

FAO, FORESTS AND CLIMATE CHANGE

WORKING WITH COUNTRIES TO MITIGATE
AND ADAPT TO CLIMATE CHANGE THROUGH
SUSTAINABLE FOREST MANAGEMENT





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Above: Sunset over forest-covered mountains, Province of Bac Kan, Viet Nam. © FAO/Joan Manuel Baliellas

Cover: A local market scene with a view of Mt Kilimanjaro, Moshi, Tanzania. © FAO/Simon Maina

FAO, FORESTS AND CLIMATE CHANGE

Forests support the livelihoods of more than a billion people living in extreme poverty worldwide and provide paid employment for over 100 million people. They are home to more than 80 percent of the world's terrestrial biodiversity and help protect watersheds that are critical for the supply of clean water to most of humanity. Climate change, however, poses enormous challenges for forests and people.

Adaptation and mitigation are the two main responses to climate change, mitigation seeking to address its causes and adaptation aiming to reduce its impacts. In the forest sector:

- ✦ mitigation strategies comprise reducing emissions from deforestation; reducing emissions from forest degradation; increasing the role of forests as carbon sinks; and product substitution, such as using wood instead of fossil fuels for energy and forest products in place of materials whose manufacture involves high greenhouse gas emissions;
- ✦ adaptation encompasses interventions to decrease the vulnerability of forests and forest-dependent people to climate change.

Deploying sustainable forest management (SFM)¹ can not only lessen the risks posed by climate change, it can generate opportunities, such as employment in forest restoration, forest conservation, wood production and wood-based manufacturing; tenure reform; and payments for forest-related services. Encouraging SFM and optimizing its role in climate change mitigation and adaptation will often require changes in policies, strategies and practices. Delay in making such changes will increase their cost and difficulty and reduce the opportunities they may create.

Trees also play critical roles in land-use systems other than forests, such as agriculture and the urban environment. Integrated landscape management is a key approach in climate change adaptation and mitigation and will help ensure that adequate attention is paid to trees outside forests.

¹ SFM is described by the United Nations as “a dynamic and evolving concept that aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations”.

FAO'S ROLE

Working at the forefront of climate change policy and practice, FAO, with its team of more than 150 forestry professionals, supports countries to **raise awareness, strengthen technical capacity** and **create enabling policy environments**. Recognizing that climate change affects us all, FAO also **promotes collaboration** among the forestry, agriculture, fisheries and energy sectors and between climate change and food security policy-makers.

In addressing the issues associated with forests and climate change, FAO works with many partners – far too numerous to list here – at the global, regional, national and local levels. Information on partners can be found by following the various links given in this brochure.

STRENGTHENING CAPACITIES IN CLIMATE CHANGE

The capacity of the forest sector to respond to climate change varies greatly within and across regions, countries and communities. Practitioners and decision-makers are not always equipped with the tools, or have access to the information and resources, to enable the most effective responses to a changing climate. FAO is helping to build the capacity of countries to respond to climate change by:

- * collecting, analysing and disseminating information to countries and stakeholders through a wide range of publications, a monthly electronic newsletter dedicated to forests and climate change, and the FAO website;
- * developing guidelines and convening workshops to disseminate best practices and exchange experiences;
- * implementing projects to build climate change capacity at the national and local levels;
- * providing training materials on forests and climate change;
- * encouraging and supporting regional cooperation and networks for information exchange.



FAO is helping countries build capacity in the forest sector to respond to climate change, such as through FAO project GCP/MON/002/NET in Mongolia. © S. Gallagher/FAO

The following pages give more detail on the ways in which FAO is helping to build capacity to respond to climate change.

THIS PUBLICATION

This publication summarizes the work that FAO is undertaking, with its partners, to assist countries to mitigate and adapt to climate change as it relates to forests, trees and the people who depend on them. It is organized in four of the five main areas of FAO's integrated approach to SFM:

- * **MONITORING AND ASSESSMENT**
- * **MANAGEMENT PLANNING AND PRACTICES**
- * **POLICY AND GOVERNANCE**
- * **FOREST PRODUCTS, SERVICES AND INDUSTRY.**

The fifth main area of work, **INTERSECTORAL COOPERATION AND COORDINATION**, cuts across the other four areas.





