



Republic of Yemen

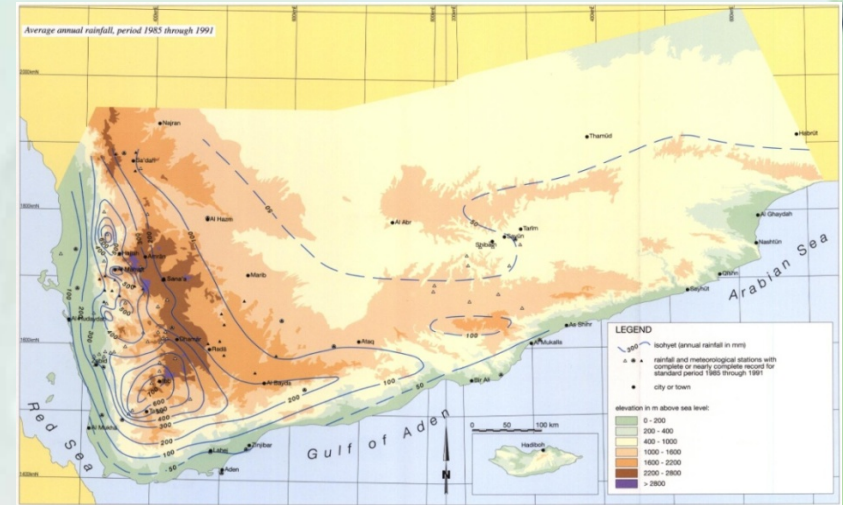
MINISTRY OF AGRICULTURE AND IRRIGATION (MAI)

**AGRO-BIODIVERSITY AND CLIMATE ADAPTATION
PROJECT (ACAP)**

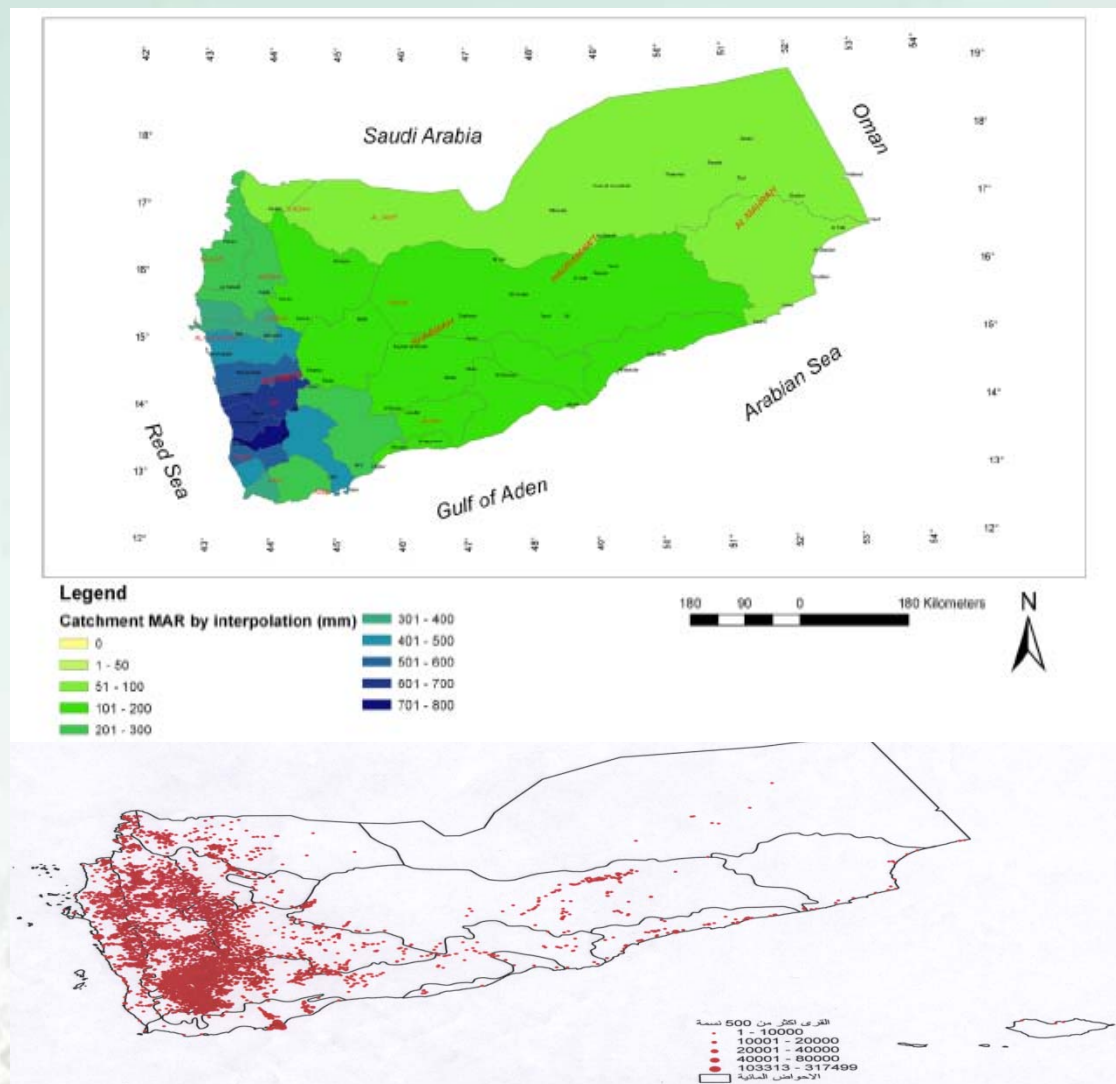
**First learning workshop for
the MENARID portfolio**

