



Food and Agriculture
Organization of the
United Nations

FORESTS AND CLIMATE CHANGE



Forests are more than trees and are fundamental for food security and improved livelihoods. When managed sustainably, forests can increase the resilience of communities by providing fundamental economic, social and environmental services such as food, wood energy, shelter, fodder and fibre, as well as income and employment, and the conservation of biodiversity.

Through Reducing Emissions from Deforestation and Forest Degradation (REDD+) activities forests contribute to reducing emissions and enhancing carbon stock in forests while contributing to sustainable development. Moreover, the Forest Law Enforcement, Governance and Trade (FLEGT) mechanism, is joining forces with REDD+ activities in many countries for common action to address deforestation and strengthen forest governance.

Forests can be an essential component for countries when designing well-balanced adaptation and mitigation strategies against climate change in their Intended Nationally Determined Contributions (INDCs). Sustainably managed forests, as well as sustainable timber extraction and wood production, can also help countries to move from a heavy-impact fossil-fuel lead economy to one with a lighter impact. Wood is a very versatile material, which can be used for purposes as diverse as construction and tools for everyday life.

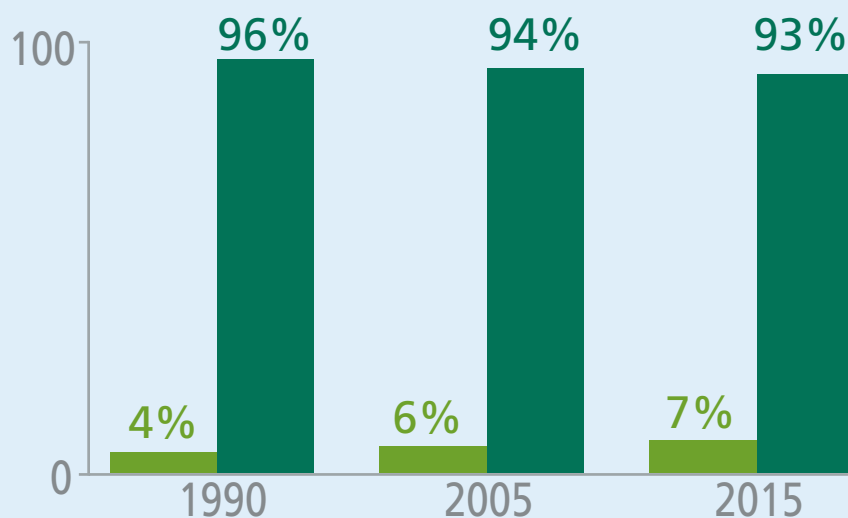
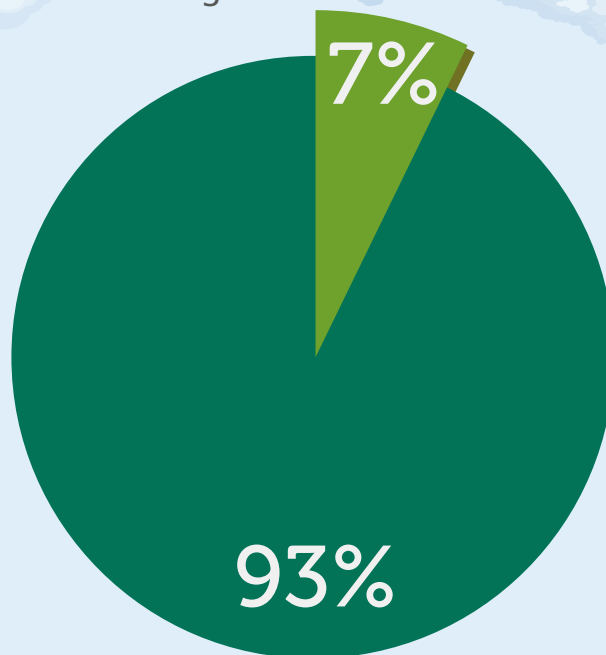
In terms of a more general reflection on land management, integrated approaches to land use between forests and agriculture can provide a way forward for improving policies and practices, which would help to: address the drivers of deforestation; address conflicts over land use; capitalize on the full range of economic, social and environmental benefits of integrating forests with agriculture; and maintain multiple forest services in the landscape context.

Concerning the social aspect of climate change in relation to forests, we cannot ignore the importance of local communities, indigenous peoples, smallholders and their organizations in sustainably managing the forests in which they live and which represent their livelihoods. Their contribution in addressing climate change issues should not only be recognized in terms of tenure rights, but also fostered and reflected in the INDCs of all concerned countries, as is already the case for some countries in Latin America and Africa.



