 20% between the years 2000 and 2010 within the forest canopy cover range of 30-80% as detected by the MODIS VCF sensor.

Table 9

Category	Area of forest with reduced canopy cover (000 ha)
Reduction in canopy cover	29.99

Tiers

Category	Tier for reported trend
Reduction in canopy cover	Tier 2

Tier criteria

Category	Tier for reported trend
Reduction in canopy cover	<b>Tier 3</b> : Remote sensing with ground truthing and/or Landsat imagery <b>Tier 2</b> : Remote sensing using Modis (using pre-filled data provided by FAO) <b>Tier 1</b> : Expert opinion

Comments

Category	Comments related to data definitions etc
Reduction in canopy cover	N/A

Other general comments

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## 10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 10.1 Categories and definitions

Category	Definition
Policies supporting sustainable forest management	Policies or strategies that explicitly encourage sustainable forest management.
Legislation and regulations supporting sustainable forest management	Legislation and regulations that govern and guide sustainable forest management, operations and use.

### 10.2 National data

#### 10.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 10.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

#### 10.2.3 Original data

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### 10.3 Data

Table 10

Category				
	National	Sub-national		
		Regional	Provincial/State	Local
Policies supporting sustainable forest management	yes	no	no	no
... of which, in <u>publicly</u> owned forests	yes	no	no	no
... of which, in <u>privately</u> owned forests	yes	no	no	no
Legislation and regulations supporting sustainable forest management	no	no	no	no
... of which, in <u>publicly</u> owned forests	no	no	no	no
... of which, in <u>privately</u> owned forests	no	no	no	no

#### 10.4 Comments

Variable / category	Comments related to data definitions etc
Policies supporting sustainable forest management	FAO 2009. "Sustainable forest management is not practiced in its complete form and true sense as its parameters are not yet understood by the forest managers."
Legislation and regulations supporting sustainable forest management	FAO 2009. The enforcement of law related to forest and wildlife protection and offences through various legal instruments like the Pakistan Forest Act 1927, Hazara Forest Act 1936, provincial wildlife acts/ordinances and related acts has been ineffective and very weak. Forest departments have been unable to cope with the growing forest encroachments, theft and illegal logging cases in civil courts.

#### Other general comments

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## 11. Is there a national platform that promotes stakeholder participation in forest policy development?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 11.1 Categories and definitions

Category	Definition
National stakeholder platform	A recognized procedure that a broad range of stakeholders can use to provide opinions, suggestions, analysis, recommendations and other input into the development of national forest policy.

### 11.2 National data

#### 11.2.1 Data sources

	References to sources of information	Years	Additional comments
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	N/A	N/A	N/A

Table 11

Is there a national platform that promotes or allows for stakeholder participation in forest policy development?	no
--	----

### 11.3 Comments

Category	Comments related to data definitions etc
National stakeholder platform	N/A

Other general comments

--

## 12. What is the forest area intended to be in permanent forest land use and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 12.1 Categories and definitions

Category	Definition
Forest area intended to be in permanent forest land use	Forest area that is designated or expected to be retained as forest and is highly unlikely to be converted to other land use.
...of which permanent forest estate ( <i>sub-category</i> )	Forest area that is designated by law or regulation to be retained as forest and may not be converted to other land use.

### 12.2 National data

#### 12.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

#### 12.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

#### 12.2.3 Original data

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### 12.3 Analysis and processing of national data



## 12.3.1 Adjustment

## 12.3.2 Estimation and forecasting

## 12.3.3 Reclassification

## 12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	N/A
	... of which permanent forest estate	N/A

## Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	N/A
Permanent forest estate	N/A

## Tier Criteria

Category	Tier for status
Forest area intended to be in permanent forest land use	<b>Tier 3</b> : National or sub-national land use plans strategy documents or other reports within the past 10 years <b>Tier 2</b> : National or sub-national land use plans strategy documents or other reports within the past 20 years <b>Tier 1</b> : Other
Permanent forest estate	<b>Tier 3</b> : National or sub-national land use plans strategy documents or other reports within the past 10 years <b>Tier 2</b> : National or sub-national land use plans strategy documents or other reports within the past 20 years <b>Tier 1</b> : Other

## 12.5 Comments

Category	Comments related to data definitions etc
Forest area intended to be in permanent forest land use	N/A
Permanent forest estate	N/A

Other general comments

--

### 13. How does your country measure and report progress towards SFM at the national level?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

#### 13.1 Categories and definitions

Category	Definition
Forest area monitored under a national forest monitoring framework	Forest area monitored by a national monitoring framework or systems that provide measurement based periodic monitoring of forest extent and quality.
Forest reporting at national scale	National reporting of forest extent and characteristics that includes some measure of progress toward sustainable forest management.

