

## 25 Forests and protected areas

**New methodologies for verifying carbon credits could promote multi-million dollar investments in reducing carbon emissions through sustainable forest management.**

For the period 1990-2005, more than half of the countries in Asia and the Pacific for which data are available reported net losses in forest cover. However, for the region as a whole coverage declined by one tenth of a percentage point. Currently, only 30 per cent of the land area is covered by forest – one of the lowest proportions among the global regions.

The losses were greatest in Afghanistan, Indonesia, Nepal, Pakistan, the Philippines, and the Solomon Islands where, compared with 1990, forest cover was reduced by more than 20 per cent. Despite investments in forest management, for a majority of countries the loss continued in the 1990s, with the most significant acceleration in Cambodia and Malaysia.

Forests include both natural – primary, modified and semi-natural – forests and plantations. All types of forests provide important ecosystem services, but not all forests are equal.

A key indicator is the health of primary forests. Primary forests are being lost as a result of deforestation and conversion to other uses, as well as the opening up of some areas to low impact logging, or other logging practices and human activities. Natural events also play a part, including disasters and non-anthropogenic forest fires.

In 2005 of the world's 13.4 million square-kilometres of primary forests 6.9 per cent were in Asia and the Pacific. The most important regional stocks are in Indonesia, Papua New Guinea, China and Thailand. In each of these countries except China primary forests make up over 40 per cent of total forest area.

Over the period 1990 to 2005, as a result of many decades of effective forest protection, some countries, were able to report increases in their cover of primary forest – notably Japan, Turkey and

**Figure 25.1**

**Annual change in forest area, Asia and the Pacific, 1990-2000 and 2000-2005**

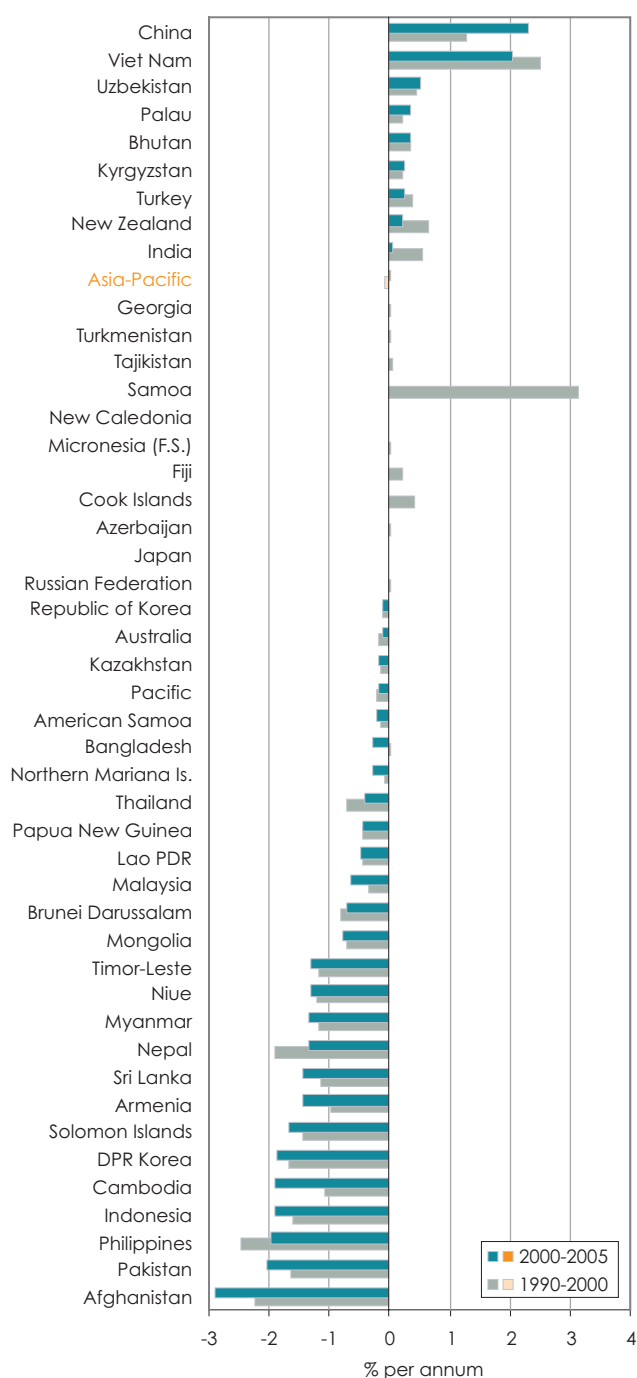
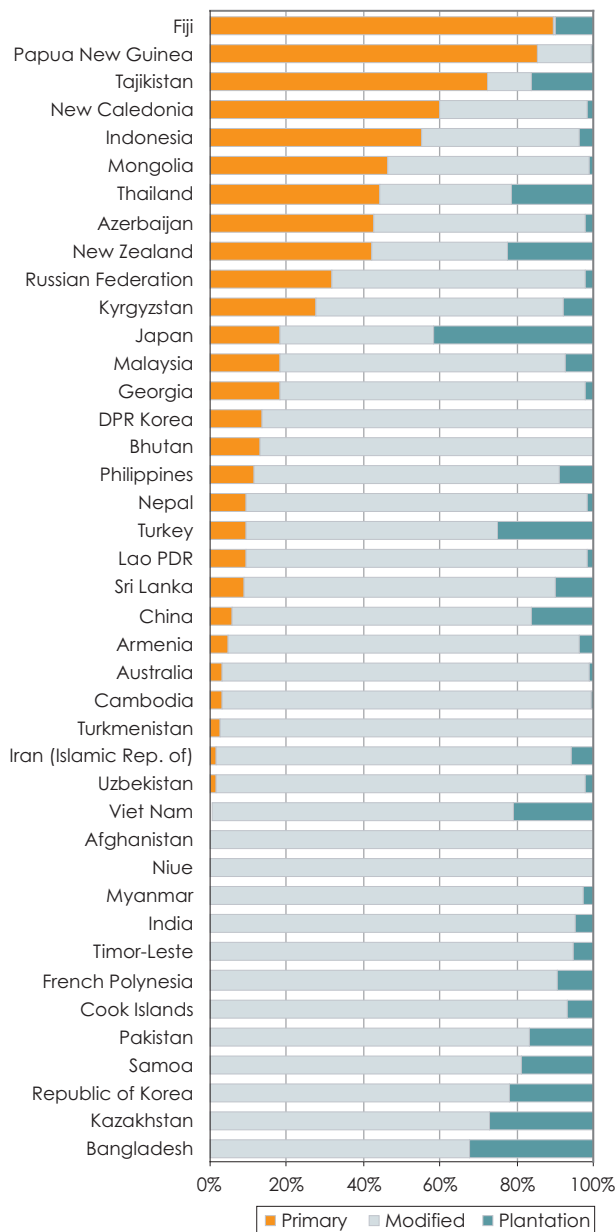