Background

- Water scarcity is the main environmental problem in Yemen
- Varied climate and variable annual rainfall (less than 50mm to near 600 mm).
- Groundwater is the main source for domestic uses & for the growing irrigated farming which uses more than 81% of the annual abstraction.



Concentration of population in Yemen versus Rainfall distribution



water resources of Yemen: from scarcity to the crises

- Total Renewable Water Resources: 2,500Mm³
- Total Water Demand: 3,900Mm³
- Deficit (1990): 400Mm³
- Deficit (2010): 1,400Mm³
- Ground water decline level: 1-7m /year
- The annual water share: 115m³ /capita

- The annual water pumping 1,500Mm³
through more than 99,000 groundwater wells
drawn from several Basins

Importance of rain-fed Agriculture areas in Yemen

- More than half of the country's cultivated area is under rainfed and subsistence farming conditions.
- For the nearly 84% of the poor in the rural areas that depend on rainfed agriculture, it is the primary source of livelihood and food security.

Importance of rain-fed Agriculture areas in Yemen

- The agricultural terraces play an important role in social stability and economic development of highlands areas of Yemen.
- The Government of Yemen's Socioeconomic Development Plan for Poverty Reduction (SDPPR 2006-10) identifies increasing the efficiency of rainfed agriculture as one of its strategies to address rural poverty.

Importance of rain-fed Agriculture areas in Yemen

- The agro-biodiversity of the highlands, together with the traditional knowledge of farmers, has been the cornerstone of communities' ability to adapt to changing climatic conditions in the past.
- Several landraces of these crops found today are a result of purposive selection by farmers to meet local soil and climatic conditions.

Importance of rain-fed Agriculture areas in Yemen

- Traditional methods of water harvesting and storage as well as terrace construction and maintenance have immense value in protecting the agro-ecosystems in the highlands against adverse climatic and environmental events.

Challenges in rain-fed area

- Rain-fed agriculture is highly vulnerable to the impacts of Climate Change.
- According to Yemen's National Adaptation Program of Action (**NAPA**), and based on **IPCC** (Intergovernmental Panel for Climate Change) projections, **temperatures** across the country are expected to rise anywhere between **1.4** and **2.8** degrees Celsius by **2050**

Challenges in rain-fed area

- **Precipitation** and **cloud** cover patterns are more uncertain, and rainfall variability is likely to be more pronounced, i.e. it is projected to **decrease** by about **24%** or increase by about **35%**, depending on the global circulation model used to generate the scenarios.