What do forests look like?

The bulk of the world's forest is **natural forest**
The share of **planted forest** is increasing



Global forest area, 2015

■ Planted forest area
■ Natural forest area

Why are forests important?

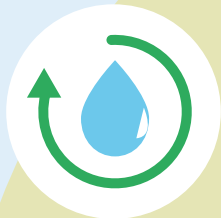
Forests are vital for **sustainable agriculture** and **food security**, particularly for



soil conservation



carbon sequestration



water cycle



habitat protection

Forests provide important environmental services and irreplaceable economic opportunities

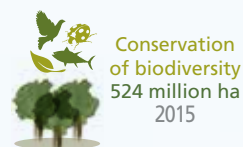
Sinks of carbon dioxide

The world's forests absorb and store carbon in both above and below ground biomass



Habitats for biodiversity conservation

The world's forest area primarily designated for biodiversity and forest within protected areas have increased since 1990



Providers of important environmental services

Forests managed for clean water supply, resilience against disasters, recreation, cultural and spiritual activities have increased since 1990



Carbon storage and other cultural, spiritual and ecosystem services
1 163 million ha
2015

Sustaining livelihood and economic opportunities

Forests supply the world's population with wood and non-wood forest products. In low-income countries woodfuel is still the most important wood product

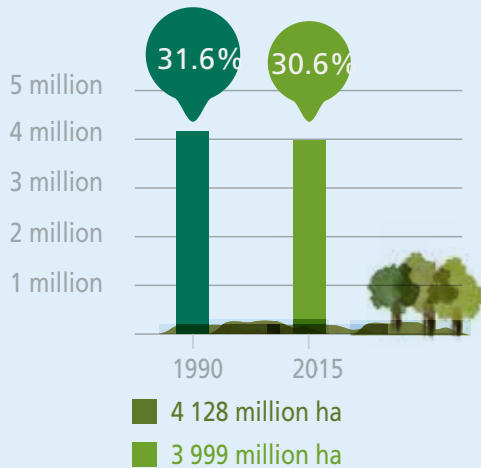
Share of woodfuel in total wood removals in 2011



Indicators of progress towards Sustainable Forest Management

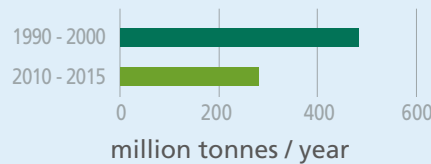
Forest and land area

Percentage of global land area

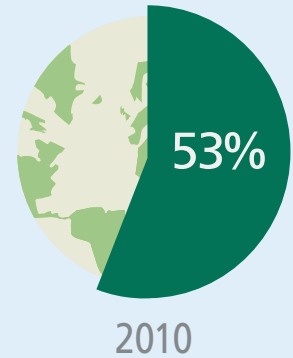


Change in carbon in forest biomass

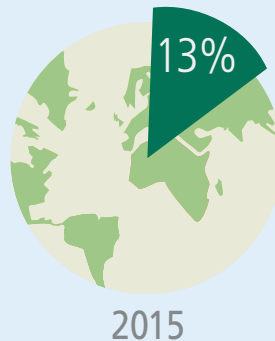
Carbon loss in living biomass



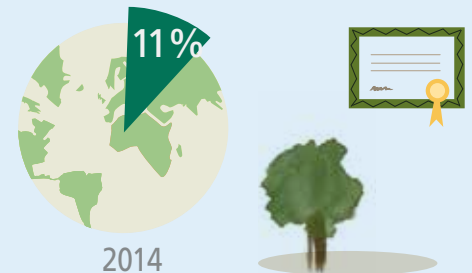
Forest under management plan



Forest for conservation of biodiversity



International certifications of forest management



Forest change rate

Forest area has decreased by 0.08% annually from 2010 to 2015

Better governance and forest tenure

FAO-FLEGT programme



Illegal Logging

Is worth an estimated
US \$30-100 billion
annually, or **10-30%** of
the global timber trade

Has a devastating
effect on forests and
the people who
depend on them



Source: UNEP/Interpol, 2014



FAO has supported

over 200 projects in 40 tropical
timber-producing countries to
improve forest governance and
support legal timber trade

15 countries are implementing or negotiating bilateral
trade agreements, eventually leading to FLEGT licensed
timber with preferential access to the EU market.

