Overview of experience on the ground in the area of land use and climate change:

Challenges and opportunities

María J. Sanz
FAO
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Outline

- What is at stake
- Role of FAO: what is need and it can be offered
- Work on Climate Change: Adaptation and Mitigation
- Supporting at different scales
- Data
- Sectors: Agriculture & Forestry
  - Data, knowledge and tools
  - On the ground support
- Challenges and opportunities

What is at stake?

- Increasing **extreme weather events and their devastating consequences to people's lives, the economy and to nature**
- **Increased temperature and changing rainfall patterns will have an impact on lives, livelihoods, and production of food**
- Climate change will increase the burden on already **vulnerable populations**
- Specifically, it is critical to support and empower **small scale farmers and forest comunities**
- GHGs emissions continue to increase

Two goals

1. Achieving food security
   - 870 million hungry
   - Food production should increase 60-70% by 2050
   - Adaptation to climate change critical
2. Avoiding dangerous climate change
   - ”2 C goal” requires major emission cuts
   - Agriculture sectors, including forestry = 30% of emissions.
   - ..and must be part of the solution

Agricultural growth: what have we learned?

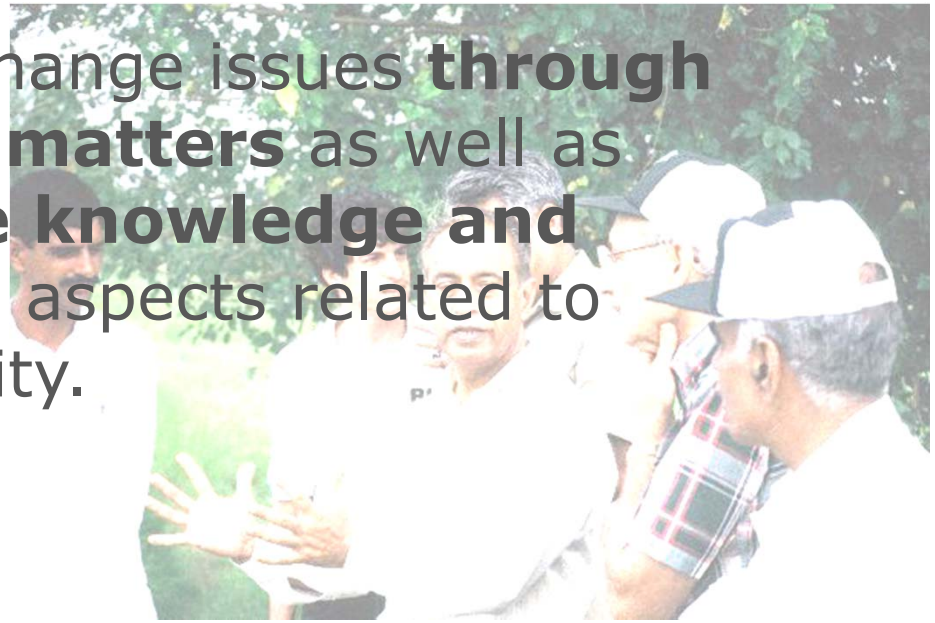
- Increased productivity needed due to limited potential for expansion
- Past agriculture models are based on increasing input use (fertilizer, improved seeds, irrigation) in high potential production zones
- New challenges – lower potential production areas, higher rates of volatility (from markets as well as climate), environmental damage resulting from overuse of inputs, rising energy costs

Why is action needed now?

- Agriculture sectors is the main source of livelihoods of the world's food
- The largest growth in populations is expected in agricultural-based economies that already have high food insecurity
- Agricultural growth is needed not only to increase food supply, but to increase the incomes of poor producers and rural populations to also increase their access to food
- Reducing deforestation and forest degradation represent an opportunity to mitigate. This requires country capacities to mainstream management approaches and practices, including considering adaptation.

Role of FAO

FAO offers continued support …



…..in addressing climate change issues **through assistance on technical matters** as well as helping countries to **share knowledge and experience**, especially on aspects related to adaptation and food security.

What is needed?

- Climate change adaptation must be incorporated in strategies to achieve agricultural development goals (building resilience in the entire food system – not just production systems)
- Incorporating mitigation into planning/strategies can offer increased potential for emissions reductions and enhancement of sinks and additional financing

What can be offered?

Technical support at global, regional and national level, in including with other partners

- Data and knowledge: for impact and vulnerability assessment and adaptation, and exploring and realizing mitigation potential
- Institutions, policies and financing to strengthen capacities for adaptation and mitigation
- Sustainable and climate-smart management of land, water and biodiversity
- Technologies, practices and processes for adaptation and mitigation
- Etc.

