The State of Forests in the Amazon Basin, Congo Basin and Southeast Asia

A report prepared for the Summit of the Three Rainforest Basins
Brazzaville, Republic of Congo | 31 May–3 June, 2011

ITTO

SOMMET DES 3 BASSINS FORESTIERS TROPICAUX
Brazzaville 31 Mai - 3 Juin 2011
SUMMIT OF THE 3 RAINFOREST BASINS
Brazzaville May 31 - June 3 2011

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ISBN 978-92-5-106888-5

Foreword

The tropical forests of the Amazon and Congo Basins, together with those of Southeast Asia, contain the bulk of the world's terrestrial biodiversity. They play a crucial but still not well understood role in regulating our climate. They are home to a range of products and services that contribute to local livelihoods and national development. Given their importance, the world should know more than it currently does about what is happening in these forests. Few developing countries in these tropical regions have funds for regular forest inventories, so even basic information on forest extent and condition is often outdated or non-existent. Information on how these forests are being managed has been even more difficult to obtain for many countries.

This report was prepared as a background document for the Summit of the Three Rainforest Basins, taking place in Brazzaville, Republic of Congo, on 31 May–3 June 2011. The Brazzaville Summit (and this report that feeds into it) is a timely initiative to take stock of what is happening in the tropical forests of these crucial regions and to generate momentum for their sustainable management. The report draws on work undertaken by the FAO Forestry Department and the International Tropical Timber Organization (ITTO), two international organizations at the forefront of providing information on these forests and promoting their sustainable management.

The information in this report was drawn from FAO's latest Global Forest Resources Assessment (FRA), which first began reporting information on the world's forests more than 60 years ago. This was complemented by information from ITTO's latest Status of Tropical Forest Management report and from the FAO/ITTO/UNECE/Eurostat Joint Forest Sector Questionnaire. These sources together provide the most comprehensive estimates available of the status of the tropical forests that are the focus of the Brazzaville Summit.

The report holds a wealth of information on the forests contained in the countries covered by the Summit. Major developments highlighted in the report include recent decreases in deforestation rates in all regions; increased stakeholder (particularly community) involvement in forest management; the huge socio-economic impacts of forests in all areas; slow but steady increases in the areas deemed to be under sustainable management; and efforts to assess the role of forests in mitigating and adapting to climate change, including preparatory work to assess carbon stocks in order to benefit from international efforts to reduce emissions from deforestation and forest degradation (REDD+).

A more disturbing finding is that every year many millions of hectares of tropical forest in these regions continue to be lost to (or seriously degraded by) alternative land uses. Why is this? After all, the potential value of the many goods and services provided by these forests far outweighs the benefits that can be obtained from almost any alternative land use. Recent studies have found, for example, that the value of tropical forest services (such as carbon sequestration, biodiversity conservation and soil and water protection) could reach many thousands of dollars per hectare. Unfortunately, markets to remunerate such services, where they exist, remain in their infancy. In the face of economic and social pressure to convert forest land to other purposes, it is essential that all the values of tropical

forests are recognized and adequately recompensed to promote their retention and sustainable management. The kind of information contained in this report will be crucial to laying the framework for the robust monitoring mechanisms that will be needed in any eventual market mechanism for REDD+ or related schemes.

On behalf of FAO and ITTO we wish to congratulate the Government of Congo for proposing and hosting this Summit during the International Year of Forests, and for inviting our Organizations to assist with this background report. We commend it wholeheartedly to Summit participants to assist them in their important deliberations to secure the future of our precious tropical forests in perpetuity

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Acknowledgements

This report was prepared by staff of the Forestry Department of the Food and Agriculture Organization of the United Nations (FAO) and of the International Tropical Timber Organization (ITTO). Special thanks go to the following: Rémi d'Annunzio, Chris Brown, Carlos Marx Carneiro, Patrick Durst, Steve Johnson, Örjan Jonsson, Arvydas Lebedys, Danae Maniatis, Jean-Claude Nguinguiri, Hivy Ortiz-Chour for input; Mette Løyche Wilkie for the preparation of the report; Philippe Mayaux of the Joint Research Centre of the European Commission for the map and statistics on forest types; Martin Tadoum of COMIFAC for facilitating the review process; Thorgeir Lawrence, Frederique Banoun, José Chabás and Flora Dicarlo for language editing, translations and layout; and Emma Foti for administrative support.

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Introduction

This report was prepared as a background document for the Summit of the Three Rainforest Basins, held in Brazzaville, Republic of Congo, on 31 May–3 June, 2011.

The three basins and the countries they cover are:

- **Amazon Basin.** Bolivia (Plurinational State of), Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname and Venezuela (Bolivarian Republic of).
- **Congo Basin.** Angola, Burundi, Cameroon, Central African Republic, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Rwanda and Sao Tome and Principe.
- **Southeast Asia.** Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Thailand and Viet Nam.

The selection of countries is based on geographical rather than political groupings and includes those countries where a significant proportion of their forests are characterized either as tropical rainforests or as tropical moist deciduous forests.

For ease of reference, the three regional groupings are collectively referred to as *the three rainforest basins* in this report, although, strictly speaking, they are delimited neither geographically nor hydrologically as basins, and some countries contain forests that are not classified as tropical rainforests.

Unless otherwise specified, the information contained in this report is based on the data provided by countries to FAO for the Global Forest Resources Assessment 2010 (also known as FRA 2010) (FAO, 2010a), to the FAO/ITTO/UNECE/Eurostat Joint Forest Sector Questionnaire and included in FAOSTAT (FAO, 2011a) or to ITTO for the *Status of Tropical Forest Management - 2011* (ITTO, in press). The source data for all tables and figures can be found in the Annex Tables.

FIGURE 1

Countries included in this report

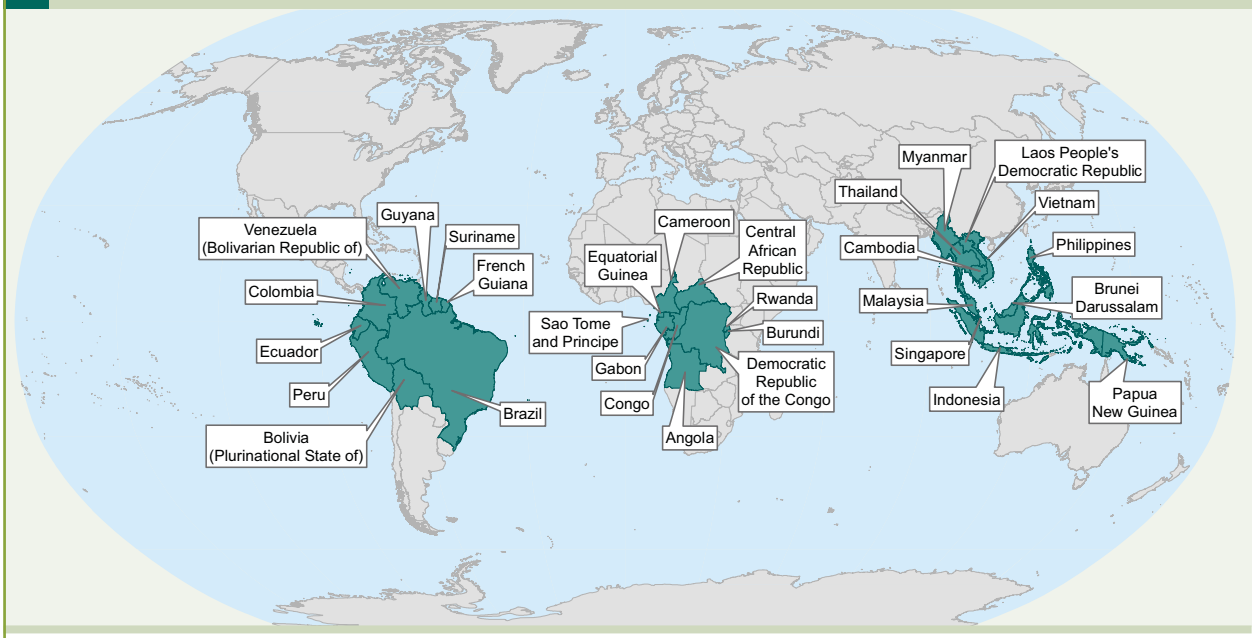
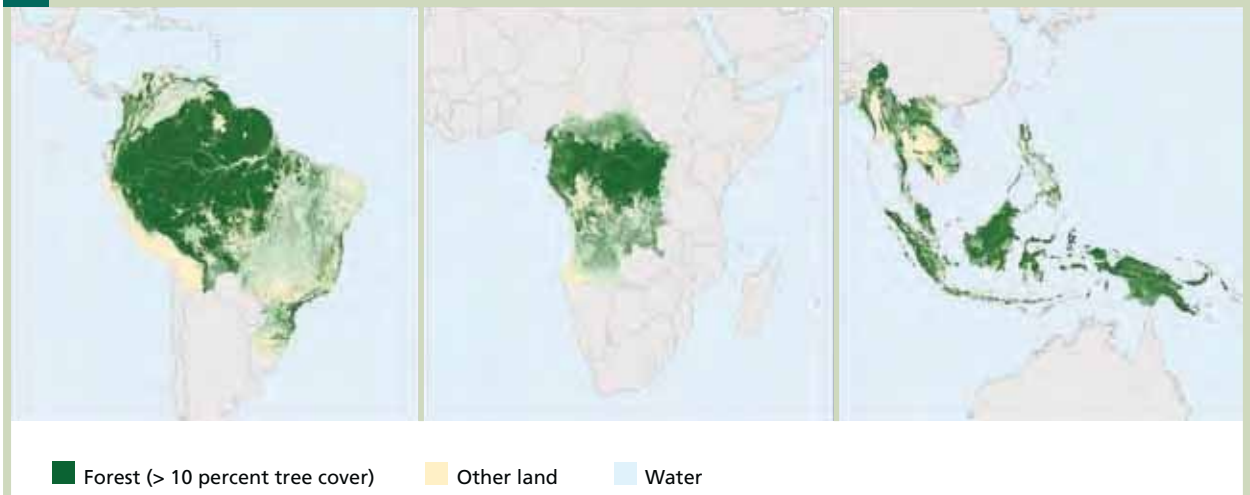


FIGURE 2

Distribution of forests in the three rainforest basins



Note: Tree cover derived from Moderate-resolution Imaging Spectroradiometer Vegetation Continuous Fields (MODIS VCF) 250 metre pixels for the year 2005. (Hansen *et al.,* 2003)

Additional information on issues, challenges and opportunities and on regional outlooks was provided by FAO's Regional Forestry Officers in the three subregions and is primarily based on the most recent versions of regional Forestry Sector Outlook Studies (FAO 2003a, 2003b, 2006a, 2006b, 2010b and 2011b).

The data presented cover all the forests in each of the countries—not just the tropical rainforests—since it was not possible to systematically disaggregate the available national data. The report provides information on the current status (the best available, most recent data or estimate—mostly for 2010) as well as trends over time (generally for 1990–2010). All tables and graphs showing trends are based on those countries which provided information for all points in time (1990, 2000 and 2010). More complete information on the status as of 2010 may be available for some variables.

More detailed and, in some cases, more recent information is available in individual countries and, for the Congo Basin, in the report *Congo Basin Forests – State of Forests 2010* (CBFP, in press) and its predecessors (CBFP 2006 and 2009). However, time did not allow for collection, analysis and incorporation of such data for all countries nor to reconcile different estimates from different sources.

Similarities and differences between the three rainforest basins

The three rainforest basins have much in common, but there are also significant differences, both between and within the three subregions.

Together, the 30 countries included in this study account for 18 percent of the world's land area and 15 percent of the total population, but 33 percent of the global forest area. Twenty-three countries have a GDP of less than US$ 10 000 per capita[1] and one-third of the countries are classified as Least Developed Countries (UNSD, 2011). At the same time, most countries (23) have an annual growth rate of GDP of more than three percent per annum.

[1] The exceptions being Brazil, Brunei Darussalam, Equatorial Guinea, Gabon, Malaysia, Singapore and Venezuela (Bolivarian Republic of).

TABLE 1 Basic data on the three rainforest basins

Region	Land area (1 000 ha)	Population 2008				GDP 2008	
		Total (1 000)	Density (Population/ km²)	Annual growth rate (%)	Rural (% of total)	Per capita (PPP) (US$)	Annual growth rate (%)
Amazon Basin	1 339 294	318 615	24	1.2	18	9 841	5.1
Congo Basin	528 799	129 382	24	2.7	61	1 865	8.3
Southeast Asia	478 295	581 103	121	1.3	54	4 742	4.1
Rainforest Basins	**2 346 388**	**1 029 100**	**44**	**1.4**	**44**	**5 959**	**4.8**
World	**13 009 550**	**6 750 525**	**52**	**1.2**	**50**	**10 384**	**1.7**

The population density is low in the Amazon and Congo Basins, but high in Southeast Asia. More than half of the total population in the Congo Basin and Southeast Asia live in rural areas. By contrast, more than 70 percent of the total population in the Amazon Basin live in urban areas. While decreasing, the annual population growth rate is still high in the Congo Basin (2.7 percent), while close to the global average (1.2 percent) in the Amazon Basin and in Southeast Asia. Table 1 in the Annex Tables highlights the similarities and differences within each of the three subregions, in terms of population and GDP.

Extent of forests

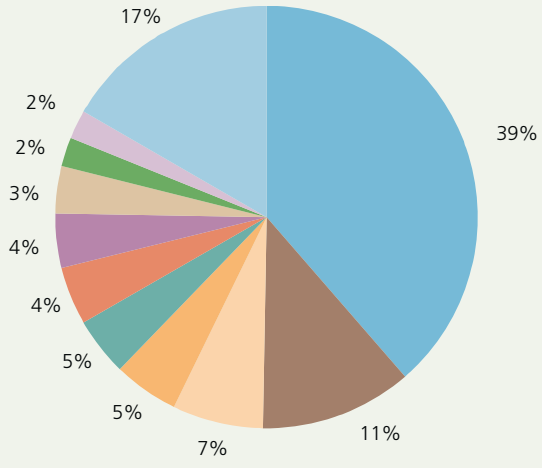
Forests cover 57 percent of total land area in the three rainforest basins compared with the world average of 31 percent

The total forest area in the three rainforest basins is over 1.3 billion hectares (Table 2), which corresponds to one-third of the total forest area in the world and an average of 2.3 ha of forest per capita. The three most forest-rich countries (Brazil, Democratic Republic of Congo and Indonesia) account for more than half (57 percent) of the total forest area. French Guiana, Suriname and Gabon have the highest percent of their land area covered by forests (98, 95 and 85 percent respectively), while Singapore, Burundi and Rwanda have the lowest, ranging from 3 to 18 percent of their total land area.

TABLE 2 Forest area in the three rainforest basins, 2010

Region	Forest area	
	1 000 ha	% of land area
Amazon Basin	799 394	60
Congo Basin	301 807	57
Southeast Asia	242 048	51
Rainforest Basins	**1 343 249**	**57**
World	**4 033 060**	**31**

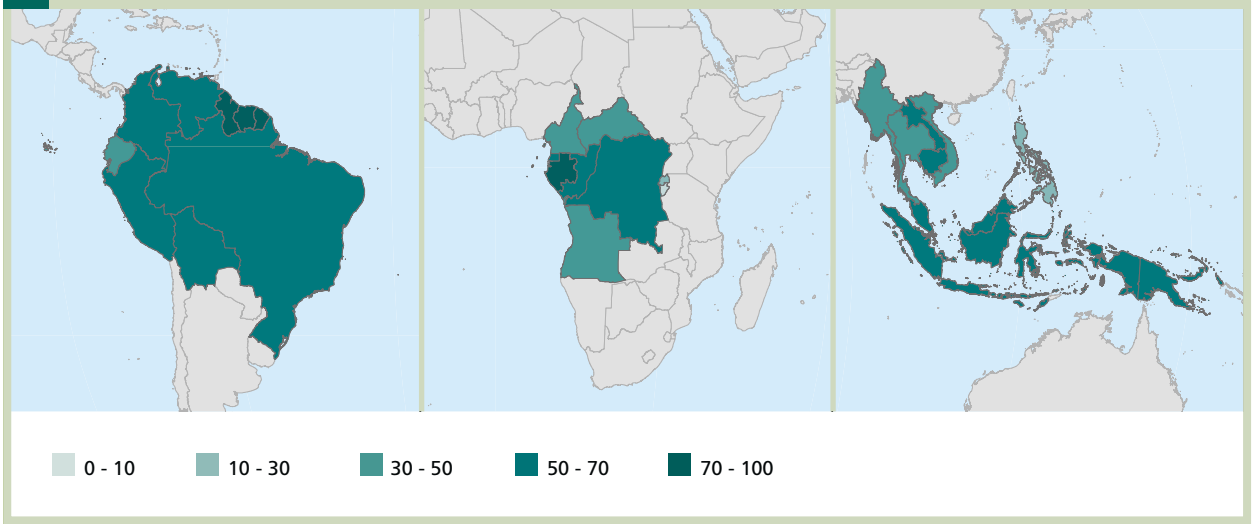
FIGURE 3 Ten countries with the largest forest area in the three rainforest basins, 2010



	(million ha)
Brazil	520
Democratic Republic of the Congo	154
Indonesia	95
Peru	68
Colombia	60
Angola	58
Bolivia (Plurinational State of)	57
Venezuela (Bolivarian Republic of)	46
Myanmar	32
Papua New Guinea	29
Others	224
Total 1 343	

FIGURE 4

Forest area as percent of total land area by country, 2010 (%)



The rate of loss of forest shows signs of decreasing, but is still alarmingly high in many countries

The rate of deforestation, mainly the conversion of forest to agricultural land, shows signs of decreasing in several countries, but continues at a high rate in others. At the same time, afforestation and natural expansion of forests have reduced the net loss of forest area in some countries. Together, the three rainforest basins reported a net loss of forest area of 5.4 million hectares per year for the period 2000–2010, down from 7.1 million hectares per year during the previous decade. The Amazon Basin suffered the largest net loss of forests, about 3.6 million hectares per year between 2000 and 2010, followed by Southeast Asia, which lost 1.0 million hectares annually. The Congo Basin also reported a net loss of forests (about 700 000 ha per year) over the period 2000–2010, but its rate of loss (0.23 percent per annum) was considerably lower than that of the other two subregions (both just over 0.4 percent per annum). Most of the reduction in the net loss of forests happened in Southeast Asia, where the rate of loss was more than halved in the past decade compared with the 1990s.

BOX 1 Deforestation and net change in forest area

The figure below is a simplified model illustrating forest change dynamics. It has only two classes: forests versus all other land. A reduction in forest area can happen through either of two processes: deforestation or natural disasters. Deforestation, which is by far the most important, implies that forests are cleared by people and the land converted to another use, such as agriculture or infrastructure. Natural disasters may also destroy forests, and when the area is incapable of regenerating naturally, and no efforts are made to replant, it too converts to other land.

An increase in forest area can happen in two ways: either through afforestation (i.e. planting of trees on land that was not previously forested), or through natural expansion of forests (e.g. on abandoned agricultural land, which is quite common in some European countries).

Where part of a forest is felled but replanted (reforestation) or grows back on its own within a relatively short period (natural regeneration), there is no change in forest area.

For FRA 2010, countries were asked to provide information on their forest area for four points in time: 1990, 2000, 2005 and 2010. This allows the calculation of net change in forest area over time. This net change is the sum of all negative changes due to deforestation and natural disasters, and all positive changes due to afforestation and natural expansion of forests. The information available does not permit the calculation of the deforestation rate for each country.

FOREST CHANGE DYNAMICS

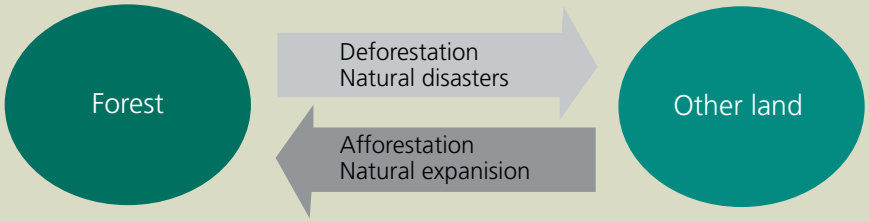


TABLE 3 Trends in forest area in the three rainforest basins, 1990–2010

Region	Area (1 000 ha)			Annual change (1 000 ha)		Annual change rate (%)	
	1990	2000	2010	1990–2000	2000–2010	1990–2000	2000–2010
Amazon Basin	874 321	835 847	799 394	-3 847	-3 645	-0.45	-0.44
Congo Basin	316 078	308 864	301 807	-721	-706	-0.23	-0.23
Southeast Asia	277 817	252 324	242 048	-2 549	-1 028	-0.96	-0.41
Rainforest Basins	**1 468 216**	**1 397 035**	**1 343 249**	**-7 118**	**-5 379**	**-0.50**	**-0.39**
World	**4 168 399**	**4 085 063**	**4 032 905**	**-8 334**	**-5 216**	**-0.20**	**-0.13**

FIGURE 5

Annual change in forest area, 1990–2010 (million ha)

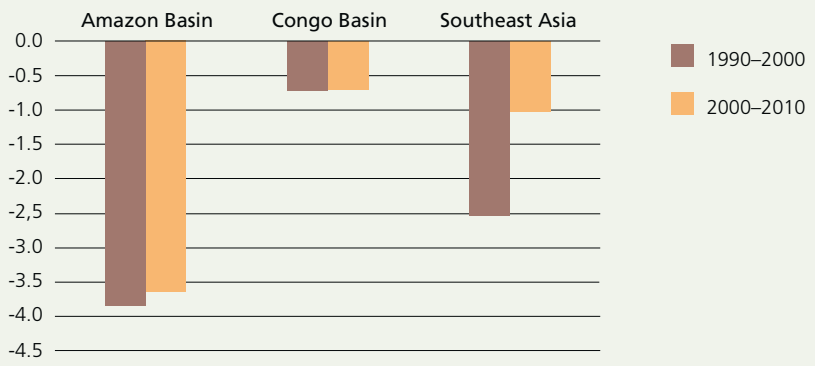
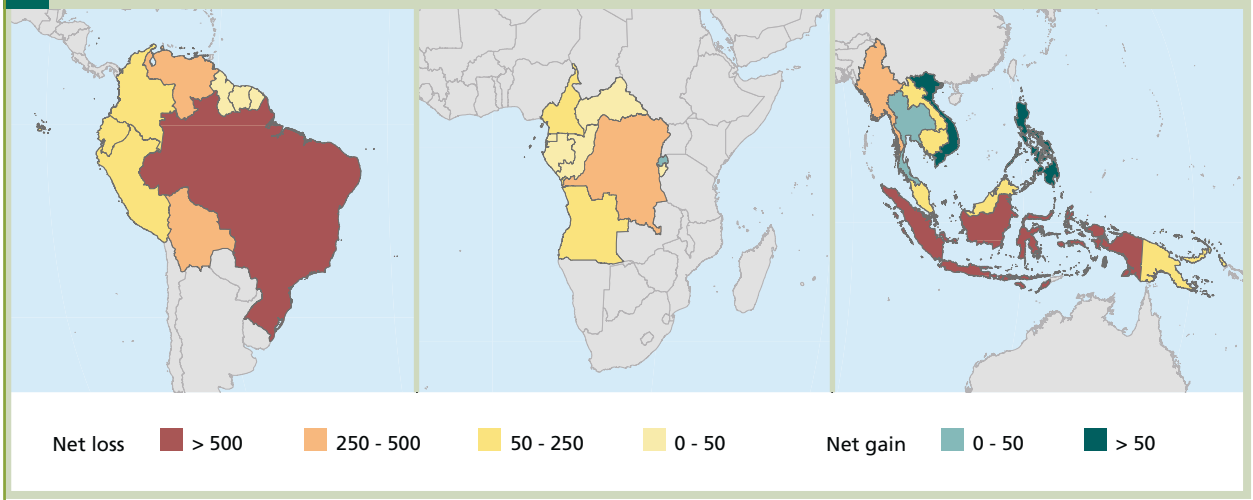


