Chapter 3

Global overview

A total of 124 countries and areas were identified as containing one or more true mangrove species (Tomlinson, 1986; Saenger, Hegerl and Davie, 1983) (see Annex 3). Table 2 presents an overview of the status and trends in extent of mangrove area at the regional level. The reference year given in the table for the most recent reliable estimate is the area-weighted average year. A list of the most recent reliable national/area estimates for each country or territory is presented in Table 3.

The considerable collection of quantitative and qualitative information yielded some 2 900 national and subnational data sets, of which just over 1 100 were national estimates. After elimination of duplicates, about 900 estimates remained. The period of time covered by the present assessment is very broad, with the earliest estimates dating back to 1888 for Australia, 1918 for the Philippines and 1921 for Madagascar. For some countries (e.g. Australia, Japan, Malaysia and Wallis and Futuna Islands), the most recent estimates date from 2005. Quantitative data on current and past extent of mangroves were not available for the British Indian Ocean Territory, Christmas Island, French Polynesia, Maldives, Marshall Islands, Sao Tome and Principe and Tokelau. However the extent of mangroves estimated to be present in these seven countries and areas is low and, even though very relevant locally, would not significantly influence the world total.

According to trend analyses of the available data, some 15.2 million hectares of mangroves are estimated to exist worldwide as of 2005, down from 18.8 million hectares in 1980. The most extensive mangrove area is found in Asia, followed by Africa and North and Central America (Table 3 and Figure 2). Five countries (Indonesia, Australia, Brazil, Nigeria and Mexico) together account for 48 percent of the total global area, and 65 percent of the total mangrove area is found in just ten countries (Figure 3). The remaining 35 percent is spread over 114 countries and areas, of which 60 have less than 10 000 ha of mangroves each.

Asia, which according to FAO (2006a) is the region with the lowest forest cover in terms of percentage of land area, has the largest extent of mangroves (approximately 6 million hectares), and five of the ten countries with the largest extent of mangroves worldwide are found in this region.

Human pressure on coastal ecosystems is often high, with land competition for aquaculture, agriculture, infrastructure and tourism. The consequent conversion of mangrove areas to other uses over the past decades has been alarming. However,

TABLE 2
Current and past extent of mangroves by region (1980–2005)

Region	Most recent reliable estimate		1980	1990 Annual change 1980–1990		2000	Annual change 1990–2000		2005	Annual change 2000–2005		
	1 000 ha	Ref. year	1 000 ha	1 000 ha	1 000 ha	%	1 000 ha	1 000 ha	%	1 000 ha	1 000 ha	%
Africa	3 243	1997	3 670	3 428	-24	-0.68	3 218	-21	-0.63	3 160	-12	-0.36
Asia	6 048	2002	7 769	6 741	-103	-1.41	6 163	-58	-0.89	5 858	-61	-1.01
North and Central America	2 358	2000	2 951	2 592	-36	-1.29	2 352	-24	-0.97	2 263	-18	-0.77
Oceania	2 019	2003	2 181	2 090	-9	-0.42	2 012	-8	-0.38	1 972	-8	-0.39
South America	2 038	1992	2 222	2 073	-15	-0.69	1 996	-8	-0.38	1 978	-4	-0.18
World	15 705	2000	18 794	16 925	-187	-1.04	15 740	-118	-0.72	15 231	-102	-0.66

