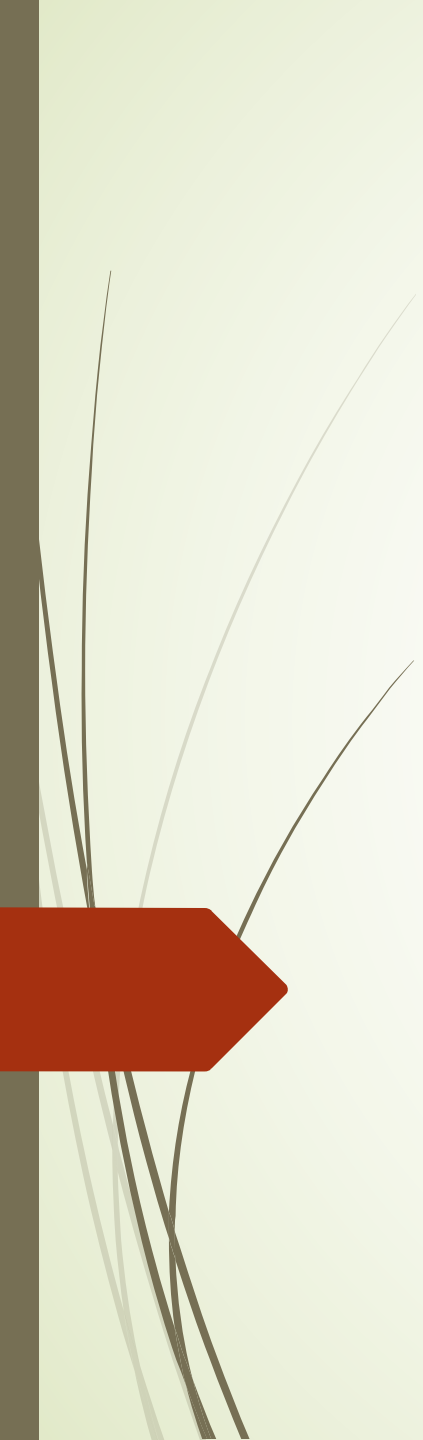




Localized climate data and risk information in support of transformational climate change adaptation in the agriculture sector

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SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



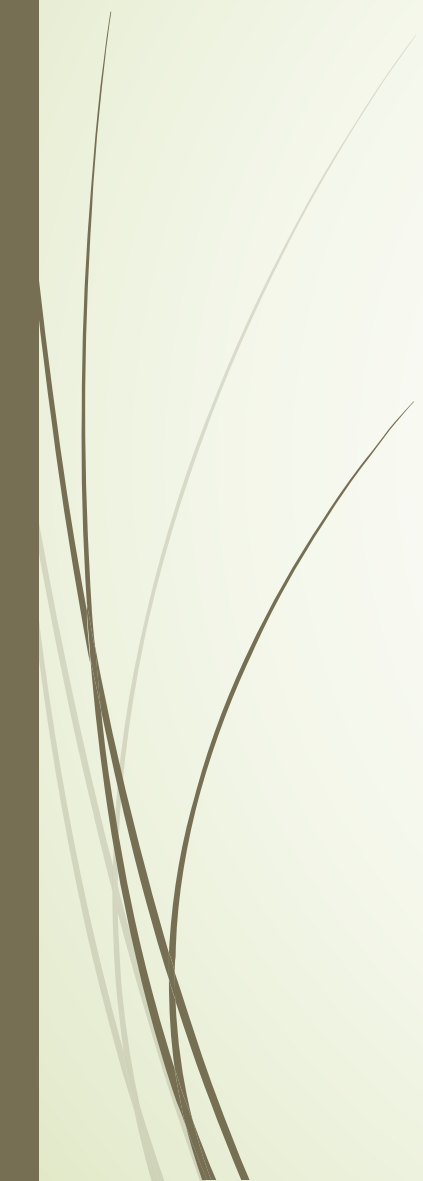
17 PARTNERSHIPS FOR THE GOALS



SUSTAINABLE DEVELOPMENT GOALS



SDG 2 Zero Hunger



- By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
- By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
- By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
- By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
- By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed
- Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries
- Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round
- Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility



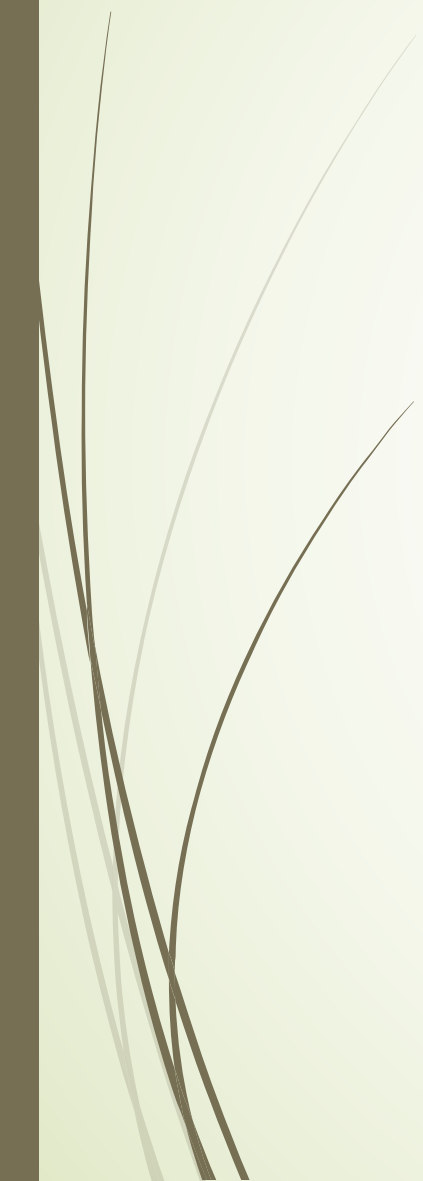
SDG 2 Zero Hunger

SDG 2.4.1

- ➡ By 2030, **ensure sustainable food production systems and implement resilient agricultural practices** that increase productivity and production, that help maintain ecosystems, **that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters** and that progressively improve land and soil quality



SDG 13 Climate Action



- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- Integrate climate change measures into national policies, strategies and planning
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
- Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
- Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities



