Tanzania Agriculture Climate Resilience Plan, 2014–2019

Presented at the "Tanzania National Climate Change and Agriculture Workshop"
New Africa Hotel- Dar es Salaam
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Outline

Three major parts:-

- **Part 1: The case for climate action in the agriculture sector**
- **Part 2: Priority resilience actions and key investments**
- **Part 3: Implementation Strategy**

- General introduction
- Introduction of Agriculture Climate Resilience Plan (ACRP)
- The Process for developing ACRP
- Adaptation Planning Framework-Vision, Mission and Values
- Objectives of ACRP
- Risk analysis:-
  - **Parameters for Climate trend**
  - **Identification of impacts**
  - **Risks prioritization**

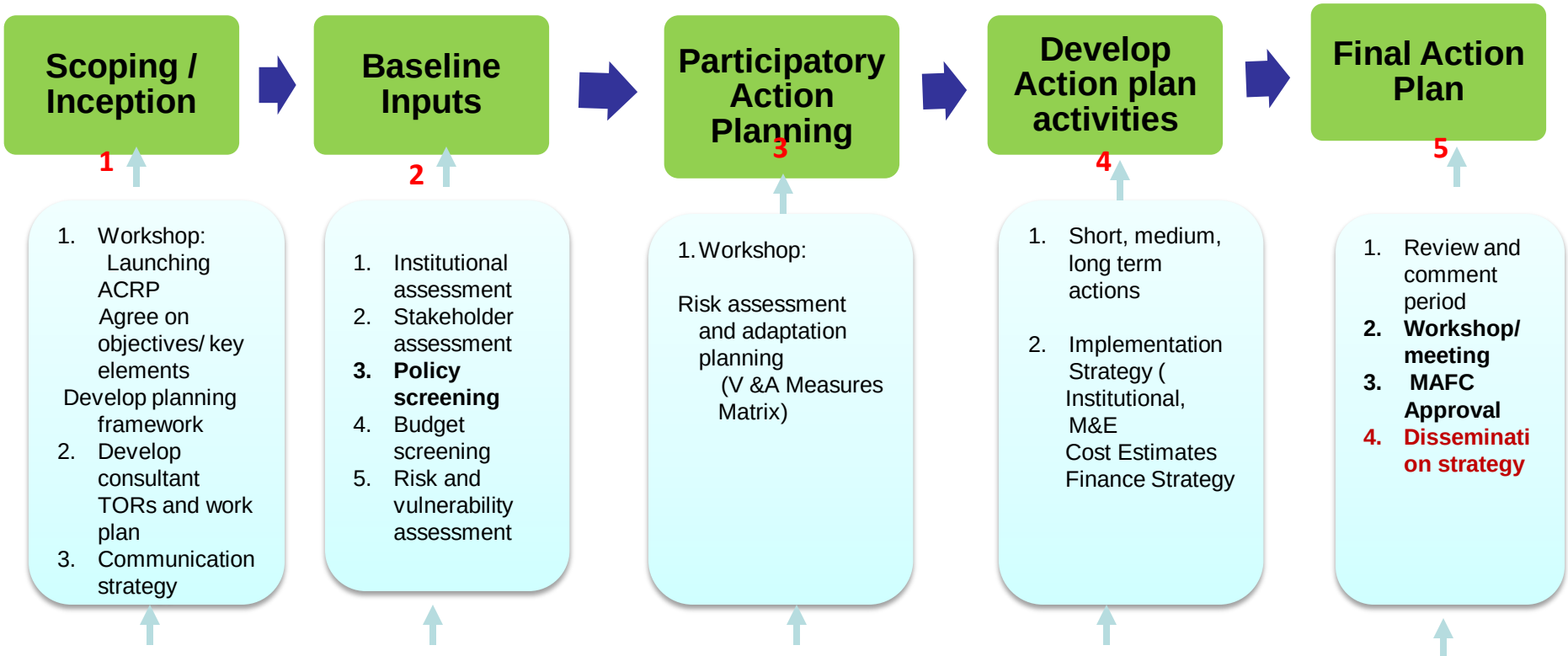
General Introduction

- Agriculture is a dominant sector of the Tanzanian economy,
- Generating 25% of GDP, 24% of exports,
- Mainstay of 75 – 80% of livelihoods in the country including the majority of the poor.
- Rich base of land and water resources, high crop diversity
- Rain fed basis
- Climate change influence productivity/livelihood.