FIGURE 6

Annual change in forest area by country, 2005–2010 (1 000 ha/year)

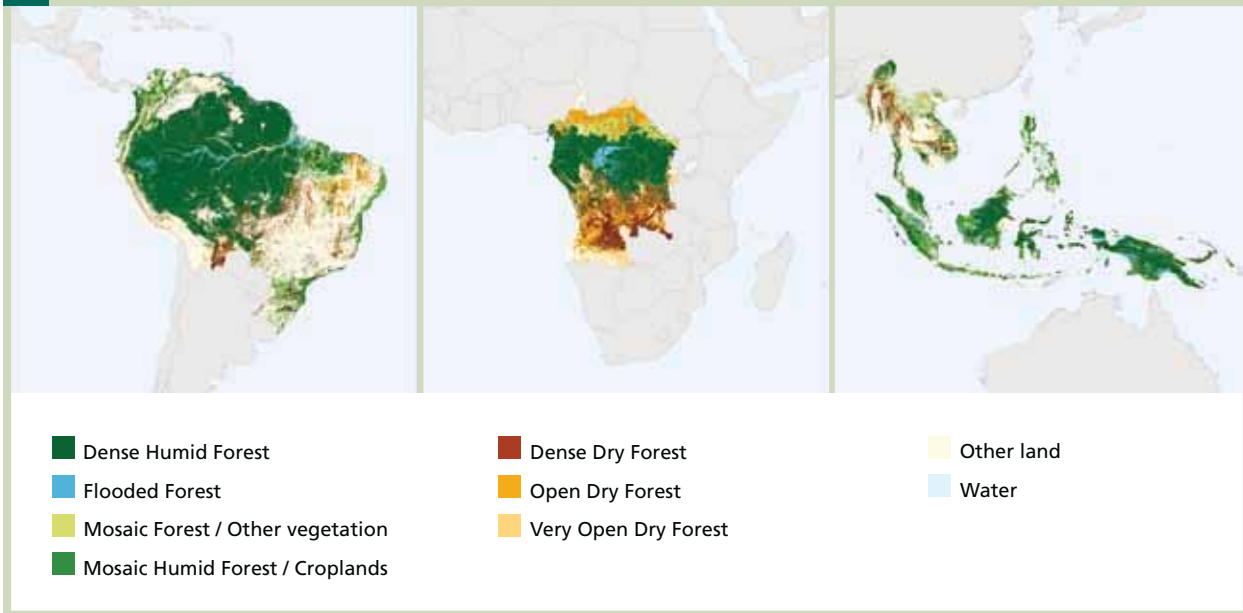


Forest characteristics

Two-thirds of the forests in the three rainforest basins are classified as dense humid forests

Most, but not all, of the forests in the three rainforest basins are classified as dense humid forests, more commonly known as tropical rainforests. The three regions also contain some important areas of flooded forests (including mangroves) and some tropical dry forests. Around one-fifth of all forests are classified as mosaic – a mixture of forest and other land, where forest patches are fragmented and difficult to classify separately. Primary forests and other naturally regenerated forests dominate, constituting 98 percent of all forests.

FIGURE 7 Forest types in the three rainforest basins

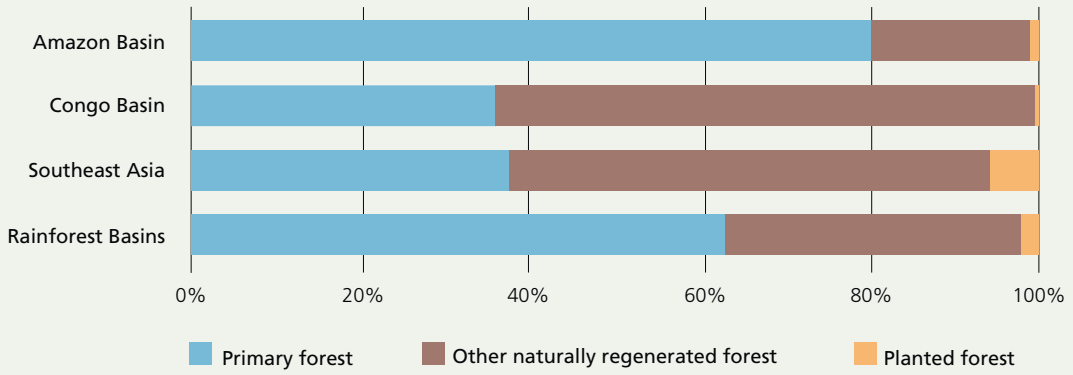


Source: Global Land Cover 2000 (GLC2000), Joint Research Centre of the European Commission.

TABLE 4 Composition of forests in the three rainforest basins, 2010 (%)

Region	Dense humid forest	Dense dry forest	Flooded forest	Mosaics
Amazon Basin	73	5	4	18
Congo Basin	59	23	4	15
Southeast Asia	55	6	6	33
Rainforest Basins	**66**	**9**	**4**	**21**

FIGURE 8 Characteristics of the forests in the three rainforest basins, 2010



Primary forests account for 62 percent of forest area, but have decreased by close to 40 million hectares since 2000

Primary forests consist of native species where there are no clearly visible indications of human activities and the ecological processes have not been significantly disturbed. The primary forests of the three rainforest basins include the most species-rich, diverse terrestrial ecosystems on Earth. Together, the countries in the three rainforest basins account for more than half of all primary forests worldwide, over 830 million hectares. The majority of the countries reported that a significant proportion of their forests are primary with one third of the countries reporting that more than half of their forest area is classified as primary. However, there is a large variation among the three basins, with averages ranging from 35 percent in the Congo Basin and 37 percent in Southeast Asia to 80 percent in the Amazon Basin. At the global level, eight of the ten countries with the highest proportion of their forests classified as primary are located in these three basins. The decrease of primary forest area over the last decade equals 5 percent and is largely due to reclassification of primary forest to 'other naturally regenerated forest' because of selective logging and other human interventions. The largest loss in absolute terms is happening in the Amazon Basin, while the largest rate of loss in percentage terms is reported from the Congo Basin.

TABLE 5 Area of primary forest in the three rainforest basins, 2010

Region	Primary forest	
	Area (1 000 ha)	% of total forest area
Amazon Basin	636 744	80
Congo Basin	106 448	35
Southeast Asia	90 202	37
Rainforest Basins	**833 395**	**62**
World	**1 462 114**	**33**

FIGURE 9

Primary forest as a percentage of total forest area by country, 2010 (%)

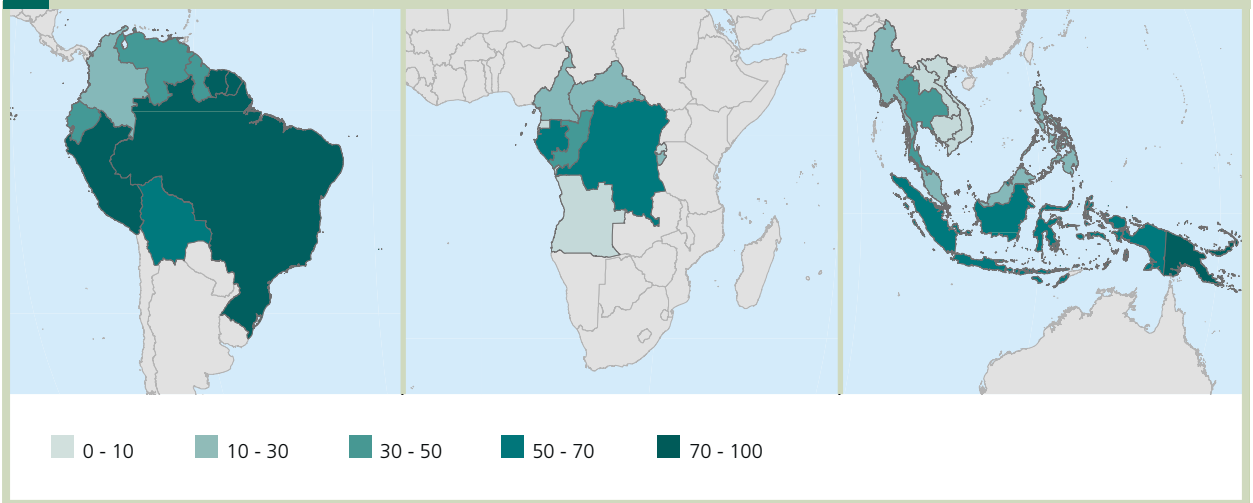
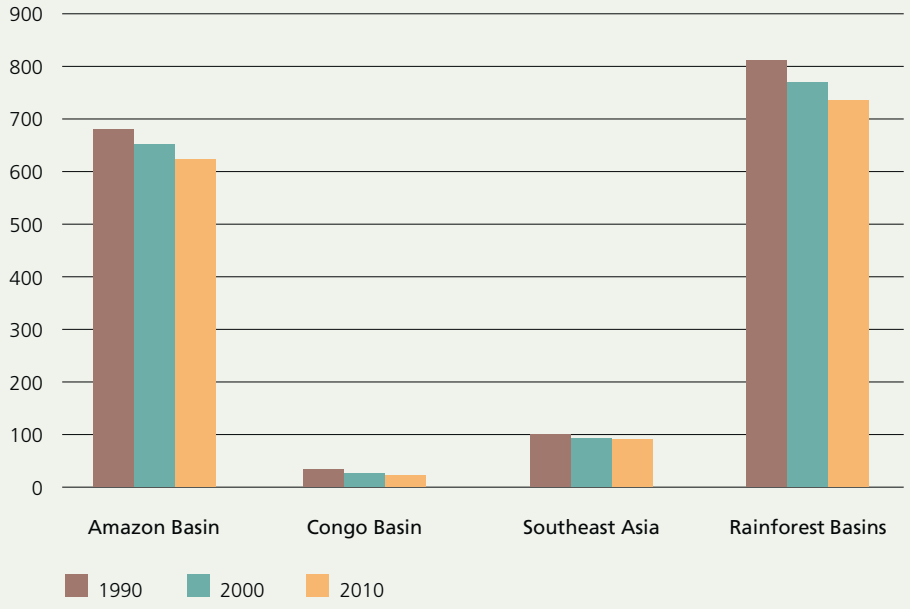


FIGURE 10

Trends in area of primary forest, 1990–2010 (million ha)



Note: Trend data not available for all countries. Refer to Annex Table 7 for details.

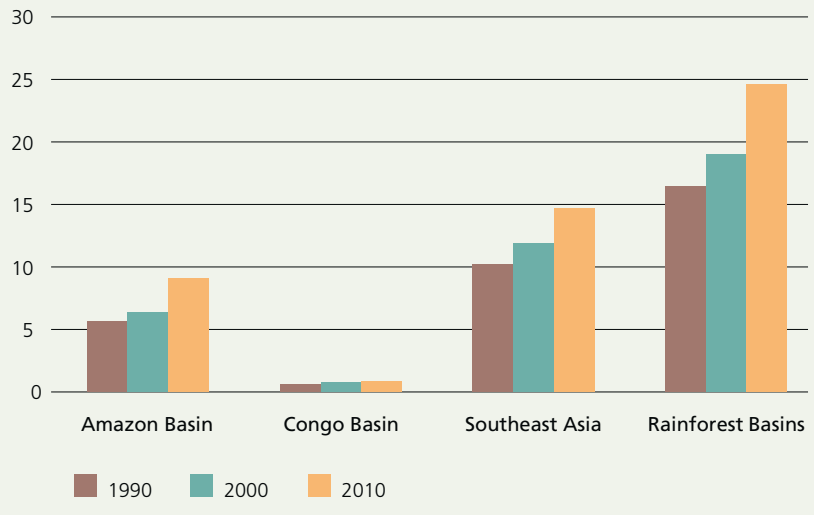
The area of planted forest is increasing, but it still only accounts for 2 percent of the total forest area

Forests and trees are planted for many purposes and make up an estimated 1.9 percent of the total forest area in the three rainforest basins, or 24 million hectares. The total area of planted forest is largest in Southeast Asia, where it accounts for 6 percent of the total forest area, and smallest in the Congo Basin, where only 0.3 percent of the total forest area is established through planting. Between 2000 and 2010, the area of planted forest increased by over half a million hectares per year on average, almost all of it in the Amazon Basin and Southeast Asia.

TABLE 6 Area of planted forest in the three rainforest basins, 2010

Region	Planted forest	
	Area (1 000 ha)	% of total forest area
Amazon Basin	9 862	1.2
Congo Basin	813	0.3
Southeast Asia	14 576	6.0
Rainforest Basins	25 250	1.9
World	264 923	6.6

FIGURE 11 Trends in area of planted forest, 1990–2010 (million ha)



Note: Trend data not available for all countries. Refer to Annex Table 8 for details.

Growing stock and carbon stocks

The forests in the three rainforest basins contain 47 percent of the global growing stock

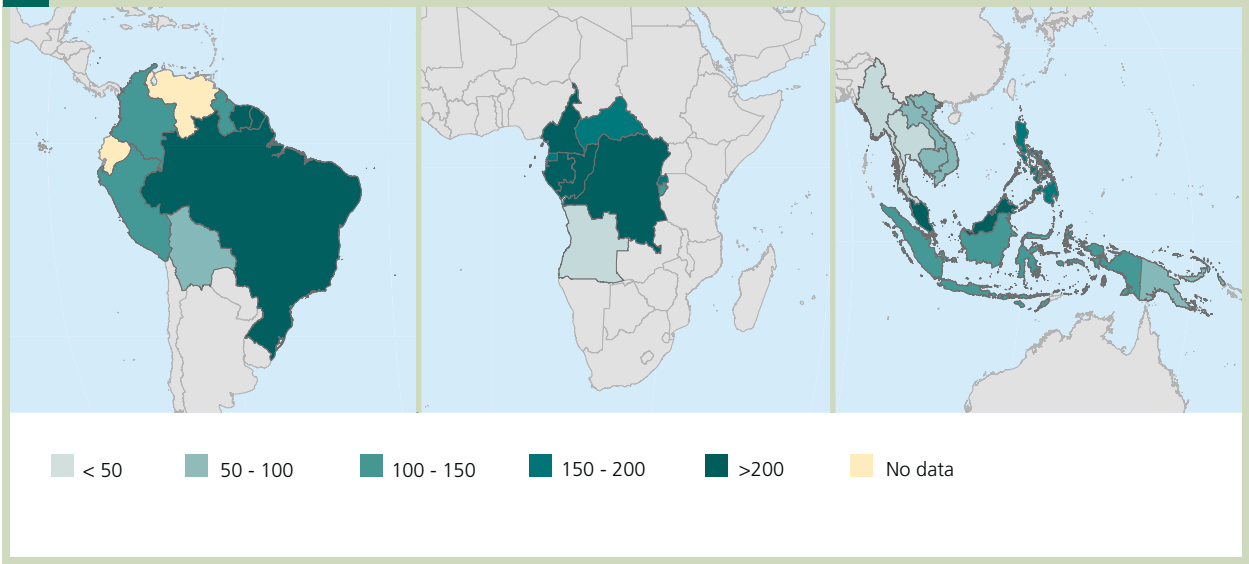
The total growing stock of forests in the three basins is estimated at more than 250 billion cubic metres, equivalent to an average of 188 m^3/ha. However, there is a large variation between countries, with reported national averages ranging from around 40 m^3/ha in Angola and Thailand to 350 m^3/ha in French Guiana, with eight countries reporting a national average of more than 200 m^3/ha.

TABLE 7 Forest growing stock in the three rainforest basins, 2010

Region	Growing stock million	
	Total (million m^3)	m^3/ha
Amazon Basin	156 028	195
Congo Basin	57 673	191
Southeast Asia	39 313	162
Rainforest Basins	**253 014**	**188**
World	**527 203**	**131**

Note: Includes FAO estimates to fill data gaps. Refer to FAO, 2010a for details.

FIGURE 12 Growing stock per hectare by country, 2010 (m^3/ha)



The forests in the three rainforest basins store a vast amount of carbon

Estimates made for FRA 2010 show that the world's forests store 652 gigatonnes (Gt) of carbon in their biomass, deadwood, litter and soil. Forty-two percent of this (or 271 Gt) is found in the three rainforest basins, despite the fact that these countries only account for 33 percent of the total forest area. This is because forests in these three basins store a higher amount of carbon per hectare (202 t/ha) than the global average (162 t/ha). While sustainable management, planting and rehabilitation of forests can conserve or increase forest carbon stocks, deforestation, degradation and poor forest management reduce them. Total carbon stocks in forests in the three rainforest basins decreased by an estimated 1.2 Gt annually during the period 2000–2010, mainly because of reduction in the forest area.

TABLE 8 Carbon stocks in forests in the three rainforest basins, 2010

Region	Carbon in biomass		Carbon in dead wood		Carbon in litter		Carbon in soil		Total carbon stock	
	million tonnes	t/ha	million tonnes	t/ha	million tonnes	t/ha	million tonnes	t/ha	million tonnes	t/ha
Amazon Basin	95 495	119.5	6 025	7.5	3 108	3.9	71 669	89.7	176 297	220.5
Congo Basin	35 992	119.3	2 664	8.8	634	2.1	17 452	57.8	56 741	188.0
Southeast Asia	23 469	97.0	491	2.0	547	2.3	13 696	56.6	38 203	157.8
Rainforest Basins	**154 956**	**115.4**	**9 180**	**6.8**	**4 288**	**3.2**	**102 817**	**76.5**	**271 241**	**201.9**
World	**288 821**	**71.6**	**32 904**	**8.2**	**38 984**	**9.7**	**291 662**	**72.3**	**652 371**	**161.8**

Note: Includes FAO estimates to fill data gaps. Refer to FAO, 2010a for details.

TABLE 9 Trends in total carbon stocks in forests in the Amazon Basin, 1990–2010

	Total carbon stock (million tonnes)			Annual change (million tonnes)		Annual change rate (%)	
	1990	2000	2010	1990–2000	2000–2010	1990–2000	2000–2010
Carbon in biomass	103 001	99 221	95 495	-378	-373	-0.37	-0.38
Carbon in deadwood	6 468	6 252	6 025	-22	-23	-0.34	-0.37
Carbon in litter	3 385	3 238	3 108	-15	-13	-0.44	-0.41
Carbon in soil	78 798	74 957	71 669	-384	-329	-0.50	-0.45
Total carbon stock	**191 652**	**183 667**	**176 297**	**-798**	**-737**	**-0.42**	**-0.41**

Note: Includes FAO estimates to fill data gaps. Refer to FAO, 2010a for details.

TABLE 10 **Trends in total carbon stocks in forests in the Congo Basin, 1990–2010**

	Total carbon stock (million tonnes)			Annual change (million tonnes)		Annual change rate (%)	
	1990	2000	2010	1990–2000	2000–2010	1990–2000	2000–2010
Carbon in biomass	37 727	36 835	35 992	-89	-84	-0.24	-0.23
Carbon in deadwood	3 115	2 923	2 664	-19	-26	-0.64	-0.92
Carbon in litter	665	648	634	-2	-1	-0.26	-0.22
Carbon in soil	18 300	17 873	17 452	-43	-42	-0.24	-0.24
Total carbon stock	**59 807**	**58 278**	**56 741**	**-153**	**-154**	**-0.26**	**-0.27**

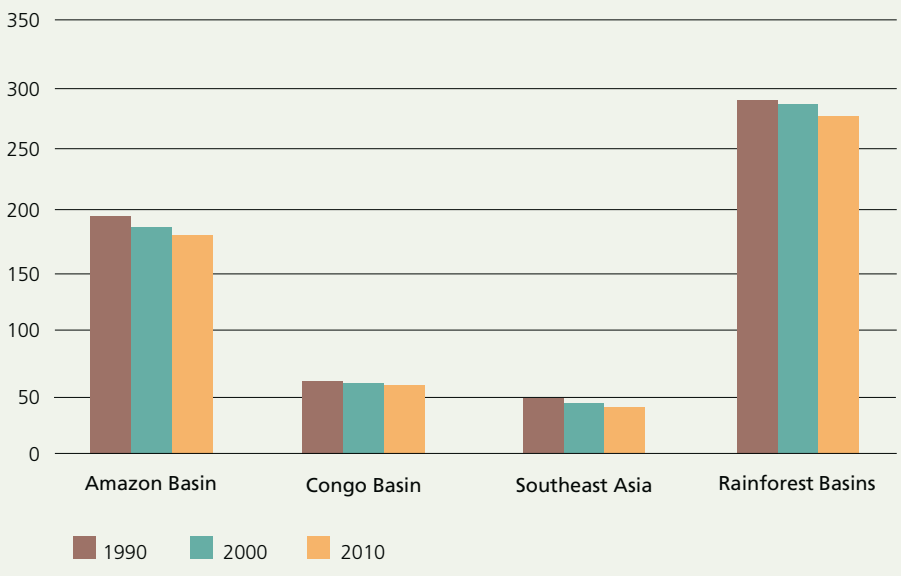
Note: Includes FAO estimates to fill data gaps. Refer to FAO, 2010a for details.

TABLE 11 **Trends in total carbon stocks in forests in Southeast Asia, 1990–2010**

	Total carbon stock (million tonnes)			Annual change (million tonnes)		Annual change rate (%)	
	1990	2000	2010	1990–2000	2000–2010	1990–2000	2000–2010
Carbon in biomass	27 936	26 229	23 469	-171	-276	-0.63	-1.11
Carbon in deadwood	561	518	491	-4	-3	-0.79	-0.53
Carbon in litter	588	553	547	-3	-1	-0.61	-0.12
Carbon in soil	15 624	14 220	13 696	-140	-52	-0.94	-0.37
Total carbon stock	44 710	41 521	38 203	-319	-332	-0.74	-0.83

Note: Includes FAO estimates to fill data gaps. Refer to FAO, 2010a for details.

FIGURE 13 **Trend in total carbon stocks in forests, 1990–2010 (Gt)**



Note: Includes FAO estimates to fill data gaps. Refer to FAO, 2010a for details.

Ownership and management rights

83 percent of the forests are publicly owned, but ownership or management of forests by individuals, communities and private companies is on the rise

Despite changes in forest ownership and tenure in some countries, the vast majority of forests in the three rainforest basins remain under public ownership. However, the situation varies between the regions and countries. In the Congo Basin, 99 percent of all forests are publicly owned, while in the Amazon Basin and Southeast Asia, close to 20 percent are privately owned. In some countries there is an increasing trend of involving communities and private companies in the management of publicly owned forests. Brazil and the Philippines report that a large proportion of publicly owned forests are managed by communities (37 and 47 percent respectively), while in Cameroon, Congo and Indonesia more than 40 percent of the publicly owned forests are managed by private corporations and institutions (concessionaires). In the Amazon Basin, private corporations and institutions do not manage much public forest, although this is expected to increase in the future as a result of the forest concession law introduced in 2006 in Brazil.