Figure 25.2

Proportion of primary, modified and plantation forest, Asia and the Pacific, 2005

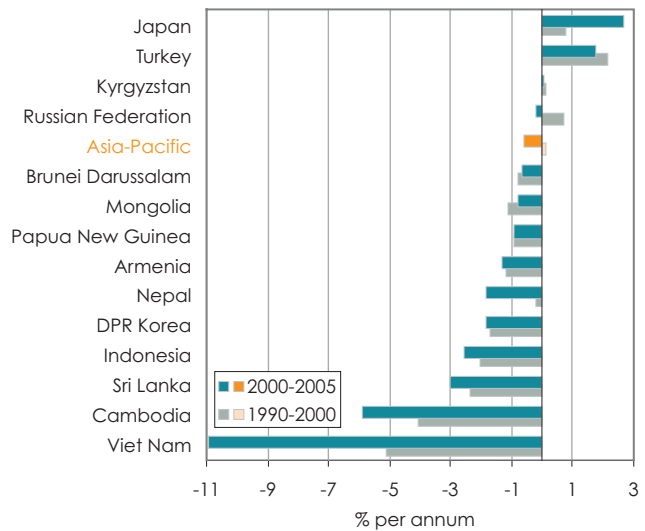


Kyrgyzstan. Of the Asia-Pacific countries or areas for which data are available just over half maintained their coverage unchanged. Others, including those with the fastest rates of reduction in the past, slowed or stabilized their rates of loss. But two countries accelerated their loss of cover between 1990-2000 and 2000-2005 – Viet Nam and Nepal. Viet Nam also has one of the region's lowest coverages – below 1 per cent.

For 2000-2005, the rates of loss of primary forests were fastest in Indonesia, Papua New Guinea, Mongolia, Cambodia, Viet Nam and the Democratic People's Republic of Korea. These countries accounted for 25 per cent of the world's total losses since 2000, and 46 per cent of the area lost since 1990.