SDG13 Climate Action

SDG 13.a.1

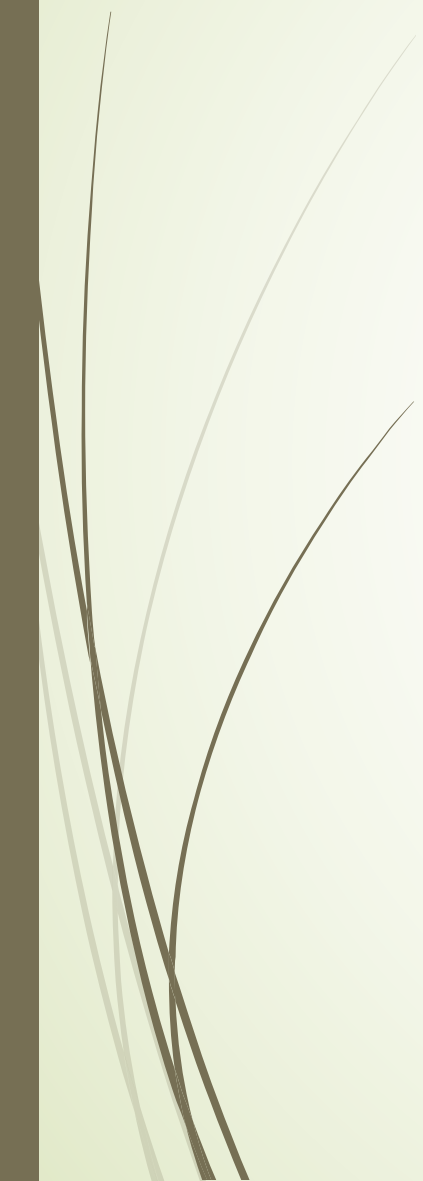
-a goal of mobilizing jointly **\$100 billion annually** by 2020 from all sources to address the needs of developing countries... fully operationalize the **Green Climate Fund** ...

Current status

- Initial efforts to mobilize resources for the **Green Climate Fund** raised **\$10.3 billion** and **developed** - **country parties are strongly urged to scale up their financial support.**



Green Climate Fund

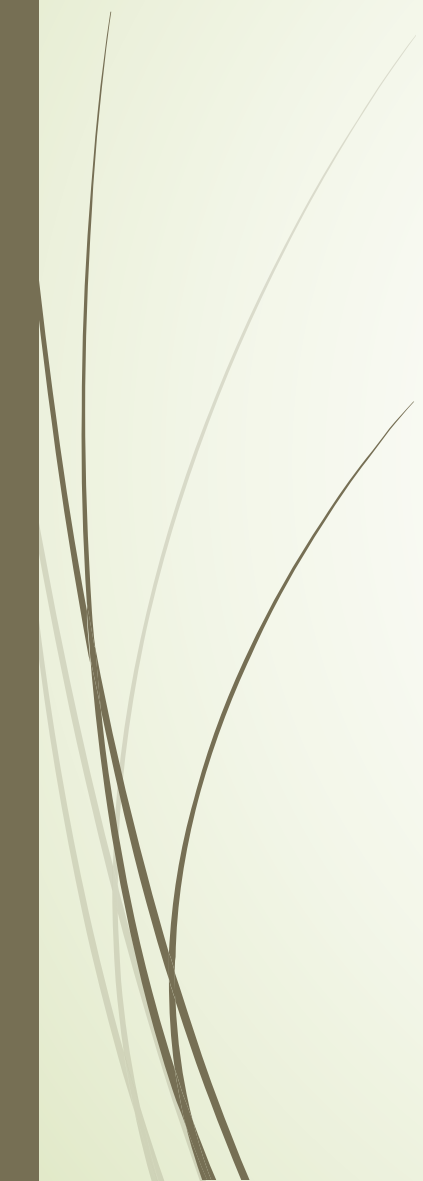


- ...supporting **paradigm shifts in both mitigation and adaptation.**
- The Fund aims for a **50:50 balance between mitigation and adaptation** investments over time.
- It also aims for a floor of **50 percent of the adaptation allocation** for particularly vulnerable countries, including **Least Developed Countries (LDCs), Small Island Developing States (SIDS), and African States.**
- ... in **transformational climate-sensitive investments.**
- ... **developing country partners exercise ownership** of climate change funding and integrate it within their own national action plans.



GCF adaptation projects

Climate information





FP002

ADAPTATION

MALAWI

**Scaling Up of Modernized
Climate Information and Early
Warning Systems in Malawi**



FP035

ADAPTATION

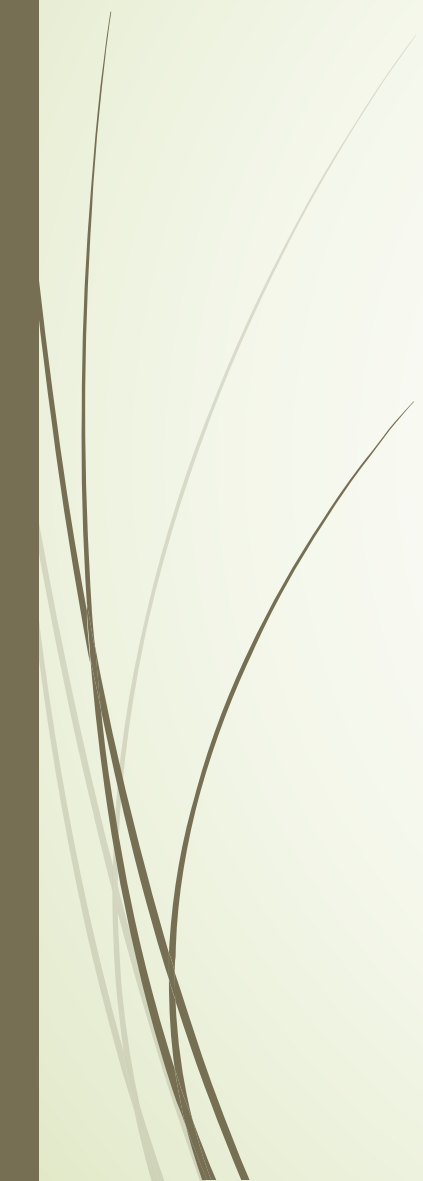
VANUATU

Climate Information Services
for Resilient Development in
Vanuatu



GCF adaptation projects

Water





FP007

ADAPTATION

MALDIVES

Support of Vulnerable
Communities in Maldives to
Manage Climate Change-
Induced Water Shortages