MONITORING AND ASSESSMENT

Researchers for the national forest assessment in Viet Nam, supported by an FAO project, use laser technology devices to measure tree height and diameter. © FAO/Joan Manuel Baliellas

MONITORING AND ASSESSMENT

MONITORING AND ASSESSMENT OF FORESTS AND CLIMATE CHANGE

Information on forests is often outdated, partial or subjective and lacks estimates of precision and accuracy. Awareness is growing of the potential roles of forests in mitigating and adapting to climate change, making even more urgent the need to improve forest monitoring and assessment. With better information on the extent and nature of forest resources, countries will be better able to design and implement climate change adaptation and mitigation policies, improve overall land-use planning and estimate rates of carbon sequestration.



FAO'S RESPONSE

FAO provides technical assistance in forest monitoring and assessment in response to country needs in collaboration with national authorities, experts and a wide range of stakeholders, thus supporting long-term impact, sustainability and country ownership. FAO is contributing to knowledge of global forest resources and helping countries in their monitoring and assessment of forests and climate change by:

- * helping to build institutional capacity by providing technical assistance in countries and developing tools to support the design and implementation of multipurpose forest inventories and the provision of measurable, reportable and verifiable forest carbon estimates in the context of REDD+² readiness;
- * producing manuals, reference materials, toolkits and software applications (e.g. remote sensing tools and allometric equations for estimating biomass and carbon) to assist with monitoring and with national forest and greenhouse gas inventories for the forest and land-use sectors;
- * compiling, analysing and publishing information, including through the Global Forest Resources Assessment, on aspects of forests related to climate change such as biomass and carbon stocks (following

the guidance of the Intergovernmental Panel on Climate Change), forest area change, and the incidence of forest pests and fire;

- * preparing resource materials such as *National forest monitoring systems: monitoring and measurement, reporting and verification in the context of REDD+ activities*, which draw on knowledge and experiences gained through the implementation of the UN-REDD Programme;
- * providing technical support for the development of robust, transparent, consistent and cost-effective national forest monitoring systems that allow countries to comply with the requirements of the United Nations Framework Convention on Climate Change;
- * promoting South–South cooperation and facilitating information-sharing at the regional and global levels.

MORE INFORMATION

Global Forest Resources Assessment:

www.fao.org/forestry/fra

National Forest Monitoring and Assessment:

www.fao.org/forestry/fma

Sustainable Forest Management in a Changing Climate Programme:

www.fao.org/forestry/fma/76453

UN-REDD Programme: www.un-redd.org

² Reducing emissions from deforestation and forest degradation in developing countries and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+) encourages developing countries to contribute to climate change mitigation in the forest sector through the following activities: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; the sustainable management of forests; and the enhancement of forest carbon stocks.

A lab technician measures the carbon content of soil samples at the Sokoine University of Agriculture, Tanzania, as part of an FAO project to conduct a national forest inventory.
© FAO/Simon Maina



MANAGEMENT PLANNING AND PRACTICES

Map of Yasuni National Park in the Amazon region of Ecuador, where, with the help of an FAO project, local communities are combining conservation and sustainable land management practices to help secure one of most biologically diverse places on Earth.
© Carlos Noguera

MANAGEMENT PLANNING AND PRACTICES

BEST PRACTICES FOR CLIMATE CHANGE

Climate change could affect the growth of trees and the frequency and intensity of fires and the incidence of forest pests, and it could increase damage caused to forests by extreme weather conditions such as drought, floods and storms. Adaptive approaches to SFM will help to reduce forest vulnerability, maintain forest productivity and foster the adaptive capacity of forest-dependent communities. Specific management practices can also be adopted to help mitigate climate change. The implications of changes to forest management practices for the full suite of forest values need to be weighed against the likely benefits.

FAO'S RESPONSE

FAO is helping countries to develop forest management planning and practices for climate change mitigation and adaptation by:

- * producing guidelines for forest management in the face of climate change;
- * identifying priority areas for forest-based climate change mitigation and adaptation measures;
- * acting as an information hub for, and promoting, afforestation, reforestation and assisted natural regeneration through voluntary guidelines and field projects to increase carbon sequestration;
- * strengthening country capacities to mainstream adaptive management approaches and practices such as integrated fire management;
- * identifying, testing, adapting and promoting innovative forest management approaches and techniques adapted to specific contexts, including through field projects that serve as models for the use of forests and trees outside forests in mitigating and adapting to climate change;
- * promoting environmentally sound, economically feasible and socially acceptable forest operations, including silvicultural treatments, reduced impact logging, and specific measures to promote forest health and for the management of fragile ecosystems.