#### 13.2 National data

##### 13.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

##### 13.2.2 Classification and definitions

National class	Definition
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

#### 13.3 Data

Table 13a

Category	% of total forest area	Most recent year	Check all boxes that apply					
			Continuous	Periodic	Permanent ground plots	Temporary ground plots	Aerial/remote sensing sample based	Aerial/remote sensing full coverage
Forest inventory	N/A	N/A	no	no	no	no	no	no
Other field assessments	N/A	N/A	no	no	no	no	no	no
Updates to other sources	N/A	N/A						
Expert estimate	100	2013						

Table 13b

Type of forest reporting used at national scale	Check boxes that apply
1 Criteria and Indicators reporting	no
2 Periodic national state of the forest report	no
3 Other (please document)	no
4 None	yes

Other type of forest reporting
N/A

## 13.4 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

--



## 14. What is the area of forest under a forest management plan and how is this monitored?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 14.1 Categories and definitions

Category	Definition
Forest area with management plan	Forest area that has a long-term documented management plan, aiming at defined management goals which is periodically revised
...of which for production ( <i>sub-category</i> )	Forest management plan mainly focused on production
...of which for conservation ( <i>sub-category</i> )	Forest management plan mainly focused on conservation
Monitoring of forest management plans	Government monitoring of forest management plan implementation conducted through field visits or audits of forest management plan performance

### 14.2 National data

#### 14.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	FAO 2009. PAKISTAN FORESTRY OUTLOOK STUDY. Working Paper No. APFSOS II/WP/2009/28	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 14.3 Data

Table 14a

Forest plan type	Forest area 2010 (000 ha)
Forest area with management plan	0
... of which for production	0
... of which for conservation	0

Table 14b

<b>Indicate which (if any) of the following are required in forest management plans in your country</b>
---

1 Soil and water management	no
2 High conservation value forest delineation	no
3 Social considerations community involvement	no

Table 14c

<b>Percent of area under forest management plan that is monitored annually</b>	<b>0</b>
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## Tiers

Category	Tier for status
Forest area with management plan	Tier 1
Percent of area under forest management plan that is monitored annually	Tier 1

## Tier criteria

Category	Tier for status
Forest area with management plan	<b>Tier 3</b> : Reports that describe national records 5 years old or less that contain long-term forest monitoring plans <b>Tier 2</b> : Industry or other records indicating the presence of a long-term forest management plan <b>Tier 1</b> : Other
Percent of area under forest management plan that is monitored annually	<b>Tier 3</b> : Government documentation of monitoring extent <b>Tier 2</b> : Reports from forest managers or other documental sources <b>Tier 1</b> : Other

## 14.4 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

## Other general comments

--

## 15. How are stakeholders involved in the management decision making for publicly owned forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 15.1 Categories and definitions

Category	Definition
Stakeholder involvement	Stakeholder involvement is defined as significant inputs into at least one aspect of forest management at the operational scale

Table 15

Please indicate the type of stakeholder involvement in forest management decision making required in your country	
1. Planning phase	no
2. Operations phase	no
3. Review of operations	no

Tiers

Category	Tier for status
Type of stakeholder inputs	Tier 1

Tier criteria

Category	Tier for status
Type of stakeholder inputs	<b>Tier 3</b> : Government (national or sub-national) documentation of stakeholder inputs <b>Tier 2</b> : Government (national or subnational) requirement but stakeholder inputs not documented <b>Tier 1</b> : Other