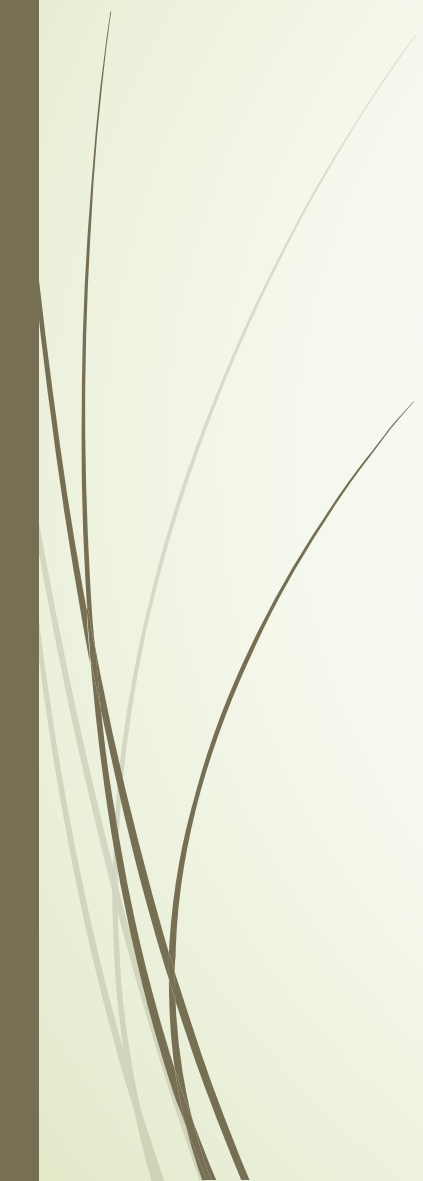


FP021

ADAPTATION

SENEGAL

Senegal Integrated Urban Flood
Management Project



FP037

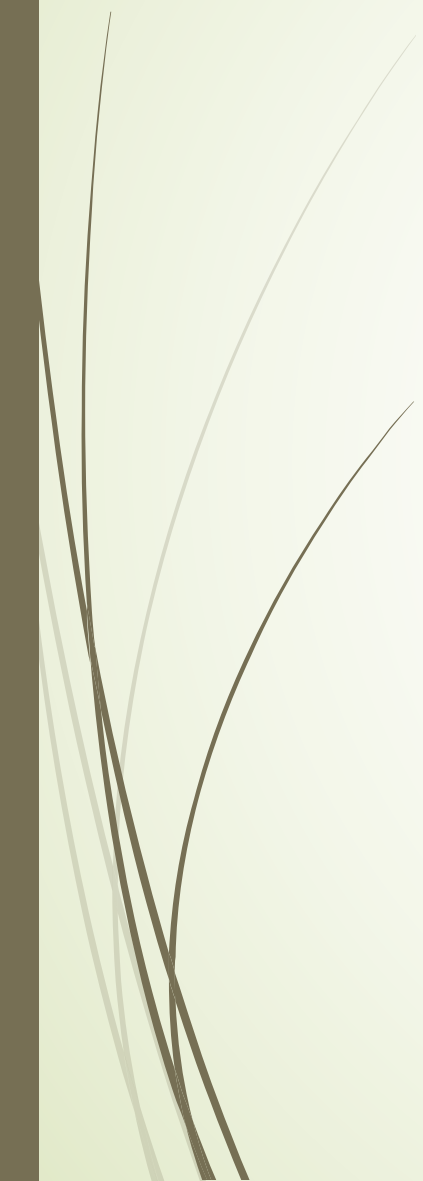
ADAPTATION

SAMOA

**Integrated Flood Management
to Enhance Climate Resilience
of the Vaisigano River
Catchment in Samoa**



GCF adaptation projects Agriculture





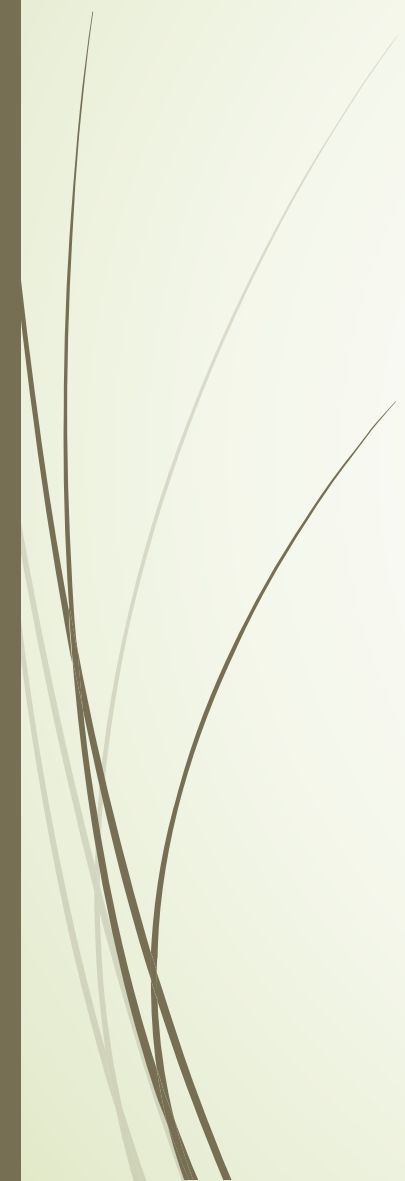
FP016

ADAPTATION



SRI LANKA

Strengthening the resilience of
smallholder farmers in the Dry
Zone to climate variability and
extreme events through an in...

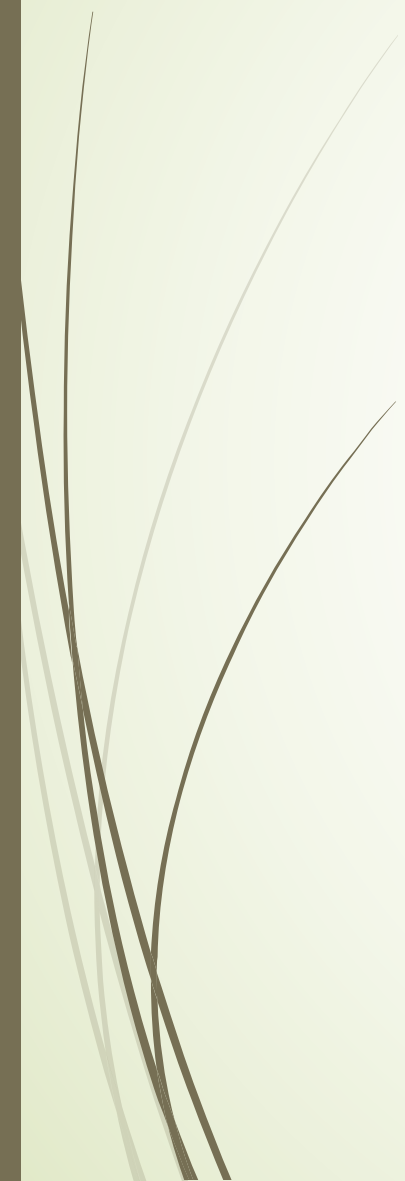


FP023

ADAPTATION

NAMIBIA

Climate Resilient Agriculture in
three of the Vulnerable
Extreme northern crop-
growing regions (CRAVE)



