

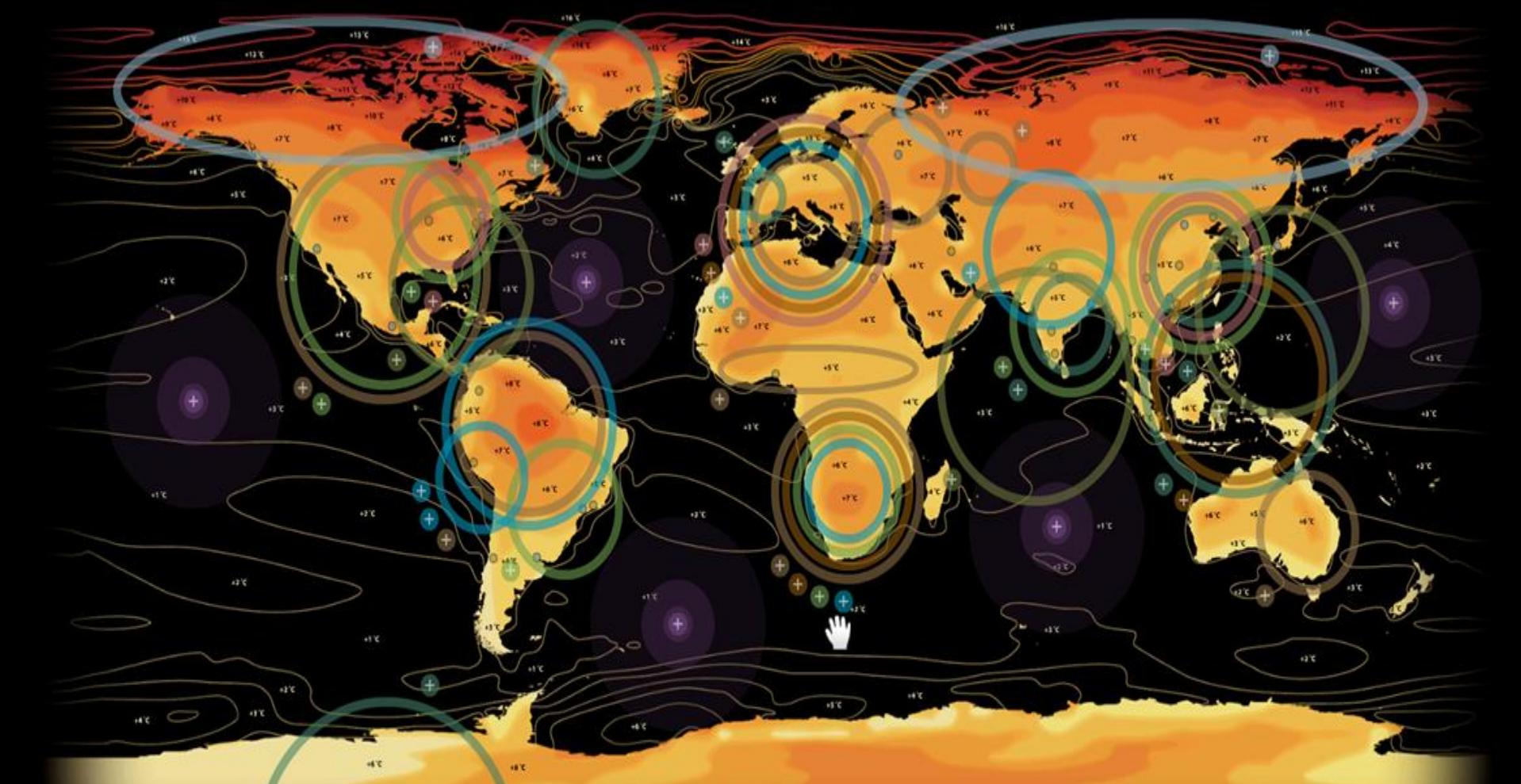


Climate Change Adaptation in Agriculture and Country Experience

Food and Agriculture Organization of the United Nations



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The Amazon Forest

Agriculture

Water availability

Sea-level rise

Carbon cycle

Temperature rises



Two Goals of Our Time



1. Achieving Food Security

1 billion hungry

Food production to increase 70% by 2050

Adaptation to Climate Change critical

2. Avoiding Dangerous Climate Change

"2 degree goal" requires major emission cuts

Agriculture and Land use = 30% of emissions..