### 15.2 Comments

Category	Comments
N/A	N/A
N/A	N/A
N/A	N/A

Other general comments

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## 16. What is the area of forest under an independently verified forest certification scheme?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 16.1 Categories and definitions

Category	Definition
FSC certification	Forest area certified under the Forest Stewardship Council certification scheme
PEFC certification	Forest area certified under the Programme for the Endorsement of Forest Certification scheme
Other international forest management certification	Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party, excluding FSC and PEFC certification.
Certified forest area using a domestic forest management certification scheme	Area certified under a forest management certification scheme with published standards that are nationally recognized and independently verified by a thirdparty

### 16.2 Data

Table 16a













International forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	FSC	0	0	0	0	0	0	0
	PEFC	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	0	0	0	0	0	0	
	PEFC	0	0	0	0	0	0	
	Other	0	0	0	0	0	0	

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0
	N/A	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
		0	0	0	0	0	0	
		0	0	0	0	0	0	
		0	0	0	0	0	0	

## Tier criteria

Category	Tier for status
<b>International</b> forest management certification	Tier 3: International forest management scheme records maintained by the certifying organization for the reporting year Tier 2: International forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other
<b>Domestic</b> forest management certification	Tier 3: National registry reports for domestic forest management certification maintained by the certifying organization for the reporting year Tier 2: Domestic forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other

## Tiers

Category	Tier for status
<b>International</b> forest management certification	Tier 3
<b>Domestic</b> forest management certification	Tier 1

## 16.3 Comments

Category	Comments related to data definitions etc
Certified forest area using an international forest management certification scheme	N/A
Domestic forest management certification	N/A

## Other general comments

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## 17. How much money do governments collect from and spend on forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 17.1 Categories and definitions

Category	Definition
Forest revenue	All government revenue collected from the domestic production and trade of forest products and services. For this purpose revenue include: <ul style="list-style-type: none"> <li>• <u>Goods</u> : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products.</li> <li>• <u>Services</u> : including concession fees and royalties, stumpage payments, public timber sales revenue taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for recreation and other forest related activities.</li> </ul>
Public expenditure on forestry	All government expenditure on forest related activities.

### 17.2 National data

#### 17.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	N/A	N/A	N/A
Public expenditure on forestry	N/A	N/A	N/A
	2000	2005	2010
Name of Local Currency	Pakistani rupee	N/A	N/A

**17.4 Comments**

Category	Comments related to data definitions etc
Forest revenue	N/A
Public expenditure on forestry	N/A
Other general comments	N/A

Other general comments

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## 18. Who owns and manages the forests and how has this changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 18.1 Categories and definitions

Category	Definition
Public ownership	Forest owned by the State or administrative units of the public administration or by institutions or corporations owned by the public administration.
...of which owned by the state at national scale ( <i>sub-category</i> )	Forest owned by the State at the national scale or administrative units of the public administration or by institutions or corporations owned by the public administration.
...of which owned by the state at the sub-national government scale ( <i>sub-category</i> )	Forest owned by the State at the sub-national government scale or administrative units of the public administration or by institutions or corporations owned by the public administration.
Private ownership	Forest owned by individuals, families, communities, private cooperatives corporations and other business entities, private, religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions.
...of which individuals ( <i>sub-category</i> )	Forest owned by individuals and families.
...of which private business entities and institutions ( <i>sub-category</i> )	Forest owned by private corporations cooperatives companies and other business entities as well as private nonprofit organizations such as NGOs nature conservation associations, and private religious and educational institutions etc.
...of which local tribal and indigenous communities ( <i>sub-category</i> )	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area or forest owned by communities of indigenous or tribal people The community members are coowners that share exclusive rights and duties and benefits contribute to the community development.
Unknown ownership	Forest area where ownership is unknown includes areas where ownership is unclear or disputed.
Categories related to management rights of public forests	Definition
Public Administration	The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation.
Individuals households	Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements.
Private companies	Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities private cooperatives, private nonprofit institutions and associations, etc., through long-term leases or management agreements.
Communities	Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements.
Other form of management rights	Forests for which the transfer of management rights does not belong to any of the categories mentioned above.