FP042

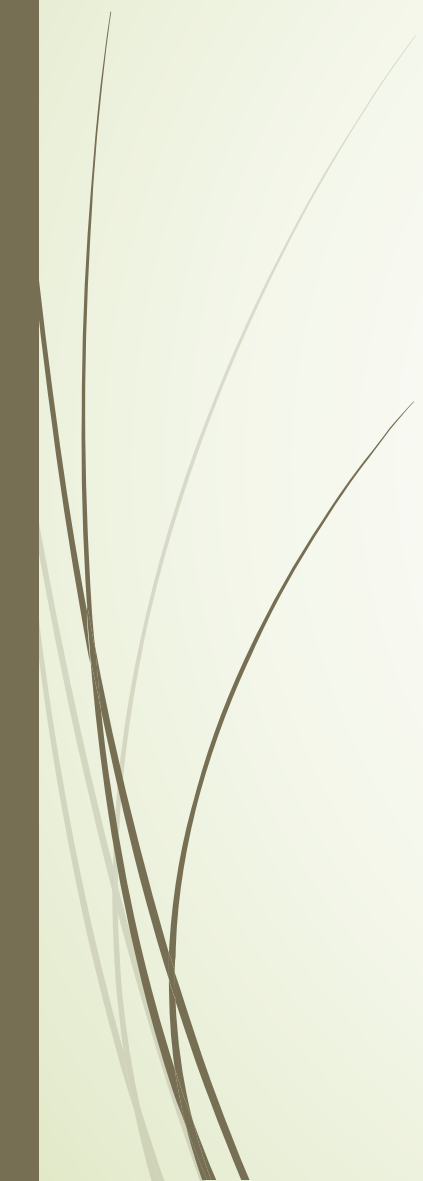
ADAPTATION

MOROCCO

Irrigation development and
adaptation of irrigated
agriculture to climate change
in semi-arid Morocco



GCF adaptation projects
Other





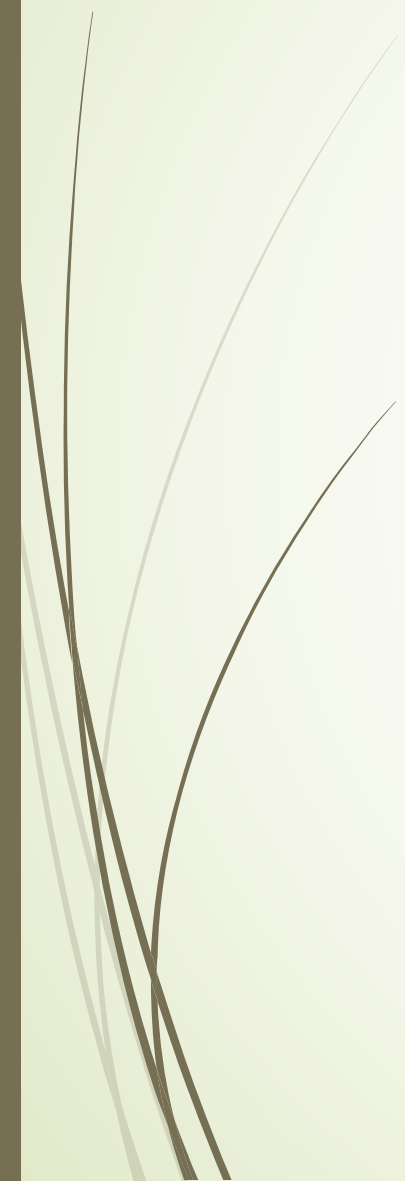
FP004

ADAPTATION



BANGLADESH

Climate-Resilient Infrastructure
Mainstreaming in Bangladesh

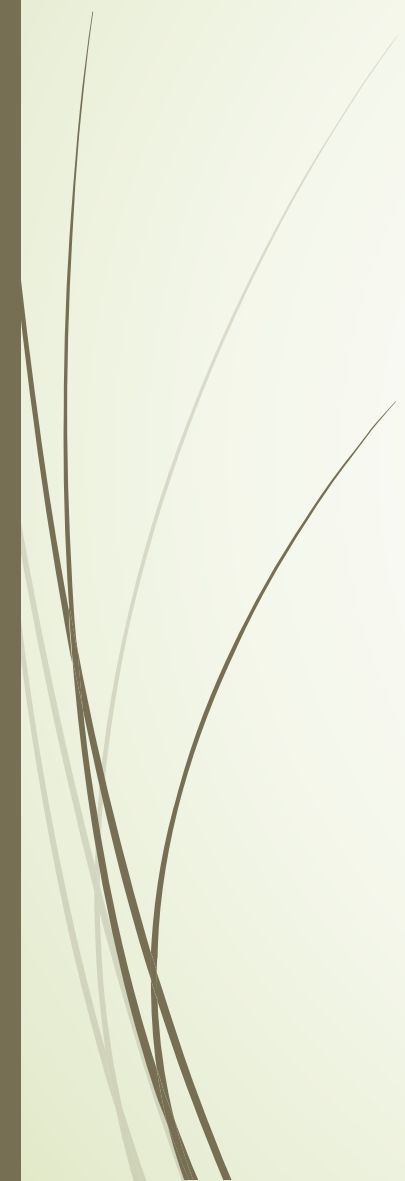


FP011

ADAPTATION

GAMBIA

Large-scale Ecosystem-based
Adaptation in the Gambia River
Basin: developing a climate
resilient, natural resource bas...