FIGURE 14 Forest ownership patterns, 2005 (%)

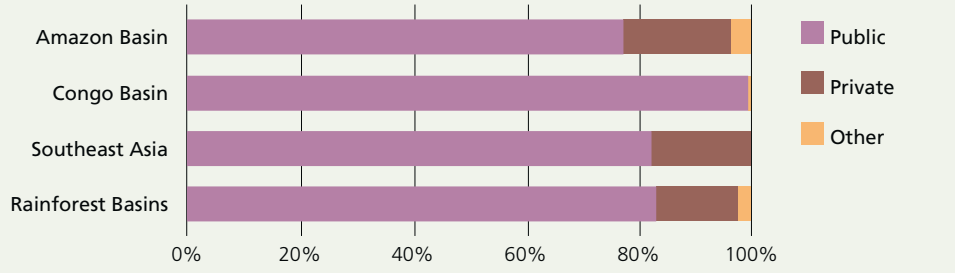
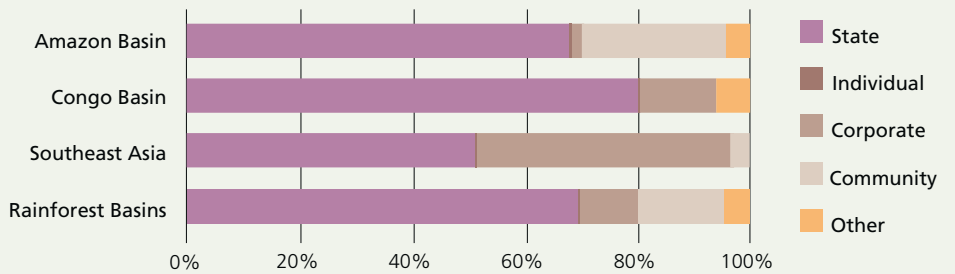


FIGURE 15 Management rights in public forests, 2005 (%)



Designated functions of forests

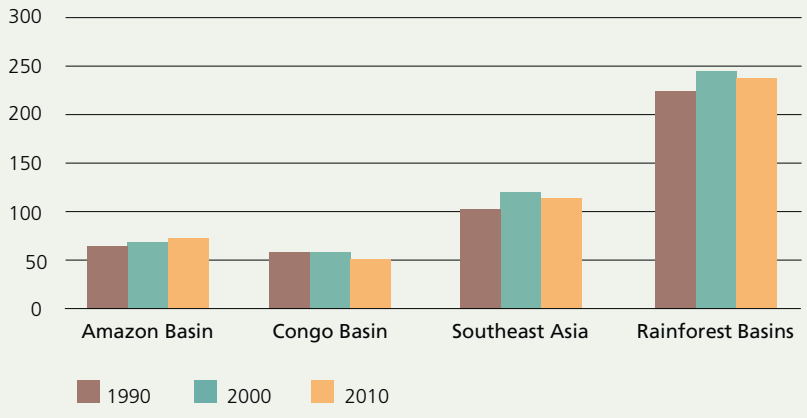
21 percent of the forests are primarily used for production of wood and non-wood products

Close to 279 million hectares of forest are managed primarily for the production of wood and non-wood forest products in the three rainforest basins. An additional 135 million hectares (10 percent) are designated for multiple use, which in most cases includes the production of wood and non-wood forest products. The area designated primarily for productive purposes increased by 20.6 million hectares in the 1990s, but has decreased by 7.5 million hectares in the last decade due to decreases in the Congo Basin and Southeast Asia, and despite an increase

TABLE 12 Area of forest primarily designated for production of wood and non-wood forest products in the three rainforest basins, 2010

Region	Forest area primarily designated for production	
	Area (1 000 ha)	% of total forest area
Amazon Basin	108 258	14
Congo Basin	58 884	20
Southeast Asia	111 411	46
Rainforest Basins	**278 553**	**21**
World	**1 196 168**	**30**

FIGURE 16 Trends in forests designated for production of wood and non-wood forest products,1990–2010 (million ha)



Note: Trend data not available for all countries. Refer to Annex Table 14 for details.

in the Amazon Basin. However, there are significant differences between countries within the three basins, with increases in the area designated for production in the last decade in Brazil, Cameroon, the Philippines, Thailand and Viet Nam, and decreases reported by Cambodia, Gabon, Indonesia, Myanmar, Papua New Guinea, Peru and Venezuela (Bolivarian Republic of).

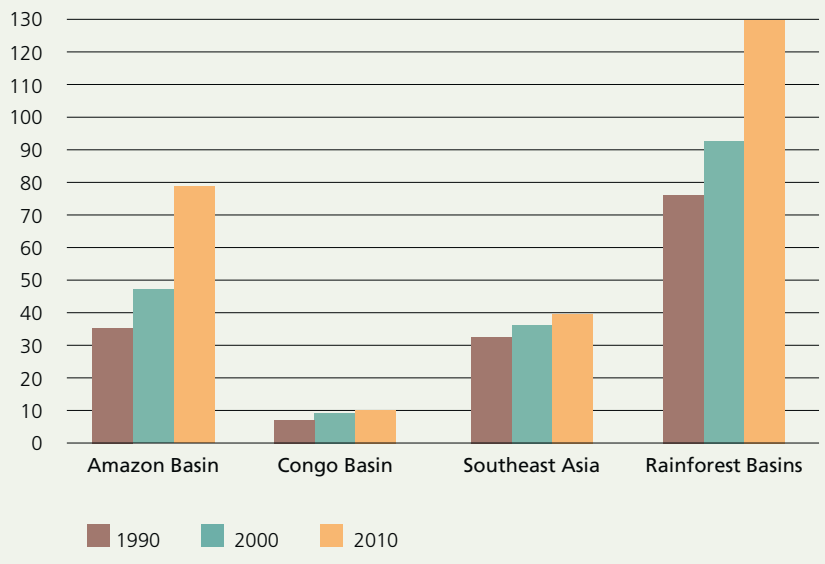
14 percent of the forests are designated for conservation of biological diversity

The total area of forest in the three rainforest basins where conservation of biological diversity is designated as the primary function has increased by more than 53 million hectares since 1990, of which almost two-thirds was designated between 2000 and 2010, with most of it in the Amazon Basin. These forests now account for 14 percent of the total forest area, or more than 187 million hectares. Most but not all of them are located inside protected areas.

TABLE 13 Area of forest primarily designated for conservation of biological diversity in the three rainforest basins, 2010

Region	Forest area primarily designated for conservation	
	Area (1 000 ha)	% of total forest area
Amazon Basin	110 015	14
Congo Basin	37 331	12
Southeast Asia	39 780	16
Rainforest Basins	**187 126**	**14**
World	**463 415**	**12**

FIGURE 17 Trends in forests designated for conservation of biological diversity, 1990–2010 (million ha)



Note: Trend data not available for all countries. Refer to Annex Table 14 for details.

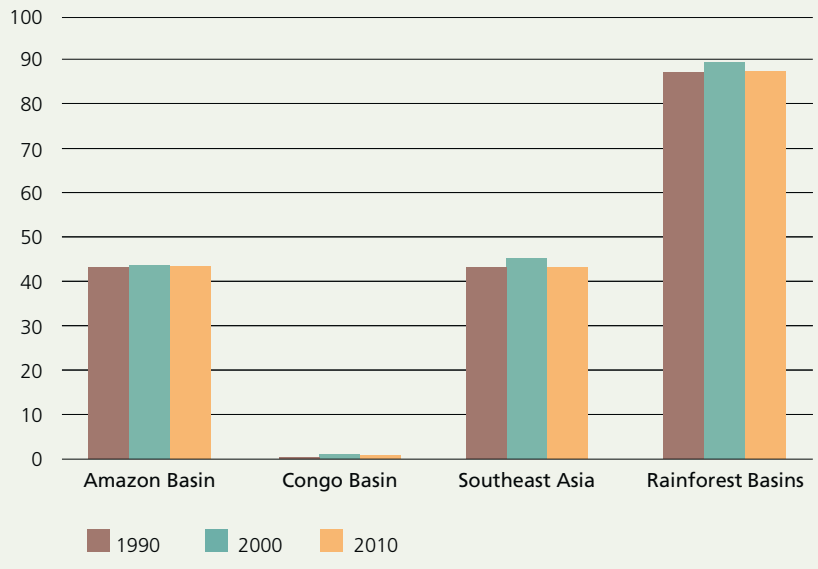
7 percent of the forests have protection of soil and water as their primary objective

Close to 98 million hectares of forest are designated for protective functions, notably the conservation of soil and water resources. These areas increased in the 1990s (primarily in Myanmar and Viet Nam), but decreased by 18 million hectares between 2000 and 2010, especially in Southeast Asia.

TABLE 14 Area of forest primarily designated for protection of soil and water resources in the three rainforest basins, 2010

Region	Forest area primarily designated for protection of soil and water	
	Area (1 000 ha)	% of total forest area
Amazon Basin	53 799	6.7
Congo Basin	645	0.2
Southeast Asia	43 433	17.9
Rainforest Basins	**97 877**	**7.3**
World	**329 168**	**8.2**

FIGURE 18 Trends in forests designated for protection of soil and water resources, 1990–2010 (million ha)



Note: Trend data not available for all countries. Refer to Annex Table 14 for details.

Socio-economic aspects

Production of industrial roundwood has steadily increased, while woodfuel production has remained fairly constant since the 1970s

In the three rainforest basins, wood removals amount to 0.7 billion cubic metres annually (21 percent of removals in the world). Total wood removals in these three basins have increased by 6 percent since 1990; continuous decline in Southeast Asia was offset by continued growth in the Amazon and Congo basins. Woodfuel accounts for more than two thirds of removed wood in the Congo Basin and Southeast Asia. In the Amazon Basin countries the ratio between woodfuel and industrial roundwood is close to the global average of 57 percent, mainly due to the rapid expansion of wood and pulp industries in this region over the past two decades.

More than 2 million people are formally employed in forestry

In the three rainforest basins, around 2.3 million people are formally employed in roundwood production, wood processing and pulp and paper industries. Given that much employment in forestry and wood processing is outside the formal sector and official statistics, forest- and forest-products-related work are surely much more important for rural livelihoods and national economies than official figures suggest.

FIGURE 19 Trends in wood removals, 1970–2009 (million m³)

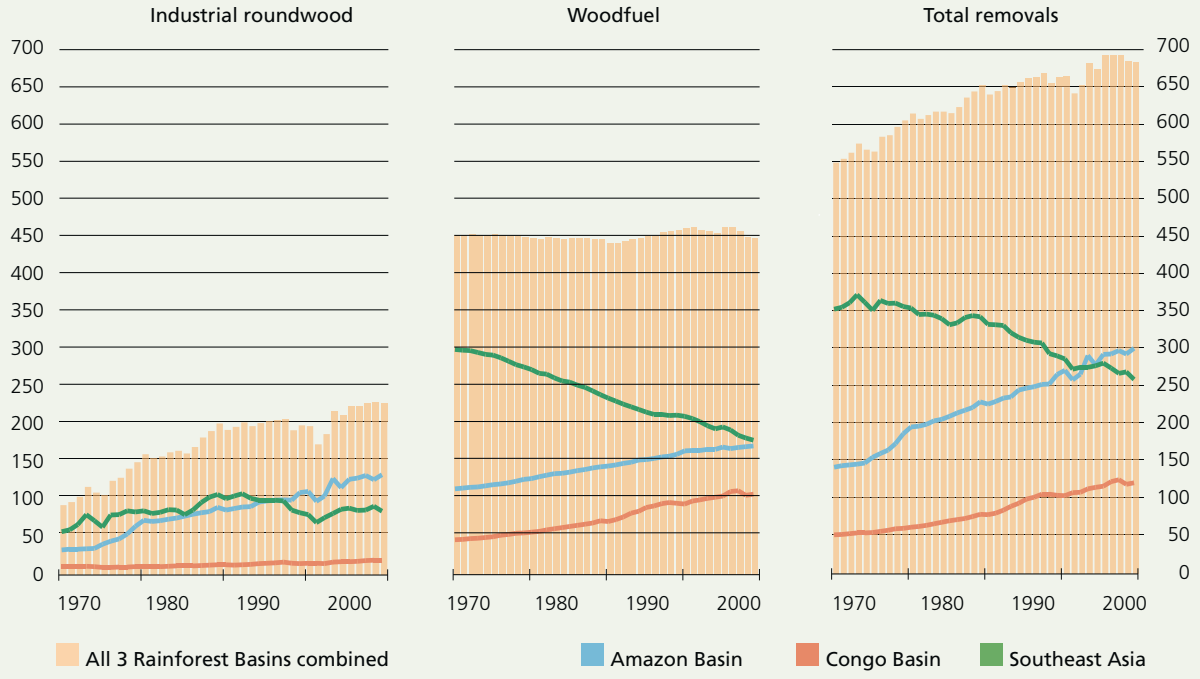


TABLE 15 Wood removals in the three rainforest basins, 2009

Region	Industrial roundwood	Woodfuel		Total removals
	million m^3	million m^3	% of total	million m^3
Amazon Basin	132	170	56	301
Congo Basin	17	105	86	122
Southeast Asia	83	177	68	260
Rainforest Basins	**231**	**452**	**66**	**683**
World	**1 424**	**1 851**	**57**	**3 275**

TABLE 16 Employment in the forestry sector in the three rainforest basins, 2006

Region	Roundwood production (1 000 FTE)	Wood processing (1 000 FTE)	Pulp and paper (1 000 FTE)	Total for the forestry sector	
				1 000 FTE	% of total labour force
Amazon Basin	358	553	267	1 178	0.9
Congo Basin	36	20	1	57	0.1
Southeast Asia	230	506	304	1 039	0.4
Rainforest Basins	**624**	**1 078**	**571**	**2 274**	**0.5**
World	**3 876**	**5 459**	**4 374**	**13 709**	**0.4**

The forestry sector contributes 2 percent to GDP

Forestry activities, wood industries and the pulp and paper industry together contributed 2 percent to the GDP in all three rainforest basins combined, but significantly more in several countries. The contribution of the forestry sector to GDP is decreasing as other sectors of the economy grow faster. Investments in wood processing and in the pulp and paper industry helped to maintain a relatively stable level of the forestry sector's contribution to GDP in the Amazon Basin, while in the other two regions the sector's contribution is declining. In the Congo Basin, more than 80 percent of the value added comes from forestry and logging, and only 1 percent from the pulp and paper industry, while in Southeast Asia, less than 40 percent is attributed to forestry and logging, with an additional 34 percent from the wood industry and 27 percent from the pulp and paper industry. The Amazon Basin falls somewhere in between. Given the lack of data on the subsistence use of forests and on the informal economy, the total contribution of the forestry sector to GDP is undoubtedly higher in many of the countries.

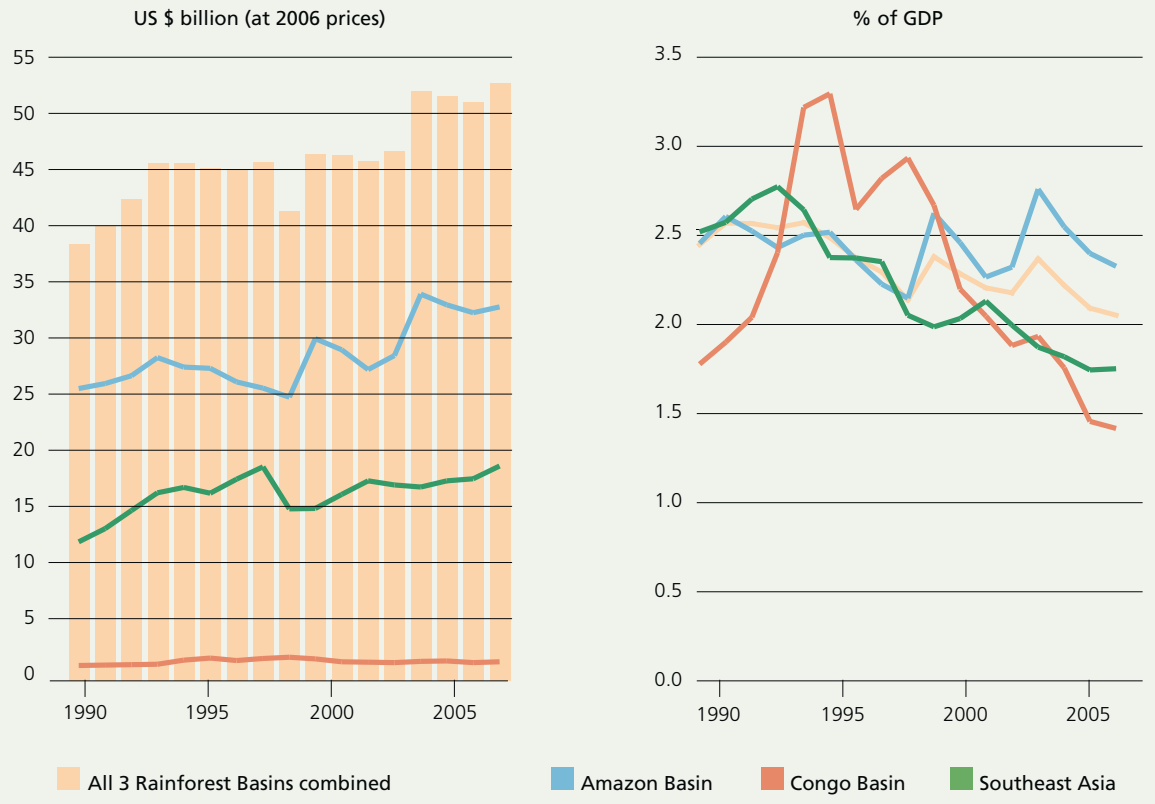
TABLE 17

Status of the forestry sector value-added and contribution to GDP, 2006

Region	Distribution of forestry sector gross value added in 2006							
	Forestry and logging		Wood industry		Pulp and paper industry		Total (US$ billion)	Contribution to GDP (%)
	US$ billion	%	US$ billion	%	US$ billion	%		
Amazon Basin	19.6	60	5.5	17	7.7	23	32.8	2.3
Congo Basin	1.2	82	0.2	17	n.s.	1	1.4	1.4
Southeast Asia	7.2	39	6.4	34	5.1	27	18.7	1.7
Rainforest Basins	**27.9**	**53**	**12.2**	**23**	**12.8**	**24**	**52.9**	**2.0**
World	**117.5**	**25**	**149.8**	**32**	**200.6**	**43**	**467.9**	**1.0**

FIGURE 20

Forestry's contribution to GDP in the three rainforest basins, 1990–2006



Laws and policies

Significant progress has been made in developing forest policies, laws and national forest programmes in the last ten years

Of the 30 countries included in this report, 24 have a national forest policy statement and 13 of these were issued or updated since 2000. Of the 26 countries that have a specific forest law, ten countries reported that their current forest law has been enacted or amended since 2000. Twenty-five countries, accounting for more than 94 percent of the total forest area in the three rainforest basins, are covered by a national forest programme, i.e. a participatory process for the development and implementation of forest-related policies and international commitments at the national level. The vast majority of these have been established since 2000.

FIGURE 21

Date of endorsement of forest policy statement (number of countries)

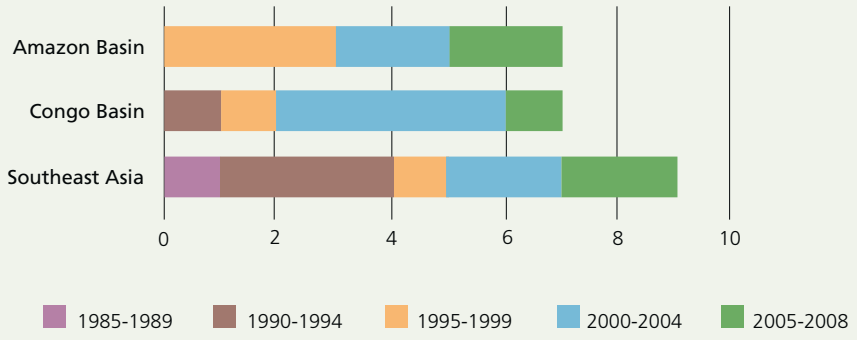


FIGURE 22

Date of enactment of forest legislation (number of countries)

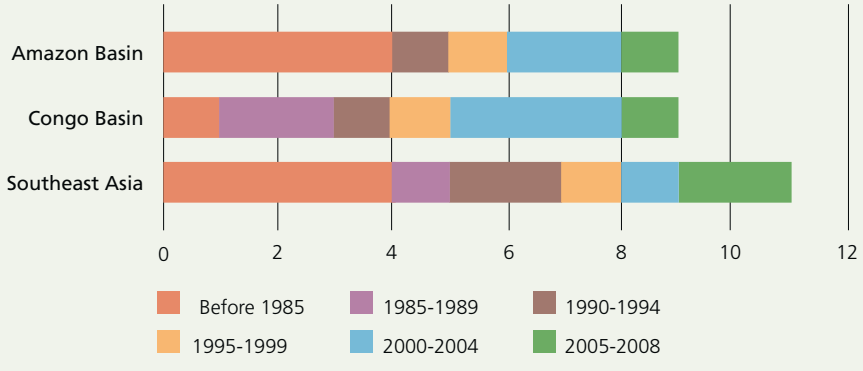
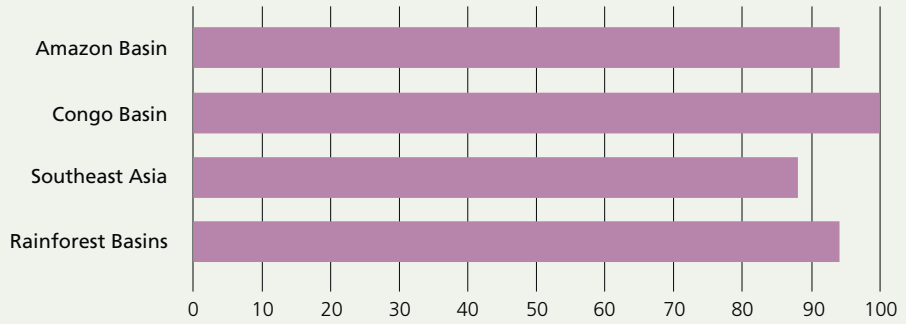


FIGURE 23 Forest area covered by a national forest programme, 2008 (%)



The main forest-related conventions and agreements have been ratified by all countries

All countries have ratified the Rio conventions (CBD, UNCCD and UNFCCD), the Kyoto Protocol and the Non-legally binding instrument on all types of forests (NLBI) of the United Nations Forum on Forests. Most countries have also ratified CITES, Ramsar and the World Heritage Convention. Twenty-one countries have signed the International Tropical Timber Agreement of the ITTO. Refer to Annex Table 21 for details.