Why ACRP ?

- Action on Climate Change in Tanzania by Ministry of Agriculture Food Security and Cooperatives (MAFC)
- Sector response to National Climate Change Strategy of 2013
- Respond to most urgent impact posed by climate variability and CC to crop sub-sector
- Mainstream CC within agriculture policies, strategies, initiatives and plans.
- Building resilience to current crop productivity and future investment.

National Agricultural Sector Climate Change Resilience Plan - The process



Adaptation Planning Framework

ACRP Strategic framework

Vision

To enhance resilience and reduce vulnerability to climate change in agriculture

Mission

To establish efficient and effective mechanisms to address climate change adaptation and mitigation to achieve sustainable agricultural development in Tanzania.

Values

Use the agricultural land and water according to its suitability and conserve it with respect to its needs, ensuring sustainable livelihoods

Objectives of ACRP

To provide Tanzania's crop agriculture sub-sector and stakeholders with a roadmap for meeting the most urgent challenges of climate change.

Specifically:-

- Implement a participatory, risk-based approach to climate actions
- Develop time-bound, prioritized and coasted actions
- Identify entry-points to mainstream climate change adaptation and mitigation
- Strengthen the institutional framework for addressing climate change issues
- Leverage additional financial resources-GoT/bilateral /International sources

Risk Analysis

Risk-based approach

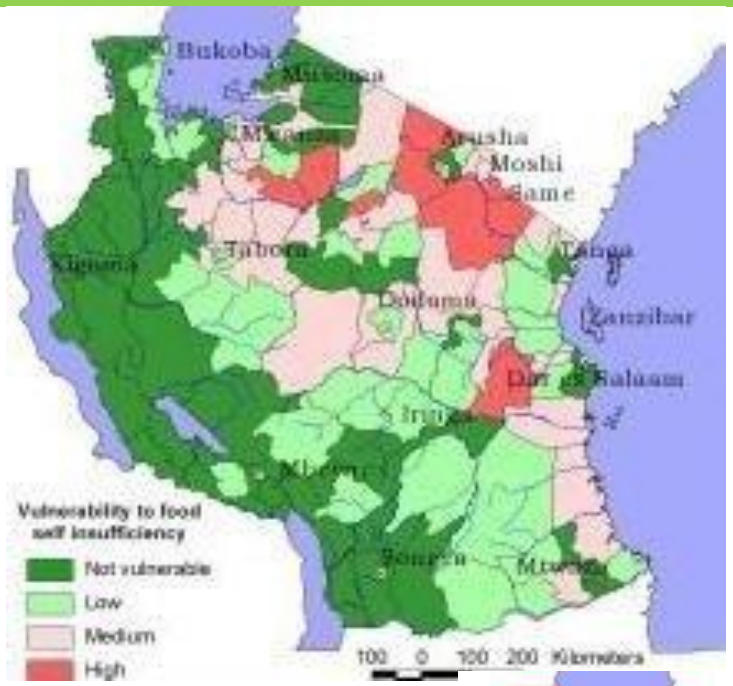
Determine climate trends for:
Temperature
Rainfall
Extreme events