..and needs to be part of the solution



Climate Change Will Increase Hunger



- Climate change affects all agricultural sectors in a multitude ways that vary region by region and worsen the living conditions of farmers, fishers and forest-dependent people who are already vulnerable and food insecure.
- Hunger and malnutrition will increase.



Climate Change Effects



- Threaten food security, changing harvest periods,
- Increases the risk of infectious diseases,
- Sensitive species and ecosystems,
- Increase number of forest fires,
- Increase risks of natural disasters (floods, droughts, landslides, extreme weather conditions).



- Climate change will cause inconsistencies on rainfall patterns.





- Climate change can stop sustainable development and makes it difficult or even impossible to achieve the Millennium Development Goals.



What Do We Need to Do?



- FAO's response to climate change: From global impact assessments to national and local action, FAO promotes adaptation and mitigation in agriculture, fishery, forestry and other sectors as an integral part of development.
- Agricultural sectors must become **climate-smart** to tackle successfully with current food security and climate change challenges.
- Solutions also depend on:
Demographic changes, population, urbanization, economic growth, structural changes in agriculture and consumption patterns.

Action	Can help Food Security	Can help meet Climate Change Mitigation
Increase productivity (yields per area) under environmental and sustainability constraints	Yes	Yes
Effective water use	Yes	Yes
Reduce losses in / more efficient agricultural practices	Yes	Yes
Reduce losses in food processing and Handling	Yes	Yes
Improve agricultural markets and Incentives	Yes	Yes
Carbon sequestration in vegetation and soil	Yes	Yes

Climate-smart Agriculture



Agriculture that sustainably:

Increases productivity, resilience (adaptation), reduces/removes GHGs and enhances achievement of national food security and development goals

- Key messages 1: Practises

Climate-smart practices exist, ecosystem approach at landscape level is crucial and Investments are needed in:

- filling data and knowledge gaps
- R&D of technologies, methodologies
- conservation and production of varieties and breeds

Climate-smart Agriculture



- Key messages 2: Policies

- Smallholders need institutional and financial support for the transition and strengthened institutions for dissemination and coordination is needed.
- Consistency between agriculture, food security and climate change policies.

- Key messages 3: Finance

- Available financing (current and projected) are substantially insufficient
- Combining finance (public/private, climate change/food security) improves options
- Fast-track financing must take sector-specific considerations into account

FAO's CONTRIBUTION

Climate-smart agriculture is rooted in sustainable agriculture and rural development objectives, if reached, would contribute to achieving the Millennium Development Goals.

FAO is working to support countries in transitioning to climate-smart agriculture in a number of ways.

Key ongoing initiatives include:

- **FAO-Adapt:** The programme provides general guidance and introduces principles as well as priority themes, actions and implementation support to FAO's multi-disciplinary activities for climate change adaptation.





FAO's CONTRIBUTION

The Mitigation of Climate Change in Agriculture (MICCA) Programme



It builds the knowledge base on climate change mitigation in agriculture by conducting life cycle analyses of agricultural production chains, analyzing global mitigation potentials and costs, and reviewing opportunities and obstacles for mitigation at the farm level.



Climate-smart Agriculture

The UN-REDD Programme

The Programme is a collaborative partnership between FAO, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) that supports countries to develop their capacity to reduce emissions from deforestation and forest degradation (REDD) and implement a future REDD+ mechanism, which includes the conservation, sustainable management of forests, and the enhancement of forest carbon stocks.



Climate-smart Agriculture



FAO's Forest and Climate Change Programme:

The Programme seeks to strengthen national and international actions on forests and climate change adaptation and mitigation. The Programme raises awareness, strengthens technical capacities, creates enabling policy environments for action and encourages cross-sectoral and landscape approaches to climate change.



FAO EX-ACT (EX-Ante Carbon Balance Tool):

EX-ACT is a tool developed by FAO to provide ex-ante estimations of the impact of agriculture and forestry development projects on greenhouse gas emissions and carbon sequestration and indicate their effects on the carbon-balance.



Country Support:



- FAO supports countries through cross-sectoral field projects and programmes related to impact assessment, climate change adaptation and mitigation and the development of policy guidelines.
- Activities include:

Mainstreaming: Integrating climate change adaptation and mitigation strategies into agriculture.