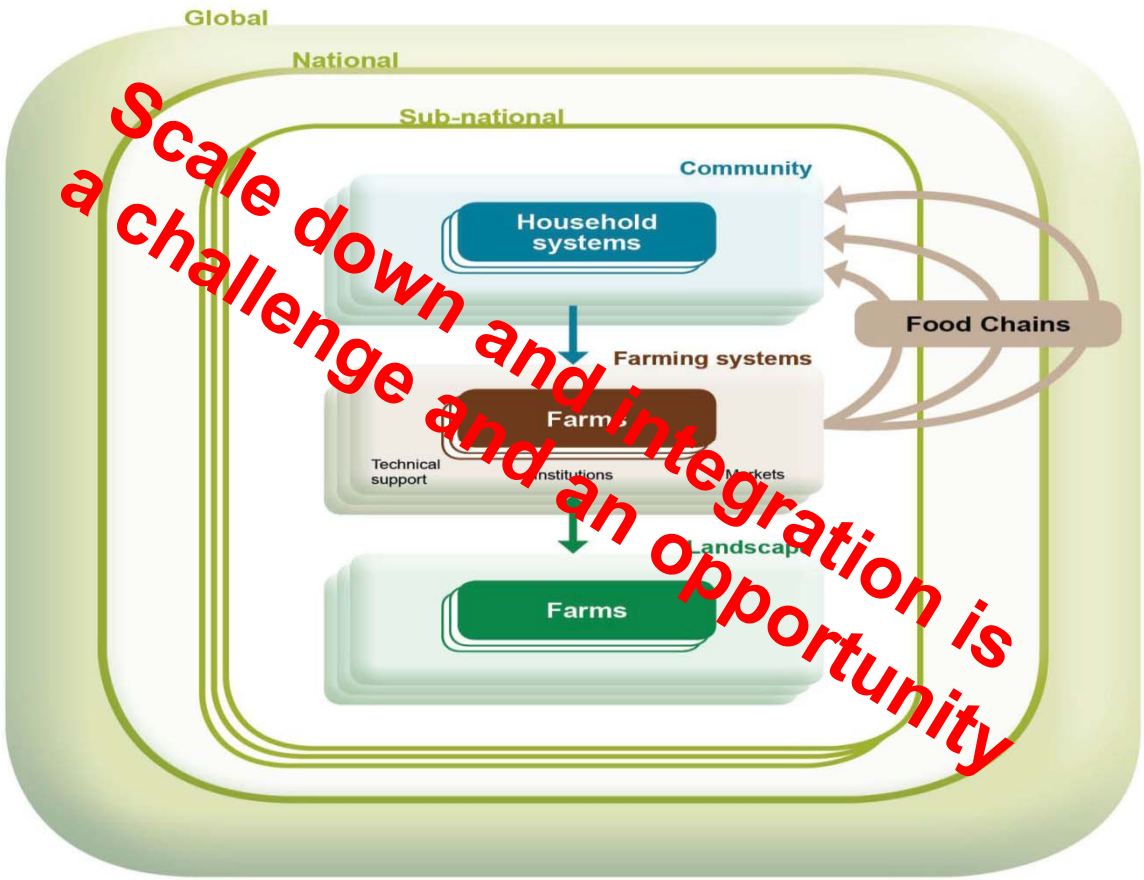
Committee on World Food Security (CFS)

+130 Governments , Civil society, Private sector, Research, UN agencies, Development Banks

CFS40:

