



Food and Agriculture
Organization of the
United Nations

ADAPTING AGRICULTURE TO CLIMATE CHANGE



Securing sustainable food and agriculture for the future

The agriculture sectors¹ are facing the enormous challenge of feeding the world's growing population in the midst of climate change. The impacts of increased climate variability as well as more extreme and frequent weather events are jeopardizing agriculture, livelihoods and infrastructure.

Farmers, pastoralists, fisherfolk and community foresters depend on activities that are intimately and inextricably linked to climate. They are the ones who are affected the most by climate change yet are the least able to cope.

A profound transformation in the global food and agriculture system is needed to ensure that the adaptive capacity of smallholders is enhanced and that countries transition toward low emission and climate resilient development. However, time is important. Action must be taken now in order to secure sustainable food and agriculture for the future.

FAO is helping to reorient food and agricultural systems in countries most exposed to climate risks, with a clear focus on supporting smallholders. This booklet provides a summary of FAO's holistic approach to the adaptation of agriculture.

1. Throughout this document, "agriculture" or "the agriculture sectors" refers to crop and livestock production, forestry and fisheries, as well as aquaculture.



Climate change affects agriculture around the world

North America



By 2100, yields of major crops will have declined steeply



30% increase of risks of forests fires



Changes in freshwater fish species physiology, collapse of coral reef systems



40% of mangrove species are threatened with extinction

Latin America and the Caribbean

Europe



High temperatures and humidity increase livestock mortality risk



Declining summer rains lead to water shortages, affecting forest growth



Catch potential falls by as much as 50% in some parts of Mediterranean and Red Seas

Near East and North Africa



Forest losses reduce wildlife, bush meat and other nonwood forest production



By 2050, declining fisheries production in West Africa reduces employment in the sector by 50%

Sub-Saharan Africa

Asia



Higher temperatures during critical growth stages cause a decline in rice yields over a large portion of the continent



By 2050, the body weight of marine fish falls by 24%



Oceania

In New Zealand, animal production declines by 2030

Selected potential impacts of climate change, by region



Crops and livestock



Fisheries



Forestry

Source: FAO, SOFA 2016

Climate change disproportionately impacts the poorest and most vulnerable

Most of the world's poor and hungry are rural people who rely on agriculture for their living

- ▼ 1.2 billion people are estimated to live in extreme poverty
- ▼ 900 million live in rural areas
- ▼ 750 million work in agriculture, usually as smallholder family farmers



Rural women are among the most exposed to climate risks

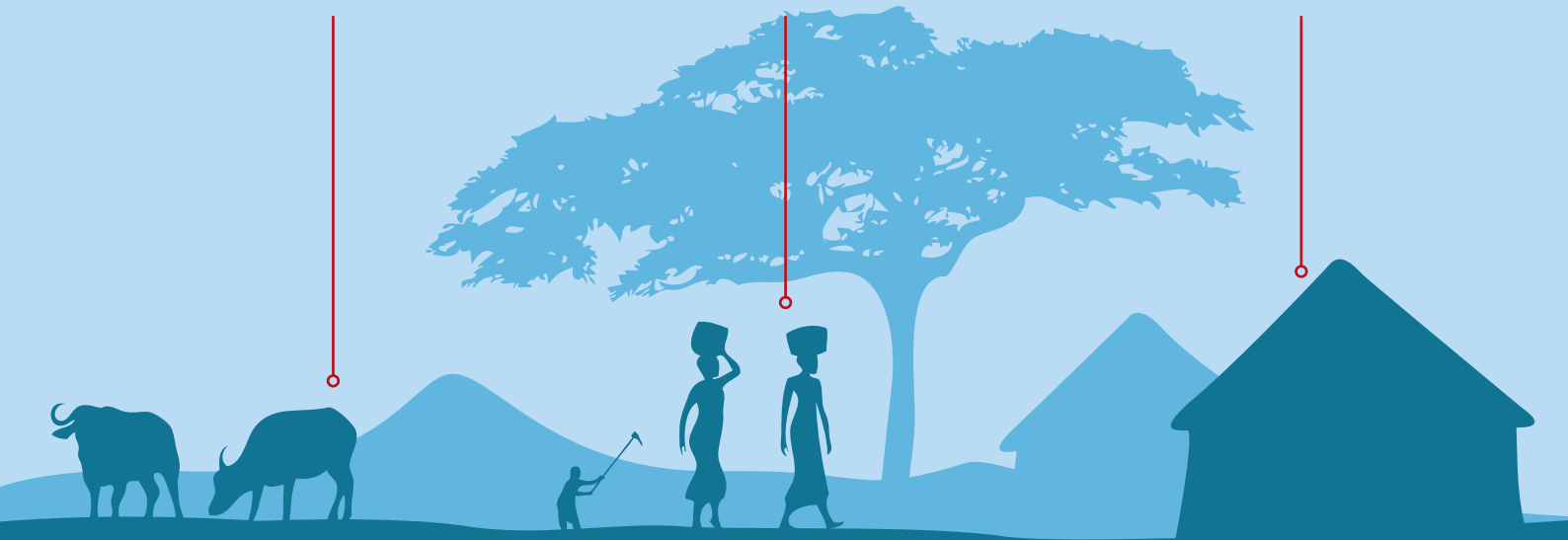
Because they have limited...