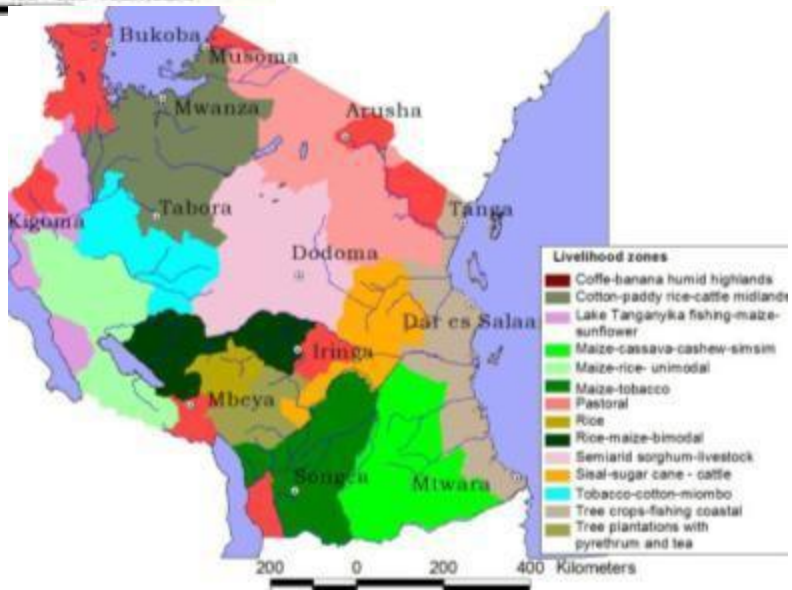
Identify impacts of climate change and severity for:
Low rainfall areas
High rainfall areas
Pests and diseases
Water management
Land management

Priority risks identified:

1. Amplified water stress
2. Decreased crop yields
3. Increased vulnerability of smallholder farmers

Risk & Vulnerability Analysis





Priority Risks

1. Amplified water stress

- **Arise from:-**
  - **Poor management**
  - **Degradation and Competing uses**

Irrigation alone will not be sufficient to adapt to climate change

Adaptation measures for improved water, soil and land management are urgently needed by both smallholders and commercial farms.

2. Decreased crop yields

- Due to:-
  - Temperature rise
  - Decreasing water availability

Adaptation measures should focus on:-

- Boosting productivity of cereal crops
- Building capacity of smallholder farmers to increase yields to the point of "best management practice",
- Research on the impact of temperature rise and rainfall variability on key crops.

3.Increased vulnerability of smallholder farmers

- Major impacts are on livelihoods and food security.

Adaptation measures need to consider:-

- Means of reducing climate shocks to smallholder farmers,
- Promote agricultural practices that boost productivity and safeguard natural resources, and appropriately target vulnerable areas.

Therefore;

- Stakeholder inputs,
- Current climate science
- Analyses of agricultural risks in Tanzania,

Cornerstone for informing and prioritizing actions to build resilience to climate impacts.

Part 2:
Priority resilience actions and key investments

Priority resilience actions and key investments

Action 1
Improve agricultural land and water management

Action 2
Accelerate uptake of climate smart agriculture

Action 4
Strengthen knowledge and systems to target climate action

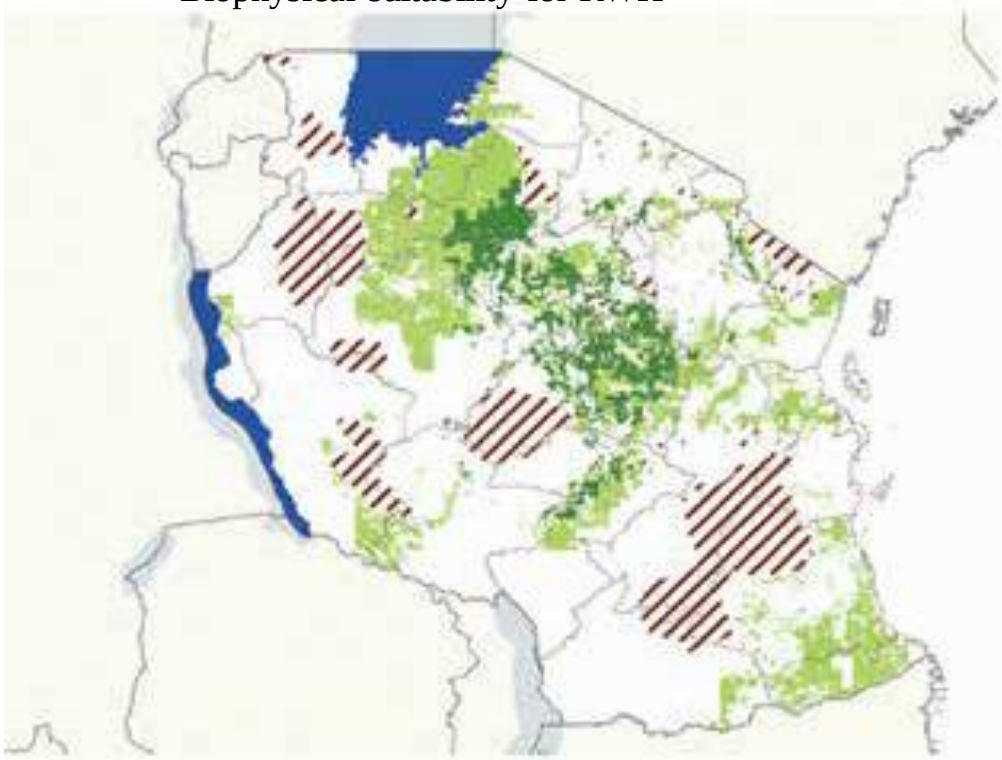
Action 3
Reduce impacts of climate-related shocks through improved risk management