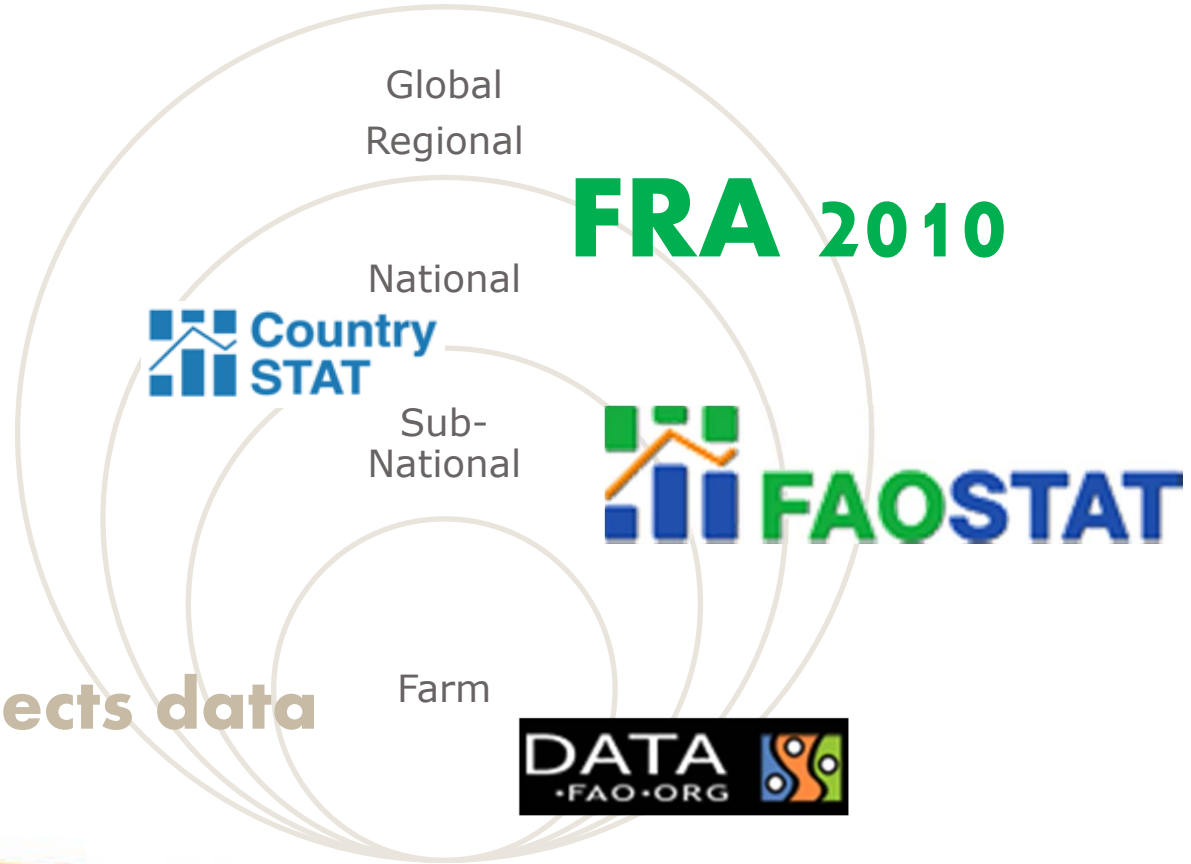
- Climate change can pose serious threats to food security especially to small scale food producers' lives and livelihoods, and to the realization of the right to food, and urges action.
- Adaptation to climate change is a major concern and objective for all farmers and food producers, especially small-scale producers.
- CFS therefore invites Member States, IOs and other CFS stakeholders, as appropriate, and recognizing the role of the UNFCCC to:
  - promote integration climate change concerns in food security policies and programmes and to increase resilience of vulnerable groups and food systems.
  - create conditions to facilitate access to genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising from their use.
  - promote agricultural strategies that take into account the need to respond to climate change and to safeguard food security;

Working at different scales



DATA COLLECTION, DATABASES, STATISTICS AND ANALYSIS

Metadata
GIS data
RS data
Maps
Statistics
Etc.



Data collection and sharing is a challenge and an opportunity

Sectors: Agriculture

An agriculture that *sustainably increases productivity, resilience (**adaptation**), reduces/removes greenhouse gases (**mitigation**) while enhancing the achievement of national food security and development goals*