FP018

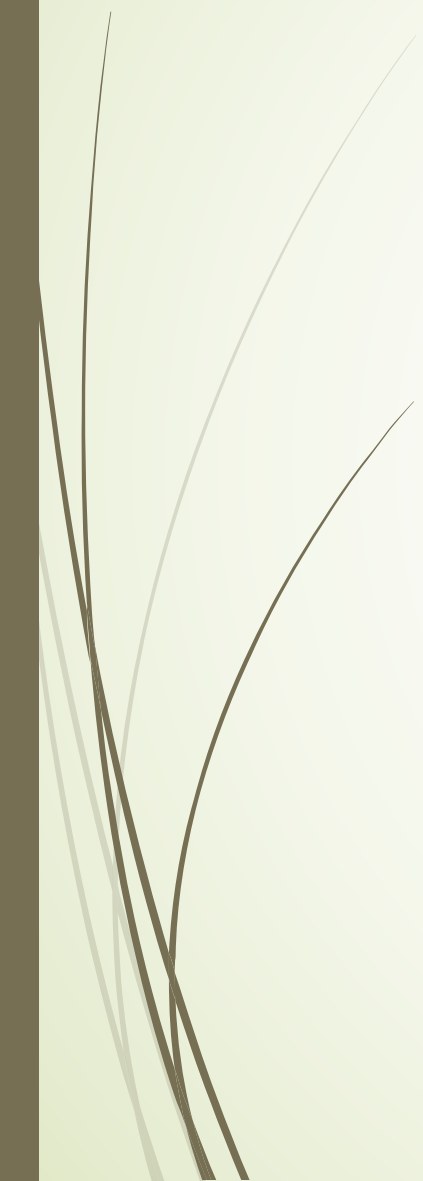
ADAPTATION

PAKISTAN

Scaling-up of Glacial Lake
Outburst Flood (GLOF) risk
reduction in Northern Pakistan

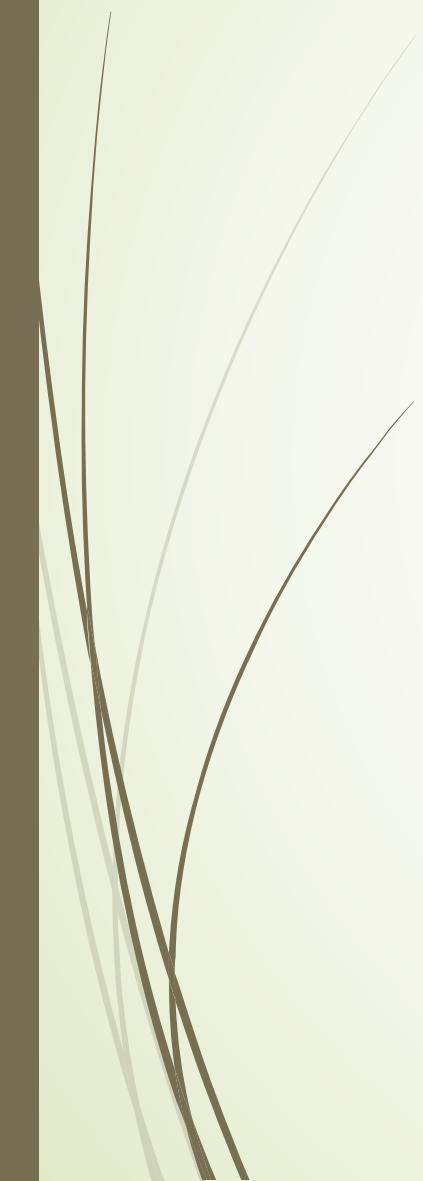


Need for localized climate information

- International development community needs localized climate information, information on climate impacts, vulnerability, risks, for designing policies and projects
 - In support of transformational changes
- 

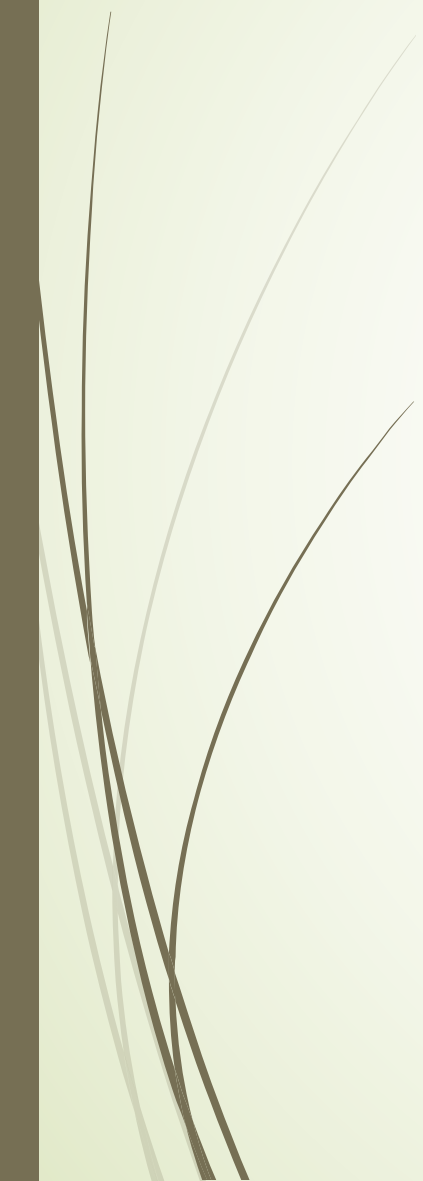


Transformational Climate Change Adaptation

- Funding – Green Climate Fund and others
 - Long-term
 - Beyond “development” project
 - Beyond one-time investment
 - Innovation – accessible for smallholder farmers
- 

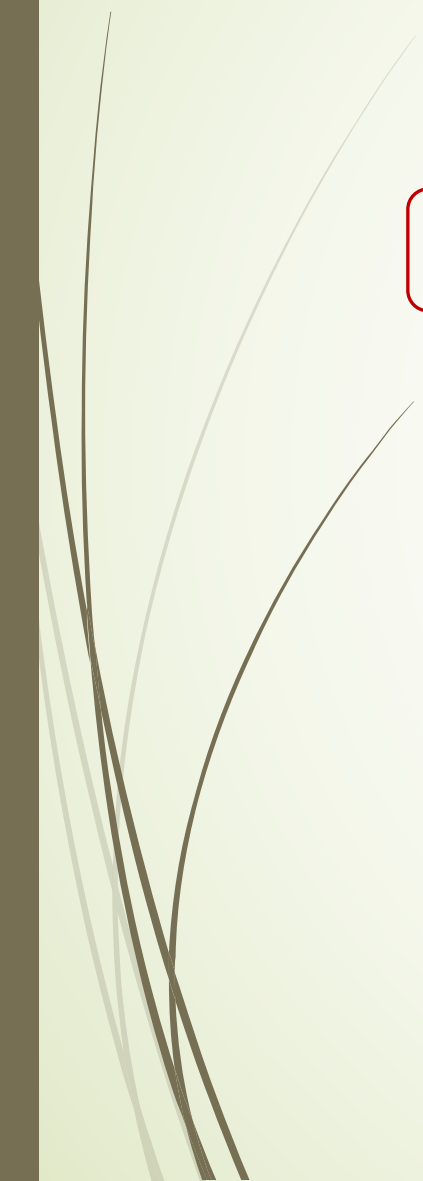


Elements that support transformational changes

- Evidence-based
 - Link with policies
 - Scaling-up / replication
 - Capacity development / knowledge sharing
 - Enabling environment
- 