Action 1: Improve Agricultural Land and Water Management

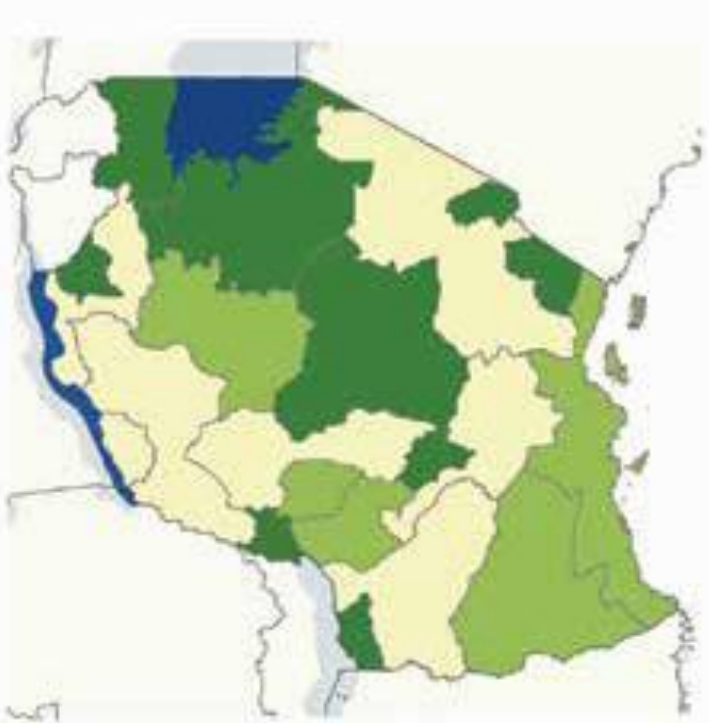
Evidence of RWH as an Adaptation Strategy

Potential for in-situ RWH and corresponding livelihood demand

Biophysical suitability for RWH



Livelihood-based demand



Action 1 Improved Agricultural Water and Land Management

	Water use efficiency and water storage	Catchment management	Land Degradation
Policy	• **Irrigation Plans consider water availability and climate** • **Update Irrigation Master Plan, Environmental Flows Analysis**	• **Inter-sectoral coordination,** • **Fill data gaps on catchment management**	• **Guidelines on soil, land and water management**
Planning	• Cost-benefit analysis of WUE technologies • Map groundwater Potential • SEA for Irrigation Master Plan	• Conservation management up/downstream of irrigation scheme • Stakeholder engage to protect catchments in agric. intense areas	• Capacity of LGAs, NGOs on sustainable land management practices, target communities • Agricultural land management plans at village level
Practices	• Scale up WUE, water harvesting, Water storage investments • Incentives for water management technologies, adoption by smallholders • System of Rice Intensification (SRI)	• Training for Water User Associations on water management and climate • Soil and Water conservation on irrigated and dry-land farms	• Communication strategies, 'champions and case studies' • Agroforestry Technologies • Traditional farming systems, indigenous technologies, and farmer initiatives