MORE INFORMATION

Sustainable forest management:

www.fao.org/forestry/sfm

Arid-zone forestry:

www.fao.org/forestry/aridzone

Forest fire:

www.fao.org/forestry/firemanagement

Forest health:

www.fao.org/forestry/pests

Planted forests:

www.fao.org/forestry/plantedforests

Forests and Climate Change Programme:

www.fao.org/forestry/climatechange

Assisted natural regeneration:

www.fao.org/forestry/anr

A participant in an FAO project on assisted natural regeneration plants a seedling on a hill slope in the Philippines. © FAO/Noel Celis

MANAGEMENT PLANNING AND PRACTICES

FORESTS, TREES OUTSIDE FORESTS, AND DISASTER RISK MANAGEMENT

Forestry interventions can play a crucial role in the mitigation of, and long-term rehabilitation in the wake of, disasters, the frequency of which could increase in the face of climate change. For example:

- ✦ *flooding*: restoring damaged forest ecosystems or re-establishing forest cover where it has been cleared will increase protection against future floods;
- ✦ *landslides*: re-establishing or increasing forest cover on steep lands that have been affected by landslides will reduce the risk of future landslides;
- ✦ *storm surges*: coastal forests (mangroves and other coastal forests) can help protect coastal inhabitants, infrastructure and productive land against storm surges.

The forest sector can also assist in emergency situations by, for example, undertaking salvage logging of damaged trees; providing wood for cooking, repairs and the construction of temporary housing for disaster victims; and generating employment in tree nurseries and planting schemes.

FAO'S RESPONSE

FAO is assisting countries and stakeholders to increase the role of forests in reducing the risk of disasters by:

- ✦ developing a disaster risk reduction strategy based on the Hyogo Framework for Action, a ten-year plan to make the world safer from natural hazards;
- ✦ producing normative materials such as
 - > *Fire management voluntary guidelines* – an integrated management approach to the development of national policies that integrate fire prevention, preparedness and suppression, and forest restoration
 - > *New generation of watershed management projects and programmes* – a conceptual and operational framework that links watershed management to sustainable mountain development and forest hydrology
 - > *Guide to implementation of phytosanitary standards in forestry* – developed by FAO and partners in collaboration with the International Plant Protection Convention with the aim of helping foresters to minimize pest presence and spread while allowing safe trade;



- ✦ facilitating access to comprehensive information on the current and past extent of mangrove forests;
- ✦ implementing projects to
 - > help ensure the inclusion of forest-sector actions in land-use planning and the revision of sector strategies to be more “disaster proof”
 - > support afforestation, reforestation, forest restoration and forest protection in damaged areas and areas at risk of disaster (e.g. on steep and unstable slopes, in crucial watersheds, and along rivers and coasts);
- ✦ implementing projects to reduce climate-related disaster risk, such as by encouraging community-based fire management.

MORE INFORMATION

Fire management voluntary guidelines:

www.fao.org/forestry/firemanagement/46135

Phytosanitary guidelines:

www.fao.org/forestry/foresthealthguide

Watershed management:

www.fao.org/forestry/watershedmanagementandmountains

Mangrove management:

www.fao.org/forestry/mangrove/3643

Villagers in Kigoma, Tanzania, perform a controlled burn of tall grass as part of an FAO project. © FAO/Simon Maina

MANAGEMENT PLANNING AND PRACTICES

FOREST BIODIVERSITY AND CLIMATE CHANGE

Biodiversity encompasses the variety of existing life forms, the ecological roles they perform and the genetic diversity they contain. It is the key to forest ecosystem resilience and the adaptation of forest species to climate change, and it will also underpin the role of forests in mitigating climate change. The continued loss of biodiversity, however, weakens the ability of forest ecosystems to respond to change. Inadequate information and knowledge on the conservation and sustainable use of biodiversity in the context of climate change is an obstacle to identifying issues, needs and priorities for action.