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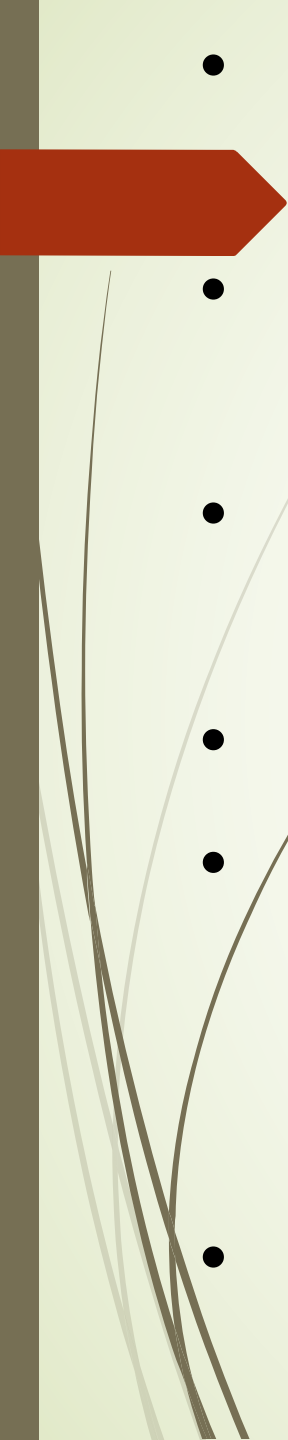
Any climate change
adaptation programme/project
should be supported by robust
evidences.





There are many types of evidences that support climate change adaptation.



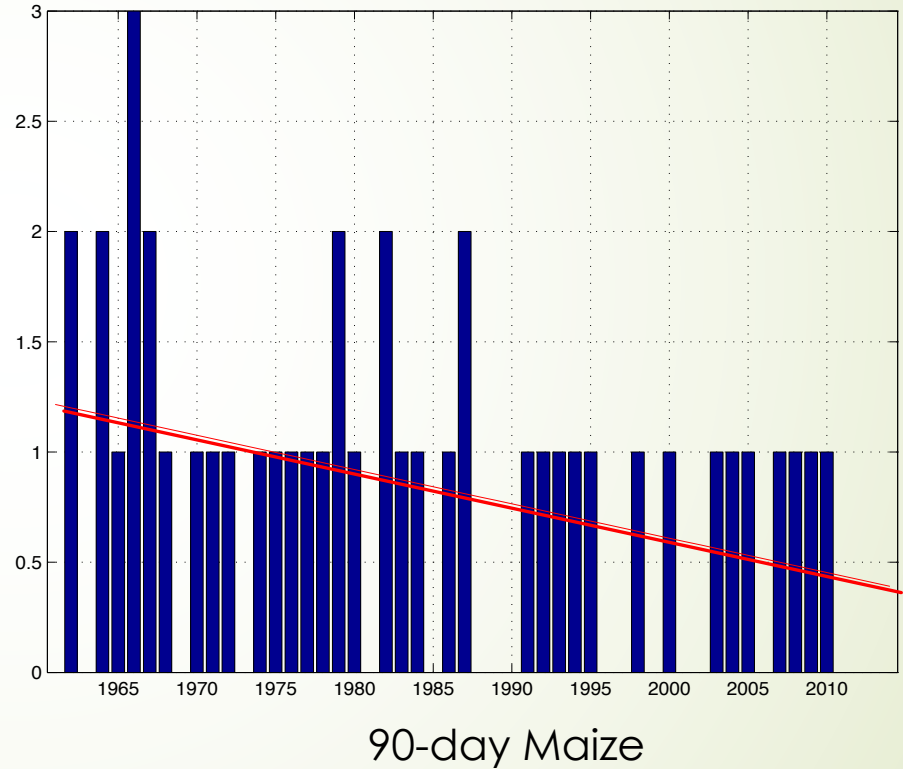
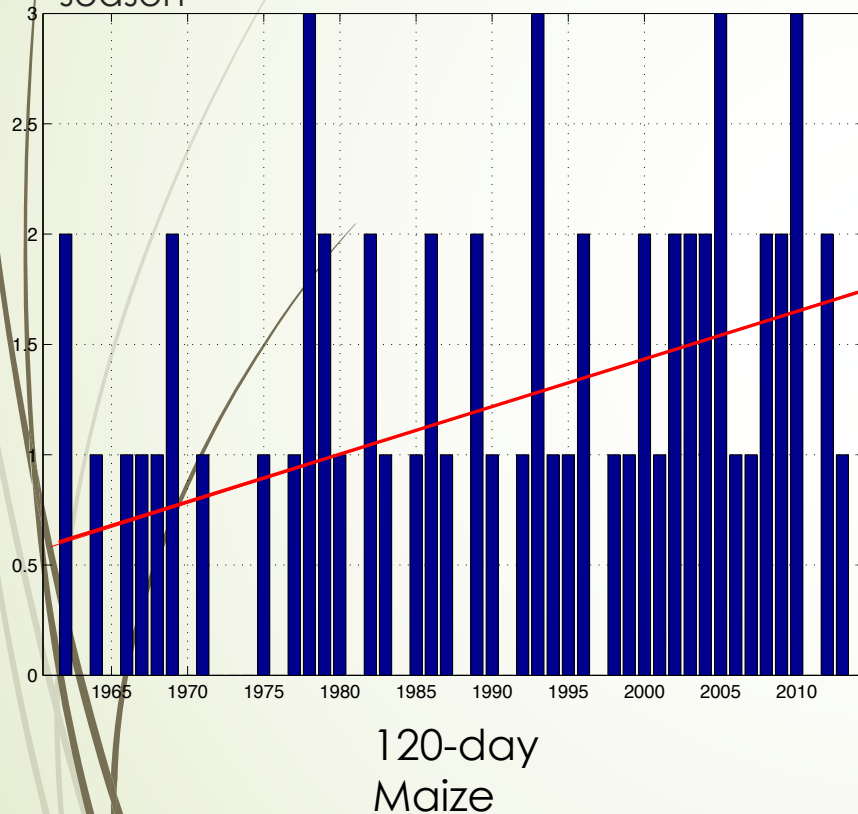
- 
- Past climate, and its impacts on local agriculture
 - Future projected climate and its impacts on local agriculture
 - Characterization of vulnerability to climate change and other factors
 - GHG emissions
 - Identification and appraisal of potential adaptation practices
 - Trials, Socio-economic econometric analysis, cost-benefit analysis, biophysical models, etc
 - Effectiveness of adaptation interventions → monitoring and evaluation

- 
- Past climate, and its impacts on local agriculture
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Agronomic weather indices

Chitedze, Malawi

Number of dry-spells during the reproductive period of the 120-day and 90-day growing season



- Past climate, and its impacts on local agriculture
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- Current GHG emissions
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MOSAICC



- Modelling System for Agricultural Impacts of Climate Change – an interdisciplinary collaborative platform





Elements that support transformational changes

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We aim to contribute to national policy planning and programmes/projects on climate change, agriculture, and food security.