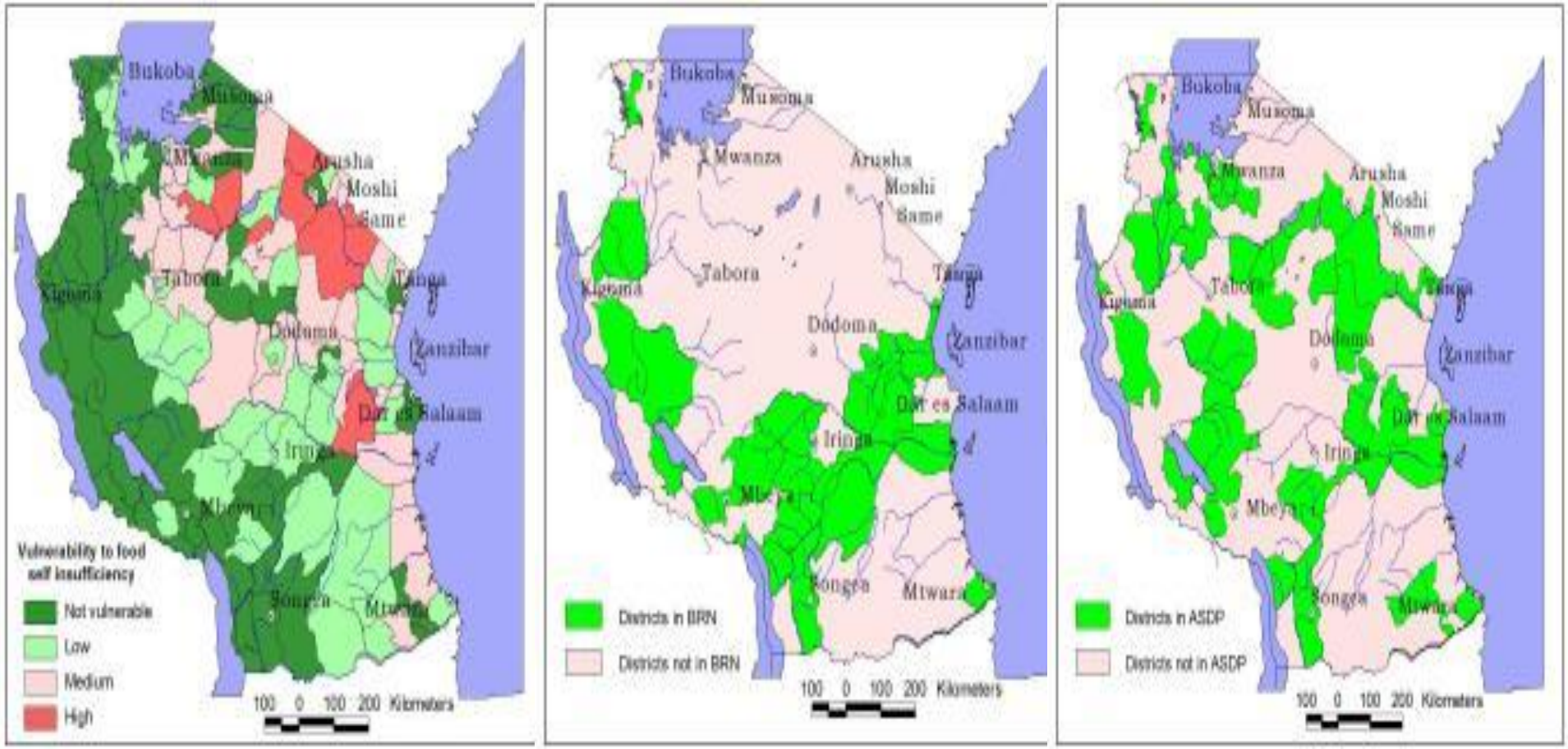
Action 2: Accelerate uptake of Climate Smart Agriculture