FAO'S RESPONSE

FAO is helping countries to improve the conservation and sustainable use of biodiversity in the face of climate change by:

- * strengthening the capacity of countries to adapt to climate change through the conservation and sustainable management of biodiversity, including wildlife, in protected areas and production forests;
- * assessing the world's forest genetic diversity for the preparation of the first edition of *The state of the world's forest genetic resources*, which will be a framework for action to better address needs and issues, including climate change;
- * promoting best practices in forest genetic resource management, specifically in the areas of conservation, exploration, testing, breeding and sustainable use;
- * supporting the collection of information related to forest biodiversity through the National Forest Monitoring and Assessment Programme;
- * assessing the impacts of climate change on wildlife and protected areas, as highlighted in the publication *Wildlife in a changing climate*;
- * helping to set up expert networks such as the Asia-Pacific Forest Invasive Species Network and the Near East Network on Forest Health and Invasive Species.



MORE INFORMATION

Forest biodiversity:

www.fao.org/biodiversity/components/forests

Asia-Pacific Forest Invasive Species Network:

www.fao.org/asiapacific/rap/nre/links/invasives

Near East Network on Forest Health and Invasive Species:

www.fao.org/forestry/51295

Wildlife and protected area management:

www.fao.org/forestry/wildlife

State of the world's forest genetic resources:

www.fao.org/forestry/fgr/64582

A researcher from the University of Kasangani confirms the identity of a bird caught in a bird net in the Yoko Forest, Democratic Republic of the Congo, as part of FAO-supported research. © FAO/Guilio Napolitano

MANAGEMENT PLANNING AND PRACTICES

INTEGRATED LANDSCAPE APPROACHES IN RESPONSE TO CLIMATE CHANGE



Challenges related to climate change, deforestation, ecosystem degradation, desertification, the loss of biodiversity, food insecurity and poverty call for integrated approaches to landscape management that increase synergies among multiple land-use objectives. In practice, however, the management of forests is often dealt with in relative isolation. There is a clear need – and real scope – for the integration of natural resource management through improved multisectoral land-use planning, especially in the face of climate change. Integrated approaches to landscape management can increase synergies among multiple land-use objectives, may require new policies, investments, market incentives, institutions and capacities, and should consider the perspectives, needs and interests of all stakeholders and sectors.

FAO'S RESPONSE

FAO is helping countries to implement landscape approaches to natural resource management by:

- * developing capacities and facilitating access to knowledge, lessons learned and best practices, including as part of the Global Forest Landscape Restoration Partnership;
- * supporting multi-stakeholder processes for the formulation of guidance and policies conducive to putting landscape approaches into practice;
- * supporting the development and implementation of field projects and programmes demonstrating landscape approaches on the ground in different contexts, such as through the Model Forest and Mangroves for the Future initiatives;
- * encouraging multisectoral approaches, in partnership with other FAO areas of expertise;
- * supporting the assessment of trees outside forests to improve data for decision-making;

- * supporting urban and peri-urban forestry for resilient cities, including through the preparation of guidelines for policy-makers;
- * promoting resilient landscapes and farms by co-publishing *Advancing agroforestry on the policy agenda – a guide for decision-makers* and promoting their implementation;
- * raising awareness of the global importance and the need for the sustainable management of mountain ecosystems through the Mountain Partnership;
- * in drylands, developing and promoting, with partners, the implementation of guidelines for building landscapes resilient to global change;
- * supporting the African Union Commission and 13 partner countries to plan and implement the Great Green Wall for the Sahara and the Sahel Initiative, which aims to build the resilience of African drylands to climate change and improve the food security and living conditions of people depending on them;
- * in collaboration with the *Institut de recherche pour le développement*, the World Agroforestry Centre, CATIE and CIRAD, preparing the thematic report *Towards the assessment of trees outside forests* in the framework of the Global Forest Resources Assessment;
- * playing an active role in the Collaborative Partnership on Mediterranean Forests on the adaptation of Mediterranean forest landscapes to climate change;
- * promoting watershed natural resource management as part of local development processes, for example through the Integrated Natural Resources Management Project in the Fouta Djallon Highlands, and normative products.