Communities are crucial in the sustainable management of forests

21 out of
161 countries

and for the
**community based
management** of
natural resources

made a
commitment
to ensure
land security

in their
**Nationally
Determined
Contributions**

for
**local communities
and
indigenous peoples**

submitted in the
context of the
**Paris Agreement
on climate change**

Action to combat climate change
will not succeed without
communities

FORESTS



INDCs and what action is needed at country and regional level

145 countries mention Land Use, Land-Use Change and Forestry (LULUCF), under **mitigation** -124 refer specifically to forests.

114 countries mention forests under their **adaptation** section.

And more action is needed in terms of:

Effective legal and institutional frameworks



Secure land tenure and regulation of land-use change



Adequate funding and investment to increase agricultural productivity and manage forests sustainably



Agroforestry and stronger farm-forest links



Coordinated forest, agriculture, food, land-use and rural development policies



Inter-sectoral collaboration on research, development and extension



Stronger involvement of local communities and smallholders



Integrated land-use planning

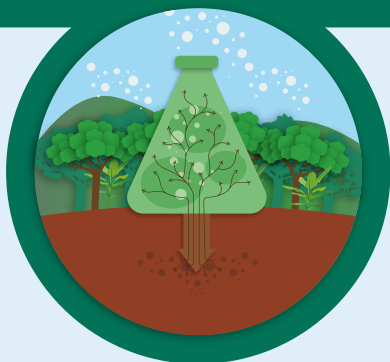


Forests and trees on farms help combat climate change

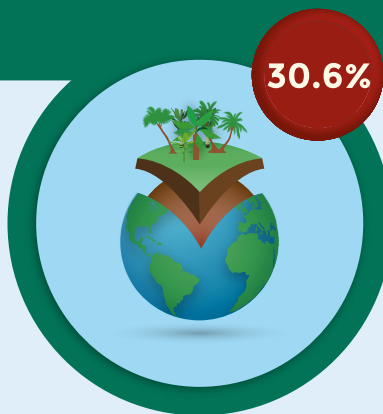
Community-based forestry

When they manage forests well, communities contribute to the protection of forests, their mitigation and adaptation capacity as well as their resilience

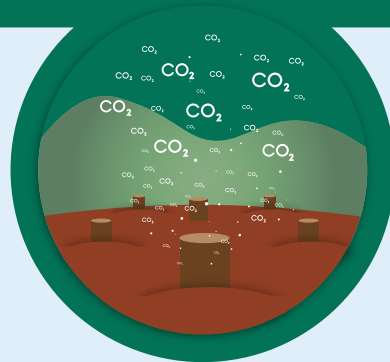
Forests act as carbon sinks, absorbing CO₂ from the atmosphere and **storing carbon** in their biomass and soils



Forests cover **30.6 percent** of global land area and about **13.5 billion trees** are growing in drylands outside forests worldwide



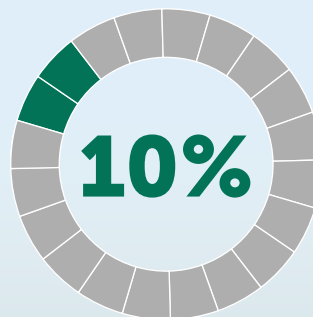
The net loss of **3.3 million hectares** of forests per year is a major source of **CO₂ emissions**



Increase food security and nutrition without clearing forests

Over 20 countries succeeded in improving food security while maintaining or increasing forest cover since 1990

12 of these countries
increased
forest cover by over



Algeria
Chile
China,
Dominican Republic
The Gambia
Iran
Morocco
Thailand
Tunisia
Turkey
Uruguay
Viet Nam

Sustainable management of drylands affected by desertification, land degradation and drought is essential

