BOX 1

Deforestation and net change in forest area

Figure 3 is a simplified model illustrating forest change dynamics. It has only two classes: forests and all other land. A reduction in forest area can happen through either of two processes: deforestation and 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.

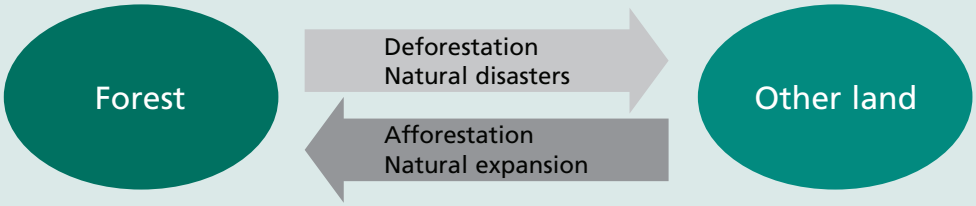
An increase in forest area can also happen in two ways: either through afforestation (i.e. planting of trees on land that was not previously forested) or through natural expansion of forests (e.g. on abandoned agricultural land, a process which is quite common in some European countries).

Where part of a forest is cut down 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. This enables the calculation of the 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.

FIGURE 3

Forest change dynamics



BOX 2

Previous figures underestimated the global deforestation rate for the 1990s

FRA 2010, like FRA 2005, did not directly compile data on deforestation rates because few countries have this information. In FRA 2005 the global deforestation rate was estimated from net changes in forest area. Additional information on afforestation and on natural expansion of forest for the past 20 years has now made it possible to also take into account deforestation within those countries that have had an overall net gain in forest area. As a result, the revised estimate of the global rate of deforestation and loss from natural causes for 1990–2000 (close to 16 million hectares per year) is higher, but more accurate, than was estimated in FRA 2005 (13 million hectares per year).

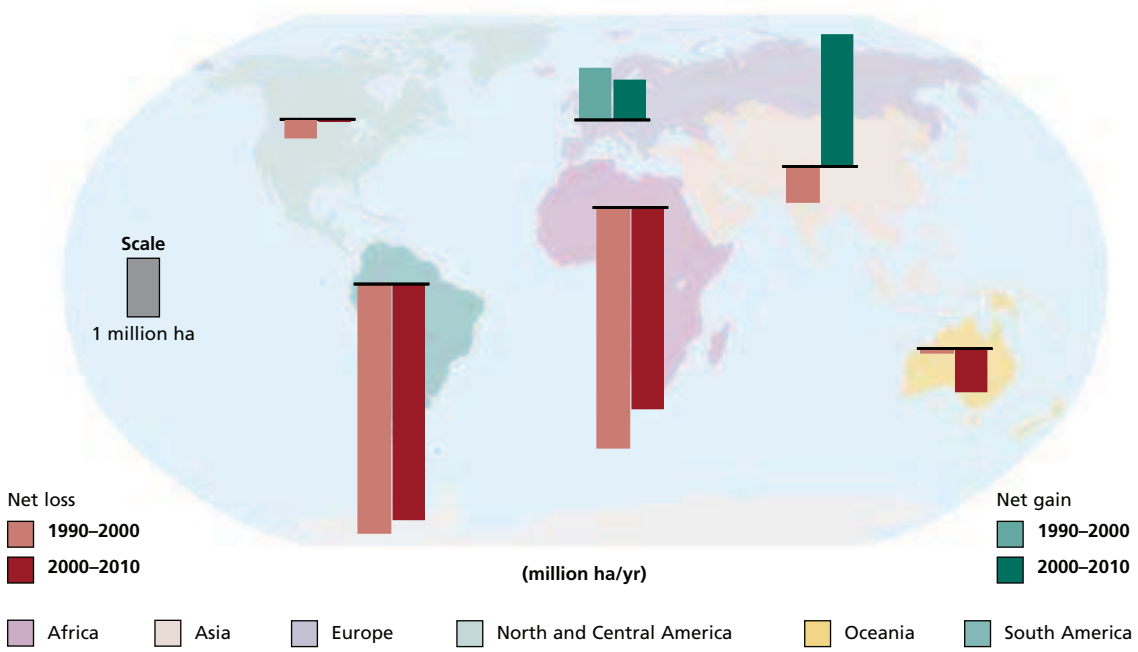
BOX 3

A global remote sensing survey of forests will yield improved information on changes in the area of major forest types over time

Countries use differing frequencies, classification systems and assessment methods when monitoring their forests, making it difficult to obtain consistent data on major forest types that span national borders. FAO, in collaboration with countries and key partner organizations, is currently undertaking a global remote sensing survey – based on a systematic sampling of some 13 500 sites around the globe – to provide additional and more consistent information on deforestation, afforestation and natural expansion of forests at regional and biome levels for the period 1990–2005. Results are expected at the end of 2011.