TABLE 3

Most recent reliable mangrove area estimate by country/area

Country/area	ha	Year	Country/area	ha
ola	33 600	2000	Pakistan	158 000
n	1 700	1989	Philippines	247 362
tish Indian Ocean Territory	n.a.	n.a.	Qatar	500
meroon	251 545	2000	Saudi Arabia	20 400
omoros	117	2002	Singapore	500
ongo	8 000	2003	Sri Lanka	9 530
ôte d'Ivoire	9 940	2000	Thailand	244 085
em. Rep. of the Congo	19 600	2000	Timor-Leste	1 802
jibouti	1 000	1985	United Arab Emirates	4 000
gypt	512	2002	Viet Nam	157 500
quatorial Guinea	25 700	1995	Yemen	927
ritrea	6 400	1997	Total Asia	6 047 798
abon	152 940	2000		
mbia	58 100	2000	American Samoa	52
nana	13 729	2000	Australia	1 451 411
inea	276 342	1997	Christmas Island	n.a.
iinea-Bissau	248 400	1990	Fiji	42 464
enya	52 980	1982	French Polynesia	n.a.
peria	9 244	2000	Guam	70
adagascar	303 814	2004	Kiribati	258
auritania	104	1993	Marshall Islands	n.a.
auritius	120	2004	Micronesia (Fed. States of)	8 564
ayotte	668	1989	Nauru	2
ozambique	392 749	1997	New Caledonia	17 140
igeria	997 700	1995	New Zealand	26 032
o Tome and Principe	997 700 n.a.	n.a.	Niue	3 000
negal	11.a. 127 702	2000	Northern Mariana Islands	3 000 7
ychelles	2 900	1960	Palau	4 708
erra Leone	105 300	2000		410 000
erra Leone omalia	105 300	2000 1975	Papua New Guinea	
omalia outh Africa		1975	Samoa	370 50 572
	3 054	1999	Solomon Islands	50 572
ıdan	500 1.004	2000	Tokelau	n.a.
ogo	1 094		Tonga	1 305
nited Rep. of Tanzania	127 200	2000	Tuvalu	40
otal Africa	3 242 754	1997	Vanuatu	2 519
hrain	100	1000	Wallis and Futuna Islands	25
ahrain	100	1992	Total Oceania	2 018 537
angladesh	476 215	1995	A	
runei Darussalam	18 418	1996	Anguilla	90
ambodia	72 835	1997	Antigua and Barbuda	1 175
nina 	22 480	2001	Aruba	420
dia	446 100	2003	Bahamas	141 957
donesia	3 062 300	2003	Barbados	4
an, Islamic Rep. of	19 234	1997	Belize	78 511
apan	800	2005	Bermuda	16
uwait	5	2004	British Virgin Islands	587
/lalaysia	564 971	2005	Cayman Islands	7 830
Maldives	n.a.	n.a.	Costa Rica	41 840
l yanmar	518 646	1999	Cuba	545 805
Oman	1 088	1995	Dominica	10

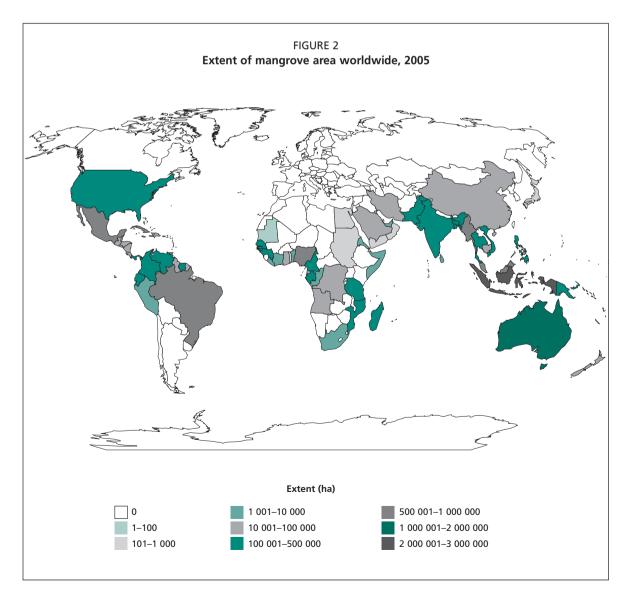
Global overview

TABLE 3 (continued)

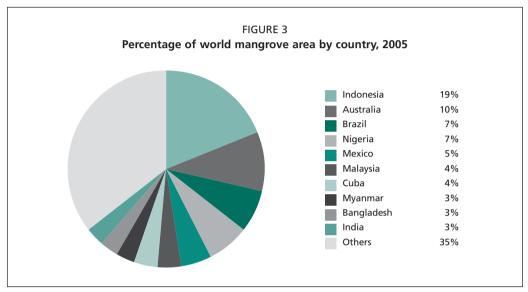
Most recent reliable mangrove area estimate by country/area