Status of forest management

Forests are managed for a multitude of uses and values

The forests of the three rainforest basins are increasingly being conserved and managed for multiple uses and values, often in combination. Around 135 million hectares, or 10 percent of all forests, are designated for multiple use, i.e. managed for any combination of the production of goods, protection of soil and water, conservation of biodiversity and provision of social services, with none of these alone considered the predominant function. The Amazon Basin and the Congo Basin have large areas of forest with no or unknown designation, indicating that detailed land-use planning for forests has yet to be completed. Southeast Asia reported the largest proportion of forests designated for productive purposes, reflecting the high population density, a long history of forest management and timber harvesting, and the low proportion of primary forests compared with the two other basins. However, Southeast Asia also recorded the highest proportion of forests designated for protection of soil and water resources and for the conservation of biodiversity. The Amazon Basin registered the highest proportion of forests managed for social services, largely in the form of areas allocated to indigenous peoples in Brazil, thereby helping to conserve cultural values.

FIGURE 24 Designated functions of the forests in the Amazon Basin, 2010 (%)

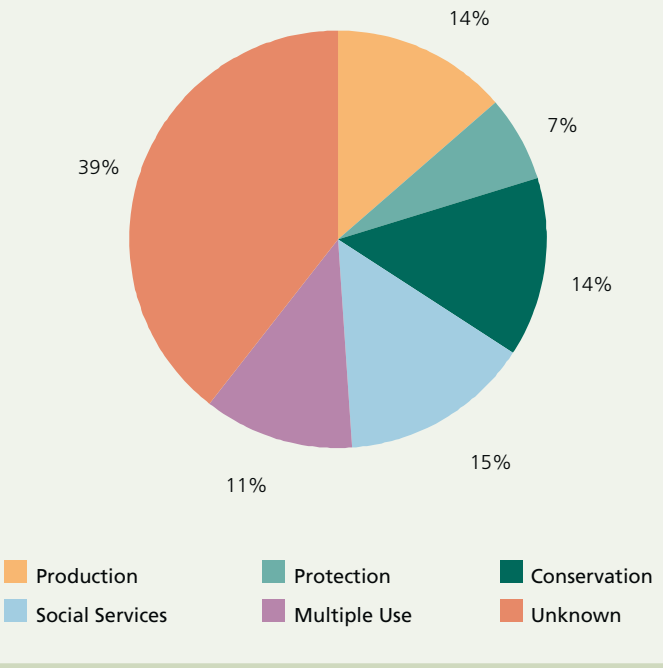


FIGURE 25

Designated functions of the forests in the Congo Basin, 2010 (%)

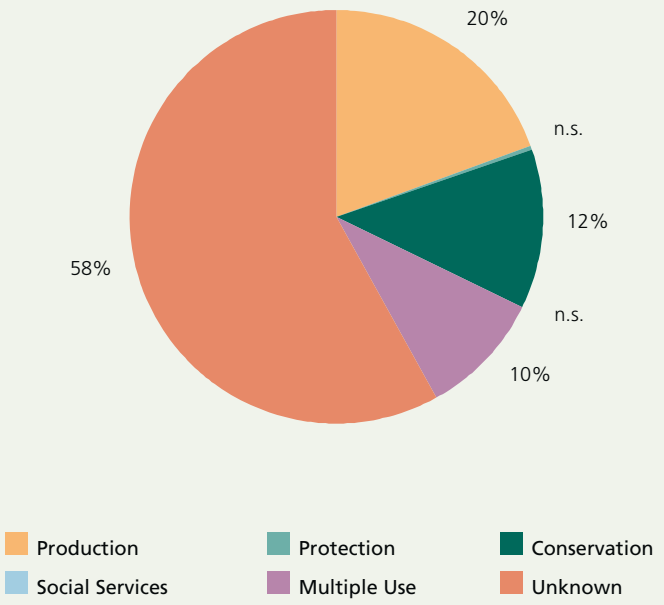


FIGURE 26

Designated functions of the forests in Southeast Asia, 2010 (%)

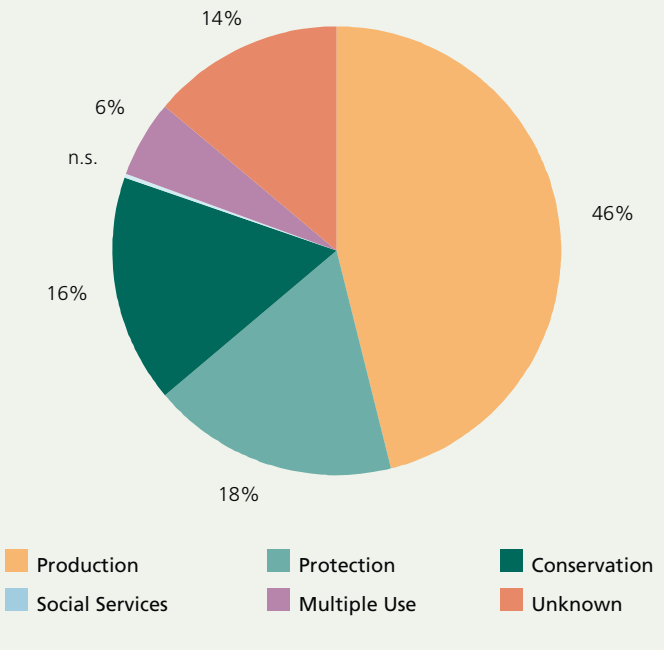
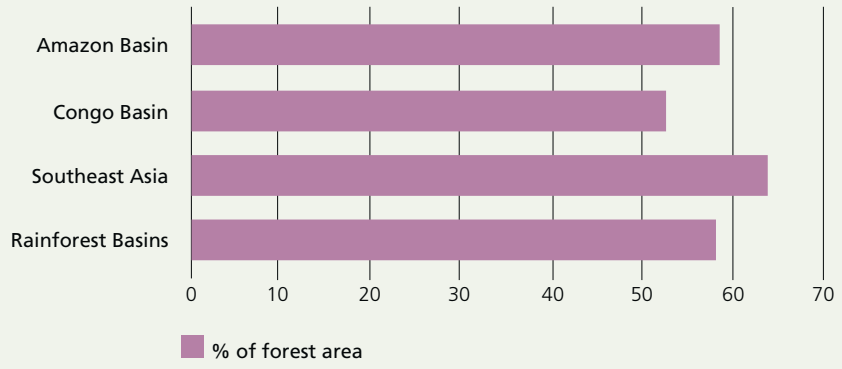


FIGURE 27

Proportion of forest area designated as Permanent Forest Estate by region, 2010 (%)



Close to 60 percent of the forest area in the three rainforest basins is designated as permanent forest estate

More than 764 million hectares of forests, or 58 percent of the total forest area of the reporting countries, are considered to be part of the permanent forest estate, i.e. designated by law to remain under forest cover. The largest area of permanent forest estate is found in the Amazon Region, while Southeast Asia has designated the largest proportion of its remaining forests as permanent forest estate.

Legally established protected areas cover an estimated 18 percent of the forests in the three rainforest basins

National parks, game reserves, wilderness areas and other legally established protected areas cover more than ten percent of the total forest area in most countries, but the proportion varies widely, ranging from 1 percent in the Central African Republic and Papua New Guinea to more than 40 percent in Cameroon, Indonesia and Thailand. The primary function of these forests may be the conservation of biological diversity, the protection of soil and water resources, or the conservation of cultural heritage. The area of forest within a protected area system has increased by 29 million hectares since 2000 and now equals close to 200 million hectares. However, as can be seen in Figure 29, data is missing from several countries in the Amazon Basin and in Southeast Asia, so the total area is undoubtedly larger.

FIGURE 28

Proportion of forest area in legally protected areas by region, 2010 (%)

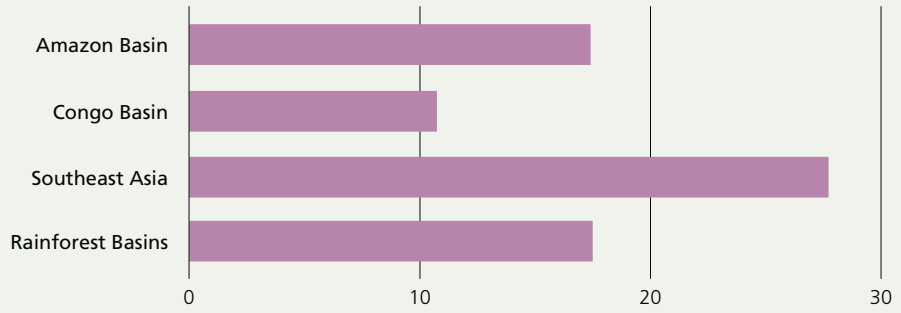
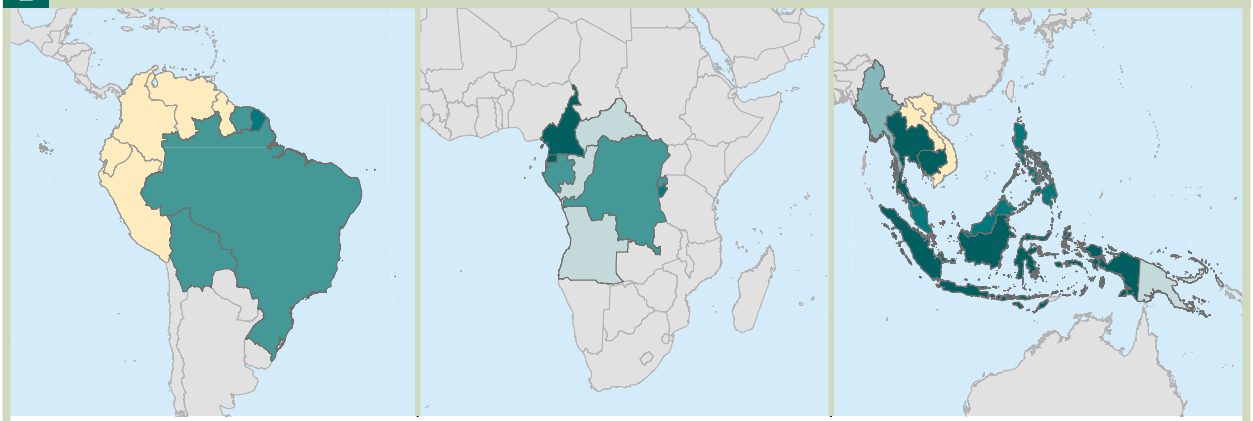


FIGURE 29

Proportion of forest area in legally protected areas by country, 2010 (%)



The proportion of the forest area with a management plan is still very low

The area of forest covered by a management plan—an important tool for achieving sustainable forest management—is steadily increasing, yet information is still missing from several countries in the three rainforest basins. Based on the most recent information available, close to 166 million hectares, or 13 percent of the forest area in the reporting countries, are subject to some kind of a management plan. Countries in the Amazon and Congo Basins report than an average of 10 percent or less of their forest are covered by a management plan, while 28 percent of all forests in the reporting countries in Southeast Asia have a management plan.

Just over 1 percent of the total forest area has undergone forest certification

Some 16 million hectares of forests in the three rainforest basins have been certified, equalling 1.3 percent of the total forest area. The figures range from 0.7 percent of the forest area in the Amazon Basin to 3 percent of the forests in Southeast Asia. However, information is missing from some countries, so the total area certified may be slightly larger.

TABLE 18 **Area of forest with a management plan in the three rainforest basins, 2010**

Region	Area of forest with a management plan	
	(1 000 ha)	% of total forest area
Amazon Basin	75 496	9
Congo Basin	30 820	10
Southeast Asia	59 666	28
Rainforest Basins	**165 982**	**13**

FIGURE 30 **Proportion of forest area with a management plan by region, 2010 (%)**

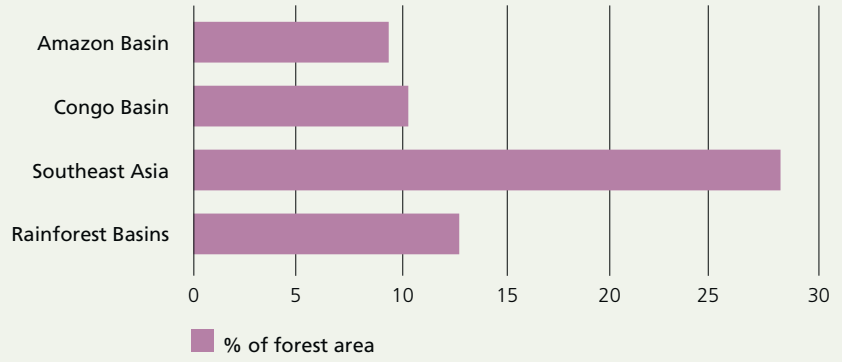


FIGURE 31 **Proportion of forest area with a management plan by country, 2010 (%)**

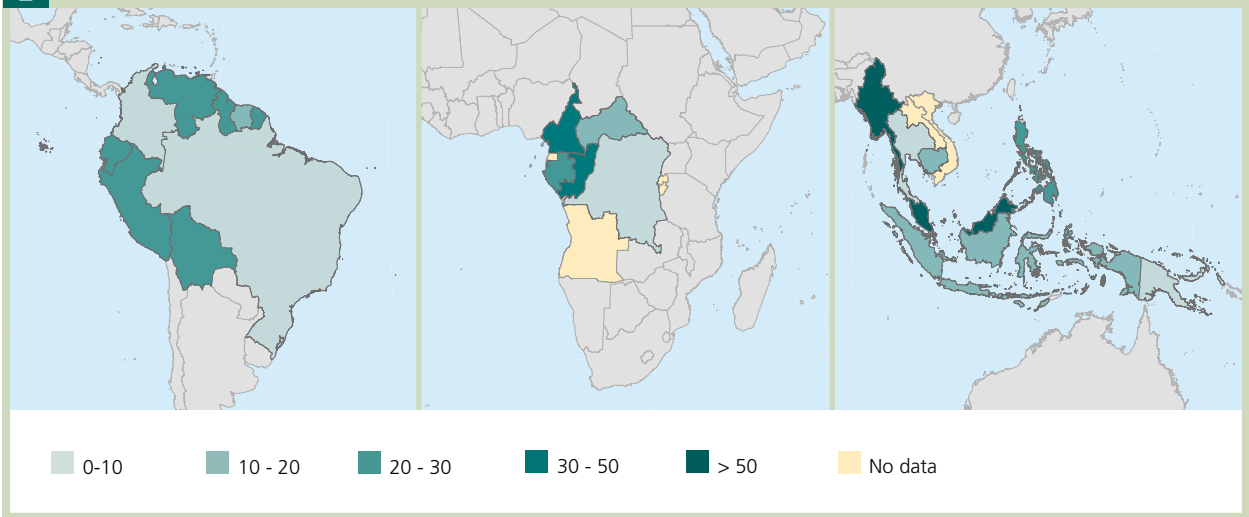


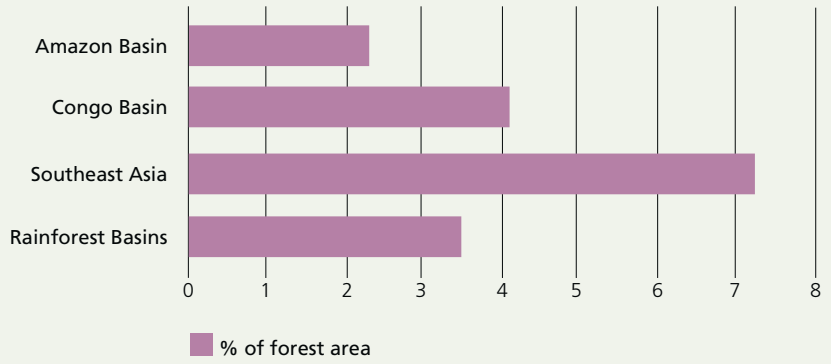
TABLE 19 Area of forest certified in the three rainforest basins, 2010

Region	Certified forest area	
	(1 000 ha)	% of total forest area
Amazon Basin	5 416	0.7
Congo Basin	4 483	1.9
Southeast Asia	6 367	3.0
Rainforest Basins	**16 265**	**1.3**

Only 3.5 percent of the total forest area is considered to be under sustainable management

Based on information received from 23 of the 30 countries, less than 44 million hectares, or 3.5 percent of the total forest area in the reporting countries, are considered to fulfil all the criteria of sustainable forest management. The assessment criteria used were fairly strict[2], but allowed for a comparison with a similar assessment in 2005, which indicated progress in most countries (ITTO, in press).

FIGURE 32 Proportion of forest area under sustainable management by region, 2010 (%)



[2] The assessment of the area of forest under sustainable forest management required that the forests included should fulfil at least one of the following conditions:

i. have been independently certified or in which progress towards certification is being made;

ii. have fully developed, long-term (ten years or more) forest management plans with firm information that these plans are being implemented effectively;

iii. are considered as model forest units in their country and information is available on the quality of management;

iv. are community-based forest management units with secure tenure for which the quality of management is known to be of high standard; or

v. are protected areas with secure boundaries and a management plan and that are generally considered in the country and by other observers to be well managed and are not under significant threat from destructive agents.

Challenges and opportunities in the three rainforest basins

AMAZON BASIN

Issues and challenges

Deforestation and forest degradation

Loss of forest cover, mainly primary forest, is still a major concern in the Amazon Basin. Expansion of the agricultural frontier is one of the main causes. In parallel with the deforestation process, the degradation of forests, not yet accurately quantified, is a big challenge in the region.

Most of the forest area is publicly owned. Forestry agencies have limited personnel and budgets to guarantee forestry laws enforcement and control of their forest areas. Encroachment on national forest areas for the extraction of woodfuel is a traditional practice, which still exists in rural areas and which, in many areas, results in the degradation of forests.

Ownership and management rights

Land tenure and land ownership rights are not clear in several of the Amazonian countries. This has implications for the long-term investment required for sustainable forestry practices.

Lack of adequate information for decision-makers

Deforestation and forest degradation practices have implications for the social, economic and environmental sectors, but this has not been well documented and communicated to decision-makers.

Forest goods and services data, including employment and subsistence practices, have not been collected in national accounting systems, leading to lack of visibility of the forestry sector in the productive chain of society and the development process of countries.

Institutional aspects

The number of forestry students is decreasing in the region. In addition, the role of foresters in society is not well known. Foresters and the forest industry are frequently perceived by the public as those causing deforestation rather than those promoting the sustainable use of forest resources. A revision of forester training needs to be undertaken and their image improved.

Climate change

The new challenge of climate change requires appropriate measures to optimize the role of forests in adaptation and mitigation strategies. These measures should include an assessment of the economic value of forest goods and services and protection of the local value of forests.

Payment for environmental services
The establishment of markets to adequately remunerate the environmental services provided by forests is a key element to strengthen the payment mechanism for services for the benefit of local, forest-dependent communities.

Progress and opportunities

Progress towards sustainable forest management
Sustainable forest management has been promoted in the region and significant progress made in recent years. More than the half of the forest area has an officially designated function. Central and local governments, together with forest-dependent communities, are working on the implementation of sustainable forest management plans, and legal logging is promoted in the region by facilitating operational and legal procedures.

Biofuels
The forest biofuel industry is increasing in the region. It is forecast that by 2030 it could compete with ethanol produced from sugar cane.

Reforestation and forest restoration
Forest plantations for timber production are increasing in the region. The bulk of Brazil's industrial roundwood now comes from planted forests, which currently account for less than 2 percent of the total forest area, and there is potential for further involvement of the private sector and private owners of land in the establishment of forest plantations in most countries. The enrichment of degraded natural forest using native species is now being promoted in several countries. Urban forestry is also increasing in the region.

Regional cooperation and agreements

Amazon Cooperation Treaty Organization (ACTO)
The Amazon Cooperation Treaty (ACT), signed in July 1978, is a legal instrument that recognizes the transboundary nature of the Amazon. With the approval of the Amazon Cooperation Treaty Organization (ACTO) Protocol of Amendment in 1995, ACTO was officially instituted as a mechanism responsible for enhancing and strengthening cooperation processes developed in the context of the Treaty. The main purpose of the ACT is to promote the harmonious development of the Amazon while integrating the countries' Amazonian territories into their respective national economies, an essential condition for reconciling economic growth with environmental conservation.

The Tarapoto Process
With an active role in the ACTO, the Tarapoto process was established in 1995. It is a coordinated effort between countries to define a set of criteria and indicators for sustainable forest management that reflect the specific features of the region's ecosystems as well as their social and cultural factors. The main purpose is to help achieve sustainable forest management and sustainable development.

Latin American Technical Cooperation Network on Watershed Management (REDLACH)
This network was created in 1980 to support river basin management and the promotion of sustainable development in Latin America and the Caribbean, facilitating the exchange of information and promoting technical cooperation between countries.

Latin American Technical Cooperation Network on National Parks, other Protected Areas and Wildlife (REDPARQUES)
Created in 1983, REDPARQUES supports the management of forests in protected areas and conservation of wildlife. The aim is to more effectively share available technical knowledge and experience in the region.

Latin American Network of Forest Education (RELAFOR)
RELAFOR supports better teaching and education in forestry in the region. It links universities and educational institutions to increase knowledge and local capacities through the exchange of experiences, promotion of dialogue, dissemination of information and technical collaboration using existing technical and financial resources.

Outlook

Resources, their management and use
The loss of primary forest will continue, but it will slow down, as capacity improves in management of protected areas and forest conservation areas.

Communities and indigenous people will have a more active role on the management of the native forest area. Private sector land owners will invest in plantations as a result of incentives and market prices, and will be the main source of industrial production in the subregion.

Fuelwood and charcoal production will continue as the main source of energy in the countryside. Bioenergy production and marketing is increasing, but not yet well developed. Non-wood forest products are recognized as a source of income for forest-dependent communities, and its quantification is a priority for forestry agencies. Forest industries are improving in their management and technical capacities. Marketing is improving in Europe and China.

TABLE 20 Indicative participation status of regional forestry-related institutions and agreements in the Amazon Basin

	ACTO[a]	TARAPOTO[b]	REDLACH[c]	REDPARQUES[d]	RELAFOR[e]
Bolivia (Plurinational State of)	X	X	X	X	X
Brazil	X	X	X	X	X
Colombia	X	X	X	X	X
Ecuador	X	X	X	X	X
French Guiana		X			
Guyana	X			X	
Peru	X	X	X	X	X
Suriname	X	X		X	
Venezuela (Bolivarian Republic of)	X	X	X	X	X

Note:
[a]http://www.otca.info/portal/index.php?p=index
[b]http://www.fao.org/DOCREP/004/AC135E/ac135e0a.htm
[c]http://www.rlc.fao.org/en/tecnica/redlach/
[d]http://www.rlc.fao.org/es/tecnica/parques/
[e]http://www.relafor.net/

Institutional aspects

Data and information needs are recognized as a priority in the region due to the REDD+ process and carbon markets. Brazil and Ecuador are initiating their national forestry inventories and stimulating a south-south collaboration to increase national capacities for assessment and monitoring of forest cover, carbon inventory, provision of environmental services and support to biodiversity conservation.

There are formal limitations on interaction and collaboration between the private and public forestry sectors, with negative effects, especially on small forests owners and enterprises. Rules and regulations are not clear, and bureaucratic procedures are long and expensive, which together reinforce tendencies for illegal activity.