Country Support:



- **Impact assessment**: Assessing the impacts of climate change on agriculture and food security.
- **Capacity Building**: Enhancing national and local capacities in agriculture, livestock, forestry and fisheries for climate change and risk management





Country Experience

MDG-F – 1680:

Enhancing the Capacity of Turkey to Adapt to Climate Change





Executive Summary

- This Joint Programme addresses the priority area of “Enhancing Capacity to Adapt to Climate Change”.
- As part of the southern belt of Mediterranean Europe, Turkey is highly vulnerable to anticipated climate change impacts.



Executive Summary



- FAO is worked with other UN Agencies and the government institutions to identify the knowledge gaps and helps to strengthen staff capacity to deal with climate change issues in the agricultural, forestry, livestock and fishery sectors".





Executive Summary

- Develop technical capacity for data management, improving quality of drought and flood early warning systems as part of Activity 2.1.3 and to manage implementation of tasks defined as part of Activity 2.2.1 and capacity development of the institutions.





Programme Objectives

- The core objective of the Joint Programme has been achieved by mainstreaming climate change adaptation into the national development framework, building capacity in national and regional institutions, piloting community-based adaptation projects in the Seyhan River Basin, and integrating climate change adaptation into all UN agencies in Turkey.



Joint Programme Outcomes



- **Outcome 1.** Climate change adaptation mainstreamed into Turkey's plans.
- **Outcome 2.** Institutional capacity developed for managing climate-risks, including disasters.
- **Outcome 3.** Capacity for community-based adaptation in the Seyhan River Basin developed.
- **Outcome 4.** Climate change adaptation mainstreamed into UN programming framework in Turkey.



FAO Outcomes



- **Output 1.4.** Amendments to policy and appropriate policy tools will be developed and proposed for reducing vulnerability to climate change through the government's development activities and private sector.
- **Activity 1.4.3.** Undertake targeted capacity building for those responsible for implementing changes as they relate to agriculture (with a particular focus on woman's groups)





FAO Outcomes

- **Output 2.1.** Technical capacity for data management developed.

Activity 2.1.1. Identify the stakeholders information needs.

Activity 2.1.2. Assess the existing technical capacity and gaps for providing early warnings of floods and droughts.

Activity 2.1.3. Prepare an implementation plan for an environmental information management system





FAO Outcomes

- **Output 2.2.** Technical capacity for analysis and interpretation of data developed.
- **Activity 2.2.1.** Expand and strengthen MARA's Turkish Agriculture Drought Masterplan in order to increase capacity to deliver early warnings for floods and droughts. This activity will build on the multi-agency Global Terrestrial Observing System





FAO Activities

- Enhance the capacity and knowledge of Government Institution According to results of institution need analysis, capacity development trainings were planned in 2010 – 2011.
- Training modules developed in collaboration with MARA and MoEF. Target institutions identified for each module. Date, place and experts identified.



FAO Activities



THE MODULES

- Introduction to Climate Change
- Climate Change Policy and Adaptation Strategies
- Climate Data Analysis
- Adaptation to Climate Change and Forestry
- Carbon Management in Agriculture
- Early Warning and Monitoring systems for Flood Planning and Management
- Drought Monitoring, Tools and Practices
- Soil Moisture Measurement
- Climate Change effects on Hydrological cycle and Irrigation Management with CC Adaptation Perspective
- Crop Insurance in relation to Floods and Drought
- Public Health
- Climate Change from legal perspective

- Layout of the web portal which serves as the basis of institutional data exchange has been set and launched to MoEF and MARA.
- One-to-one meetings with MARA and MoEF were organized to define data exchange structure available in relevant institutions
- Strategies outlined and discussed with relevant institutions to make best use of existing practices and available infrastructure to enhance data exchange capacities between various government institutions





**Act fast,
get it right
and make
it work**

**Food security can't wait,
neither can action on
climate change**





THANK YOU

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A decorative graphic at the bottom of the slide features a series of colorful, overlapping semi-circles in shades of blue, green, red, and yellow. Each circle contains a white silhouette of a different element related to agriculture and the environment, such as a tractor, a person, a tree, a cow, a fish, and a leaf. Below this graphic, the text 'CLIMATE-SMART AGRICULTURE' is written in blue, with 'for development' in orange underneath.

CLIMATE-SMART AGRICULTURE
for development