Challenges in rain-fed area

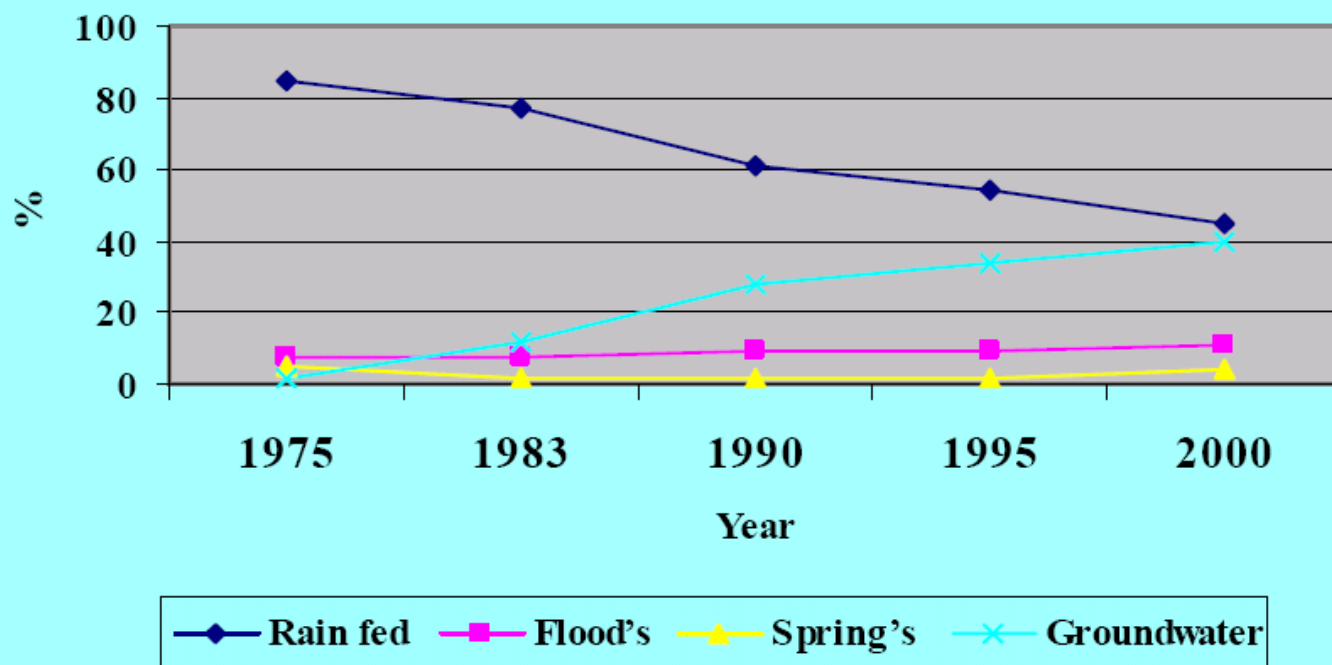
- increased variability in precipitation, which raises the risk of crop failure and loss of livelihoods in a region where the level of poverty is already high and water is a scarce resource.
- One study estimates that **climate change** could lead to a **50% reduction** of **crop yields** for rain-based agricultural crops by **2020**