More integrated and landscape approach

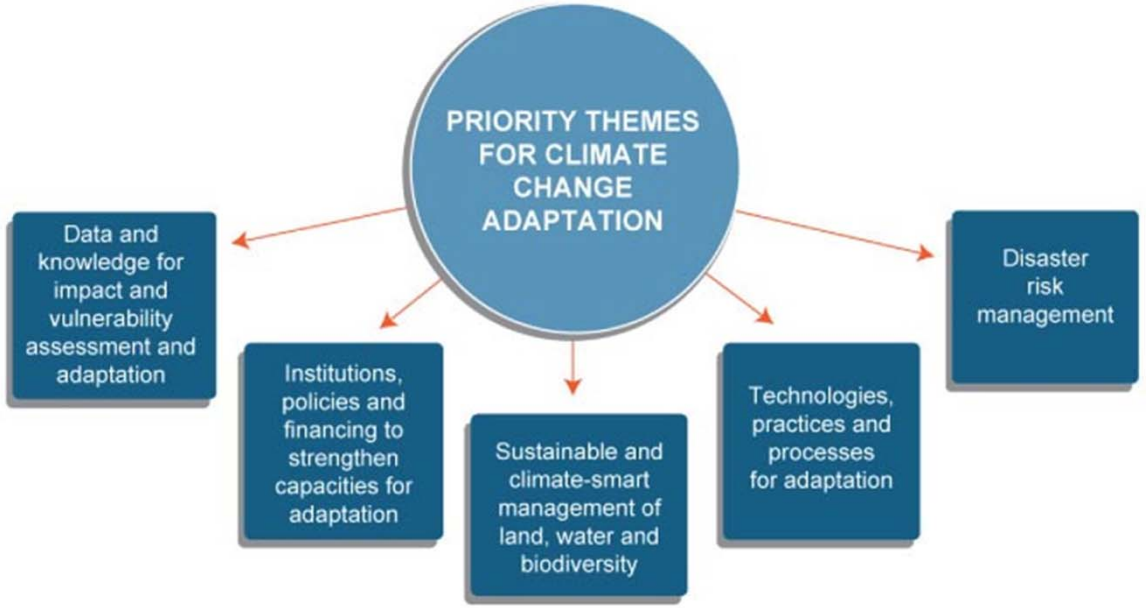
Agriculture – Programmes

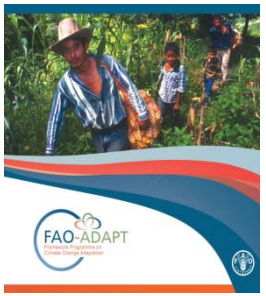
FAO-Adapt provides an umbrella to FAO's adaptation activities, including short-term and long-term adaptation measures.

A multidisciplinary programme funded by Finland, Germany and Norway, MICCA (Mitigation of Climate Change in Agriculture) builds on FAO's of different technical departments and collaborates with international and national organizations.

Five global priority themes and related actions that support adaptation

- Climate change adaptation is critical for agriculture and food security
- Adaptation is addressed all across the agriculture, forestry and fisheries sectors.
- FAO-ADAPT brings together FAO's efforts on adaptation: coordinated resource mobilization and programming.





Examples of adaptation projects by region

Africa: Morocco, Mozambique, Lesotho
Asia: Philippines, Bangladesh, China: Qinghai, China:Juye (Disaster Risk Reduction), India, Nepal, Vietnam
Europe: Turkey, Regional
Latin America and the Caribbean: Tropical Andes, Nicaragua,El Salvador, Saint-Lucia (Disaster Risk Reduction),Belize (Disaster Risk Reduction),Regional project Caribbean (Disaster Risk Reduction),Ecuador, Colombia, Guatemala, Peru, Uruguay
Near East: Egypt

Success stories ongoing CCA Mali project

- **Multiple actors and targeting of interventions leads to Increased efficiencies**
- **Adaptation & Adoption of Improved Practices through CCA focused FFS**
- **Local knowledge first must be capitalized**
- **Resilient improved local varieties improved, seed multiplication systems improved**
- **Improved water management and conservation of soil moisture increases drought resistance and help ensure sufficient production and food security**

Using a participatory approach tool "climate proofing » in Mali

- **Taking into account CC at district level and national programmes**
- **Participatory identification and prioritization of adaptation measures to climate**
- **Political support (NAPA) leads to better decisions about managing the effects of climate change.**

Results → Inscription of CCA as a priority in local policies and action plans

Areas of work

- Monitoring and Assessment of GHG Emissions and Mitigation Potential in Agriculture (GHGs database now available on FAOSTAT)
- Putting climate-smart agriculture into practice
- Supporting policy and decision making
- Life Cycle Analysis
- Land tenure
- Organic soils and peat lands
- Gender and climate change

Monitoring and Assessment of GHG Emissions and Mitigation Potential in Agriculture

- Important land management decisions often made with poor or few data
- Current systems for quantifying GHG emissions are weak in most low-income countries, due to a lack of funding, human resources, and infrastructure
- Quantifying the emissions of the complex crop livestock or diverse cropping systems presents still challenges.
- Managing agricultural emissions and managing for agricultural productivity, resilience to climate change needs to be plan synergistically
- Significant capacity to quantify greenhouse gases is already built, with strategic investment, could become an useful tool for planning and development in the agricultural sector around the world

Putting climate-smart agriculture into practice: Pilots Kenya and Tanzania

Share a common approach:

- Develop a menu of potentially suitable mitigation and adaptation practices, while safeguarding food security
- Built capacity of farmers to integrate these practices into their current farming systems
- Identify the factors that hinder the wider adoption of these practices and incentivize/enable their application on a larger scale;
- Ex ante evaluation of the impact different proposals for land use management practices on greenhouse gas emissions and carbon sequestration (**EX-ACT** Tool)
- Assess the land health of agricultural landscapes
- Methodologies for measuring and predicting carbon accumulation in agricultural lands and resulting changes in GHG emissions
- Quantify the impact on climate change mitigation and on farmers' net welfare and well-being;
- Present the findings and recommendations to policy-makers