Conflicts between forest sector and environmental agencies are increasing, and there is competition for financial resources coming from the carbon markets. Carbon ownership and governance needs to be defined so that the roles and responsibilities of the national agencies are clear, specially the environmental agencies responsible for climate change and forestry.

CONGO BASIN

Issues and challenges

Deforestation and forest degradation

In the Congo Basin, the key issue is to find ways of reducing deforestation and forest degradation through means that are consistent with improving livelihoods for about 60 million local people directly depending on forests.

Armed conflicts

Major conflicts in several countries in recent decades have greatly hindered the development of the institutions required to put sustainable forest management into effect and have restricted the development of local expertise.

Lack of coordination among sectors

The current mode of governance is dominated by an intra-sectoral approach. It still lacks consistency between, on the one hand, forest policies and laws and, on the other hand, those of other sectors that have an impact on deforestation and forest degradation. In this context, impacts expected from actions taken to combat deforestation and forest degradation will not be attained, as the dominant drivers of deforestation are slash-and-burn agricultural expansion and illegal or unsustainable firewood extraction and charcoal production. It is clear that the drivers of deforestation in the Congo Basin are essentially socio-economic and so cannot be controlled simply through intra-sectoral actions.

Lack of adequate knowledge of the forest ecosystem

Forest ecosystems are poorly known. The production and management of knowledge is a peripheral concern. This lack of knowledge, caused by insufficient and disparate research efforts, has negative impacts on forest management. The information needed to make decisions with certainty is often not available. Therefore, decisions in the forest sector are frequently based on incomplete information.

Better use of trees and forests products and services

The economic and social potentials of the Congo Basin forests are still poorly valued. Priority is still given to logging activities at the expense of further processing of timber as well as other

goods and services. The total value of non-wood forest products, for example, may be greater than the value of logs in some countries. This point of view has recently been receiving increasing recognition and attention from decision-makers. It remains to translate this into concrete action with the aim of finding the best way to limit human pressure on forest resources and to combat deforestation and forest degradation through multiple-use and sustainable forest management.

Progress and opportunities

Sustainable forest management
For the past decade, significant progress towards sustainable forest management has been made: 11 percent of the territory of the Congo Basin is classified as protected areas; around 10 million hectares of forest are considered to be under sustainable management; 4.5 million hectares of forest concessions have been certified; and the decline in populations of large charismatic wildlife species has been reversed in some landscapes identified as priority areas for biodiversity conservation.

Contribution of the timber sector to economic development
There is no doubt that the contribution of the timber sector to economic development in Congo Basin countries is very important. The sector's contribution to GDP in 2006 was about 2 percent in Cameroon and the Democratic Republic of the Congo, 3 percent in Gabon and 11 percent in Central African Republic. In the last-named, timber exports contributed about 40 percent of national earnings each year. The timber sector is the second-largest employer in the national economy, after the state, in both Gabon and the Central African Republic.

Forest policy development
Five countries have already expressed their commitment to review their national forest policy in a participatory manner. The process is ongoing in Cameroon and the Democratic Republic of the Congo, and will start in the Republic of Congo, Gabon and the Central African Republic by the end of 2011. An inter-sectoral approach is used with a view to improving consistency of actions and integration between the forest sector and other sectors with potential impacts on trees and forests.

National REDD strategy development
The Congo Basin countries have been engaged in international negotiations to recognize and take into account the role of tropical forest in the fight against climate change. It is therefore envisaged that each country develop a national Reduced Emissions from Deforestation and Forest Degradation (REDD) strategy. The formulation of a national REDD strategy is a continuous process involving a series of consultations in order to seek consistency and synergy between stakeholders and sectors and to ensure maximum stakeholder engagement to attain consensual objectives in combating deforestation.

Regional cooperation and agreements

A new spirit of collaboration was launched in 1999 when the Central African Heads of State met together for the first time in Yaoundé, Cameroon, to discuss the future of the Central African forest ecosystems. The basis for the current arrangements was therefore laid with the Yaoundé Declaration, through which the Heads of State recognized the protection of the Congo Basin ecosystems as an integral component of the development process and re-affirmed their commitment to work together to promote the sustainable use of the Congo Basin forest ecosystems. The learning process used in implementing the Yaoundé resolutions led to the establishment of a number of complementary institutions.

Central African Forest Commission (COMIFAC)
COMIFAC is the political and technical steering, coordinating, harmonizing and decision-making institution in the domain of the conservation and sustainable management of forest and savannah ecosystems in Central Africa. It was established in February 2005 through the 'Treaty for the Conservation and Sustainable Management of Forest Ecosystems in Central Africa', signed by ten African Heads of State attending the Second Summit, held in Brazzaville. This treaty gave legal recognition to COMIFAC and its Convergence Plan, with a common subregional intervention framework of member countries and their development partners. The ten strategic axes of the COMIFAC Convergence Plan are: (1) harmonization of forest policy and taxation; (2) resource knowledge; (3) ecosystem management; (4) biodiversity conservation; (5) sustainable use of forest resources; (6) strengthening of capacities, including stakeholder participation and alternative income generation; (7) capacity development and training; (8) research and development; (9) innovative financing mechanisms; and (10) cooperation and partnerships. COMIFAC works in close cooperation with other international, regional and subregional organizations and networks, particularly those below.

Congo Basin Forest Partnership (CBFP)
CBFP was launched at the World Summit on Sustainable Development in September 2002, in response to a call by the United Nations General Assembly in resolution 54/214 on February 2000 encouraging the international community to support the countries of the Congo Basin with financial and technical assistance in their efforts towards sustainable management of the forests. As a 'type II' partnership, CBFP is a non-binding network based on a voluntary agreement among governments, the private sector, civil society, and development organizations. CBFP members (about 60 in 2011) have agreed to harmonize their programmes for the effective implementation of the COMIFAC Convergence Plan. The CBFP facilitation unit is provided by one of its partners for a two-year period, chosen on a voluntary basis. After the United States of America (2003–2004), France (2005–2007) and Germany (2008–2009), facilitation is now provided by Canada for the period 2010–2012.

Congo Basin Forest Fund (CBFF)
CBFF is a multi-donor fund set up to take early action to protect the forests in the Congo Basin. The Fund supports activities and projects that complement particular aspects of the COMIFAC Convergence Plan. CBFF was launched in June 2008 to support transformative and innovative proposals that will develop the capacity of the people and institutions of the Congo Basin to enable them to manage their forests; to help local communities to find livelihoods that are consistent with the conservation of forests; and to reduce the rate of deforestation. It is initially being financed by a grant of GBP 100 million from the Governments of the UK and of Norway. The Secretariat of CBFF is hosted by the African Development Bank (AfDB).

African Timber Organization (ATO)
Created in 1976, ATO is an international cooperation and consultation body concerned with the forest economy and trade in timber. Its objective is to encourage its member states to coordinate their activities in these fields in order to enable them to benefit more from their forest products.

Central African Agency for the development of environmental information (ADIE)
ADIE aims to support environmental data gathering, analysis and assessment to enhance the decision-making process and the dissemination of information.

Central African Wildlife Conservation (OCFSA)
OCFSA aims to coordinate subregional activities related to wildlife conservation, biodiversity conservation, trans-boundary protected areas management and border control.

Conference on the Ecosystems of Dense Tropical Rainforests of Central Africa (CEFDHAC)
CEFDHAC is a subregional forum for consultation and exchange of experience, open to all those involved in the forest sector, with a view to equitable and sustainable management of forest ecosystems in Central Africa. Its goal is to encourage all players (States, national and subregional organizations, the private sector, NGOs) to exchange points of view and develop a common vision of conservation and utilization of the forests in the region.

Network for protected areas in Central Africa (RAPAC)
RAPAC is a subregional association that brings together the agencies in charge of protected areas management in seven Central African countries. Its main objective is to promote conservation and the rational management of the natural resources of Central Africa, particularly through the management of protected areas in its member countries.

Network for forestry education in Central Africa (RIFFEAC)
RIFFEAC is a subregional network for training institutions. Its objective is to develop the skills to meet changing job market requirements and employer demands. Created in 2001, RIFFEAC became a partner of COMIFAC in 2006 for the implementation of strategic axis 7 of the Convergence Plan.

Observatory for Central African Forests (OFAC)
Created in 2007, OFAC aims at collecting, harmonizing and disseminating scientific, administrative and technical information on forest management, forest biodiversity, forest cover change and forest ecosystem services (carbon, water, non-wood forest products). Information is collected at national level and at the level of each management unit (logging concession, protected area, transformation unit, REDD project, etc.). OFAC coordinates the production of 'The State of the Forests of the Congo Basin' every two years.

The Sangha Tri-National (TNS) Collaboration agreement
TNS, a 2.8 million hectare area of forest in Central Africa, was established following an agreement signed between the governments of Cameroon, the Republic of Congo and the Central African Republic. The agreement is for collaborative management of TNS.

The COMIFAC TRIDOM intergovernmental collaboration agreement (TRIDOM)
The Dja-Odzala-Minkébé (TRIDOM) collaboration agreement was signed in 2005. It defines TRIDOM as a trans-border complex of protected areas connected by a vast inter-zone in Cameroon, the Republic of Congo and Gabon. The TRIDOM conservation zone of about 14.6 million hectares represents 7.5 percent of the Congo Basin rainforest.

Outlook

The Congo Basin countries have achieved a lot in the last 10 years. Indeed, today's situation is not yet perfect, but the picture drawn is certainly better than it was in 2000. The positive progress and impacts on forest conservation and management are noticeable. The management of forest in the Congo Basin is an ongoing process that will continue through

TABLE 21 Indicative participation status of regional forestry-related institutions and agreements in the Congo Basin

	COMIFAC and its Treaty[a]	CBFP[b]	CEFDHAC[c]	RAPAC[d]	ADIE[e]	RIFFEAC[f]	OFAC[g]	ATO[h]	TRIDOM collaboration agreement[i]	Sangha Tri-national collaboration agreement[j]
Angola								X		
Burundi	X	X	X			X	X			
Cameroon	X	X	X	X	X	X	X	X	X	X
Chad	X	X	X	X	X	X	X			
Congo	X	X	X	X	X	X	X	X	X	X
Gabon	X	X	X	X	X	X	X	X	X	
Central African Republic	X	X	X	X	X	X	X	X		X
Equatorial Guinea	X	X	X	X	X	X	X	X		
Democratic Republic of Congo	X	X	X		X	X	X	X		
Rwanda	X		X			X	X			
Sao Tome and Principe	X	X	X	X			X			

Note:
[a]http://www.comifac.org/
[b]http://www.pfbc-cbfp.org/
[c]http://www.wikiforets.org/index.php?title=Conf%C3%A9rence_sur_les_Ecosyst%C3%A8mes_de_For%C3%AAts_Denses_et_Humides_d%E2%80%99Afrique_Centrale_(CEFDHAC)#Les_parties_concern.C3.A9es_par_la_CEFDHAC
[d]http://www.rapac.org/
[e]http://www.unep.ch/etb/areas/adie.php
[f]http://www.riffeac.org/
[g]http://www.observatoire-comifac.net/?l=en
[h]http://www.observatoire-comifac.net/actors.php?id=77
[i]http://www.observatoire-comifac.net/docs/edf2008/EN/SOF_18_Dja.pdf
[j] http://toolkit.conservationfinance.org/sites/default/files/documents/legal-and-governance/collaboration-agreement-2009-ftns-cameroon.pdf

the implementation of current concepts (such as forest concession management plans and establishment of protected areas) and new concepts, such as REDD+. The impact caused by the current drivers of deforestation could be limited, notably in areas with low population density. Most of the Congo Basin countries have a relatively low population density.

However, there are emerging threats to forest ecosystems in the Congo Basin. With the escalating prices of minerals, fuel and food, mining and land, large-scale land acquisition for oil palm and cash crops appear set to become the leading causes of deforestation in Congo Basin in the forthcoming years. Most of them are external to the sector. The main driving forces are considered below.

Increase of population and rapid urbanization

In the Congo Basin, population is expected to double between 2000 and 2030 leading to a total population of 170 million inhabitants by 2030. This increase of population will have various implications for forests, particularly ecosystems located in the vicinity of large cities. In Gabon and Congo, for example, about 70 percent of the population live in urban areas. The urbanization process is expected to intensify further and the number of cities larger than 1 million inhabitants should double in 2025. The rapid rate of urbanization could have negative impacts on forests, for example by raising the demand for fuelwood, the main source of energy in most cities in the region.

Dependence on food imports

The food requirements are met by imports. Most of the countries in the Congo Basin have a very high degree of dependency on imported food products. The food security situation is expected to deteriorate because of continued population growth and low levels of agricultural productivity. Faced with the low output from the agricultural sector, government strategies and plans aim to boost domestic food production and to reduce national dependence on imports. For example, the National Programmes for Food Security implemented in Cameroon, Congo, the Democratic Republic of Congo and Gabon have this aim. The implementation of these strategies and plans are likely to increase the pressure on forest land.

Economic conjuncture

With the escalating prices of fuel and food, large-scale land acquisition for oil palm and cash crops appear set to become, with mining, the leading causes of deforestation in the Congo Basin in the forthcoming years. In many countries, protected areas and forest concessions are threatened by mining projects and the establishment of large-scale plantations of palm trees for biofuel. Several companies are currently leading prospecting for exploitation of minerals in the region. Some of them are even interested in areas already allocated to biodiversity conservation, such as Dja in Cameroon, Minkebe in Gabon and Odzala in Congo.

SOUTHEAST ASIA

Issues and challenges

Deforestation

Southeast Asia's forests have played a central role in the development of the region and continue to play an important role in the production of wood and other products, the conservation of biodiversity, climate change abatement and protection of land and water resources. Consequently, loss of forest areas in the region are of significant concern, potentially compromising timber production, river basin protection, biodiversity, the global carbon balance and rural employment.

Infrastructure development, expansion of industrial agriculture and population growth have been primary drivers of change in the region and will continue to threaten forest resources. With expansion of infrastructure, investment in agriculture has increased and establishment of cash crop plantations has become a primary driver of forest conversion in Southeast Asia. Two of the most important crops in terms of forest conversion are rubber and oil-palm. Cashew nuts, coconut and sugar cane have also driven forest conversion, in particular in Mekong countries, while in coastal areas shrimp ponds and agriculture have resulted in the loss of mangroves.

Forest degradation

The health and vitality of forests in Southeast Asia is threatened by several factors, including fires, pests and diseases, and degradation through forest fragmentation, excessive extraction and poor harvesting techniques. Fire has been a major cause of loss of forest vitality and, in concert with logging and climate change, poses a serious threat to forests in the region.

Logging has perhaps the most significant impacts on forest health and vitality in the region in view of the generally low quality of harvesting operations. Associated degradation has significantly reduced the present and future value of forests and together with other influences may jeopardize the future economic and ecological viability of the region's forests.

Rebuilding the natural resource base

Doubt over the economic viability of sustainable management of natural forests for production in Southeast Asia also constitutes a serious concern for production forestry in the region. Overharvesting and high grading, multiple re-entry to logging coupes and lack of implementation of reduced-impact logging techniques have all reduced the value of forests. In many areas forest protection and rehabilitation are essential to increase growing stock and provide time to redress destructive logging practices. Reversing current trends will require significant investment in resource supply, renovation of production facilities and improved governance and institutional performance.

Forest governance

In most countries, little measurable improvement in standards of governance has occurred in recent years, with the exception of Indonesia, where indicators have improved significantly. Despite increased attention to forest law enforcement and governance around the region, significant changes on the ground have been slow in developing. Largely to blame are conflicting priorities, lack of resources and the reluctance of vested interests to stem the flow of forest products. In many countries, uncertainties over forest and land tenure continue to impede improvements in forest management.

External incentives to improve forest management performance

External measures that reflect growing concern over trade legality and sustainable resource management may provide significant impetus to improve forest management performance, such as the European Union's impending due diligence regulations, and amendments to the United States of America's 'Lacey Act', making it a criminal offence to import or trade in timber products that have been harvested illegally.

Progress and opportunities

Broader forest policy frameworks

In Southeast Asia, forest policy has been directed towards sustainable forest management in almost all countries for over a decade. In more precise terms, this has meant reorientation towards reduced exploitation of natural forests, increased establishment of plantation resources and greater inclusion of community groups and the private sector in forest management and forestry. Forest rehabilitation has become more frequently included in policy declarations, particularly in Indonesia, the Philippines and Viet Nam. Plantation development has also been an important policy focus in Indonesia and Viet Nam. Community involvement has frequently been targeted, and in Lao PDR poverty reduction has become a central theme.

Devolution of forest ownership and tenure

As demands for land and forest products and services increase, it is becoming ever more critical for forest managers to balance interests and to integrate or separate activities according to local and national conditions. Revisions of ownership and tenure can transfigure forest management, as is happening particularly in Viet Nam. Additionally, allocation of land can have considerable effects on economic efficiency and equity. In several countries in the subregion, forest and forest land allocation processes have been progressing over the past decade as economic frontiers have advanced and societal demands have changed (Edmunds and Wollenberg 2003; FAO 2006c). In Viet Nam and the Philippines, granting of land rights to individuals, families and indigenous groups has had a huge influence on the forestry sector. In Viet Nam the forest

land allocation policy has been combined with major programmes to increase forest cover, wood product production and rural incomes through afforestation. In the Philippines, changes in ownership have resulted primarily from establishment of productive forest plantations with accompanying increases in corporate and small-scale ownership.

Increase in forest area in some countries

Increasing forest areas in several countries is a promising trend. In Viet Nam, large government-supported afforestation and reforestation programmes are resulting in forest expansion, although, as in almost all countries in the region, primary forests are still being lost at high rates. In the Philippines, forest cover is estimated to be increasing due to reduction of pressures on forest lands, private-sector-planted forest expansion and rising demands for forest products. In Thailand, the agricultural frontier has, to a greater or lesser extent, been closed and forests are regrowing on former agricultural land. In other countries, relationships between forest area and key drivers of deforestation remain essentially unchanged.

Increased reliance on planted forests for industrial roundwood production

Planted forests make up some 6 percent of the total forest area in Southeast Asia and are increasingly being relied on for industrial roundwood production in countries such as Indonesia, Malaysia and Thailand, reducing the pressure on the remaining natural forests.

Vast potential for restoring degraded forest lands

If resources to support forest rehabilitation can be found, then Southeast Asia offers vast potential for restoring lost and degraded forest areas. For example, the region contains an estimated 40 million hectares of low value imperata grasslands that could be converted back to forest using low cost measures such as Assisted Natural Regeneration. Similarly, with adequate support and expertise, large tracts of other wastelands and severely degraded forest lands could be reclaimed for forest.

REDD and payment for environmental services

Greater inclusion of forests and forestry in international climate change-related agreements is anticipated as a means of supporting a transition towards more sustainable forest management practice and an increased focus on forest ecosystem services in countries where exploitative use of forest continues and local demand for forest services remains undeveloped. REDD+ in particular offers the possibility of substantial income from reducing emissions from deforestation, mitigating forest degradation, and enhancing conservation of forest carbon stocks through sustainable management of forests. Payments for other ecosystem services, such as river basin services and biodiversity conservation, also offer potential incentives for improved forest management, though at present markets to facilitate such payments are in their infancy in Southeast Asia. However, high demand for land and forest products, low institutional capacity and poor governance, particularly in low-income, high-forest-cover countries, as well as the deeply entrenched social causes of deforestation and forest degradation, suggest that reductions in deforestation and degradation will be hard won.

Improved forest monitoring

In countries developing REDD frameworks, preparations will include design of systems for intensified forest monitoring. Examination of the state of forest resources in unprecedented detail will provide a much stronger foundation for developing effective mitigation strategies and more accurate cost assessments. Monitoring will also provide valuable information for adaptation-related interventions.

Regional cooperation and agreements

A range of regional agreements and instruments are important in promoting forestry cooperation in Southeast Asia.

Association of Southeast Asian Nations (ASEAN)
ASEAN has established several technical networks and working groups that relate strongly to forestry, including working groups on nature conservation and biodiversity and climate change, and ad hoc expert working groups on implementing international forest policy processes and pan-ASEAN timber certification.

ASEAN Transboundary Haze Agreement
This is the first regional arrangement in the world that binds a group of contiguous states to tackle transboundary haze pollution resulting from land and forest fires.

Asia-Pacific Forestry Commission (APFC)
APFC is one of six FAO Regional Forestry Commissions that cover the world's major geographical regions. APFC is a forum for advising and taking action on key forestry issues.

Asia Forest Partnership (AFP)
AFP was launched in 2002 as a partnership for sustainable development based on the Rio Declaration principles and the values expressed in the Millennium Declaration. AFP set itself the task of information sharing, dialogue and joint action to promote sustainable forest management.

Mekong River Commission (MRC)
The MRC works to facilitate joint management of the member countries' shared water resources, and development of the economic potential of the Mekong river.

Heart of Borneo Initiative (HoBI)
The HoBI provides a framework for cooperation on management of the 220 000 km^2 "Heart of Borneo" rainforest area. It commits Indonesia, Malaysia and Brunei Darussalam to preparing strategic and operational plans with joint road maps for realizing 'One Conservation Vision' for the area.

Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet)
APFNet is an open regional organization promoting and improving sustainable forest management and rehabilitation in the Asia-Pacific region through capacity-building, information-sharing, regional policy dialogues and pilot projects.

Asia-Pacific Forest Invasive Species Network (APFISN)
APFISN is a regional forest invasive species network under the auspices of APFC.

Outlook

Between 2010 and 2020, the population of Southeast Asia is projected to increase by 11 percent to 670 million people. Increased pressures on forests are expected to drive a decline in forest cover in Southeast Asia, from 51 percent in 2010 to 47 percent in 2020 (FAO, 2011e). Net losses in the majority of countries are expected to total 18 million hectares. With forest conversion the primary driver of biodiversity loss, estimates are that between 13 percent and 42 percent of species will be lost in Southeast Asia by 2100, at least half of which could represent global extinctions (Sodhi et al., 2004).

TABLE 22 **Indicative participation status of regional forestry-related institutions and agreements in Southeast Asia**

	ASEAN[a]	ASEAN Transboundarry Haze Agmt[b]	APFC[c]	AFP[d]	MRC[e]	Heart of Borneo[f]	APFNet[g]	APFISN[h]
Brunei Darussalam	X	X				X	X	
Cambodia	X	X	X	X	X		X	X
Indonesia	X		X	X		X	X	X
Lao People's Democratic Republic	X	X	X		X		X	X
Malaysia	X	X	X	X		X	X	X
Myanmar	X	X	X		X*		X	X
Papua New Guinea			X				X	X
Philippines	X	X	X	X			X	X
Singapore	X	X					X	
Thailand	X	X	X	X	X		X	X
Viet Nam	X	X	X	X	X		X	X

* *Observer.*
[a] http://www.aseansec.org/74.htm
[b] http://haze.asean.org/hazeagreement/status
[c] http://www.fao.org/forestry/33587/en/
[d] http://www.asiaforests.org/index.php?option=com_content&task=view&id=23&Itemid=173
[e] http://www.mrcmekong.org/
[f] http://www.adb.org/Environment/adb-hob.asp
[g] http://www.apfnet.cn/About-Us/Focal-Point.html
[h] http://www.fao.org/forestry/35067/en/

While overall pressures on forest resources are set to increase, several factors may mitigate tendencies towards deforestation and degradation. Structural changes in economies towards industry and services and away from agriculture, and migration towards urban centres could reduce pressures on land.