MORE INFORMATION

Arid-zone forestry: www.fao.org/forestry/aridzone

Drylands restoration initiative:
www.fao.org/forestry/aridzone/restoration

Silva Mediterranea: www.fao.org/forestry/silvamed

Great Green Wall for the Sahara and Sahel Initiative:
www.fao.org/partnerships/great-green-wall

The Mountain Partnership: www.mountainpartnership.org

Agroforestry: www.fao.org/forestry/agroforestry

Urban and peri-urban forestry: www.fao.org/forestry/urbanforestry and <http://km.fao.org/urbanforestry>

Food for cities: www.fao.org/fcit

A rural landscape in Ecuador. Among other things, FAO is helping to raise awareness of the global need for the sustainable management of mountain ecosystems and landscape approaches to natural resource management.
© Carlos Noguera



POLICY AND GOVERNANCE

POLICY AND GOVERNANCE

INTEGRATING CLIMATE CHANGE INTO NATIONAL FOREST POLICY FRAMEWORKS

To ensure an efficient and coherent policy approach to forests and climate change, policy-makers need to integrate climate change strategies and plans with national forest policy frameworks and other sectors that affect forests. Equally importantly, forest-based adaptation and mitigation priorities should be reflected in national climate change strategies. Several countries have identified the need for legal reform to implement national strategies on REDD+, and forestry institutions may need to strengthen their structures, operations and capacities. Other major processes with implications for the management and governance of forests, such as those related to forest law enforcement, governance and trade (FLEGT), should also be taken into account.

FAO'S RESPONSE

FAO is supporting the integration of climate change considerations into national forest programmes and national forest policy frameworks and the development of national response strategies to mitigate the impacts of climate change on forests by:

- * publishing *Climate change for forest policy-makers*, providing an approach for integrating climate change into national forest programmes in support of SFM, which countries can adapt to national circumstances;
- * convening regional and national workshops to facilitate discussion between stakeholders on how to address the impact of climate change on forests and helping to initiate national forest policy reviews or revisions to integrate climate change, with the support of the Sustainable Forest Management in a Changing Climate Programme and the former National Forest Programme Facility (now the Forest & Farm Facility);
- * supporting countries to strengthen the capacity of forestry institutions to enable them to better follow up on changed policies and strategies and to respond more effectively to climate change;
- * through the European Union (EU)-FAO FLEGT Programme, supporting developing countries to improve policy, legal and regulatory frameworks for addressing illegal logging and related trade;
- * supporting the integration of REDD+ and FLEGT actions into national forest policy frameworks and



facilitating activities that can strengthen coordination and synergies between these two processes, an initiative involving the UN-REDD Programme and the EU-FAO FLEGT Programme;

- * through the UN-REDD Programme in collaboration with the United Nations Development Programme and the United Nations Environment Programme, supporting the development of robust and coherent legal frameworks for REDD+ implementation at the national level by
 - > assisting countries to increase understanding of legal and regulatory aspects of REDD+ at the national level
 - > supporting the participatory development of coherent legal frameworks for REDD+ implementation
 - > contributing to the formulation of recommendations for legal reforms to implement REDD+ in response to national priorities.

MORE INFORMATION

Climate change and national forest programmes:
www.fao.org/forestry/climatechange/64862

UN-REDD Programme: www.un-redd.org

National forest programmes: www.fao.org/forestry/nfp

EU-FAO FLEGT Programme:
www.fao.org/forestry/eu-flegt

Development law: www.fao.org/legal/development-law

Forestry institutions: www.fao.org/forestry/institutions

Sustainable Forest Management in a Changing Climate Programme: www.fao.org/forestry/fma/76453

Forest & Farm Facility:
www.fao.org/partnerships/forest-farm-facility

FAO is convening regional and national workshops to facilitate discussion between stakeholders on how to address climate change and forests. © FAO

POLICY AND GOVERNANCE

FOREST TENURE, AND GOVERNANCE ASSESSMENT AND MONITORING

The success of forest-based climate change adaptation and mitigation in countries depends largely on the quality of forest governance. A widely accepted, comprehensive framework for identifying areas to be addressed and monitoring the results of corresponding responses would facilitate and harmonize efforts to improve forest governance. Since conditions vary widely, systems for forest governance assessment and monitoring need to be tailored for each country, taking into account a range of other forest-related governance issues, including forest law enforcement. Many countries have also identified the need to address tenure, which cuts across the various land-use sectors. Therefore, integrated approaches to the governance of tenure are needed.

FAO'S RESPONSE

FAO is helping to improve forest governance for climate change adaptation and mitigation by:

- * collaborating with partners to develop the *Framework for assessing and monitoring forest governance* and other normative material;
- * working with countries to strengthen capacities and mechanisms for forest governance assessment, including through the Participatory Governance Assessments for REDD+ initiative, which facilitates participatory processes to identify and address key governance issues related to REDD+ implementation;
- * through the Sustainable Forest Management in a Changing Climate Programme, supporting countries to integrate the monitoring of forest governance with national forest-related monitoring systems;
- * providing technical assistance through the UN-REDD Programme on policy, legal, administrative and operational aspects of tenure related to REDD+, drawing on the *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security*;
- * strengthening the capacity of countries to implement forest-tenure reforms that guarantee the rights of local communities to own, manage and benefit from forest resources.