Putting climate-smart agriculture into practice

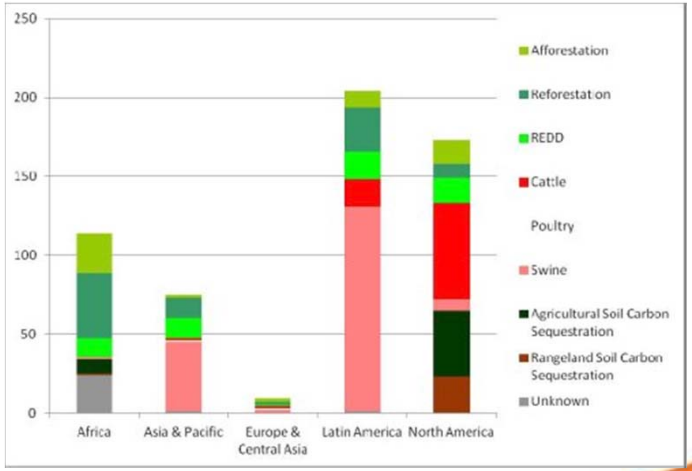
Pilot projects:

- **Kenya: reducing the climate change 'footprint' of the dairy industry**
- **United Republic of Tanzania: Combining conservation agriculture with agroforesty**

Global reviews. The assessment covers five main pathways for climate change mitigation (200 articles and case studies from scientific sources and from databases of projects and sustainable agricultural practices):

- **improved agricultural practices**
- **integrated nutrient management**
- **tillage and residue management**
- **water management**
- **agroforestry.**

Mitigation projects database



Life Cycle Analysis (LCA)

Developing LCA methodologies

Methodology to quantify greenhouse gas emissions arising from animal food chains: The analysis covers:

- emissions from the production of inputs (fertilizers, feeds, etc)
- greenhouse gases emitted on-farm; and
- emissions arising during the processing of agricultural products outside the farm

Future development of LCA guidelines and provide examples of how these can be used not only for estimating greenhouse gases, but also for identifying mitigation 'hotspots', giving decision-makers the information they need to formulate policies and carry out effective actions for reducing emissions.

Forest and Climate Change

What we do

FAO, with its team of more than 150 forestry professionals (global, regional, national) supports countries:

- To raise awareness, strengthen technical capacity and create enabling policy environments
- To promotes collaboration among the forestry, agriculture, fisheries and energy sectors and between climate change and food security policy-makers

Working with many partners at the different scales.

Forest and Climate Change

Areas of work

As part of the integrated approach to sustainable forest management:

- **Monitoring and assessment**
- **Management planning and practices**
- **Policy and governance**
- **Forest products, services and industry**