Challenges in rain-fed area

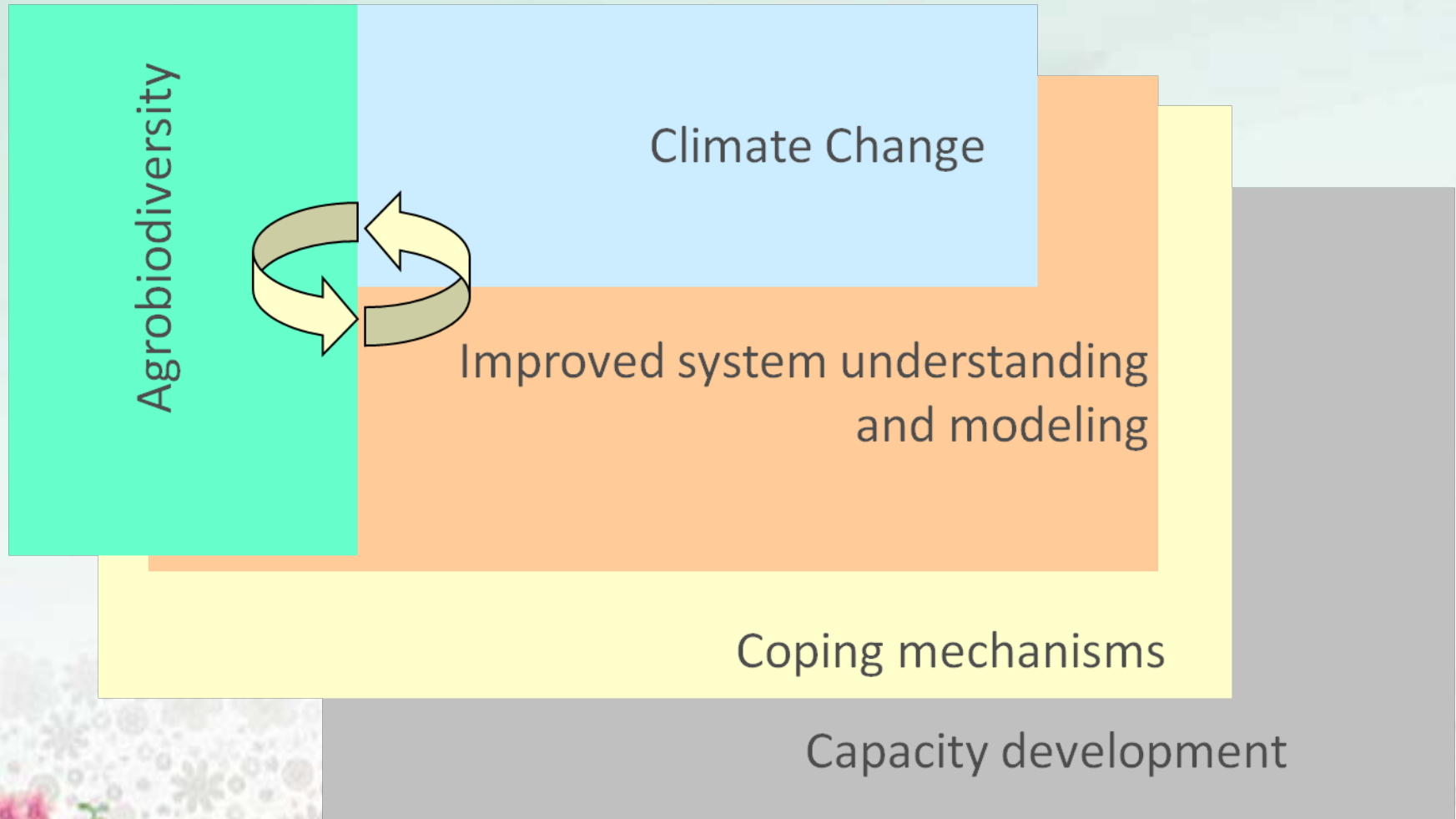
- information on these resources is being lost as some farmers migrate to towns and others adopt modern high-yielding varieties and increasingly depend on irrigation for farming.