### 18.2 National data



## 18.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	IUCN. 1998. Changing Perspectives on forest policy. Editor: James Mayers. Authors Javed Ahmed and Fawad Mahmood. IUCN in Collaboration with Government of Pakistan.1998.	Ownership	1990	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

## 18.2.2 Classification and definitions

National class	Definition
State Owned Forests	State owned forests are forests on state owned lands. These forest lands include reserved forests, protected forests, unclassified forests, municipal and resumed lands.
Private Owned Forests	Private owned forests are a broad category encompassing all forests held in private ownership. These includes Guzara forests, Communal Forests, Chos Act Areas, Section 38 areas and Forests on farmlands
Reserved Forests	The forests under the control of Forest Department which have been declared as Reserved Forests under Forest Act 1927 and are generally without rights and privileges. The ownership is vested in government.
Protected Forests	The forests which have been declared as Protected Forests under the provision of the Forest Act 1927 and have some rights and concessions of grazing, grass cutting and collection of dry wood etc. The ownership is vested in the government.
Unclassified Forests	The public forest lands under the control of Forests Department which are neither Reserved Forests nor Protected Forests and are known as unclassified forests. The ownership is vested in government.
Municipal Forest	The forests whose control has been transferred from Forest Department to Municipal and Cantonment authorities. The ownership is vested in the government.
Resumed Lands	Private lands taken over by the Government under various land reforms and Martial Law regulations and managed by the Forest Departments. The ownership is vested in the government.
Guzara Forests	The forest areas to meet bona fide domestic needs of local communities. These forests are managed by the Forest Department.

Community Forests	This I sub category of “Guzara” where the forests are owned by the entire village. These forests are managed by the Forest Department. The ownership is vested in local people either as individual or as joint property known as “village shamilat”.
Chos Act Forests	Private lands, subject to erosion, taken over by the government for the purpose of soil and water conservation under the Punjab Land Preservation (Chos) Act, 1900. The ownership remains private..
Section 38 Areas	Privately owned lands voluntarily and temporarily put under the control of Punjab Forest Department for conservation and preservation of soil and vegetation. The ownership remains private.

## 18.2.3 Original data

<b>A. From IUCN (1998) for 1990</b>	
<b>Category of Forest Land</b>	<b>Area in 000 ha</b>
<b>State Owned</b>	
Reserved	1682
Protected	994
Un-classed	43
Municipal	208
Resumed	100
Sub-total	3027 (66%)
<b>Privately Owned</b>	
Guzara	622
Chos	3
Section 38	48
Communal	878
Sub-total	1551 (34%)

<b>Total</b>	4578 (100%)

The figures in bracket reflect the percentages to the total area of forest land.

### 18.3 Analysis and processing of national data

#### 18.3.1 Adjustment







#### 18.3.2 Estimation and forecasting



The relative percentage of private (34%) and publicly (66%) owned forest lands for 1990 has been applied to the area of “forests” reported in Question 1 for 1990, 2000, 2010 and 2015.

#### 18.3.3 Reclassification

### 18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	1668	1397	1255	1113
	... of which owned by the state at national scale	N/A	N/A	N/A	N/A
	... of which owned by the state at the sub-national government scale	N/A	N/A	N/A	N/A
	Private ownership	859	719	647	574
	... of which owned by individuals	N/A	N/A	N/A	N/A
	... of which owned by private business entities and institutions	N/A	N/A	N/A	N/A

	... of which owned by local, tribal and indigenous communities	N/A	N/A	N/A	N/A
	Unknown ownership	0	0	0	0
TOTAL		2527.00	2116.00	1902.00	1687.00

## Tiers

Category	Tier for status	Tier for reported trend
Public ownership	Tier 1	Tier 1
Private ownership	Tier 1	Tier 1
Unknown ownership	Tier 1	Tier 1

## Tier criteria

Category	Tier for status	Tier for reported trend
Ownership	Tier 3: National forestry statistics registers of land titles or maps on land ownership or all forest area under one ownership category that is five years old or less. Tier 2: National forestry statistics registers of land titles or maps on land ownership or questionnaires that are more than five years old. Tier 1: Other	<b>Tier 3</b> : Estimate based on repeated compatible tiers 3 (tier for status) <b>Tier 2</b> : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) <b>Tier 1</b> : Other