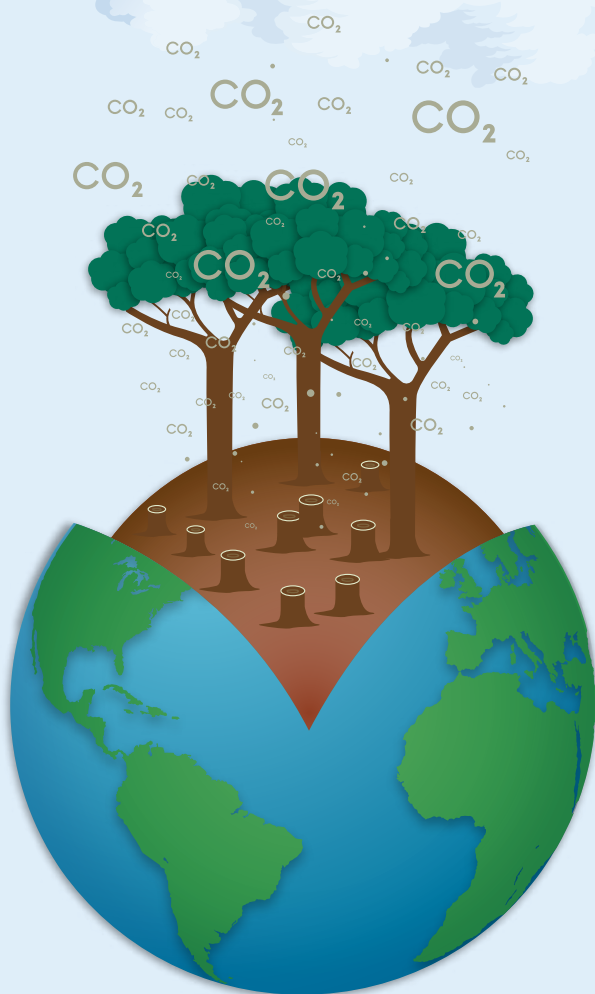


Action Against Desertification and Great Green Wall

support local communities, government and civil society of six African countries as well as Fiji and Haiti in the sustainable management and restoration of their drylands and fragile ecosystems affected by desertification, land degradation and drought

A conservation tool to protect forests and promote the livelihoods of communities

UN-REDD programme



Forest Reference Emission Levels Forest Reference Levels

Of the 15 submissions of FREL/FRLs made by countries to the UNFCCC (Brazil, Colombia, Ecuador, Guyana, Malaysia, Mexico, Chile, Rep. of Congo, Costa Rica, Ethiopia, Indonesia, Paraguay, Peru, Viet Nam, Zambia – 10 of which received some form of support from UN-REDD), 14 are from UN-REDD partner countries.

This positive trend reflects progress supported by UN-REDD. Seven countries (Cambodia, DRC, Honduras, Nepal, Papua New Guinea, Sri Lanka and Uganda) have taken initial steps towards FREL/FRL submissions to the UNFCCC, including consultations with a broad range of stakeholders - government ministries, non-governmental organizations (NGOs), academia and the private sector.

FAO has supported

UN-REDD training programmes in ten countries that have increased the understanding of FREL/FRL and political and technical implications of FREL/FRL construction. Countries are helped in drafting FRL submission documents and other support is provided on request.

Argentina, Bhutan, Colombia, Côte d'Ivoire, Fiji, Kenya, Mongolia, Myanmar, Nigeria and Panama

Wood energy

Wood energy from the forest: a major source of the world's renewable energy

Wood provides the world with more renewable energy than solar, hydroelectric or wind power, accounting for roughly **40 percent** of current global renewable energy supply.

It plays an important role in both developing and in some industrialized countries.

About **50 percent** of global wood production (around 1.86 billion cubic meters) is used as energy for cooking, heating, and electricity generation.

For **2.4 billion** people, woodfuel means a cooked and more nutritious meal, boiled water, and a warm dwelling.

Powering economic development



Approximately **883 million** people in developing countries are employed in the wood energy sector on a full or part-time basis.



Modernizing the wood energy sector can help revitalize rural economies and stimulate enterprise development – greater investment in wood energy production and advanced wood fuels can provide revenue to finance **better forest management, more growing forests and more jobs.**

Wood and trees: optimal urban living and lower energy bills

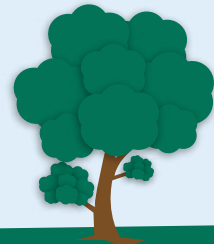
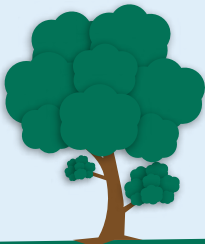
Strategically placed trees in urban areas can cool the air by between **2-8 degrees C**.



Mitigating climate change and fostering sustainable development

Globally, forests hold an energy content approximately **10 times** that of the world's annual primary energy consumption.

They thus have significant potential as renewable resources to meet global energy demand.



Forests for energy –
now and in a future global green economy

Greater investment in technological innovation and in sustainably managed forests is the key to increasing forests' role as a major source of **renewable energy**.

In this way, we invest in our sustainable future, in meeting several **Sustainable Development Goals** and in growing a **green economy**.



Increased areas of sustainably managed household and community woodlots and the use of clean and efficient wood stoves can give millions more people in developing countries access to **cheap, reliable and renewable energy**.