Voice in decision-making

Access to resources
and services

Mobility

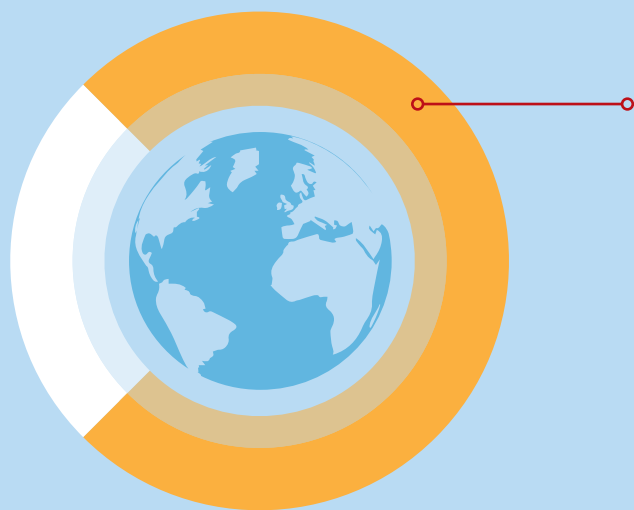
Endowments and
entitlements



Their knowledge and skills are critical to building resilience

Source: FAO, 2016

Adapting to climate change means ensuring food security

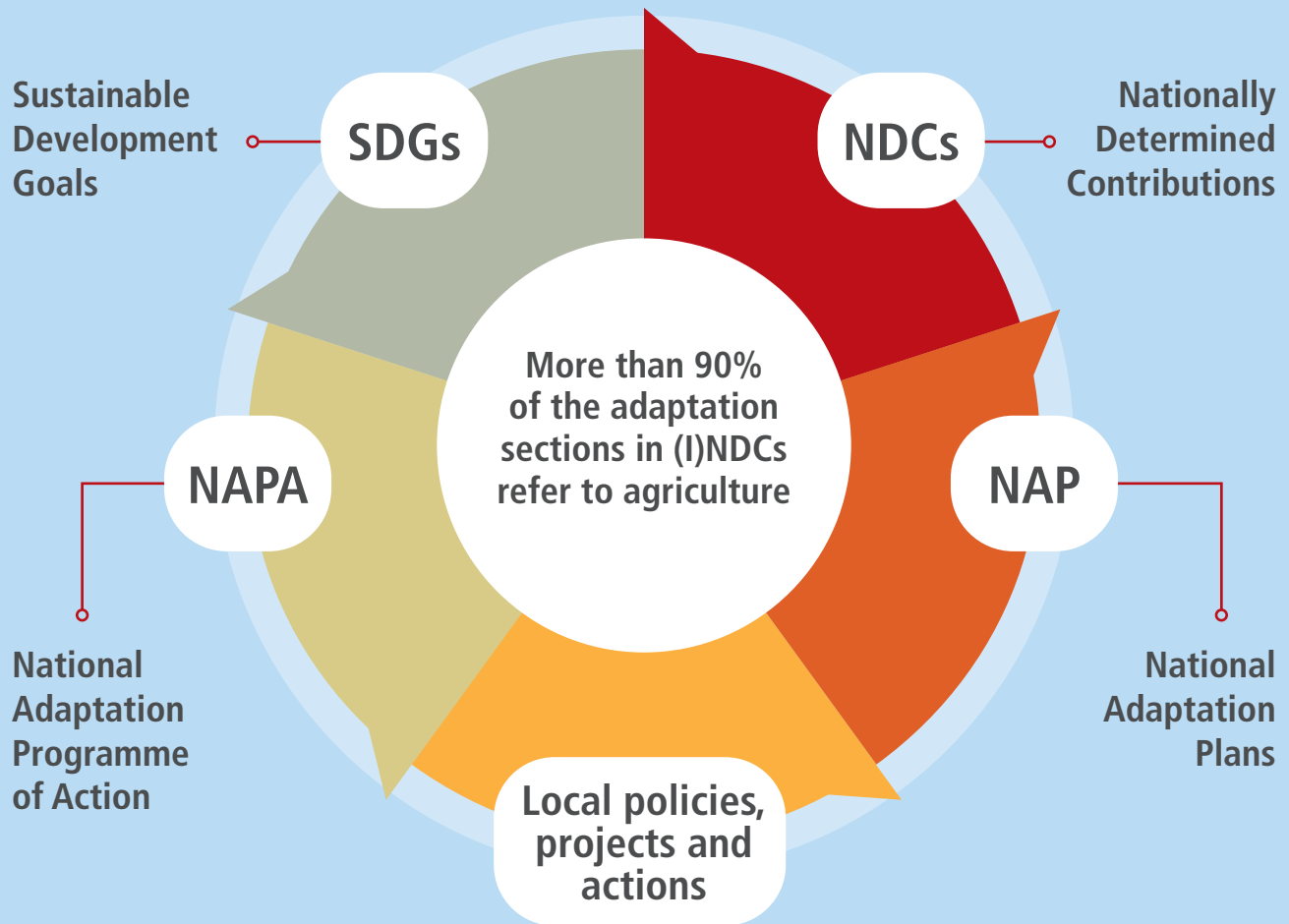


75% of the world's food is generated from only **12 plants and 5 animal species** making the global food system **highly vulnerable**