Figure 25.3

Largest changes in primary forest cover, 1990-2000 and 2000-2005

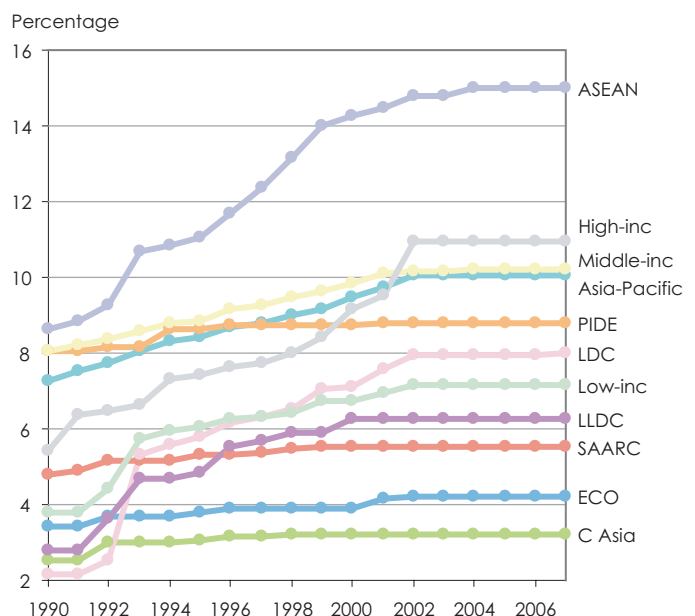


### Protected areas

One of the best ways to maintain forests and other important ecological resources is to designate them as protected areas. In 2007, in Asia and the Pacific the terrestrial area designated as legally protected in law was around 10 per cent of total surface area, slightly lower than the global proportion. Nevertheless this represents an improvement. Between 1990 and 2007 the increase in terrestrial areas protected was some 3 per cent of the region's total surface area. Over this period, Asia and the Pacific accounted for 27 per cent of the

Figure 25.4

Ratio of protected terrestrial areas to surface area, 1990-2007

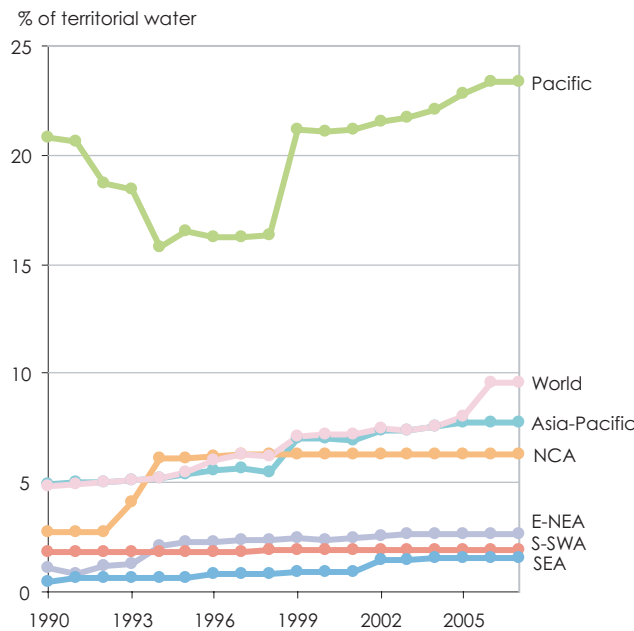


global expansion. Of the subregional groupings, protection is lowest in Central Asia and highest in the ASEAN countries. Of the countries and areas, Brunei Darussalam; Kiribati; Hong Kong, China; New Zealand; Bhutan; and Tonga led the way with 25 per cent or more of their total surface area protected.

Protection is also extended to the seas. In 1990, globally and also in the Asia-Pacific region just under five per cent of the marine surface area was legally protected. Since then, however, other regions have made more rapid progress. In 2007, while the proportion globally was 9.6 per cent, in the Asia-Pacific region it was only 7.8 per cent.

**Figure 25.5**

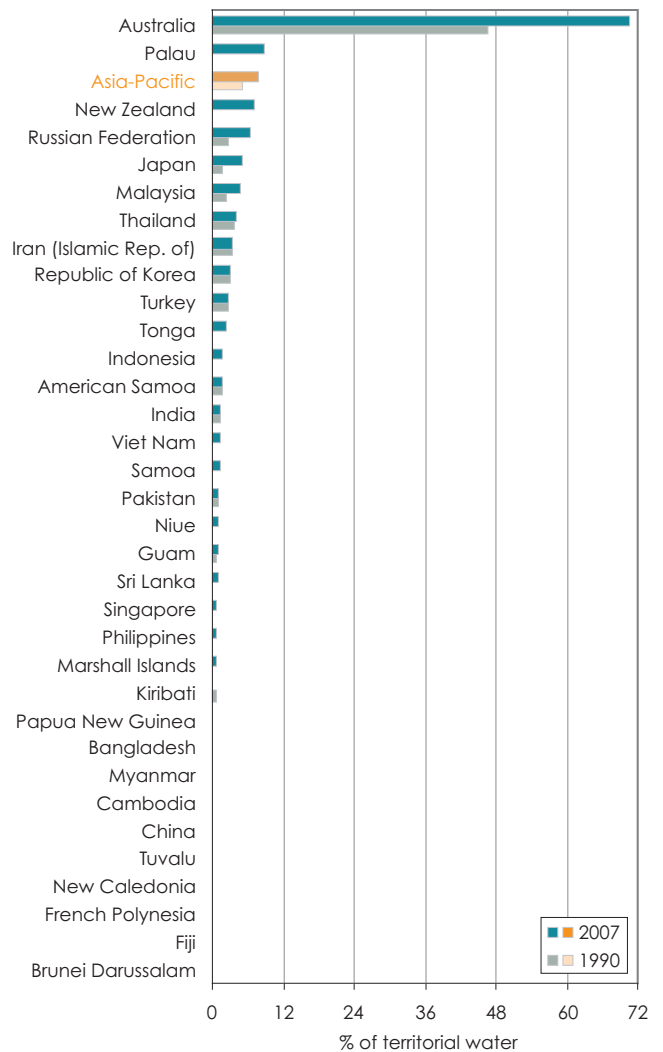
**Proportion of protected marine areas, 1990-2007**