With a view of inter-sect oral cooperation and coordination

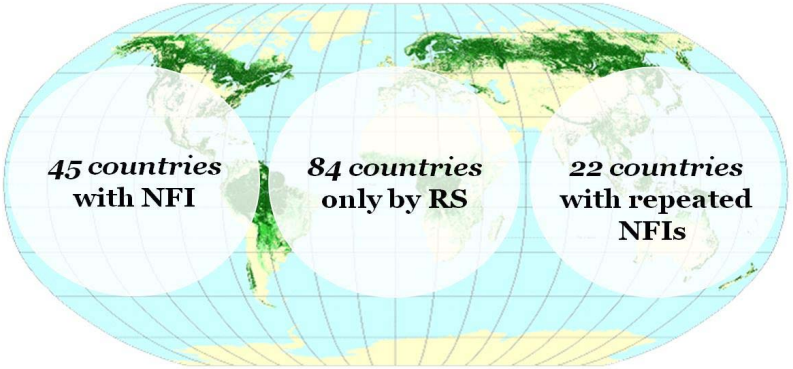
Monitoring and assessment

State of the art

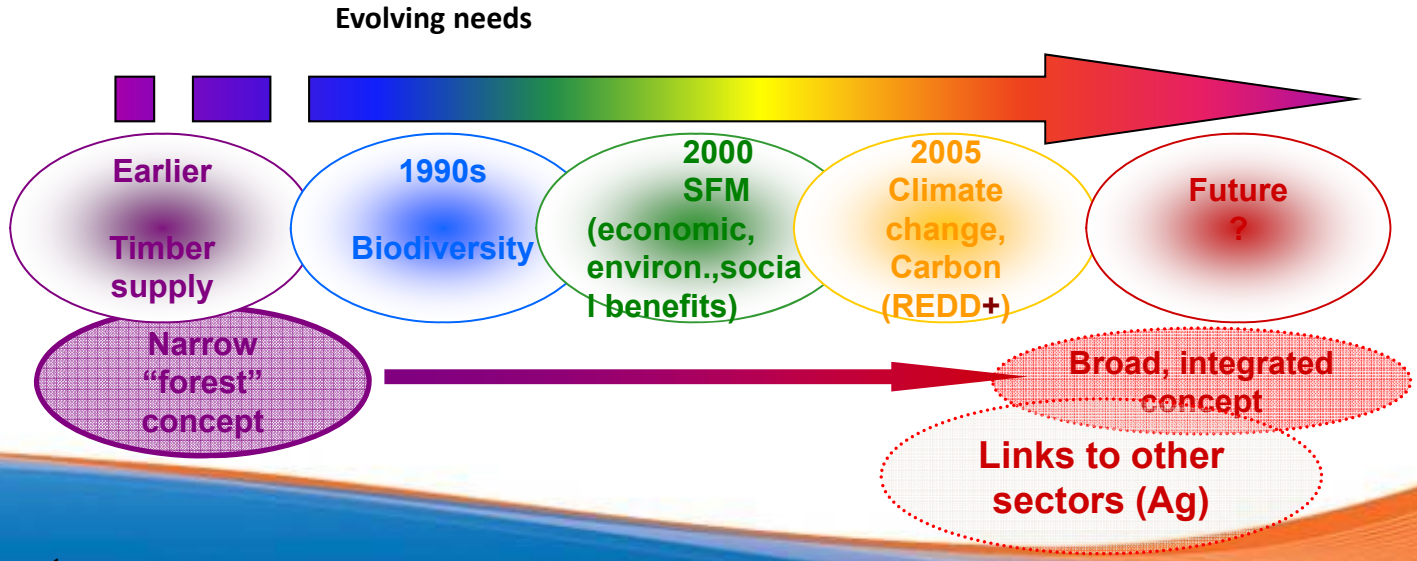
the capacity to collect, compile, analyze data and disseminate information and knowledge related forest resources are often weak or lacking

Forest sector faces an increasingly large diversity of data needs on forest and land use….

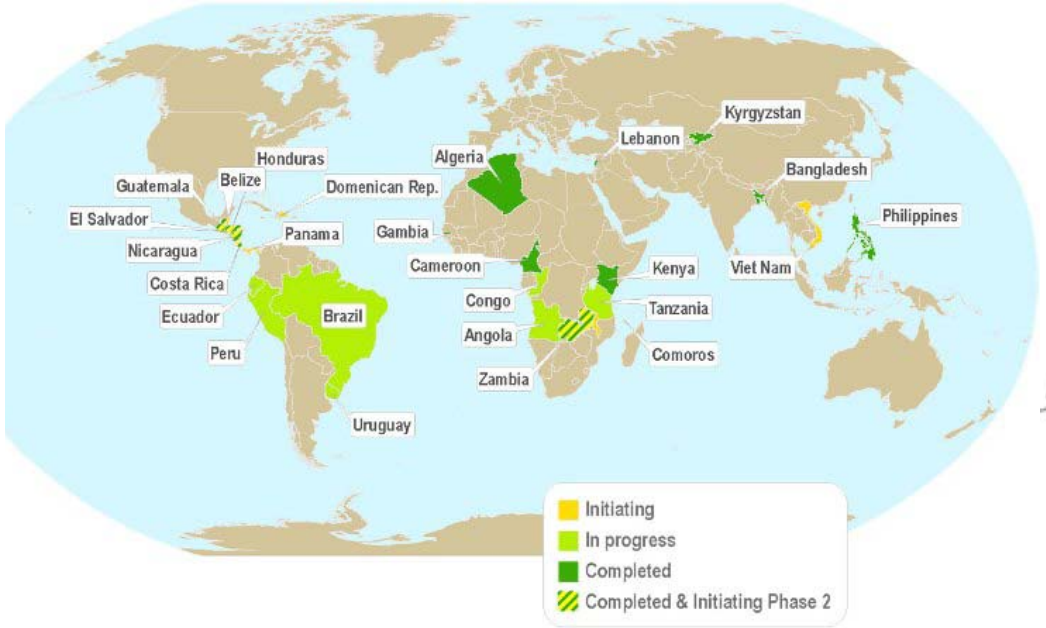
Existing knowledge on forest and their benefits is incomplete



Data status on forests (FRA 2010)