Within Southeast Asia's overall development framework, prevailing economic and demographic trends and national-level priorities suggest that forestry-related goals should centre on economic production and biodiversity conservation. Trade-offs between these objectives should be carefully monitored and controlled, and as such a third, cross-cutting, priority is improved governance.

Conclusions

This report summarizes the state of forests in the three rainforest basins. Given the short time available in which to compile this document in three languages (two months), it does not claim to be a comprehensive assessment; rather, it provides an overview of some key aspects considered important in terms of indicating progress towards sustainable forest management in the three basins and remaining challenges. The difference in the extent of available information among the regions inevitably means that not all available data could be comprehensively considered in its compilation. The document is therefore, of necessity, limited to a few comparable sources of data. Fortuitously, FAO's Global Forest Resources Assessment 2010 (FRA 2010) was completed less than a year ago, based on reports received from countries, and ITTO's assessment of the Status of Tropical Forest Management – 2011, which covers 20 of the 30 countries in this study, is currently in press, so the information available is relatively recent. Nevertheless, there are a number of issues related to data availability and quality that should be stressed.

Data availability and quality

The Annex Tables provide the country data available for all the variables discussed in the document. As can be seen, data availability is generally good. However, there are a number of important data gaps, including on such essential aspects as forest characteristics, growing stock and carbon stocks, but in particular a lack of complete data series needed for trend analysis of designated functions of forests, their ownership and management rights in some countries. Data on forest fires, pests and diseases, and on non-wood forest products were too scarce to merit inclusion in this report.

Attempts to fill gaps in the FRA 2010 datasets with those from ITTO and vice versa were made for some variables (clearly specified in the tables), but had to be abandoned in some cases since the discrepancies between the two data sources were too large despite the fact that they both derived from reports submitted by countries for two major assessments generally using the same definitions and classifications at the aggregated level and carried out almost simultaneously.

In terms of data quality for the most basic data, that of forest area, most countries have an estimate of forest area that is less than ten years old (See Annex Table 2) and the forest area-weighted average year is 2001. The notable exception is Angola, which had to rely on very old data for FRA 2010 (dating from 1970), but which is currently in the process of conducting a national forest inventory. Relatively old data (15 years old or more) are also used for Brunei Darussalam, Central African Republic, Papua New Guinea, Sao Tome and Principe and Venezuela (Bolivarian Republic of). The vast majority of countries use remote sensing to estimate the forest area, in some cases in combination with data from forest inventories.

Three countries (Cameroon, Philippines and Viet Nam) have conducted a national forest inventory since 2003 and ten countries (Angola, Bolivia (Plurinational State of), Brazil, Congo, Democratic Republic of the Congo, Ecuador, Indonesia, Papua New Guinea, Peru and Viet Nam) are currently in the process of doing so or at an advanced planning stage. A number of countries (notably those wishing to take advantage of REDD+) are currently using remote sensing to obtain comparable information on changes in forest area since 1990. Both efforts indicate that more and better data on forest area, growing stock and carbon stock may become available in the near future.

Nevertheless, it must be concluded that there is still a long way to go before forest and forest management data are reliable and robust enough to produce detailed and accurate reports on the state of forests in the three rainforest basins, let alone serve as the foundation for calculating compensation under any eventual market mechanisms for forest services such as carbon sequestration.

Alarming trends

Despite issues with data availability and quality, the key findings of this report highlight a number of observations that are alarming in the light of aspirations for sustainable forest management and for progress towards the four Global Objectives on Forests and the Non-legally binding instrument on all types of forests, adopted by the United Nations General Assembly in December 2007:

- Deforestation continues at alarming rates in most of the countries in the three rainforest basins. Together, the 30 countries reported a net loss of forest area of 5.4 million hectares per year in the last decade, or 0.4 percent annually. As a result, the total carbon stock in forests decreased by an estimated 1.2 Gt annually during the period 2000–2010.
- The area of primary forest is decreasing by about 4 million hectares a year. This is partly due to deforestation and partly due to other human activities that leave visible signs of human impact and thus transform the forest into 'other naturally regenerated forest' in the FRA 2010 classification system.
- Although not yet well quantified, forest degradation due to unsustainable, including illegal, practices is a common phenomenon in most countries.
- Less than 15 percent of the total forest area is covered by a forest management plan, and only 3.5 percent of the total forest area is considered to be under sustainable forest management. Just over 1 percent has undergone certification.

Positive news

However, there are also some very positive factors:

- The rate of loss of forests is showing signs of slowing down in the three rainforest basins. When comparing the average annual loss of the 1990s (7.1 million ha/year) with that of 2000–2010 (5.4 million ha/year), it fell by 24 percent.
- Close to 200 million hectares, or 18 percent of all forests in the three rainforest basins, are located in national parks, game reserves, wilderness areas and other legally established protected areas.
- The area of planted forest increased by over half a million hectare per year during the period 2000–2010 and, although only accounting for 2 percent of the total forest area, planted forests are likely to supply an increasing share of the demand for wood in the future and may reduce the pressure on the remaining natural forests in some countries.
- The area of forest designated primarily for the protection of soil and water now accounts for 7 percent of the total forest area.
- Significant progress has been made in further developing an enabling framework for sustainable forest management. Of the 30 countries, 13 have updated their forest policy since 2000 and 10 have updated their forest law. An estimated 94 percent of the total forest area in the three rainforest basins is now covered by national forest programmes.
- REDD+ offers an opportunity for new and additional funding in support of sustainable forest management and many of the countries are already participating in one or more of the existing global initiatives on REDD+ readiness (Refer to Box 2 and Annex Table 22 for details).

BOX 2 REDD + Readiness

A country will have achieved REDD+ readiness when it is able to fulfil all of the REDD+ commitments set out by the UNFCCC. This will involve demonstrating sufficient capacity in four key areas:

- technical (measurement and monitoring of the five REDD+ activities over time);
- institutional (transparent and accountable government and other stakeholders who can enact and enforce laws, and clear land tenure);
- social (multi-stakeholder participation in REDD+ activities, including indigenous and forest-dependent communities); and
- economic (design and implementation of equitable REDD+ benefit sharing).

Achieving REDD+ readiness therefore requires substantial in-country consultation to ensure broad participation; international support to facilitate technical capacity building; and implementation of results-based demonstration (or pilot) activities to begin testing approaches and methodologies.

A number of multilateral support programmes have been established to facilitate REDD+ readiness in developing countries. Two of the most prominent of these are the UN Collaborative Programme on REDD (UN-REDD Programme) and the World Bank's Forest Carbon Partnership Facility (FCPF). Significant bilateral support has already been pledged and disbursed to this end, particularly through the Government of Norway's Climate and Forest Initiative. In addition, many lessons are being learned from national initiatives and REDD+ projects established for the voluntary carbon market in developing countries, as well as through academic investigation of these activities. All of these outcomes can inform the development of national REDD+ action plans.

The diversity of national socio-ecological conditions, circumstances and existing capacities means that countries will approach REDD+ readiness in unique ways, and arrive at different speeds, depending on existing capacities. Key challenges that have arisen during the creation of national REDD+ readiness programmes include, but are not limited to:

- translation of UNFCCC REDD+ decisions into national action plans (while taking into account national circumstances) that can be enacted on the ground;
- coordination and communication between different activities and funding sources to ensure complementarity; and
- building long-lasting capacity to implement REDD+.

Substantial efforts are needed to address a number of these alarming trends and advance progress towards sustainable forest management in all countries and regions. National forest programmes offer a potential vehicle for the discussion of issues and for reaching agreements on priority actions at the national and subnational levels, while regional and inter-regional collaboration facilitates the sharing of information and experiences among countries. REDD+ may provide access to much-needed financial resources and capacity building in support of countries' efforts to reduce the rates of deforestation and forest degradation and to conserve and sustainably manage their forests for the benefit of current and future generations.

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Annex Tables

Notes

Country nomenclature used in the tables
The country names used in these tables follow standard UN practice regarding nomenclature.

Data source
Unless otherwise stated, the information provided in these tables is derived from officially validated country reports submitted to FAO for the Global Forest Resources Assessment 2010 (FRA 2010). The individual reports contain detailed information on data sources, original data and an explanation of how the reported figures were calculated, as well as explanatory notes on each of the tables. These reports are available on the FAO Web site www.fao.org/forestry/fra2010) in English, French or Spanish.

Totals
Numbers may not tally because of rounding. Global and regional totals are omitted in those cases where the sum of the reported values would not give a correct estimate because of incomplete data sets.

Abbreviations
n.s. = not significant, indicating a very small value
– = data not available
FTE = full-time equivalent

Table 1

Basic data on countries and regions

Country/Region	Land area[a] (1 000 ha)	Population 2008[b]				GDP 2008[c]	
		Total (1 000)	Density (Population/ km²)	Annual growth rate (%)	Rural (% of total)	Per capita (PPP) (US$)	Annual growth rate (%)
Bolivia (Plurinational State of)	108 438	9 694	9	1.8	34	4 277	6.1
Brazil*	832 512	191 972	23	1.0	14	10 304	5.1
Colombia	110 950	45 012	41	1.5	26	8 797	2.5
Ecuador	27 684	13 481	49	1.0	34	8 014	6.5
French Guiana*	8 220	220	3	2.8	24	-	-
Guyana	19 685	763	4	-0.1	72	3 064	3.0
Peru	128 000	28 837	23	1.2	29	8 509	9.8
Suriname	15 600	515	3	1.0	25	7 401	5.1
Venezuela (Bolivarian Republic of)	88 205	28 121	32	1.7	7	12 818	4.8
Amazon Basin	**1 339 294**	**318 615**	**24**	**1.2**	**18**	**9 841**	**5.1**
Angola	124 670	18 021	14	2.7	43	5 820	13.2
Burundi	2 568	8 074	314	3.0	90	383	4.5
Cameroon	47 271	19 088	40	2.3	43	2 195	3.9
Central African Republic	62 300	4 339	7	1.9	62	741	2.2
Congo	34 150	3 615	11	1.8	39	3 949	5.6
Democratic Republic of the Congo	226 705	64 257	28	2.8	66	314	6.2
Equatorial Guinea	2 805	659	23	2.6	61	33 899	11.3
Gabon	25 767	1 448	6	1.8	15	14 575	2.3
Rwanda	2 467	9 721	394	2.8	82	1 027	11.2
Sao Tome and Principe	96	160	167	1.3	39	1 748	5.8
Congo Basin	**528 799**	**129 382**	**24**	**2.7**	**61**	**1 865**	**8.3**
Brunei Darussalam	527	392	74	1.8	25	50 665	-1.9
Cambodia	17 652	14 562	82	1.7	79	1 951	6.7
Indonesia	181 157	227 345	125	1.2	49	3 994	6.1
Lao People's Democratic Republic	23 080	6 205	27	1.9	69	2 124	7.5
Malaysia	32 855	27 014	82	1.7	30	14 215	4.6
Myanmar	65 755	49 563	75	0.9	67	1 110	3.6
Papua New Guinea	45 286	6 577	15	2.4	88	2 180	6.6
Philippines	29 817	90 348	303	1.8	35	3 513	3.8
Singapore	69	4 615	6 698	2.9	0	49 321	1.1
Thailand	51 089	67 386	132	0.6	67	8 086	2.5
Viet Nam	31 008	87 096	281	1.1	72	2 787	6.2
Southeast Asia	**478 295**	**581 103**	**121**	**1.3**	**54**	**4 742**	**4.1**
Rainforest Basins	**2 346 388**	**1 029 100**	**44**	**1.4**	**44**	**5 959**	**4.8**

* Country estimate of land area.
[a] Total area of the country excluding inland water bodies. The figures are from FAOSTAT (FAO, 2011a) unless otherwise indicated.
[b] General Source: FAOSTAT-PopSTAT (http://faostat.fao.org/site/550/default.aspx#ancor).
[c] Per capita gross domestic product (GDP) is expressed at purchasing power parity (PPP). General source: World Bank (2010). Complementary sources: IMF (2010); UNSD (2010); CIA (2010).

Table 2

Information status on forest area

Country/Region	Most recent data used for estimation of forest area[a]				
	National forest inventory/field survey	Remote sensing/ mapping	Registers and Statistics	Compilation of sub-national assessments	Expert estimate
Bolivia (Plurinational State of)		2007			
Brazil		2002			
Colombia		2001			
Ecuador		2000			
French Guiana		2006			
Guyana			1999		
Peru		2000			
Suriname		1998			
Venezuela (Bolivarian Republic of)		1995			
Amazon Basin					
Angola		1970			
Burundi					2005
Cameroon	2004				
Central African Republic				1994	
Congo		2004			
Democratic Republic of the Congo		2005			
Equatorial Guinea					1998
Gabon		2008			
Rwanda			2005		
Sao Tome and Principe	1990				
Congo Basin					
Brunei Darussalam					1996
Cambodia		2005			
Indonesia		2006			
Lao People's Democratic Republic		2002			
Malaysia			2006		
Myanmar		2006			
Papua New Guinea		1996			
Philippines	2003				
Singapore					1997
Thailand		2006			
Viet Nam	2007				
Southeast Asia					
Rainforest Basins					

[a] Where data were collected over a range of years, the midpoint year is given.
Note: The estimation of forest area is done using a mixture of mapping and field inventory in some countries, especially in Southeast Asia.

Table 3

Extent of forest and other wooded land, 2010

Country/Region	Land area						Inland water	Country area
	Forest		Other wooded land		Other land (1 000 ha)			
	1 000 ha	% of land area	1 000 ha	% of land area	Total	of which with tree cover	1 000 ha	1 000 ha
Bolivia (Plurinational State of)	57 196	53	2 473	2	48 769	-	1 420	109 858
Brazil	519 522	62	43 772	5	269 218	-	18 975	851 487
Colombia	60 499	55	22 727	20	27 724	-	3 225	114 175
Ecuador	9 865	36	1 519	5	16 300	-	672	28 356
French Guiana	8 082	98	0	0	138	0	176	8 396
Guyana	15 205	77	3 580	18	900	-	1 812	21 497
Peru	67 992	53	22 132	17	37 876	700	522	128 522
Suriname	14 758	95	0	0	842	0	727	16 327
Venezuela (Bolivarian Republic of)	46 275	52	7 317	8	34 613	-	3 000	91 205
Amazon Basin	**799 394**	**60**	**103 520**	**8**	**436 380**	**700**	**30 529**	**1 369 823**
Angola	58 480	47	0	0	66 190	-	0	124 670
Burundi	172	7	722	28	1 674	-	215	2 783
Cameroon	19 916	42	12 715	27	14 640	-	273	47 544
Central African Republic	22 605	36	10 122	16	29 573	-	0	62 300
Congo	22 411	66	10 513	31	1 226	-	50	34 200
Democratic Republic of the Congo	154 135	68	11 513	5	61 057	-	7 781	234 486
Equatorial Guinea	1 626	58	8	n.s.	1 171	-	0	2 805
Gabon	22 000	85	0	0	3 767	-	1 000	26 767
Rwanda	435	18	61	2	1 971	-	167	2 634
Sao Tome and Principe	27	28	29	30	40	10	0	96
Congo Basin	**301 807**	**57**	**45 683**	**9**	**181 309**	**10**	**9 486**	**538 285**
Brunei Darussalam	380	72	50	9	97	-	50	577
Cambodia	10 094	57	133	1	7 425	-	452	18 104
Indonesia	94 432	52	21 003	12	65 722	-	9 300	190 457
Lao People's Democratic Republic	15 751	68	4 834	21	2 495	-	600	23 680
Malaysia	20 456	62	0	0	12 399	-	119	32 974
Myanmar	31 773	48	20 113	31	13 869	-	1 903	67 658
Papua New Guinea	28 726	63	4 474	10	12 086	-	998	46 284
Philippines	7 665	26	10 128	34	12 024	-	183	30 000
Singapore	2	3	0	0	67	0	1	70
Thailand	18 972	37	0	0	32 117	-	223	51 312
Viet Nam	13 797	44	1 124	4	16 087	-	1 924	32 932
Southeast Asia	**242 048**	**51**	**61 859**	**13**	**174 388**	**0**	**15 753**	**494 048**
Rainforest Basins	**1 343 249**	**57**	**211 062**	**9**	**792 077**	**710**	**55 768**	**2 402 156**

Table 4

Change in extent of forest, 1990–2010

Country/Region	Forest area (1 000 ha)				Annual change rate			
	1990	2000	2005	2010	1990–2000		2000–2010	
					1 000 ha/yr	%	1 000 ha/yr	%
Bolivia (Plurinational State of)	62 795	60 091	58 734	57 196	-270	-0.44	-290	-0.49
Brazil	574 839	545 943	530 494	519 522	-2 890	-0.51	-2 642	-0.49
Colombia	62 519	61 509	61 004	60 499	-101	-0.16	-101	-0.17
Ecuador	13 817	11 841	10 853	9 865	-198	-1.53	-198	-1.81
French Guiana	8 188	8 118	8 100	8 082	-7	-0.09	-4	-0.04
Guyana	15 205	15 205	15 205	15 205	0	0	0	0
Peru	70 156	69 213	68 742	67 992	-94	-0.14	-122	-0.18
Suriname	14 776	14 776	14 776	14 758	0	0	-2	-0.01
Venezuela (Bolivarian Republic of)	52 026	49 151	47 713	46 275	-288	-0.57	-288	-0.60
Amazon Basin	**874 321**	**835 847**	**815 621**	**799 394**	**-3 847**	**-0.45**	**-3 645**	**-0.44**
Angola	60 976	59 728	59 104	58 480	-125	-0.21	-125	-0.21
Burundi	289	198	181	172	-9	-3.71	-3	-1.40
Cameroon	24 316	22 116	21 016	19 916	-220	-0.94	-220	-1.04
Central African Republic	23 203	22 903	22 755	22 605	-30	-0.13	-30	-0.13
Congo	22 726	22 556	22 471	22 411	-17	-0.08	-15	-0.06
Democratic Republic of the Congo	160 363	157 249	155 692	154 135	-311	-0.20	-311	-0.20
Equatorial Guinea	1 860	1 743	1 685	1 626	-12	-0.65	-12	-0.69
Gabon	22 000	22 000	22 000	22 000	0	0	0	0
Rwanda	318	344	385	435	3	0.79	9	2.37
Sao Tome and Principe	27	27	27	27	0	0	0	0
Congo Basin	**316 078**	**308 864**	**305 316**	**301 807**	**-721**	**-0.23**	**-706**	**-0.23**
Brunei Darussalam	413	397	389	380	-2	-0.39	-2	-0.44
Cambodia	12 944	11 546	10 731	10 094	-140	-1.14	-145	-1.33
Indonesia	118 545	99 409	97 857	94 432	-1 914	-1.75	-498	-0.51
Lao People's Democratic Republic	17 314	16 532	16 142	15 751	-78	-0.46	-78	-0.48
Malaysia	22 376	21 591	20 890	20 456	-79	-0.36	-114	-0.54
Myanmar	39 218	34 868	33 321	31 773	-435	-1.17	-310	-0.93
Papua New Guinea	31 523	30 133	29 437	28 726	-139	-0.45	-141	-0.48
Philippines	6 570	7 117	7 391	7 665	55	0.80	55	0.74
Singapore	2	2	2	2	0	0	0	0
Thailand	19 549	19 004	18 898	18 972	-55	-0.28	-3	-0.02
Viet Nam	9 363	11 725	13 077	13 797	236	2.28	207	1.64
Southeast Asia	**277 817**	**252 324**	**248 135**	**242 048**	**-2 549**	**-0.96**	**-1 028**	**-0.41**
Rainforest Basins	**1 468 216**	**1 397 035**	**1 369 072**	**1 343 249**	**-7 118**	**-0.50**	**-5 379**	**-0.39**

Table 5

Extent of forest types

Country/Region	Total forest area		Dense humid forest		Dense dry forest		Flooded forest		Mosaics	
	1 000 ha	% of land area	1 000 ha	% of forest area	1 000 ha	% of forest area	1 000 ha	% of forest area	1 000 ha	% of forest area
Bolivia (Plurinational State of)	57 196	53	45 810	80	8 921	16	691	1	1 775	3
Brazil	519 522	62	342 566	66	28 786	6	16 219	3	131 952	25
Colombia	60 499	55	48 802	81	573	1	2 391	4	8 734	14
Ecuador	9 865	36	8 323	84	30	n.s.	208	2	1 303	13
French Guiana	8 082	98	7 936	98	5	n.s.	136	2	5	n.s.
Guyana	15 205	77	14 064	92	114	1	994	7	34	n.s.
Peru	67 992	53	63 158	93	413	1	3 821	6	600	1
Suriname	14 758	95	13 176	89	30	n.s.	705	5	14	n.s.
Venezuela (Bolivarian Republic of)	46 275	52	39 608	86	1 191	3	3 191	7	2 285	5
Amazon Basin	**799 394**	**60**	**585 783**	**73**	**39 475**	**5**	**28 608**	**4**	**145 527**	**18**
Angola	58 480	47	5 660	10	32 510	56	0	0	4 961	8
Burundi	172	7	10	6	14	8	0	0	148	86
Cameroon	19 916	42	14 626	73	0	0	86	n.s.	5 204	26
Central African Republic	22 605	36	4 302	19	7 157	32	0	0	11 146	49
Congo	22 411	66	17 093	76	1 078	5	4 053	18	187	1
Democratic Republic of the Congo	154 135	68	108 638	70	26 474	17	7 467	5	11 556	7
Equatorial Guinea	1 626	58	1 622	100	0	0	0	0	4	n.s.
Gabon	22 000	85	21 635	98	189	1	143	1	34	n.s.
Rwanda	435	18	38	9	14	3	0	0	384	88
Sao Tome and Principe	27	28	25	92	0	0	0	0	2	8
Congo Basin	**301 807**	**57**	**177 530**	**59**	**68 676**	**23**	**11 792**	**4**	**43 809**	**15**
Brunei Darussalam	380	72	263	69	0	0	100	26	17	4
Cambodia	10 094	57	3 160	31	2 405	24	155	2	4 374	43
Indonesia	94 432	52	67 217	71	0	0	9 620	10	17 594	19
Lao People's Democratic Republic	15 751	68	4 206	27	590	4	0	0	4 560	29
Malaysia	20 456	62	15 507	76	0	0	810	4	4 139	20
Myanmar	31 773	48	10 029	32	7 328	23	146	n.s.	14 271	45
Papua New Guinea	28 726	63	23 584	82	0	0	2 616	9	2 526	9
Philippines	7 665	26	3 820	50	0	0	8	n.s.	3 837	50
Singapore	2	3	0	7	0	0	0	0	2	93
Thailand	18 972	37	2 357	12	2 713	14	0	0	13 903	73
Viet Nam	13 797	44	3 798	28	414	3	66	n.s.	9 518	69
Southeast Asia	**242 048**	**51**	**133 460**	**55**	**14 280**	**6**	**13 463**	**6**	**80 845**	**33**
Rainforest Basins	**1 343 249**	**57**	**890 703**	**66**	**122 015**	**9**	**54 580**	**4**	**275 951**	**21**

Source: derived from GLC2000 (Figure 7). See Bartholomé & Belward (2005) for details. Forest area from FAO, 2010a.