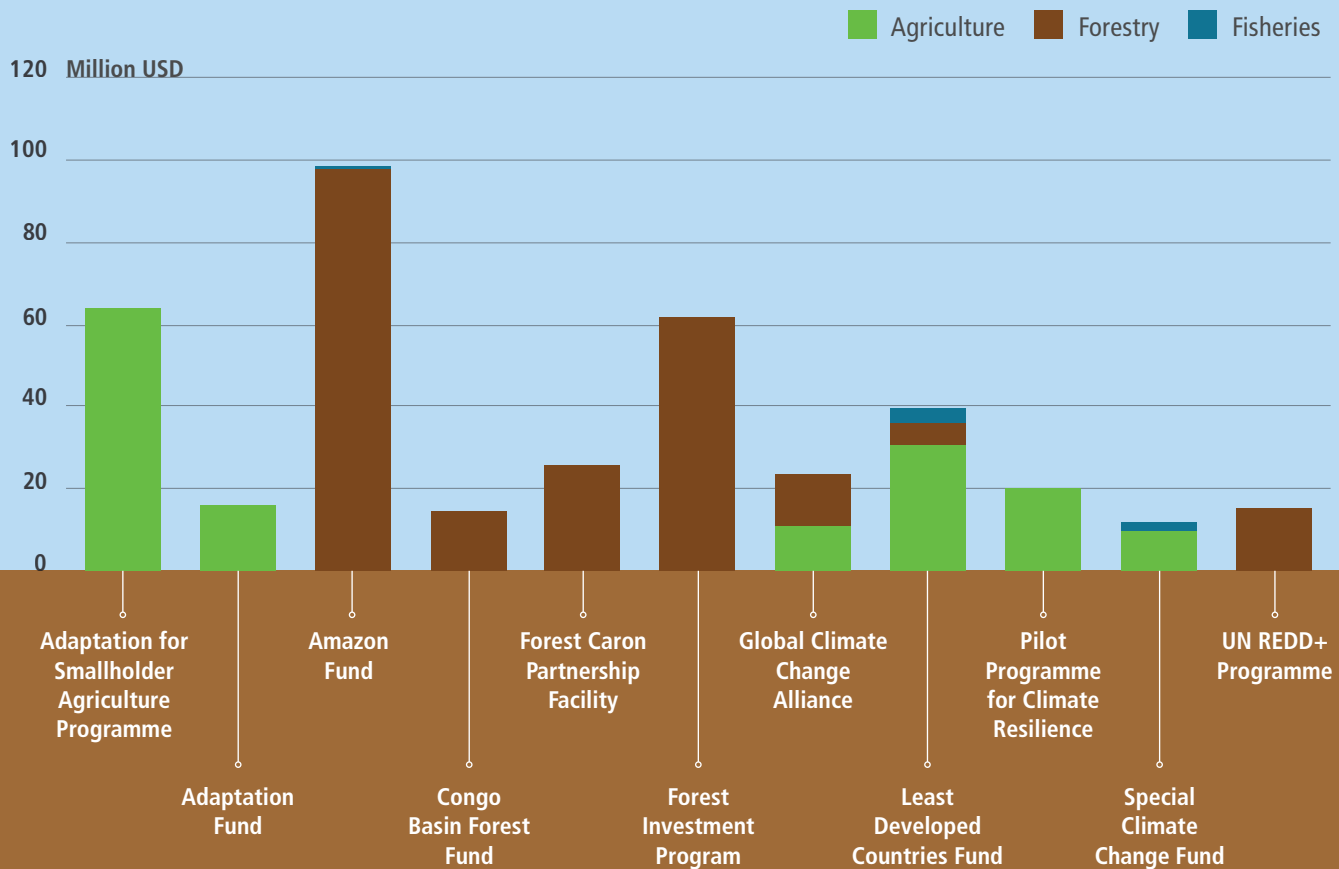
Source: FAO, 2014

Agriculture is key when translating adaptation plans into action



Investing today in agriculture will determine how well we can feed future generations

Dedicated multilateral climate funds (average annual finance committed by sector), 2010–14



Source: ODI, 2015

FAO's approach towards adaptation for sustainable food and agriculture



Data and knowledge for impact and vulnerability assessment and adaptation

Develops innovative, user-friendly tools and methods for assessing vulnerability, present and future impacts as well as costs and benefits

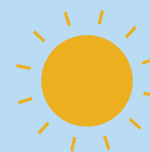


Source: FAO-Adapt, 2011



Institutions, policies and financing strengthen capacities for adaptation

Assists with the integration of the agriculture sectors in National Adaptation Plans (NAPs)



Sustainable and climate-smart management of land, water and biodiversity

Supports policies that promote tools and incentives that encourage the climate-smart management of land, water and biodiversity





Technologies, practices and processes for adaptation

Develops and disseminates tools, guidelines and e-learning courses to enhance local knowledge and adaptive capacities



Disaster risk management

Prioritizes actions for disaster risk reduction and management that go hand-in-hand with climate change adaptation activities





www.fao.org/climate-change

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