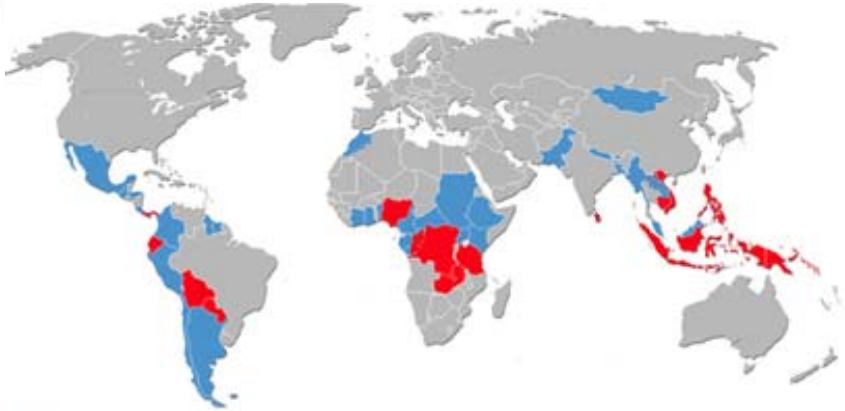


Support to forest monitoring and assessment and NFMS



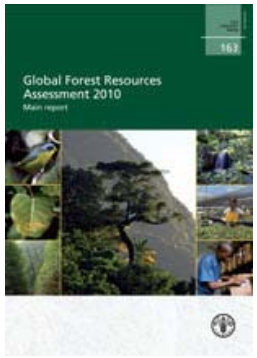
NFMA and FAO-Fin

FAO provides technical assistance in response to country needs in collaboration with national authorities, experts and a wide range of stakeholders, thus supporting sustainability and country ownership.

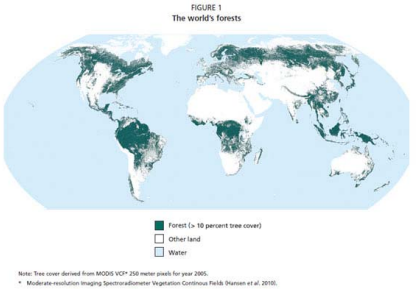


UN REDD Programme

www.fao.org/forestry/fma
www.un-redd.org



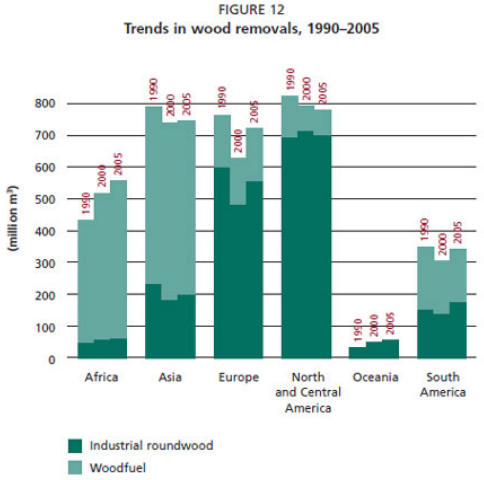
Global Forest Resources Assessments (FRA)