Action 2: Accelerate uptake of climate smart agriculture

	Key Investments
Policy	1. **Build evidence base to promote CSA,** cost-benefit analysis, appropriate practices for specific crops and livelihood zones; ascertain 'barriers' to scaling up. 2.**Develop guidelines and policy briefs for CSA** mainstream into agricultural programmes, e.g. ASDP-2. 3.**Emissions baseline for agriculture**, estimate emissions reductions of CSA practices. Apply for mitigation finance from CSA.
Planning	1.**Build District capacity to mainstream CSA planning** train District staff, ARIs, and technicians to understand CSA. Draw from pilots in dryland areas, incl. develop iadaptation finance mechanisms. 2.**Promote CSA in DADPs planning** include resilience in district plans, start with vulnerable districts with productivity potential 3.**Establish MIS for CSA**, once CSA defined indicators to include uptake, DADPs investments, yield changes, land and water conservation, and food security.
Practices	1.**Incentives to offset CSA costs** smallholders, districts, NGOs, and private sector. Based on cost-benefit analysis. Promote CSA & indigenous knowledge. 2.**Increase CSA capacity through training** farmers, extension, district agricultural planners, via ASDP-2, CSA in Farmer Field Schools, champion farmers, review curricula for in-service training of extension/ARI staff. 3. **Demonstrate CSA in the field.** (i) CSA demonstration farm in each agro-ecological zone, (ii) CSA Resource centres at Regional level.

Action 3: Advance Risk Management to reduce the Impact of Climate-Related Shocks

Left: Food insecure districts, 2007-2016.
Center: Districts with planned BRN investments (2013)
Right: Districts with planned ASDP-2 investments (draft)



Data source: MAFC (maps by SUA)

Action 3: Advance risk management to reduce the impact of climate-related shocks

	Key Investments
Policy	1. **TAFSIP disaster management plan,** Program to strengthen early warning systems, emergency response/preparedness, governance and coordination. Lessons from e.g, UNDP's pilot projects scaled up. 2. **Pests & Diseases monitoring and early warning systems (EWS), research links between climate change and pest and diseases**. (i) surveillance and monitoring system on non-outbreak pests, (ii) better quarantine mechanisms to manage pests & diseases, (iii) community knowledge base - using mobile phone (e.g pilot in Bagamoyo).
Planning	1. **Communication of weather and early warning information to farmers**, hydro-meteorological info. between TMA and MAFC, mechanisms to communicate to farmers (i) feedback system on climate info and forecasts from end-users' perspective, (ii) real-time weather stations in risk hotspots (iii) EWS for selected crops (iv) opportunities for private sector in ICT. 2. **Inventory lessons from EWS, DRM, & social safety net projects, scale up successes** to additional vulnerable districts to mitigate impacts of extremes. 3. **Research resilience through post harvest processing and value addition** (PPVA) –guide on projects best suited to agro-ecological zones, food processing technologies that secure food & prevent wastage, guide marketing, engage private sector, potential for sustainability certification, recycle waste products and packaging to transfer nutrients back to farm, capture carbon.
Practices	1. **Value adding industries for farm products** initially food insecure, drought-prone districts – e.g. lessons from ASDP-I, scale up successes. Train in marketing drought-resistant crops. Private sector incentives to establish agro-processing and sustainability certification 2. **Risk management solutions for smallholders,** (i) research crop insurance for smallholders, new instruments e.g title deeds for collateral, identify climate considerations for finance instruments (e.g. longer grace periods), climate impact on insurance risks, engage female farmers, barriers for lending, pilot insurance and financial instruments.