MORE INFORMATION

Forest governance monitoring:

www.fao.org/forestry/governance/monitoring/71390

UN-REDD Programme:

www.un-redd.org

Voluntary guidelines on the governance of tenure:

www.fao.org/nr/tenure/voluntary-guidelines

Forest tenure:

www.fao.org/forestry/tenure

China forest tenure:

www.fao.org/forestry/tenure/china-reform

Sustainable Forest Management in a Changing Climate Programme:

www.fao.org/forestry/fma/76453

Community members engage in a participatory rural appraisal of local resources in Cambodia. FAO is helping to strengthen the capacity of countries to implement forest-tenure reforms that guarantee the rights of local communities to own, manage and benefit from forest resources.
© FAO/Kata Wagner

POLICY AND GOVERNANCE

FORESTS, LIVELIHOODS AND FOOD SECURITY IN A CHANGING CLIMATE

Forests are often critically important to the food insecure because they are one of the most accessible productive natural resources available to them. Forests and trees outside forests improve the resilience of people to climate change by acting as a protective resource and a safety net and thus mitigating calamities. Small-scale forest-based enterprises can increase rural income and the resilience of rural communities to climate change, and they can also respond quickly to local climate change with adaptive approaches to SFM.

FAO'S RESPONSE

FAO is helping to create an enabling environment for climate-resilient livelihoods and food security by:

- * deepening the understanding by stakeholders of the importance of forests, trees and agroforestry systems for the food security, nutrition and livelihoods of rural people and encouraging intersectoral collaboration;
- * supporting countries in the development of forest policies and climate change strategies that acknowledge and strengthen the role of forests and trees in improving local livelihoods and food security as a response to climate change;
- * integrating forests and trees into climate-smart agriculture strategies to encourage intersectoral approaches for achieving the “triple win” of adaptation, mitigation and food security;
- * supporting countries to embrace participatory and inclusive approaches that ensure increased tenure rights, responsibilities and control over the management and use of forests by local communities, smallholders, indigenous groups and families in a gender-balanced way;
- * documenting the knowledge gained from successful experiences in the formulation and implementation of policies and strategies for rural development and natural resource management and adaptation to a changing climate, for example in Latin America and the Caribbean;
- * promoting the development of community-based forest enterprises, including by improving capacities for the development and management of small and medium forest enterprises and through normative work such as *Guidelines for institutionalizing and implementing community-based forest management in sub-Saharan Africa*;
- * supporting the establishment of forest producer organizations and their resilience in the face of changing opportunities created by, and challenges posed by, climate change, including through the Forest Connect alliance.



MORE INFORMATION

Participatory forestry:

www.fao.org/forestry/participatory

Community-based forest enterprise development:

www.fao.org/forestry/enterprises

Forest Connect:

<http://forestconnect.ning.com>

Community-based forest management guidelines for sub-Saharan Africa:

www.fao.org/docrep/016/i2786e/i2786e00.htm

Rural development strategies and climate adaptation:

www.rlc.fao.org/es/programabrasilfao/proyectos/politicas-agroambientales

Women in the Democratic Republic of the Congo sell forest-harvested mfumbwa leaves (*Gnetum africanum*) in a local market. Small-scale forest-based enterprises can increase rural income and the resilience of rural communities to climate change. © FAO/Guilio Napolitano



PRODUCTS, SERVICES AND INDUSTRY

PRODUCTS, SERVICES AND INDUSTRY

FOREST PRODUCTS

Forests have always provided a multitude of products, but their role in mitigating climate change has gone largely unnoticed. Wood-based products are made of raw materials derived from the photosynthesis of trees and therefore enable renewable and low-carbon cycles of production and consumption and the long-term storage of carbon in useful wood products. The forest products industry faces a challenge, however, in convincing people that wood products are better for the climate and the environment than products based on non-renewable minerals and fossil fuels.