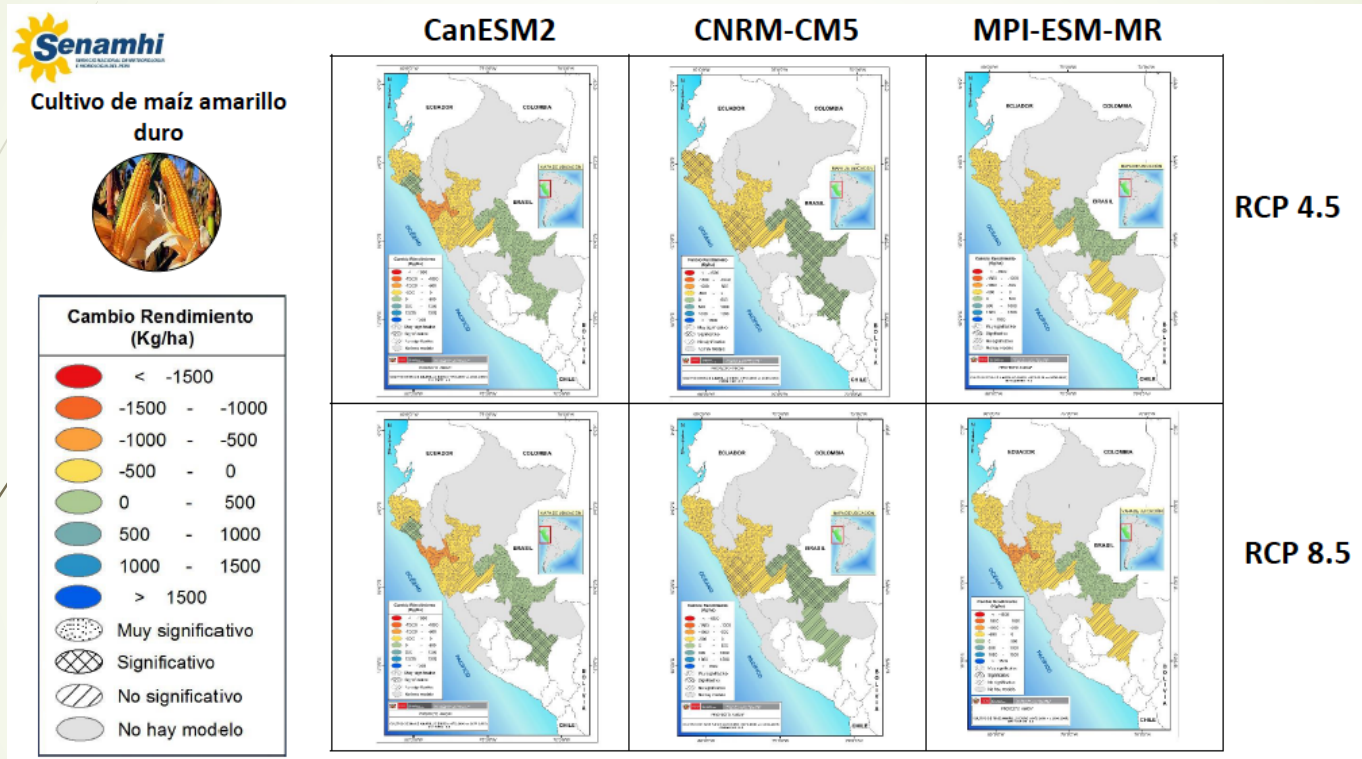
- National Adaptation Plan
- Climate-Smart Agriculture
- NDC – Nationally Determined Contribution
- Agriculture Investment Plan
- National Climate Change Policy
- National Communication to UNFCCC



Elements that support transformational changes

- Evidence-based
- Link with policies
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- Enabling environment

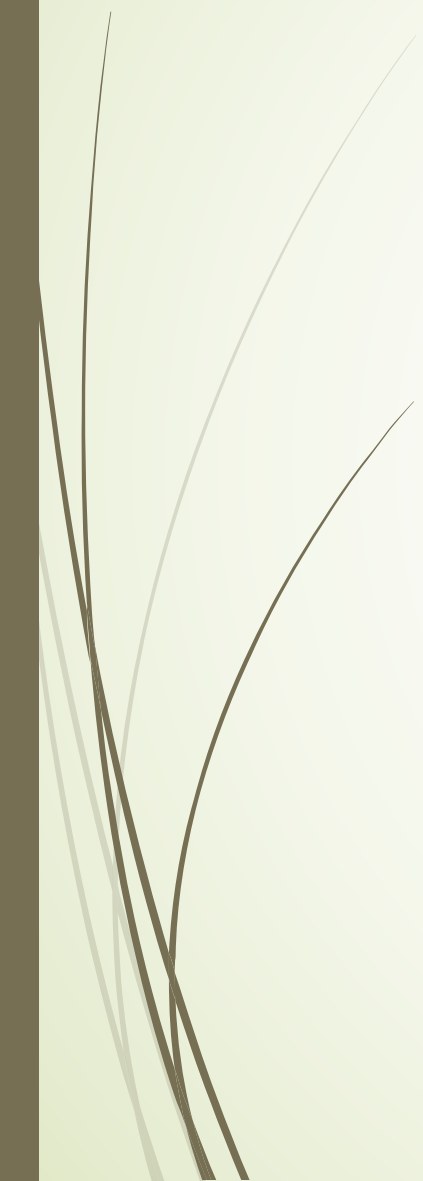
Peru – corn yield projection



- Which crops are more vulnerable and where?
- What are optimal crop mix?



Answering these questions aid policy makers.