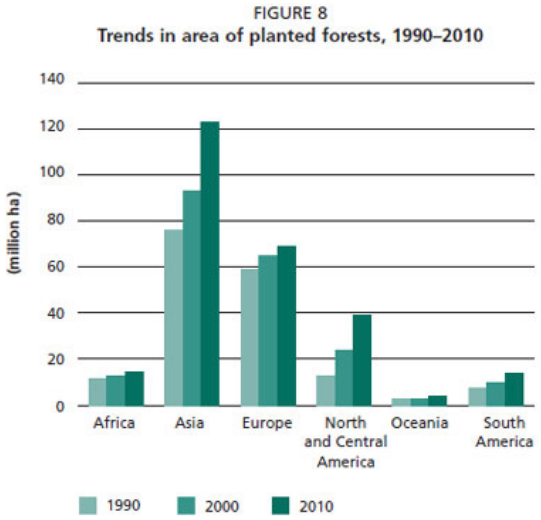


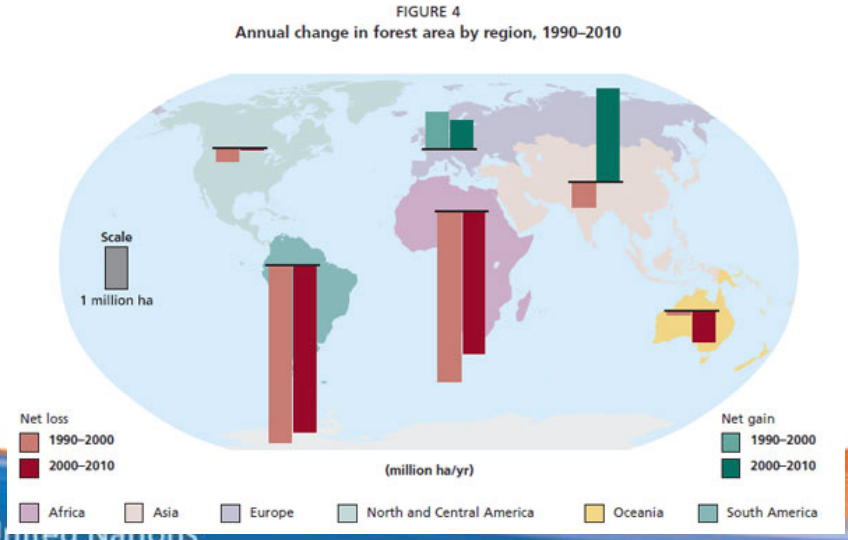
Now **every 5 yr**, an attempt to provide **a consistent approach to describing the world's forests and how they are changing**. Based on two primary sources of data:

- **Country Reports** prepared by National Correspondents
- **Remote sensing** conducted by FAO together with national focal points and regional partners.

Scope changed since 1948 (1st FRA).







Forest and Climate Change

Management planning and practices

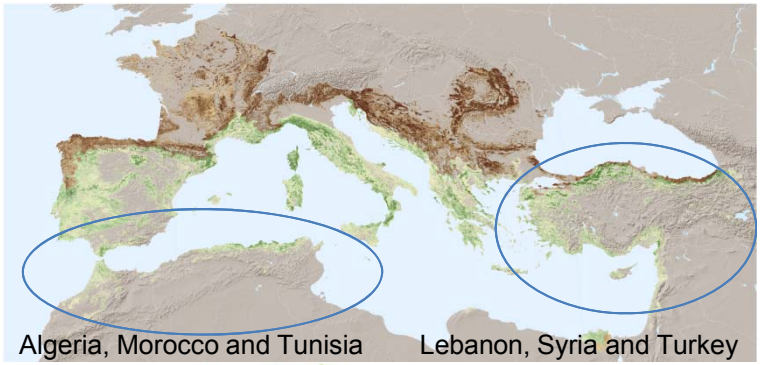
FAO is helping countries to develop forest management planning and practices for climate change mitigation and adaptation by:

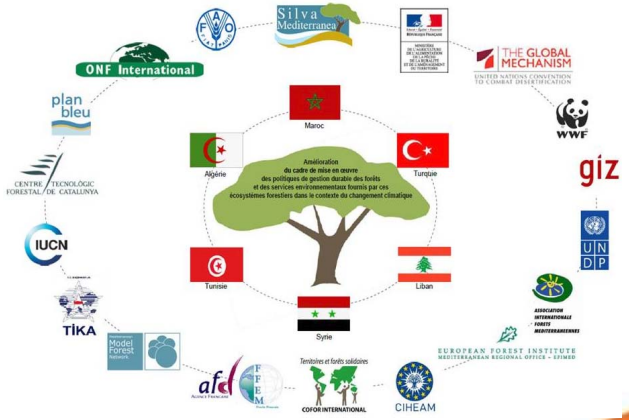
- Producing guidelines and assisting forest policy makes and manager on forest management and practices in the ground to mainstream mitigation and adaptation in the forest sector
- Acting as an information hub for, and promoting, afforestation, reforestation and assisted natural regeneration (incl. voluntary guidelines and field projects)
- Built country capacities to mainstream adaptive management approaches and practices such as integrated fire management;
- Promoting environmentally sound, economically feasible and socially acceptable forest operations

FFEM initiative to maximize production of goods and services in Mediterranean forest ecosystems in the context of climate change

Objectives:

- Integrate climate change impacts in forest policie
- Assess the economic and social values of goods and services rendered by Mediterranean wooded ecosystems, to support decision-making processes and promote the integration among sectoral policies
- Improve governance of woodlands at territorial scale
- Optimize and value the mitigation function of Mediterranean forests (carbon sinks)
- Strengthen coordination and exchanges of experiences among stakeholders in the region





Challenges and Opportunities

- Increasing extreme weather events and their impacts
- Increased temperature and changing rainfall patterns will have an impact on lives, livelihoods, and production of food
- Climate change will increase the burden on already vulnerable populations
- Mitigation potential can be undermined by climate change
- Adaptation is becoming more and more important for farmers and foresters
- Contributing to mitigation of climate change by reducing emissions form Agriculture, Forest activities and land use change while improving live hoods and securing food
- Enhance capacity at the ground to implement and understand how to combining adaptation and mitigation practices
- Promoting practices on the ground that address impacts of climate change, support adaptation, while maximize mitigation and secure food access, at landscape level

Thank you