FAO'S RESPONSE

FAO is helping to promote the role of forest products and industry in climate change responses by:

- * supporting the development of sustainable forest industries, including
 - > preparing forest industry opportunity studies, assessing feasibility and creating roadmaps for fostering investment in sustainable forest industries
 - > developing, with the United Nations Economic Commission for Europe (UNECE), an action plan to maximize the contribution of the European and North American forest sectors to a green economy, including through their role in mitigating and adapting to climate change
 - > helping micro, small and medium-sized forest product enterprises to enter supply chains for the building and housing industry
 - > producing data, analysis and communication materials on the climate-related benefits of wood-based products in sustainable production and consumption, such as *Impact of the global forest industry on atmospheric greenhouse gases*
 - > promoting, with partners, the use of wood to help mitigate climate change, such as through the international conference *The art and joy of wood*
 - > encouraging the use of lifecycle assessment as a tool to evaluate the environmental impacts, including on climate change, of wood products such as construction timber or entire buildings, and pellets for energy production



- > helping countries to assess their current wood energy situation and supporting policy-makers to develop sound policies for sustainable woodfuel production and consumption
- > facilitating communication and collaboration between the energy and forest sectors;
- * collecting, analysing and disseminating wood energy statistics and information;
- * supporting countries in fossil-fuel substitution through the modernization and efficient use of woodfuel, including by convening marketing workshops and conducting economic analyses of markets for processed woodfuel.

MORE INFORMATION

Forest industries:

www.fao.org/forestry/industries

Small-scale enterprises:

www.fao.org/forestry/enterprises

Wood energy:

www.fao.org/forestry/energy

UNECE/FAO Forestry and Timber Section:

www.unece.org/forests.html

The art and joy of wood:

www.artjoywood.org

Wooden houses under construction in Hunter village near the Forest Breeding and Seed Centre in Leshoz Saba, Sabinsky district, Tatarstan Republic, the Russian Federation. FAO is producing data, analysis and communication materials on the climate-related benefits of wood-based products in sustainable production and consumption.

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PRODUCTS, SERVICES AND INDUSTRY

FINANCE, MARKETS AND ECONOMICS

Economic viability is an important factor that must be considered in any measures to promote climate change benefits in the forest sector. In particular, investments in climate change mitigation and adaptation in forestry have to demonstrate favourable returns when compared to alternative investments in both forestry and other climate-related interventions. The impacts of climate change, as well as mitigation and adaptation measures, also need to be considered in the wider context of existing investments in forestry and the forest industries and the markets for forest products and services.

FAO'S RESPONSE

FAO and its partners are assisting countries to assess the financial, economic and market impacts of climate change and climate change policies by:

- * supporting policy development and capacity-building on forest financing at the global, regional and national levels through activities such as
 - > the Organization-led Initiative on Forest Financing
 - > the Heads of Forestry Dialogue on Forest Financing
 - > the Asia-Pacific Forest Policy Think Tank
 - > the integration of climate change funding into national forest financing strategies
 - > helping communities to access forest-related voluntary carbon markets;
- * producing studies on the impacts of climate change policies on trade and markets, including
 - > *Bioenergy development: issues and impacts for poverty and natural resource management* (with the World Bank)
 - > The forest-sector carbon markets chapter in the *Forest products annual market review* (a UNECE-FAO annual publication)
 - > *European forest sector outlook study II* (with UNECE)
 - > An assessment of the potential impacts of forest product legality regulations and REDD+ on forest products production and trade in the Asia-Pacific region;
- * analysing the costs and benefits of storing carbon in wood products compared to other forest-related mitigation options (such as wood energy development and REDD+) to see where the promotion of wood products would be feasible and would make a cost-effective contribution to climate change mitigation efforts in the forest sector.



MORE INFORMATION

Economics and finance:

www.fao.org/forestry/finance

Forest-sector outlook studies:

www.fao.org/forestry/outlook and www.unece.org/efsos2

FAO generates information on the impacts of climate change policy on trade and markets, including for wood energy.
© FAO/Korea Forest Service

FOR MORE INFORMATION

FAO Forestry Department
www.fao.org/forestry

FAO Legal Office – Development Law
www.fao.org/legal/development-law

FAO Natural Resources Management and Environment Department
www.fao.org/nr

FAO Technical Cooperation Department
www.fao.org/tc

FAO Regional Offices for:

- * **Africa**
www.fao.org/africa
- * **Asia and the Pacific**
www.fao.org/world/regional/rap
- * **Europe and Central Asia**
www.fao.org/europe
- * **Latin America and the Caribbean**
www.rlc.fao.org
- * **Near East**
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