Table 6

Forest characteristics, 2010

Country/Region	Forest						
	Primary	Other naturally regenerated	Planted	Primary	Other naturally regenerated	Planted	
	% of forest area	% of forest area	% of forest area	1 000 ha	1 000 ha	1 000 ha	% of which introduced species
Bolivia (Plurinational State of)	65	35	n.s.	37 164	20 012	20	100
Brazil	92	7	1	476 573	35 532	7 418	96
Colombia	14	85	1	8 543	51 551	405	-
Ecuador	49	50	2	4 805	4 893	167	100
French Guiana	95	5	n.s.	7 690	391	1	100
Guyana	45	55	0	6 790	8 415	0	-
Peru	89	10	1	60 178	6 821	993	-
Suriname	95	5	n.s.	14 001	744	13	54
Venezuela (Bolivarian Republic of)*	45	53	2	21 000	24 430	845	-
Amazon Basin	**80**	**19**	**1.2**	**636 744**	**152 789**	**9 862**	**-**
Angola	0	100	n.s.	0	58 352	128	-
Burundi	23	37	40	40	63	69	100
Cameroon*	16	83	n.s.	3 250	16 597	69	-
Central African Republic	10	90	n.s.	2 370	20 233	2	100
Congo	33	66	n.s.	7 436	14 900	75	-
Democratic Republic of the Congo*	51	49	n.s.	79 000	75 068	67	-
Equatorial Guinea	0	100	n.s.	0	1 626	n.s.	0
Gabon	65	35	n.s.	14 334	7 636	30	-
Rwanda	2	13	86	7	55	373	-
Sao Tome and Principe	41	59	0	11	16	0	-
Congo Basin	**35**	**64**	**0.3**	**106 448**	**194 546**	**813**	
Brunei Darussalam	69	30	1	263	114	3	18
Cambodia	3	96	1	322	9 703	69	-
Indonesia	50	46	4	47 236	43 647	3 549	-
Lao People's Democratic Republic	9	89	1	1 490	14 037	224	-
Malaysia	19	72	9	3 820	14 829	1 807	-
Myanmar	10	87	3	3 192	27 593	988	-
Papua New Guinea	91	8	n.s.	26 210	2 430	86	-
Philippines	11	84	5	861	6 452	352	99
Singapore	100	0	0	2	0	0	-
Thailand	35	44	21	6 726	8 261	3 986	-
Viet Nam	1	74	25	80	10 205	3 512	-
Southeast Asia	**37**	**57**	**6.0**	**90 202**	**137 271**	**14 576**	**-**
Rainforest Basins	**62**	**36**	**1.9**	**833 395**	**484 606**	**25 250**	**-**

* Data on primary forest and planted forest from ITTO (in press). Area of other naturally regenerated forest calculated as the remaining forest area. All others: FAO, 2010a.

Table 7

Change in extent of primary forest, 1990–2010

Country/Region	Primary forest							
	Area (1 000 ha)				Annual change rate			
	1990	2000	2005	2010	1990–2000		2000–2010	
					1 000 ha/yr	%	1 000 ha/yr	%
Bolivia (Plurinational State of)	40 804	39 046	38 164	37 164	-176	-0.44	-188	-0.49
Brazil	530 041	501 926	488 254	476 573	-2 812	-0.54	-2 535	-0.52
Colombia	8 828	8 685	8 614	8 543	-14	-0.16	-14	-0.16
Ecuador	-	4 682	4 743	4 805	-	-	12	0.26
French Guiana	8 006	7 816	7 738	7 690	-19	-0.24	-13	-0.16
Guyana	-	6 790	6 790	6 790	-	-	0	0
Peru	62 910	62 188	61 065	60 178	-72	-0.12	-201	-0.33
Suriname	14 208	14 137	14 093	14 001	-7	-0.05	-14	-0.10
Venezuela (Bolivarian Republic of)	-	-	-	-	-	-	-	-
Amazon Basin	-	-	-	-	-	-	-	-
Angola	0	0	0	0	0	-	0	-
Burundi	110	40	40	40	-7	-9.62	0	0
Cameroon	-	-	-	-	-	-	-	-
Central African Republic	3 900	3 135	2 752	2 370	-77	-2.16	-77	-2.76
Congo	7 548	7 492	7 464	7 436	-6	-0.07	-6	-0.07
Democratic Republic of the Congo	-	-	-	-	-	-	-	-
Equatorial Guinea	0	0	0	0	0	-	0	-
Gabon	20 934	17 634	15 984	14 334	-330	-1.70	-330	-2.05
Rwanda	7	7	7	7	0	0	0	0
Sao Tome and Principe	11	11	11	11	0	0	0	0
Congo Basin	-	-	-	-	-	-	-	-
Brunei Darussalam	313	288	275	263	-3	-0.83	-3	-0.90
Cambodia	766	456	322	322	-31	-5.05	-13	-3.42
Indonesia	-	49 270	47 750	47 236	-	-	-203	-0.42
Lao People's Democratic Republic	1 490	1 490	1 490	1 490	0	0	0	0
Malaysia	3 820	3 820	3 820	3 820	0	0	0	0
Myanmar	3 192	3 192	3 192	3 192	0	0	0	0
Papua New Guinea	31 329	29 534	28 344	26 210	-180	-0.59	-332	-1.19
Philippines	861	861	861	861	0	0	0	0
Singapore	2	2	2	2	0	0	0	0
Thailand	6 726	6 726	6 726	6 726	0	0	0	0
Viet Nam	384	187	85	80	-20	-6.94	-11	-8.14
Southeast Asia	-	-	-	-	-	-	-	-
Rainforest Basins	-	-	-	-	-	-	-	-

Table 8

Change in extent of planted forest,1990–2010

Country/Region	Planted forest							
	Area (1 000 ha)				Annual change rate			
	1990	2000	2005	2010	1990–2000		2000–2010	
					1 000 ha/yr	%	1 000 ha/yr	%
Bolivia (Plurinational State of)	20	20	20	20	0	0	0	0
Brazil	4 984	5 176	5 765	7 418	19	0.38	224	3.66
Colombia	137	255	330	405	12	6.41	15	4.73
Ecuador	-	161	165	167	-	-	1	0.37
French Guiana	1	1	1	1	0	0	0	0
Guyana	-	0	0	0	-	-	0	-
Peru	263	715	754	993	45	10.52	28	3.34
Suriname	13	13	13	13	0	0	0	0
Venezuela (Bolivarian Republic of)	-	-	-	-	-	-	-	-
Amazon Basin	-	-	-	-	-	-	-	-
Angola	140	134	131	128	-1	-0.44	-1	-0.46
Burundi	0	86	78	69	9	-	-2	-2.18
Cameroon	-	-	84	-	-	-	-	-
Central African Republic	2	2	2	2	0	0	0	0
Congo	51	51	51	75	0	0	2	3.93
Democratic Republic of the Congo	56	57	57	59	n.s.	0.18	0	0.36
Equatorial Guinea	0	n.s.	n.s.	n.s.	n.s.	-	0	0
Gabon	30	30	30	30	0	0	0	0
Rwanda	248	282	323	373	3	1.29	9	2.84
Sao Tome and Principe	0	0	0	0	0	-	0	-
Congo Basin	-	-	-	-	-	-	-	-
Brunei Darussalam	1	1	2	3	n.s.	6.93	n.s.	7.46
Cambodia	67	79	74	69	1	1.66	-1	-1.34
Indonesia	-	3 672	3 699	3 549	-	-	-12	-0.34
Lao People's Democratic Republic	3	99	224	224	10	41.86	13	8.51
Malaysia	1 956	1 659	1 573	1 807	-30	-1.63	15	0.86
Myanmar	394	696	849	988	30	5.85	29	3.57
Papua New Guinea	63	82	92	86	2	2.75	n.s.	0.44
Philippines	302	327	340	352	3	0.80	3	0.74
Singapore	0	0	0	0	0	-	0	-
Thailand	2 668	3 111	3 444	3 986	44	1.55	88	2.51
Viet Nam	967	2 050	2 794	3 512	108	7.80	146	5.53
Southeast Asia	-	-	-	-	-	-	-	-
Rainforest Basins	-	-	-	-	-	-	-	-

Table 9

Forest growing stock and carbon stock, 2010

Country/Region	Growing stock		Carbon stock (million tonnes)				
	Total (million m³)	m³/ha	Carbon in above-ground biomass	Carbon in below-ground biomass	Carbon in dead wood	Carbon in litter	Soil carbon
Bolivia (Plurinational State of)	4 242	74	3 582	860	-	120	3 718
Brazil	126 221	243	52 745	9 862	3 871	2 283	52 277
Colombia	8 982	148	5 488	1 317	-	-	-
Ecuador	-	-	-	-	-	-	-
French Guiana	2 829	350	1 344	307	115	-	727
Guyana	2 206	145	1 348	281	63	50	669
Peru	8 159	120	6 903	1 657	-	143	3 400
Suriname	3 389	230	2 553	612	-	31	694
Venezuela (Bolivarian Republic of)	-	-	-	-	-	-	-
Amazon Basin	-	-	-	-	-	-	-
Angola	2 266	39	3 536	849	-	123	2 047
Burundi	20	117	13	3	-	n.s.	11
Cameroon	6 141	308	2 174	522	-	42	1 295
Central African Republic	3 776	167	2 307	554	-	47	1 469
Congo	4 539	203	2 773	665	-	47	1 053
Democratic Republic of the Congo	35 473	230	15 838	3 801	-	324	10 019
Equatorial Guinea	268	165	164	39	-	3	106
Gabon	4 895	223	2 186	524	-	46	1 430
Rwanda	79	182	32	8	-	1	20
Sao Tome and Principe	5	167	3	1	-	n.s.	1
Congo Basin	-	-	-	-	-	-	-
Brunei Darussalam	72	190	58	14	-	1	20
Cambodia	959	95	298	166	-	-	384
Indonesia	11 343	120	9 787	3 230	-	-	-
Lao People's Democratic Republic	929	59	895	179	-	33	-
Malaysia	4 239	207	2 590	622	-	43	-
Myanmar	1 430	45	1 378	276	-	67	-
Papua New Guinea	2 726	95	1 922	384	-	-	-
Philippines	1 278	167	535	128	73	16	498
Singapore	-	-	-	-	-	-	-
Thailand	783	41	693	187	-	-	-
Viet Nam	870	63	778	214	-	72	651
Southeast Asia	-	-	-	-	-	-	-
Rainforest Basins	-	-	-	-	-	-	-

Table 10

Change in carbon stock in living forest biomass, 1990–2010

Country/Region	Carbon stock in living forest biomass (million tonnes)					Annual change (1000 /yr)	
	1990	2000	2005	2010	By area 2010 (tonnes/ha)	1990–2000	2000–2010
Bolivia (Plurinational State of)	4 877	4 666	4 561	4 442	78	-21	-22
Brazil	68 119	65 304	63 679	62 607	121	-282	-270
Colombia	7 032	6 918	6 862	6 805	112	-11	-11
Ecuador	-	-	-	-	-	-	-
French Guiana	1 672	1 657	1 654	1 651	204	-2	-1
Guyana	1 629	1 629	1 629	1 629	107	0	0
Peru	8 831	8 713	8 654	8 560	126	-12	-15
Suriname	3 168	3 168	3 168	3 165	214	0	n.s.
Venezuela (Bolivarian Republic of)	-	-	-	-	-	-	-
Amazon Basin	-	-	-	-	-	-	-
Angola	4 573	4 479	4 432	4 385	75	-9	-9
Burundi	25	19	18	17	96	-1	0
Cameroon	3 292	2 993	2 844	2 696	135	-30	-30
Central African Republic	2 936	2 898	2 879	2 861	127	-4	-4
Congo	3 487	3 461	3 448	3 438	153	-3	-2
Democratic Republic of the Congo	20 433	20 036	19 838	19 639	127	-40	-40
Equatorial Guinea	232	217	210	203	125	-1	-1
Gabon	2 710	2 710	2 710	2 710	123	0	0
Rwanda	35	18	35	39	91	-2	2
Sao Tome and Principe	4	4	4	4	141	0	0
Congo Basin	-	-	-	-	-	-	-
Brunei Darussalam	81	76	74	72	188	n.s.	n.s.
Cambodia	609	537	495	464	46	-7	-7
Indonesia	16 335	15 182	14 299	13 017	138	-115	-217
Lao People's Democratic Republic	1 186	1 133	1 106	1 074	68	-5	-6
Malaysia	2 822	3 558	3 362	3 212	157	74	-35
Myanmar	2 040	1 814	1 734	1 654	52	-23	-16
Papua New Guinea	2 537	2 423	2 365	2 306	80	-11	-12
Philippines	641	655	660	663	87	1	1
Singapore	-	-	-	-	-	-	-
Thailand	908	881	877	880	46	-3	n.s.
Viet Nam	778	927	960	992	72	15	7
Southeast Asia	-	-	-	-	-	-	-
Rainforest Basins	-	-	-	-	-	-	-

Table 11

Change in ownership of forest, 1990–2005

Country/Region	Public ownership of forest			
	1990 (1 000 ha)	2000 (1 000 ha)	2005 (1 000 ha)	% of forest area in 2005
Bolivia (Plurinational State of)	62 775	60 071	58 714	100
Brazil	482 709	449 126	431 334	81
Colombia	2 362	5 963	13 478	22
Ecuador	-	2 655	1 649	15
French Guiana	8 168	8 098	8 080	100
Guyana	-	-	12 222	80
Peru	-	57 492	42 340	62
Suriname	14 689	14 689	14 689	99
Venezuela (Bolivarian Republic of)	52 026	49 151	47 713	100
Amazon Basin	-	-	**630 219**	**77**
Angola	60 976	59 728	59 104	100
Burundi	289	198	181	100
Cameroon	24 316	22 116	21 016	100
Central African Republic	18 127	21 268	20 788	91
Congo	22 726	22 556	22 471	100
Democratic Republic of the Congo	160 363	157 249	155 692	100
Equatorial Guinea	1 860	1 743	1 685	100
Gabon	22 000	22 000	22 000	100
Rwanda	245	265	303	79
Sao Tome and Principe	-	-	-	-
Congo Basin	-	-	**303 240**	**99**
Brunei Darussalam	413	397	389	100
Cambodia	12 944	11 546	10 731	100
Indonesia	103 058	90 224	89 449	91
Lao People's Democratic Republic	17 314	16 532	16 142	100
Malaysia	21 877	21 347	20 559	98
Myanmar	39 218	34 868	33 280	100
Papua New Guinea	946	904	883	3
Philippines	-	6 058	6 291	85
Singapore	2	2	2	100
Thailand	17 641	17 011	16 696	88
Viet Nam	5 603	6 402	9 398	72
Southeast Asia	-	-	**203 820**	**82**
Rainforest Basins	-	-	**1 137 279**	**83**

Private ownership of forest				Other ownership of forest			
1990 (1 000 ha)	2000 (1 000 ha)	2005 (1 000 ha)	% of forest area in 2005	1990 (1 000 ha)	2000 (1 000 ha)	2005 (1 000 ha)	% of forest area in 2005
20	20	20	n.s.	0	0	0	0
92 130	96 817	99 160	19	0	0	0	0
2 506	2 506	40 797	67	57 651	53 040	6 729	11
-	0	165	2	-	9 186	9 038	83
20	20	20	n.s.	0	0	0	0
-	-	2 983	20	-	-	0	0
-	10 518	12 617	18	-	1 203	13 785	20
87	87	87	1	0	0	0	0
0	0	0	0	0	0	0	0
-	-	155 849	19	-	-	29 552	4
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	5 076	1 635	1 967	9
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
73	79	82	21	0	0	0	0
-	-	-	-	-	-	-	-
-	-	82	0	-	-	1 967	1
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
15 487	9 185	8 408	9	0	0	0	0
0	0	0	0	0	0	0	0
499	244	331	2	0	0	0	0
0	0	41	n.s.	0	0	0	0
30 577	29 229	28 554	97	0	0	0	0
-	1 059	1 100	15	0	0	0	0
0	0	0	0	0	0	0	0
1 908	1 993	2 202	12	0	0	0	0
109	2 255	3 120	24	3 651	3 068	559	4
-	-	43 756	18	-	-	559	0
-	-	199 687	15	-	-	32 078	2

Table 12

Management rights of public forests, 2005 (%)

Country/Region	Holder of management rights of public forests				
	Public administration	Individuals	Business entities & Institutions	Communities	Other
Bolivia (Plurinational State of)	85	2	10	1	1
Brazil	63	0	0	37	0
Colombia	100	0	0	0	0
Ecuador	-	-	-	-	-
French Guiana	100	0	0	0	0
Guyana	100	0	0	0	0
Peru	40	0	0	0	60
Suriname	85	2	8	3	1
Venezuela (Bolivarian Republic of)	96	0	4	0	0
Amazon Basin	**68**	**n.s.**	**1**	**26**	**4**
Angola	100	0	0	0	0
Burundi	100	0	0	0	0
Cameroon	56	0	41	3	0
Central African Republic	1	0	15	0	84
Congo	42	0	58	0	0
Democratic Republic of the Congo	90	0	10	0	0
Equatorial Guinea	87	1	9	3	0
Gabon	100	0	0	0	0
Rwanda	100	0	0	0	0
Sao Tome and Principe	-	-	-	-	-
Congo Basin	**81**	**n.s.**	**13**	**n.s.**	**6**
Brunei Darussalam	100	0	0	0	0
Cambodia	-	-	-	2	-
Indonesia	43	n.s.	57	n.s.	0
Lao People's Democratic Republic	-	-	-	-	-
Malaysia	90	0	10	0	0
Myanmar	-	-	-	-	-
Papua New Guinea	96	0	4	0	0
Philippines	32	n.s.	20	47	0
Singapore	100	0	0	0	0
Thailand	-	-	-	-	-
Viet Nam	-	-	-	-	-
Southeast Asia	**51**	**n.s.**	**46**	**2**	**0**
Rainforest Basins	**70**	**n.s.**	**10**	**16**	**4**

Table 13

Primary designated functions of forest, 2010

Country/Region	Forest							
	Total area	Production	Protection	Conservation	Social services	Multiple use	Other	None or unknown
	1 000 ha	%	%	%	%	%	%	%
Bolivia (Plurinational State of)	57 196	0	0	19	0	81	0	n.s.
Brazil	519 522	7	8	9	23	4	0	49
Colombia	60 499	13	1	14	0	0	0	72
Ecuador	9 865	2	24	49	0	21	0	4
French Guiana	8 082	0	0	30	0	52	0	18
Guyana	15 205	97	0	1	2	0	0	0
Peru	67 992	37	n.s.	27	n.s.	26	0	10
Suriname	14 758	27	0	15	0	4	0	55
Venezuela (Bolivarian Republic of)	46 275	49	17	34	0	0	0	0
Amazon Basin	**799 394**	**14**	**7**	**14**	**15**	**11**	**0**	**40**
Angola	58 480	4	0	3	0	0	0	93
Burundi	172	9	0	0	0	0	0	91
Cameroon	19 916	73	3	17	1	6	n.s.	0
Central African Republic	22 605	21	0	1	0	78	0	0
Congo	22 411	88	0	4	0	7	0	0
Democratic Republic of the Congo	154 135	5	0	17	0	0	0	78
Equatorial Guinea	1 626	5	0	36	3	53	3	0
Gabon	22 000	45	0	18	n.s.	36	0	0
Rwanda	435	74	12	0	0	14	0	0
Sao Tome and Principe	27	-	-	-	-	-	-	-
Congo Basin	**301 807**	**20**	**n.s.**	**12**	**n.s.**	**10**	**n.s.**	**58**
Brunei Darussalam	380	58	5	21	1	0	0	15
Cambodia	10 094	33	5	39	1	4	0	17
Indonesia	94 432	53	24	16	0	0	0	7
Lao People's Democratic Republic	15 751	23	58	19	n.s.	0	0	0
Malaysia	20 456	62	13	10	0	15	0	0
Myanmar	31 773	62	4	7	0	27	0	0
Papua New Guinea	28 726	25	0	5	0	5	0	66
Philippines	7 665	76	8	16	0	0	0	0
Singapore	2	0	0	100	0	0	0	0
Thailand	18 972	14	7	47	1	0	0	32
Viet Nam	13 797	47	37	16	0	0	0	0
Southeast Asia	**242 048**	**46**	**18**	**16**	**n.s.**	**6**	**0**	**14**
Rainforest Basins	**1 343 249**	**21**	**7**	**14**	**9**	**10**	**n.s.**	**39**

Table 14

Change in forest area designated for production, protection and conservation, 1990–2010

Country/Region	Forest (1 000 ha)								
	Production			Protection			Conservation		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
Bolivia (Plurinational State of)	-	0	0	-	0	0	-	10 680	10 680
Brazil	12 754	15 215	34 251	42 574	42 574	42 574	19 869	22 746	46 966
Colombia	7 964	7 835	7 707	598	589	579	8 828	8 685	8 543
Ecuador	-	161	167	-	2 404	2 415	-	4 682	4 805
French Guiana	181	0	0	0	0	0	0	435	2 418
Guyana	-	14 696	14 696	-	0	0	-	151	151
Peru	39 877	39 877	24 900	316	316	316	4 777	13 321	18 505
Suriname	2 500	4 010	3 932	0	0	0	1 887	1 887	2 192
Venezuela (Bolivarian Republic of)	-	25 481	22 605	-	7 915	7 915	-	15 755	15 755
Amazon Basin	**-**	**-**	**108 258**	**-**	**-**	**53 799**	**-**	**-**	**110 015**
Angola	2 422	2 369	2 317	0	0	0	1 862	1 862	1 862
Burundi	10	10	15	0	0	0	0	0	0
Cameroon	10 814	10 983	14 561	300	703	593	2 251	2 958	3 336
Central African Republic	4 826	4 826	4 826	0	0	0	167	247	247
Congo	20 042	19 892	19 768	0	0	0	1 001	994	986
Democratic Republic of the Congo	-	-	7 002	-	0	0	-	19 600	26 314
Equatorial Guinea	-	249	87	-	0	0	-	586	586
Gabon	19 078	19 078	9 987	0	0	0	2 902	2 902	4 000
Rwanda	217	247	321	31	35	52	0	0	0
Sao Tome and Principe	-	-	-	-	-	-	-	-	-
Congo Basin	**-**	**-**	**58 884**	**-**	**-**	**645**	**-**	**-**	**37 331**
Brunei Darussalam	138	219	219	19	19	19	75	81	81
Cambodia	2 244	4 919	3 374	0	6	551	2 776	3 381	3 985
Indonesia	62 342	51 628	49 680	24 301	23 272	22 667	16 415	15 324	15 144
Lao People's Democratic Republic	3 164	3 380	3 596	11 634	10 310	9 074	2 500	2 815	3 043
Malaysia	11 736	12 921	12 739	2 700	2 910	2 694	1 120	1 120	1 946
Myanmar	4 422	24 644	19 633	312	1 499	1 352	720	1 220	2 081
Papua New Guinea	3 994	7 474	7 132	0	0	0	409	1 376	1 312
Philippines	4 538	5 295	5 861	526	569	613	1 108	1 153	1 191
Singapore	0	0	0	0	0	0	2	2	2
Thailand	1 941	2 030	2 653	727	1 081	1 332	6 726	8 707	8 853
Viet Nam	5 707	4 653	6 524	2 925	5 502	5 131	731	1 570	2 142
Southeast Asia	**-**	**-**	**111 411**	**-**	**-**	**43 433**	**-**	**-**	**39 780**
Rainforest Basins	**-**	**-**	**278 553**	**-**	**-**	**97 877**	**-**	**-**	**187 126**