Action 4: Strengthen Knowledge and Systems to target Climate Action

Action 4: Strengthen knowledge and systems to target climate action

	Key Investments
Policy	1. **Climate and Agriculture Research Program.** (i) stocktaking current research (incl. ARIs), (ii) funding mechanism (e.g. grants), (iii) scientific review panel (iv) models for predicting climate change impacts, i.e. shifting agro-ecological zones, analysis rainfall patterns, impacts on crops. 2. **Target adaptation in vulnerable areas**. variables for drought, flood, pests and diseases, and food security & update on annual basis. District profiles with environmental indicators as vulnerability scorecard. Integrate into Information Management System. 3. **Gender and climate change in agriculture**, (i) climate change impacts on women and girls, (ii) guidelines for mainstreaming gender into CCA related policies, (iii) gender-appropriate technologies for water management, climate-smart agriculture, and PPVA (v) increase women's access to financial and productive resources.
Planning	1. **Information Management System for climate and agriculture.** systematic data collection, capacity building for ICT staff, ACRP monitoring framework. Accessible data portal linked with open data initiatives. MAFC climate website portal. 2. **Stakeholder Engagement and Communication Networks**. document end user adaptation needs, a community of practitioners. Tailored messages to vulnerable, food insecure areas in semi-arid districts. 3. **Gender and Agriculture Coordination** between MAFC gender desk, gender committee, and EMU. Mainstream gender in CCA in each stage of programme cycle. Gender committee meet quarterly.
Practices	1. **ICT to disseminate climate and weather information**, (i) e.g. Saba Saba and Nane Nane, (ii) workshops in AEZ's, (iii) e-newsletters, fact sheets, brochures (iv) Media campaign to disseminate benefits of CSA (v) Strengthen IEC in MAFC to understand climate, link with TMA to capture info and disseminate to farmers.