In 2007, of the Asian-Pacific subregions, the Pacific led the way at 23 per cent, followed by South and South-East Asia. By contrast, only 0.1 per cent of waters in South and South-West Asia were protected. The leading countries were Australia, Kiribati, the Russian Federation and Indonesia. The greatest progress in expanding marine protected areas has been in the small island developing States, particularly Kiribati, and Australia.

**Figure 25.6**

**Proportion of protected marine areas, 1990 and 2007**



### **Marine areas protected (square kilometres; % of territorial water)**

The overall surface area of protected marine areas as adopted by the International Union for Conservation of Nature. Covers any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment. Only protected areas that are nationally designated are included in this indicator. **Aggregates:** For marine areas protected (square kilometres): Sum of individual country values; for share in territorial waters (% of territorial waters): Averages are calculated using territorial waters as weight. **Source:** United Nations Millennium Development Goals Indicators (online database, accessed in August 2008).

### **Terrestrial areas protected (square kilometres; % of surface area)**

The total surface (land and sea) area dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. Only protected areas that are nationally designated are included in this indicator. **Aggregates:** For terrestrial areas protected (square kilometres): Sum of individual country values; for share in surface area (% of surface area): Averages are calculated using total surface area as weight. **Source:** United Nations Millennium Development Goals Indicators (online database, accessed in August 2008), and Food and Agriculture Organization of the United Nations, Global Forest Resources Assessment (online database, accessed in July 2008).

### **Forest area (square kilometres)**

The total area covered by forest. Forest land spans more than a half a hectare with trees higher than five metres and a canopy cover of more than ten per cent, or trees able to reach these thresholds in situ. **Aggregates:** Sum of individual country values. **Source:** Food and Agriculture Organization of the United Nations, Global Forest Resources Assessment (online database, accessed in July 2008).

### **Forest area (% of land area)**

The proportion of land area covered by forest. See forest area. **Aggregates:** Averages are calculated using total land area as weight. **Source:** United Nations Millennium Development Goals Indicators (online database, accessed in August 2008), and Food and Agriculture Organization of the United Nations, Global Forest Resources Assessment (online database, accessed in July 2008).

### **Growth rate of forest area (% per annum)**

The average rate of change in forest area, calculated as an arithmetic mean for the period indicated. **Aggregates:** Averages are calculated using sum of individual country values within each group of forest area. **Source:** Calculated by ESCAP using data from forest area (square kilometres).

### **Forest, primary (square kilometres; % of total forest; change rate per annum)**

The total area covered by forest and other wooded land of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed. Includes areas where collection of non-wood forest products occurs, provided the human impact is small. Some trees may have been removed. **Aggregates:** For forest, primary (square kilometres): Sum of individual country values; for share in total forest area (% of total forest): Averages are calculated using total forest area as weight; for change rate (per cent per annum): Averages are calculated using sum of individual country values within each group of primary forest. **Source:** Food and Agriculture Organization of the United Nations, Global Forest Resources Assessment (online database, accessed in November 2008) for primary forest values in square kilometres, and calculated by ESCAP for share in total forest area and change rate per annum.

### **Forest, modified and semi-natural (square kilometres)**

The total area covered by modified natural forests and semi-natural forests. Modified natural forests cover forests and other wooded lands of naturally regenerated native species where there are clearly visible indications of human activities. **Aggregates:** Sum of individual country values. **Source:** Food and Agriculture Organization of the United Nations, Global Forest Resources Assessment (online database, accessed in November 2008).

### **Forest, productive and protection plantation (square kilometres)**

The total area covered by productive plantations and protection plantations. Productive plantation covers forest and other wooded land of introduced species and in some cases native species, established through planting or seeding mainly for production of wood or non-wood goods. Protection plantation covers forest and other wooded land of native or introduced species, established through planting or seeding mainly for provision of services, such as environmental protection, pest control and conservation of habitats to biological diversity. **Aggregates:** Sum of individual country values. **Source:** Food and Agriculture Organization of the United Nations, Global Forest Resources Assessment (online database, accessed in November 2008).