Table 15

Change in removal of wood products, 1990–2009

Country/Region	Wood removals (1 000 m³ under bark)							
	Industrial roundwood Total volume				Woodfuel Total volume			
	1990	2000	2005	2009	1990	2000	2005	2009
Bolivia (Plurinational State of)	372	468	810	910	1 921	2 142	2 251	2 329
Brazil	74 277	102 994	117 987	122 160	120 301	132 408	137 756	141 989
Colombia	3 683	2 164	1 626	2 390	6 766	10 893	10 301	8 826
Ecuador	3 531	546	1 211	1 940	3 113	5 129	5 507	4 090
French Guiana	188	60	72	93	45	75	100	122
Guyana	150	289	497	458	916	880	863	851
Peru	1 073	1 511	1 742	1 347	6 518	7 777	7 364	7 343
Suriname	106	181	182	208	38	43	45	47
Venezuela (Bolivarian Republic of)	938	1 103	1 443	2 348	2 990	3 605	3 843	4 011
Amazon Basin	**84 318**	**109 316**	**125 570**	**131 854**	**142 608**	**162 951**	**168 031**	**169 608**
Angola	843	1 096	1 096	1 096	2 342	3 163	3 574	3 917
Burundi	49	333	333	333	5 844	5 420	8 542	9 111
Cameroon	3 136	1 894	1 800	2 616	7 648	9 111	9 485	9 818
Central African Republic	425	955	832	841	3 055	2 000	2 000	2 000
Congo	1 598	1 362	2 181	2 431	974	1 153	1 369	1 315
Democratic Republic of the Congo	3 053	3 674	4 198	4 452	44 183	64 903	71 066	75 446
Equatorial Guinea	187	689	419	419	447	447	447	190
Gabon	1 633	2 584	3 200	3 400	452	515	1 070	1 070
Rwanda	20	400	495	1 212	3 000	5 000	5 000	1 865
Sao Tome and Principe	9	9	9	9	79	96	102	106
Congo Basin	**10 953**	**12 996**	**14 563**	**16 809**	**68 024**	**91 809**	**102 655**	**104 840**
Brunei Darussalam	215	117	112	112	11	12	12	12
Cambodia	567	179	113	118	11 228	10 119	9 221	8 586
Indonesia	38 366	33 497	37 572	36 354	126 043	88 981	73 720	62 341
Lao People's Democratic Republic	455	567	194	218	5 627	5 872	5 944	5 946
Malaysia	41 260	24 380	25 186	20 126	4 010	3 346	3 068	2 858
Myanmar	3 653	3 612	4 262	4 262	17 645	34 471	38 286	38 286
Papua New Guinea	2 655	2 309	2 614	3 040	5 533	5 533	5 533	5 533
Philippines	4 928	3 079	3 129	3 798	15 176	13 615	12 950	12 469
Singapore	0	0	0	0	0	0	0	0
Thailand	3 093	6 262	8 700	8 700	21 807	20 553	19 866	19 398
Viet Nam	4 669	4 183	4 754	5 850	26 534	26 686	26 350	22 000
Southeast Asia	**99 861**	**78 184**	**86 635**	**82 577**	**233 614**	**209 187**	**194 950**	**177 429**
Rainforest Basins	**195 131**	**200 496**	**226 768**	**231 240**	**444 246**	**463 946**	**465 636**	**451 877**

Source: FAO, 2011a

Table 16

Formal employment in forestry sector, 2006

Country/Region	Roundwood production	Wood processing	Pulp and paper	Total for the forestry sector	
	1 000 FTE	1 000 FTE	1 000 FTE	1 000 FTE	% of total labour force
Bolivia (Plurinational State of)	4	3	2	9	0.2
Brazil	306	503	201	1 010	1.2
Colombia	3	4	18	25	0.1
Ecuador	13	4	7	24	0.4
French Guiana	n.s.	n.s.	–	n.s.	0.3
Guyana	3	5	–	8	1.9
Peru	19	6	6	31	0.3
Suriname	1	3	n.s.	4	2.2
Venezuela (Bolivarian Republic of)	8	25	33	66	0.5
Amazon Basin	**358**	**553**	**267**	**1 178**	**0.9**
Angola	2	1	n.s.	3	n.s.
Burundi	n.s.	2	n.s.	2	n.s.
Cameroon	12	8	1	20	0.3
Central African Republic	2	2	n.s.	4	0.2
Congo	4	3	n.s.	7	0.5
Democratic Republic of the Congo	6	n.s.	–	6	n.s.
Equatorial Guinea	1	n.s.	–	1	0.5
Gabon	8	4	n.s.	12	1.9
Rwanda	1	1	–	1	n.s.
Sao Tome and Principe	–	–	–	–	–
Congo Basin	**36**	**20**	**1**	**57**	**0.1**
Brunei Darussalam	1	n.s.	–	2	0.9
Cambodia	n.s.	1	n.s.	1	n.s.
Indonesia	69	148	104	321	0.3
Lao People's Democratic Republic	1	2	n.s.	3	0.1
Malaysia	88	126	35	248	2.3
Myanmar	24	21	3	48	0.2
Papua New Guinea	8	4	–	12	0.4
Philippines	8	20	21	49	0.1
Singapore	0	2	4	6	0.3
Thailand	8	62	67	137	0.4
Viet Nam	22	120	70	212	0.5
Southeast Asia	**230**	**506**	**304**	**1 039**	**0.4**
Rainforest Basins	**624**	**1 078**	**571**	**2 274**	**0.5**

Source: FAO, 2008

Table 17

Forestry sector contribution to GDP, 2006

Country/Region	Gross value added				
	Forestry and logging	Wood industry	Pulp and paper industry	Total for the forestry sector	
	US$ million	US$ million	US$ million	US$ million	% contribution to GDP
Bolivia (Plurinational State of)	92	111	38	241	2.7
Brazil	18 198	3 953	6 055	28 206	2.8
Colombia	140	166	503	810	0.7
Ecuador	277	427	190	893	2.3
French Guiana	2	2	–	4	0.1
Guyana	18	13	–	31	4.1
Peru	278	204	458	940	1.1
Suriname	6	9	–	15	0.9
Venezuela (Bolivarian Republic of)	540	629	484	1 653	1.0
Amazon Basin	**19 552**	**5 513**	**7 728**	**32 793**	**2.3**
Angola	260	2	1	262	0.6
Burundi	10	5	n.s.	15	1.8
Cameroon	236	74	13	324	1.9
Central African Republic	133	10	1	144	11.1
Congo	45	27	–	72	1.1
Democratic Republic of the Congo	185	2	–	186	2.3
Equatorial Guinea	86	2	–	87	0.9
Gabon	171	118	n.s.	290	3.0
Rwanda	30	1	–	31	1.3
Sao Tome and Principe	–	–	–	–	–
Congo Basin	**1 155**	**241**	**16**	**1 411**	**1.4**
Brunei Darussalam	3	6	–	9	0.1
Cambodia	139	5	29	173	2.8
Indonesia	3 283	3 896	2 386	9 564	2.5
Lao People's Democratic Republic	103	1	n.s.	104	3.0
Malaysia	2 423	1 514	661	4 598	3.0
Myanmar	35	1	1	38	0.3
Papua New Guinea	316	84	–	400	6.7
Philippines	94	157	308	560	0.5
Singapore	–	38	181	218	0.2
Thailand	149	333	1 211	1 693	0.8
Viet Nam	674	370	328	1 372	2.4
Southeast Asia	**7 219**	**6 406**	**5 105**	**18 730**	**1.7**
Rainforest Basins	**27 926**	**12 160**	**12 848**	**52 934**	**2.0**

Source: FAO, 2008

Table 18

Permanent forest estate and area under sustainable forest management, 2010

Country/Region	Permanent forest estate		Area of forest with management plan		Certified forest area		Area of forest under sustainable forest management	
	1 000 ha	% of forest area	1 000 ha	% of forest area	1 000 ha	% of forest area	1 000 ha	% of forest area
Bolivia (Plurinational State of)	38 200	67	13 180	23	1 720	3	4 410	8
Brazil	310 000	60	18 720	4	2 700	1	2 700	1
Colombia	14 840	25	606	1	9	n.s.	771	1
Ecuador	8 518	86	2 387	24	0	0	805	8
French Guiana*	6 598	82	2 222	27	-	-	2 425	30
Guyana	12 200	80	4 385	29	185	1	852	6
Peru	38 100	56	19 163	28	713	1	3 483	5
Suriname	7 513	51	2 359	16	89	1	1 707	12
Venezuela (Bolivarian Republic of)	32 560	70	12 474	27	0	0	1 235	3
Amazon Basin	-	-	-	-	-	-	-	-
Angola*	58 480	100	0	0	-	-	-	-
Burundi*	76	44	-	-	-	-	44	26
Cameroon	12 800	64	7 232	36	705	4	2 675	13
Central African Republic	5 760	25	2 440	11	0	0	120	1
Congo	18 850	84	9 195	41	1 908	9	3 374	15
Democratic Republic of the Congo	48 300	31	7 263	5	0	0	0	0
Equatorial Guinea*	1 626	100	-	-	-	-	-	-
Gabon	13 500	61	4 690	21	1 870	9	3 650	17
Rwanda	-	-	-	-	-	-	-	-
Sao Tome and Principe	-	-	-	-	-	-	-	-
Congo Basin	-	-	-	-	-	-	-	-
Brunei Darussalam*	322	85	-	-	-	-	322	85
Cambodia	8 240	82	1 640	16	0	0	0	0
Indonesia	65 900	70	18 380	19	1 125	1	4 520	5
Lao People's Democratic Republic	-	-	-	-	-	-	-	-
Malaysia	13 877	68	14 028	69	5 228	26	9 529	47
Myanmar	21 130	67	22 012	69	0	0	291	1
Papua New Guinea	10 400	36	769	3	3	n.s.	193	1
Philippines	6 040	79	2 166	28	0	0	79	1
Singapore	-	-	-	-	-	-	-	-
Thailand	10 261	54	671	4	11	n.s.	413	2
Viet Nam	-	-	-	-	-	-	-	-
Southeast Asia	-	-	-	-	-	-	-	-
Rainforest Basins	-	-	-	-	-	-	-	-

Source: * FAO, 2010a. All others: ITTO (in press)

Table 19

Change in forest area within protected areas, 1990–2010

Country/Region	Forest area within protected areas								
	Area (1 000 ha)				% of forest area	Annual change rate			
						1990–2000		2000–2010	
	1990	2000	2005	2010	2010	1 000 ha/yr	%	1 000 ha/yr	%
Bolivia (Plurinational State of)	-	-	10 680	10 680	19	-	-	-	-
Brazil	62 443	65 312	78 038	89 541	17	287	0.45	2 423	3.21
Colombia	-	-	-	-	-	-	-	-	-
Ecuador	-	-	-	-	-	-	-	-	-
French Guiana	-	n.s.	n.s.	2 418	30	-	-	-	-
Guyana	-	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-	-
Suriname	-	1 887	2 015	2 015	14	-	-	13	0.66
Venezuela (Bolivarian Republic of)	-	-	-	-	-	-	-	-	-
Amazon Basin	-	-	-	-	-	-	-	-	-
Angola	1 862	1 862	1 862	1 862	3	0	0	0	0
Burundi	50	40	40	40	23	-1	-2.21	0	0
Cameroon	5 253	6 000	6 373	9 105	46	75	1.34	311	4.26
Central African Republic	167	247	247	247	1	8	3.99	0	0
Congo	1 001	994	990	986	4	-1	-0.07	-1	-0.08
Democratic Republic of the Congo	-	-	-	16 297	11	-	-	-	-
Equatorial Guinea	0	586	586	586	36	59	-	0	0
Gabon	2 902	2 902	3 007	3 434	16	0	0	53	1.70
Rwanda	70	62	62	62	14	-1	-1.21	0	0
Sao Tome and Principe	-	-	-	-	-	-	-	-	-
Congo Basin	-	-	-	-	-	-	-	-	-
Brunei Darussalam	19	19	19	19	5	0	0	0	0
Cambodia	3 277	3 184	3 138	3 092	31	-9	-0.29	-9	-0.29
Indonesia	40 716	38 596	38 224	37 811	40	-212	-0.53	-79	-0.21
Lao People's Democratic Republic	-	-	-	-	-	-	-	-	-
Malaysia	3 820	4 030	4 930	4 640	23	21	0.54	61	1.42
Myanmar	720	1 220	4 901	2 081	7	50	5.42	86	5.49
Papua New Guinea	313	313	313	313	1	0	0	0	0
Philippines	1 634	1 722	1 764	1 804	24	9	0.53	8	0.47
Singapore	-	-	-	-	-	-	-	-	-
Thailand	7 134	9 133	9 394	9 426	50	200	2.50	29	0.32
Viet Nam	-	-	-	-	-	-	-	-	-
Southeast Asia	-	-	-	-	-	-	-	-	-
Rainforest Basins	-	-	-	-	-	-	-	-	-

Table 20

Policy and legal framework, 2008

Country/Region	Policy			National forest programme			Forest law		
	National		Sub-national				National		Sub-national
	Exist	Year	Exist	Exist	Year	Status	Status	Year	Exist
Bolivia (Plurinational State of)	Yes	2008	No	Yes	2008	In implementation	Specific forest law	1996	No
Brazil	No	-	Yes	Yes	2000	In implementation	Specific forest law	1965	Yes
Colombia	Yes	1996	No	Yes	2000	Under revision	Incorporated in other law	1974	No
Ecuador	Yes	2002	No	Yes	2002	In implementation	Specific forest law	1981	No
French Guiana	Yes	2007	Yes	Yes	2006	In implementation	Specific forest law	2001	Yes
Guyana	Yes	1997	No	Yes	2001	In implementation	Specific forest law	1953	No
Peru	No	-	Yes	Yes	2004	In implementation	Specific forest law	2000	No
Suriname	Yes	2003	No	Yes	2006	In formulation	Specific forest law	1992	No
Venezuela (Bolivarian Republic of)	Yes	1999	No	No	-	-	Specific forest law	2008	No
Amazon Basin	**7**	**-**	**3**	**8**	**-**	**-**	**-**	**-**	**2**
Angola	No	-	Yes	Yes	-	In formulation	Specific forest law	1955	Yes
Burundi	Yes	2006	No	Yes	-	In implementation	Specific forest law	1985	No
Cameroon	Yes	1993	No	Yes	2005	In implementation	Specific forest law	1994	No
Central African Republic	Yes	2003	No	Yes	1994	Temporarily suspended	Specific forest law	2008	No
Congo	Yes	2002	No	Yes	-	In formulation	Specific forest law	2000	No
Democratic Republic of the Congo	No	-	No	Yes	2009	In implementation	Specific forest law	2002	No
Equatorial Guinea	Yes	1997	No	Yes	2000	In formulation	-	1997	No
Gabon	Yes	2004	-	Yes	1993	Temporarily suspended	Specific forest law	2001	-
Rwanda	Yes	2004	No	-	-	-	Specific forest law	1988	No
Sao Tome and Principe	-	-	-	-	-	-	-	-	-
Congo Basin	**7**	**-**	**1**	**8**	**-**	**-**	**-**	**-**	**1**
Brunei Darussalam	Yes	1989	No	Yes	-	In implementation	Specific forest law	1934	No
Cambodia	Yes	2002	No	Yes	2007	In formulation	Specific forest law	2002	No
Indonesia	Yes	2006	No	Yes	2000	In implementation	Specific forest law	1999	No
Lao People's Democratic Republic	Yes	1991	-	Yes	2005	-	Specific forest law	2006	-
Malaysia	Yes	1992	Yes	Yes	2006	In implementation	Specific forest law	1984	Yes
Myanmar	Yes	-	-	Yes	2001	In implementation	Specific forest law	1902	-
Papua New Guinea	Yes	1991	No	No	-	-	Specific forest law	1991	No
Philippines	Yes	1995	No	Yes	2003	In implementation	Specific forest law	1975	No
Singapore	No	-	No	No	-	-	Incorporated in other law	2005	No
Thailand	Yes	2007	-	Yes	1985	In implementation	Specific forest law	1941	-
Viet Nam	Yes	2003	No	Yes	1987	In implementation	Specific forest law	1992	No
Southeast Asia	**10**	**-**	**1**	**9**	**-**	**-**	**-**	**-**	**1**
Rainforest Basins	**24**	**-**	**5**	**25**	**-**	**-**	**-**	**-**	**4**

Table 21

Status of ratification of international conventions and agreements as of 1 January 2010

Country/Region	CBD[a]	UNFCCC[b]	Kyoto Protocol[c]	UNCCD[d]	ITTA[e]	CITES[f]	Ramsar[g]	World Heritage Convention[h]	NLBI[i]
Bolivia (Plurinational State of)	X	X	X	X	X	X	X	X	X
Brazil	X	X	X	X	X	X	X	X	X
Colombia	X	X	X	X	X	X	X	X	X
Ecuador	X	X	X	X	X	X	X	X	X
French Guiana*	X	X	X	X	X	X	X	X	X
Guyana	X	X	X	X	X	X		X	X
Peru	X	X	X	X	X	X	X	X	X
Suriname	X	X	X	X	X	X	X	X	X
Venezuela (Bolivarian Republic of)	X	X	X	X	X	X	X	X	X
Amazon Basin	**9**	**9**	**9**	**9**	**9**	**9**	**8**	**9**	**9**
Angola	X	X	X	X				X	X
Burundi	X	X	X	X		X	X	X	X
Cameroon	X	X	X	X	X	X	X	X	X
Central African Republic	X	X	X	X	X	X	X	X	X
Congo	X	X	X	X	X	X	X	X	X
Democratic Republic of the Congo	X	X	X	X	X	X	X	X	X
Equatorial Guinea	X	X	X	X		X	X	X	X
Gabon	X	X	X	X	X	X	X	X	X
Rwanda	X	X	X	X		X	X	X	X
Sao Tome and Principe	X	X	X	X		X	X	X	X
Congo Basin	**10**	**10**	**10**	**10**	**5**	**9**	**9**	**10**	**10**
Brunei Darussalam	X	X	X	X		X			X
Cambodia	X	X	X	X	X	X	X	X	X
Indonesia	X	X	X	X	X	X	X	X	X
Lao People's Democratic Republic	X	X	X	X		X	X	X	X
Malaysia	X	X	X	X	X	X	X	X	X
Myanmar	X	X	X	X	X	X	X	X	X
Papua New Guinea	X	X	X	X	X	X	X	X	X
Philippines	X	X	X	X	X	X	X	X	X
Singapore	X	X	X	X		X			X
Thailand	X	X	X	X	X	X	X	X	X
Viet Nam	X	X	X	X		X	X	X	X
Southeast Asia	**11**	**11**	**11**	**11**	**7**	**11**	**9**	**9**	**11**
Rainforest Basins	**30**	**30**	**30**	**30**	**21**	**29**	**26**	**28**	**30**

* As a dependent territory, French Guiana has not ratified any of these agreements, but it is covered through the ratifications of these by France.

[a] CBD: http://www.cbd.int/convention/parties/list/

[b] UNFCCC: http://unfccc.int/parties_and_observers/parties/items/2352.php

[c] Kyoto Protocol: http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php

[d] UNCCD: http://www.unccd.int/convention/ratif/doeif.php

[e] ITTA:http://www.itto.int/itto_members/

[f] CITES: http://www.cites.org/eng/disc/parties/alphabet.shtml

[g] Ramsar: http://www.ramsar.org/cda/en/ramsar-about-parties-contracting-parties-to-23808/main/ramsar/1-36-123%5e23808_4000_0__

[h] World Heritage Convention: http://whc.unesco.org/en/statesparties/

[i] NLBI: http://www.un.org/en/members/

Table 22

Participation in global initiatives on REDD+ readiness

Country/Region	UN-REDD[a]	FCPF[b]	FIP Protocol[c]	GEF[d]	Bi-lateral[e]	ITTO–REDDES[f]
Bolivia (Plurinational State of)	X	X		Z		
Brazil			X	Z	X	X
Colombia	Z	X			X	
Ecuador	X					
French Guiana						
Guyana	Z	X			X	X
Peru		X	X		X	X
Suriname						
Venezuela (Bolivarian Republic of)						
Amazon Basin	**4**	**4**	**2**	**2**	**4**	**3**
Angola						
Burundi						
Cameroon		X		X		
Central African Republic	Z	X		X		
Congo	Z	X		X		
Democratic Republic of the Congo	X	X	X	X	X	X
Equatorial Guinea		X		X		
Gabon	Z	X		X		
Rwanda						
Sao Tome and Principe						
Congo Basin	**4**	**6**	**1**	**6**	**1**	**0**
Brunei Darussalam						
Cambodia	X	X		Z		
Indonesia	X	X	X		X	X
Lao People's Democratic Republic		X	X			
Malaysia						
Myanmar						
Papua New Guinea	X	X				
Philippines	X					
Singapore						
Thailand		X		Z		
Viet Nam	X	X				
Southeast Asia	**5**	**6**	**2**	**2**	**1**	**1**
Rainforest Basins	**13**	**16**	**5**	**10**	**6**	**4**

[a] UN-REDD: http://www.un-redd.org. Note that "Z" = Partner Countries (do not receive direct support to National Programmes).
[b] FCPF: http://www.forestcarbonpartnership.org/fcp/.
[c] FIP: http://www.climateinvestmentfunds.org/cif/node/5.
[d] GEF: http:// www.gefonline.org/Country/CountryProfile.cfm (Note that "Z" = SFM projects (not directly REDD+ but contribute to the objective).
[e] Bilateral: http://www.faststartfinance.org/home.
[f] ITTO-REDDES: http://www.itto.int/thematic_programme_general/

This report was prepared as a background document for the *Summit of the Three Rainforest Basins*, taking place in Brazzaville, Republic of Congo, on 31 May–3 June 2011. It draws on work undertaken by the FAO Forestry Department and the International Tropical Timber Organization (ITTO), two international organizations at the forefront of providing information on these forests and promoting their sustainable management.

Major developments highlighted in the report include recent decreases in deforestation rates in all regions; increased stakeholder involvement in forest management; the huge socio-economic impacts of forests in all areas; slow but steady increases in the areas deemed to be under sustainable management; and efforts to assess the role of forests in mitigating and adapting to climate change. A more disturbing finding is that every year many millions of hectares of tropical forest in these regions continue to be lost to (or seriously degraded by) alternative land uses.

The kind of information contained in this report will be crucial not only for the discussions at the Summit but also for laying the framework for enhanced regional and inter-regional collaboration to further promote the sustainable management of the forests found in the *Three Rainforest Basins.*

ISBN 978-92-5-106888-5

9 789251 068885

I2247E/1/05.11