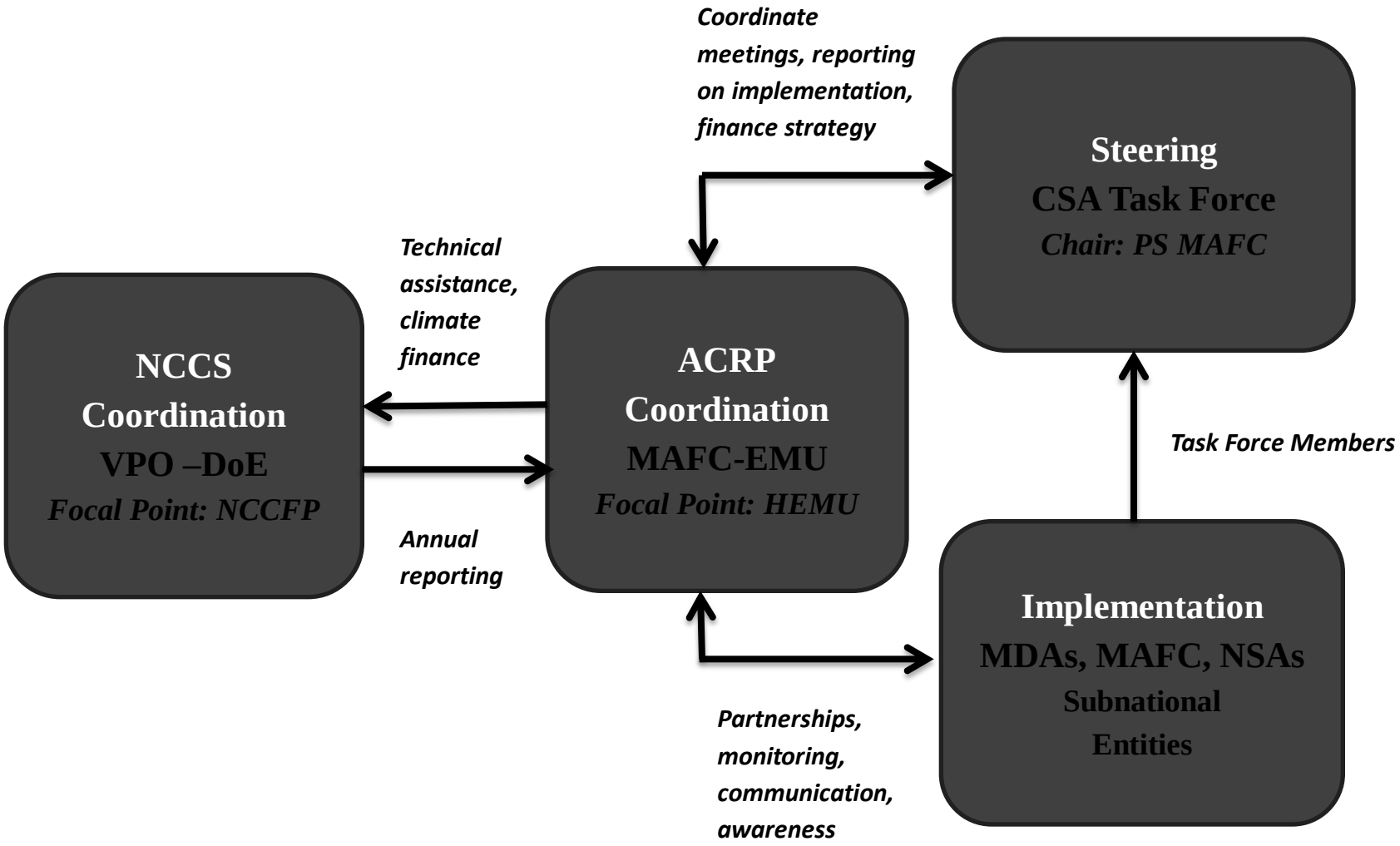



Part 3:
Implementation Strategy

Mechanisms for delivering ACRP

- **An Institutional Framework**, which outlines key stakeholders and roles and responsibilities across the GoT and Non-State actors.
- **A Financing Strategy** to leverage resources for the Action Plan, through mainstreaming in sector operations and identifying sources of new funds.
- **Monitoring and Reporting Procedures** to build evidence of climate change impacts and results of adaptation measures, and track delivery of the Action Plan.
- **First Year Launch**, which outlines next steps for kicking off the ACRP and setting the foundation for implementation in the first year.

An Institutional Framework



Cost Appraisal and Financing Strategy

- ACRP require approx. USD$25 million per year over next 5 years
- The GoT needs to not only secure additional funds for CC in the agriculture sector, but more specifically address climate resilience
- Increase of 22% in climate expenditures over 2012/2013
- 80% expected from outside GoT's own sources

ACRP Total Cost Estimates

Action		Appraisal		Cost (US$)	Funding Source	
		Cost	Priority		GoT	Other
1A	Increase water use efficiency and water storage on irrigated and rain-fed lands	High	High	60,000,000	20%	80%
1B	Improve catchment management in agricultural planning	Low	Medium	3,500,000	20%	80%
1C	Adopt sustainable land and water management in agricultural lands to reduce degradation	Medium	High	12,500,000	45%	55%
2	Accelerate uptake of climate smart agriculture	Low	High	2,000,000	10%	90%
3	Advance risk management to reduce the impact of climate-related shocks	High	High	46,000,000	5%	95%
4	Build Knowledge and Systems to Better Target Climate Action	Low	Medium	2,000,000	25%	75%
			Total	126,000,000	20%	80%

More Funds are needed for CC

- Leveraging external funding sources will be critical to implementation of the ACRP
  - In the agriculture sector from 2010 – 2013, on average, 18% of expenditures were from GoT own sources, and 82% from external finance.
  - Within MAFC alone, the analysis showed an even lower share of climate expenditures at only 7% own source revenues as a percent of the total climate spend in the sector.

Climate Finance is available

- International sources (Global Environment Facility, Adaptation Fund)
- Tanzania Development Partners alone have US$400 million in the pipeline for Climate Change
- United Republic of Tanzania National Climate Fund is planned

Monitoring and Reporting Guideline

- MAFC to establish a simple Climate Change monitoring framework through the following steps:
  - Define and agree on monitoring and reporting procedures
  - Set targets and milestones
  - Define indicators
  - Draft a reporting plan- **Quarterly, Annually, after 5Yrs**

THANK YOU FOR LISTENING