- ▶ How government should allocate resources.
 - ▶ How long-term agriculture development plan should be.
 - ▶ How to formulate CC adaptation projects.
 - ▶ Research and development
- 



Elements that support transformational changes

- Evidence-based
- Link with policies
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Capacity development

- Adaptation, long-term, iterative process
- Capacities need to be internalized in the country for supporting long-term climate change adaptation development pathway



Country-driven approach

- **By** national scientists
- **With** country's own data
- **For** country's information needs





Elements that support transformational changes

- Evidence-based
- Link with policies
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Stakeholder involvement

- Interdisciplinary working group

- Scientists
- Different disciplines
- Data providers
- Policy makers
- Different ministries and institutes

- Academic studies designed to meet the needs of stakeholders e.g. policy makers



Project Steering Committee
Chaired by Ministry of Agriculture
With: Ministry of Env,
National Weather Service, etc



National Project Manager
(consultant)

National Project Coordinator
(assigned by main counterpart
ministry)

Other project
components

Technical working group
for CC assessments

Climatologists

Crop Scientists

Leader of TWG

Economists

Foresters

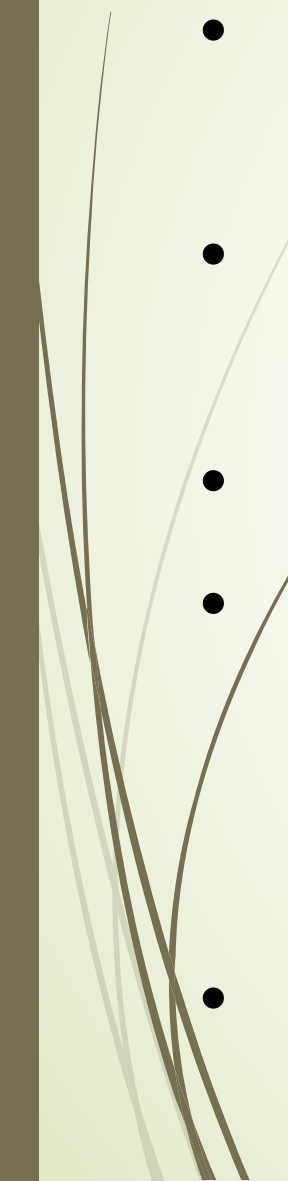
Hydrologists

Data Providers

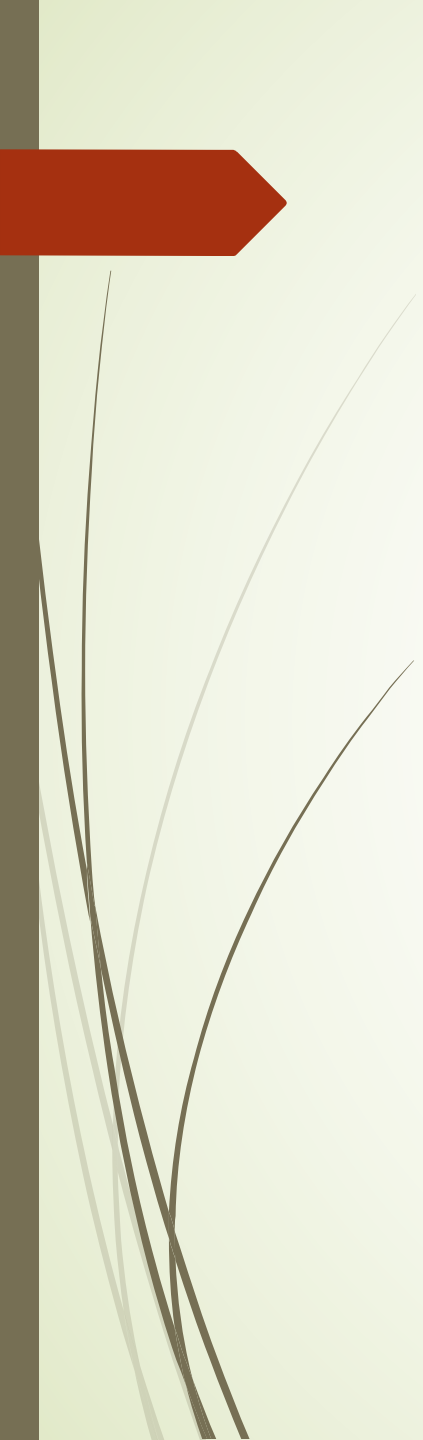
Policy makers

Trainers
(international
scientists)

FAO technical
officers

- 
- 
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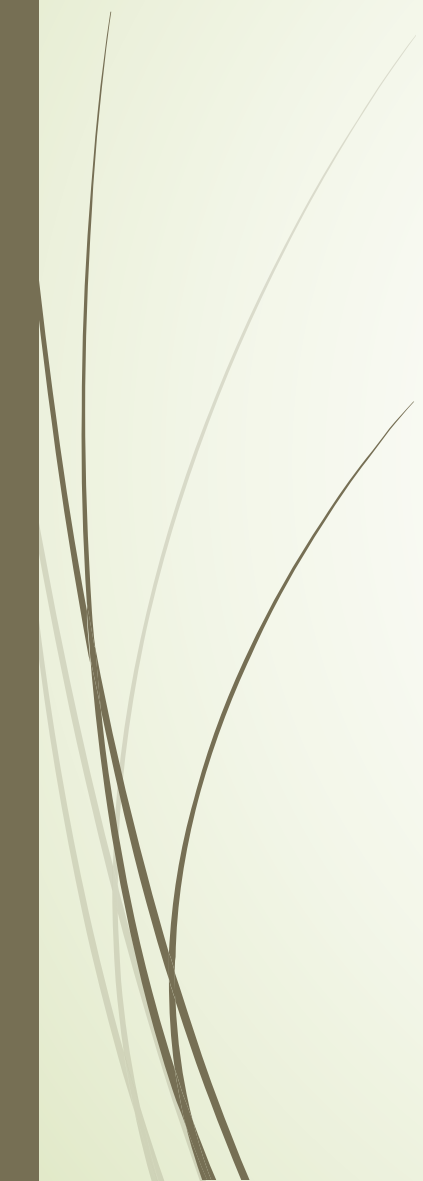


Rapid climate risk assessment and adaptation options appraisal in agriculture

- Methodology, designed for supporting climate change adaptation project design
- Rapid assessment
- Applicable in diverse climate, ecosystems; Crops, livestock, fisheries, aquaculture, and forest
- Output: characterization of climate risks in project site (e.g. province, basin), and recommended context- and location-specific adaptation practices
- Using global datasets, including localized climate information; Allowing room for improving assessments by adding details, precision, accuracy later with local datasets



Summary



- Promote evidence-based adaptation
- Policy makers and project formulators are looking for information to underpin policies and project objectives; role for science community
- Link with a number of national and international policy frameworks
- Scales matter
- Capacity development
- Stakeholder involvement
- Collaboration with FAO?

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