FIGURE 4

Annual change in forest area by region, 1990–2010



South America and Africa continue to have the largest net loss of forest

At a regional level, South America suffered the largest net loss of forests between 2000 and 2010 – about 4.0 million hectares per year – followed by Africa, which lost 3.4 million hectares annually (Figure 5). Oceania also reported a net loss of forest (about 700 000 ha per year over the period 2000–2010), mainly due to large losses of forests in Australia, where severe drought and forest fires have exacerbated the loss of forest since 2000. The area of forest in North and Central America was estimated as almost the same in 2010 as in 2000. The forest area in Europe continued to expand, although at a slower rate (700 000 ha per year) than in the 1990s (900 000 ha per year). Asia, which had a net loss of forest of some 600 000 ha annually in the 1990s, reported a net gain of forest of more than 2.2 million hectares per year in the period 2000–2010, primarily due to the large-scale afforestation reported by China and despite continued high rates of net loss in many countries in South and Southeast Asia.

FIGURE 5
Annual change in forest area by country, 2005–2010

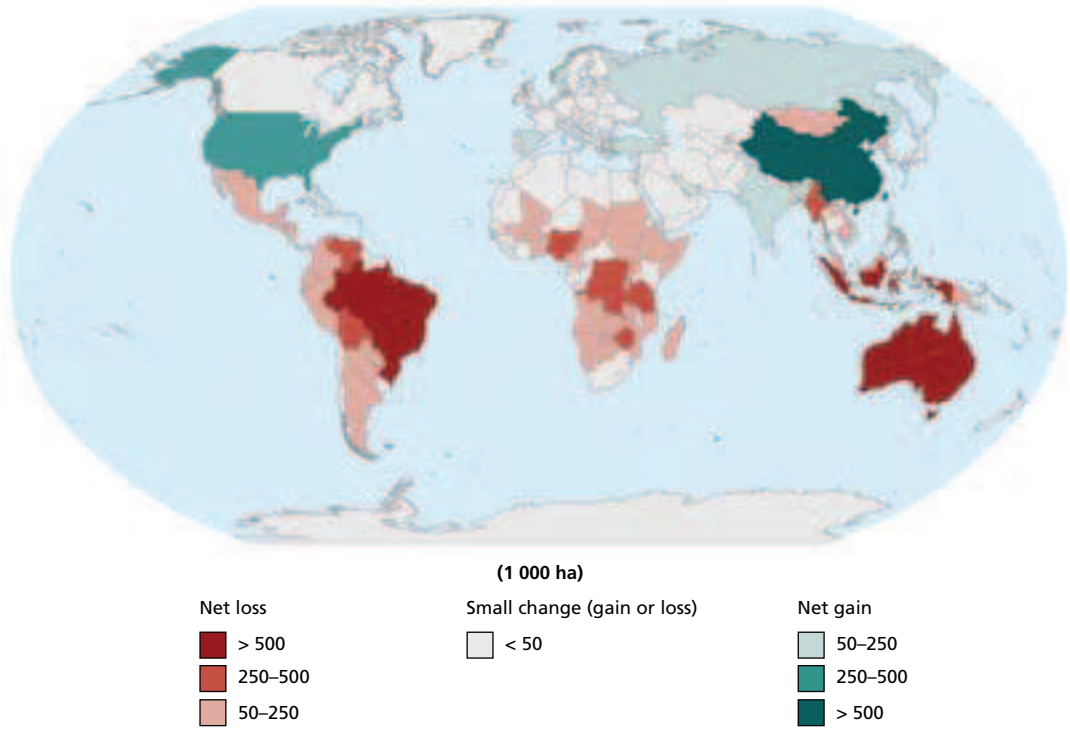
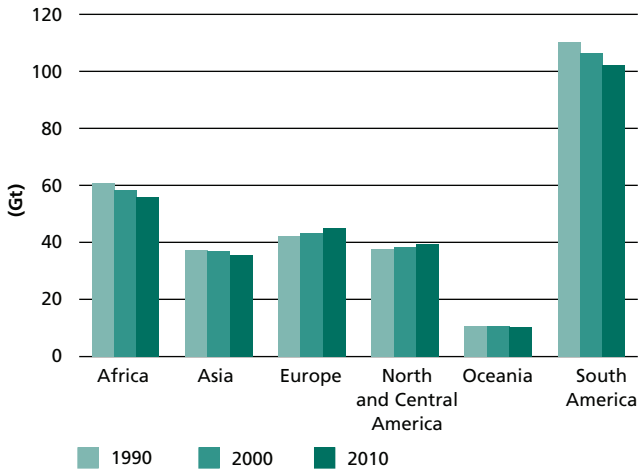


FIGURE 6
Trends in carbon stocks in forest biomass, 1990–2010



Forests store a vast amount of carbon

Estimates made for FRA 2010 show that the world's forests store 289 gigatonnes (Gt) of carbon in their biomass alone. While sustainable management, planting and rehabilitation of forests can conserve or increase forest carbon stocks, deforestation, degradation and poor forest management reduce them. For the world as a whole, carbon stocks in forest biomass decreased by an estimated 0.5 Gt annually during the period 2005–2010, mainly because of a reduction in the global forest area (Figure 6).