Table 18b - Holder of management rights of public forests

Categories	Forest area (000 hectares)			
	1990	2000	2005	2010
Public Administration	N/A	N/A	N/A	N/A
Individuals	N/A	N/A	N/A	N/A
Private companies	N/A	N/A	N/A	N/A
Communities	N/A	N/A	N/A	N/A
Other	N/A	N/A	N/A	N/A
TOTAL	.00	.00	.00	.00

Category	Tier for reported trend	Tier for status
Public Administration	Tier 1	Tier 1

Individuals	Tier 1	Tier 1
Private companies	Tier 1	Tier 1
Communities	Tier 1	Tier 1
Other	Tier 1	Tier 1

### 18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	N/A	N/A
Private ownership	N/A	N/A
Unknown ownership	N/A	N/A
Management rights	N/A	N/A

#### Other general comments to the table

N/A

## 19. How many people are directly employed in forestry?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 19.1 Categories and definitions

Category	Definition
Full-time equivalents (FTE)	A measurement equal to one person working full-time during a specified reference period.
Employment in forestry	Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

### 19.2 National data

#### 19.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	FAO. 2003. An overview of forest products statistics in South and Southeast Asia. National Forestry Statistics-Pakistan <a href="http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/005/AC778E/AC778E00.HTM">http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/005/AC778E/AC778E00.HTM</a>	Employment	1990-2000	N/A
2	Economic Survey of Pakistan 2003	Primary Production	2000	N/A
3	FAO. 2004. Trends and current status of the contribution of the forestry sector to national economies. Forest Products and Economic Division Working Paper FSEM/ACC/07.	Employment	2004	N/A
4	N/A	N/A	N/A	N/A

#### 19.2.2 Classification and definitions

National class	Definition
Primary production of goods	Employment in activities related to primary production of goods, like industrial roundwood, woodfuel and non-wood forest products.
Provision of services	Employment in activities directly related to services from forests and woodlands.
Unspecified forestry activities	Employment in unspecified forestry activities.

N/A	N/A
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### 19.2.3 Original data



FAO 2004 provides estimates of employment mainly on production. This is close to primary employment in production.

Category	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Employment in Forestry (000 person years)	28	29	30	24	21	17	23	25	26	26	29

It is assumed that employment related to management of protected areas may be additional 10 percent in roughly in proportion of the area under conservation to biodiversity (Question 6).

## 19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	30	27	30	32
	... of which female	N/A	N/A	N/A	N/A

## 19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	N/A	N/A

Other general comments to the table

FAO 2009. The World Bank has estimated that in Pakistan 100,000 people are involved in the wood fuel trade; 73% is permanently employed and the remaining 27% temporarily employed. The business generates about Rs.11.3 billion annually, which is equivalent to 10% of the country's exports.



## 20. What is the contribution of forestry to Gross Domestic Product (GDP)?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 20.1 Categories and definitions

Category	Definition
Gross value added from forestry (at basic prices)	This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging).

### 20.2 Data

Table 20 (Pre-filled data from UNdata/EUROSTAT)

Category	Million	Currency	Year for latest available information
Gross value added from forestry (at basic prices)	N/A	N/A	N/A

### 20.3 Comments

Category	Comments
N/A	N/A

Other general comments

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## 21. What is forest area likely to be in the future

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

### 21.1 Categories and definitions

Category	Definition
Government target/aspiration for forest area	Government target/aspiration for forest area for a specific year.
Forests earmarked for conversion	Forest area that is allocated/classified or scheduled to be converted into non-forest uses.

### 21.2 National data

#### 21.2.1 Data sources

	References to sources of information	Variables	Years	Additional comments
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

### 21.3 Data

Table 21a

Category	Forest area (000 ha)	
	2020	2030
Government target/aspiration for forest area	N/A	N/A

Table 21b

Category	Forest area (000 ha)
	2013
Forests earmarked for conversion	N/A

### 21.4 Comments

Category	Comments
Government target/aspiration for forest area	N/A

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Forests earmarked for conversion
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N/A
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Other general comments

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