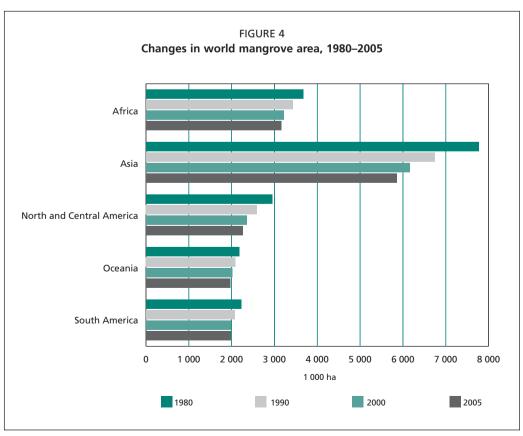
ountry/area	ha	Year
Dominican Republic	21 215	1998
El Salvador	28 000	2004
Grenada	255	1992
Guadeloupe	2 950	1997
Guatemala	17 727	1999
Haiti	15 000	1988
Honduras	78 668	2000
Jamaica	9 731	1997
Martinique	1 840	1998
Mexico	882 032	2002
Montserrat	5	1991
Netherlands Antilles	1 138	1980
Nicaragua	69 050	1998
Panama	174 435	2000
Puerto Rico	8 870	2000
Saint Kitts and Nevis	79	1991
Saint Lucia	200	2002

Note: n.a. = not available.



although mangroves still face major threats, the rate of loss has recently been decreasing – from some 187 000 ha lost annually in the 1980s (–1.04 percent per year) to 102 000 ha annually (–0.66 percent per year) during the 2000–2005 period. The figures suggest that during the past 25 years about 3.6 million hectares have been lost, corresponding to some 20 percent of the global mangrove area in 1980. At the regional level, Asia suffered the largest net loss: more than 1.9 million hectares since 1980, mainly due to changes in land use from 1980 to 1990. North and Central America and Africa also contributed significantly to the decrease in mangrove area at the global level, with losses of about 690 000 and 510 000 ha respectively over the last 25 years. On a positive note, analysis of the trend in mangrove area changes in the last five years (2000–2005), shows a reduction of the rate of loss in all regions (Figure 4).





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Mangroves often offer a source of wood products, providing subsistence for local populations. Wood removal, however, is rarely the main cause of mangrove loss. The major cause of clearings and losses over time is competition for land – for urban development, tourism, agriculture or shrimp-pond construction. More specifically, the relatively large mangrove negative change rates of the 1980s in Asia, the Caribbean and Latin America have been caused primarily by large-scale conversion of these areas for aquaculture and tourism infrastructure. Most countries have now banned the clearing of mangrove areas for aquaculture and require environmental impact assessments prior to large-scale conversion of these areas to other uses.

At the country level, Indonesia, Mexico, Pakistan, Papua New Guinea and Panama recorded the largest losses of mangroves during the 1980s. A total of some 1 million hectares were lost in these five countries – a land area comparable to Jamaica. In the 1990s Pakistan and Panama succeeded in reducing their rate of mangrove loss. Conversely, Viet Nam, Malaysia and Madagascar suffered increased clearing and moved into the top five countries with major area losses in the 1990s and/or 2000–2005. Even though efforts are under way to decrease mangrove loss, some 500 000 ha have still been lost worldwide within the period 2000–2005.

In relative terms, countries with high negative change rates include Singapore, Barbados, Pakistan and the Republic of the Congo in the 1980s; Barbados, Oman, Samoa and Timor-Leste in the 1990s and Barbados, Liberia, Antigua and Barbuda and Benin from 2000 to 2005.

On a positive note, a number of countries have registered an increase in mangrove area over time, including Bangladesh. Here, the Sundarbans Reserved Forest (the Bangladeshi section of the Sundarbans) – part of the largest mangrove area in the world – is well protected, and no major changes have occurred during the last few decades. In addition, successful efforts in coastal afforestation have contributed to an increase in the extent of mangrove area despite some losses outside the reserve. A long tradition of plantation programmes is found in other countries as well and has led to an increase in the extent of mangrove area. The recolonization and natural regeneration properties of these forests also help to increase their extent. In Ecuador, for example, the abandoning of ponds and structures for shrimp and salt production resulted in a recolonization of various sites. It should, however, be noted that in a few cases, a slight positive or negative trend may have been caused by changes in methodology or definitions or, as in the United Arab Emirates, by the discovery of new mangrove areas not included in previous assessments.

More than 20 countries are reported as having had no significant change in mangrove area over time. In some of these countries and areas, this may be caused by the limited quantitative information available at the time the study was prepared. In a few of them – Saudi Arabia and the Sudan for example – although the extent did not appear to have changed significantly over the last decades, the quality of the stands may have severely deteriorated, due primarily to camel grazing, pollution and/or oil spills.