Challenges

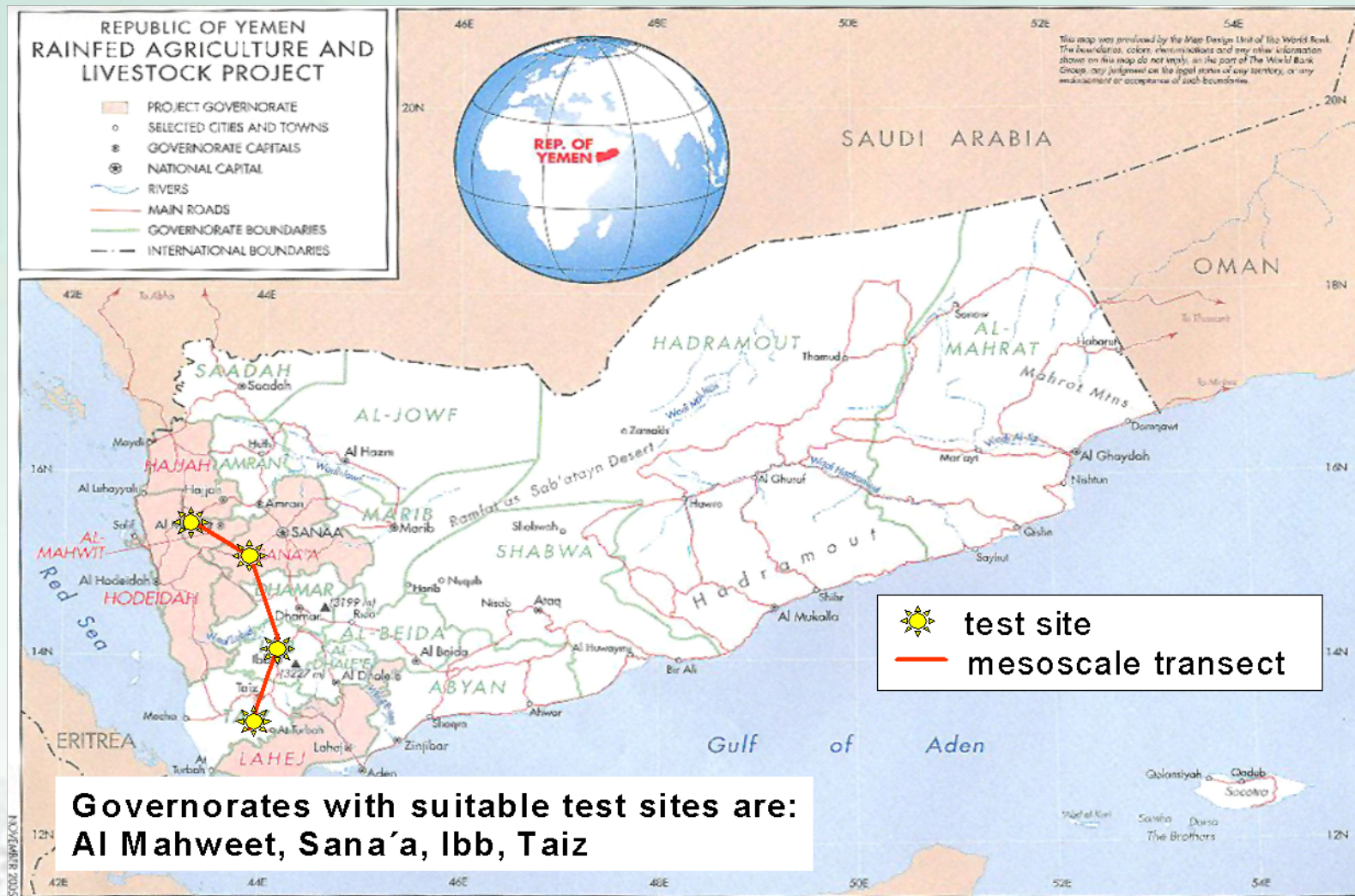
Time Change of Cultivated Areas in Different Farming Systems



Agro-biodiversity and Climate Change Adaptation Project (ACAP)



Project location



ACAP (GEF & JSDFs)

- ACAP-GEF Grant No. TF 096330 US\$ 4.00 million
(closing data **08/31/2014**)
 - PHRD Grant No. TF 090648 US\$ 0.60 million
(dropped, closed date July, **10, 2011**)
 - Piloting Coping Strategies JSDFs Grant US\$ 2.77 million
(closing data **08/30/2013**)
 - Biogas Disaster- An integrated solution for Poverty Alleviation
and Climate Change JSDFs Grant US\$ 2.48 million
(closing data **12/31/2012**)
- Total Project Cost US\$ 9.85 million**

Grants disbursed amounts up to November, 30, 2011 under the project ACAP (GEF&JSDFs)

Grants	Allocation US\$ mill.	Disbursed US\$	Notes
GEF TF 096330	4.00000	163,424	Suspended due to disbursement suspension by the WB*.
JSDFs PHRD Grant No. TF 090648	0.60000	0	(Dropped) New Fund to meet the non extended activities from any WB resources is required.
JSDFs Grant No. TF 098754	2.77570	0	Suspended due to disbursement suspension by the WB*.
JSDFs Grant No. 080674	2.48172	0	Need the World Bank's approval for changing the Implementing Agency to ACAP-PCU. (Request sent by DHL to the Bank)
Total	985,742	163,424	
* The disbursement suspension has since been lifted by the World Bank recently; the above activities will now progress.			

Project Timeline

Negotiations	: March 15, 2010
GEF Council approval	: April 20, 2010
The World Bank Board	: May 27, 2010
Effectiveness	: August 31, 2010
Closing date	: August 31, 2014

Project Objectives

- To enhance capacity and awareness at key national agencies and at local levels to respond to climate variability and change; and,
- To better equip local communities to cope with climate change through conservation and use of agro-biodiversity and traditional knowledge utilization

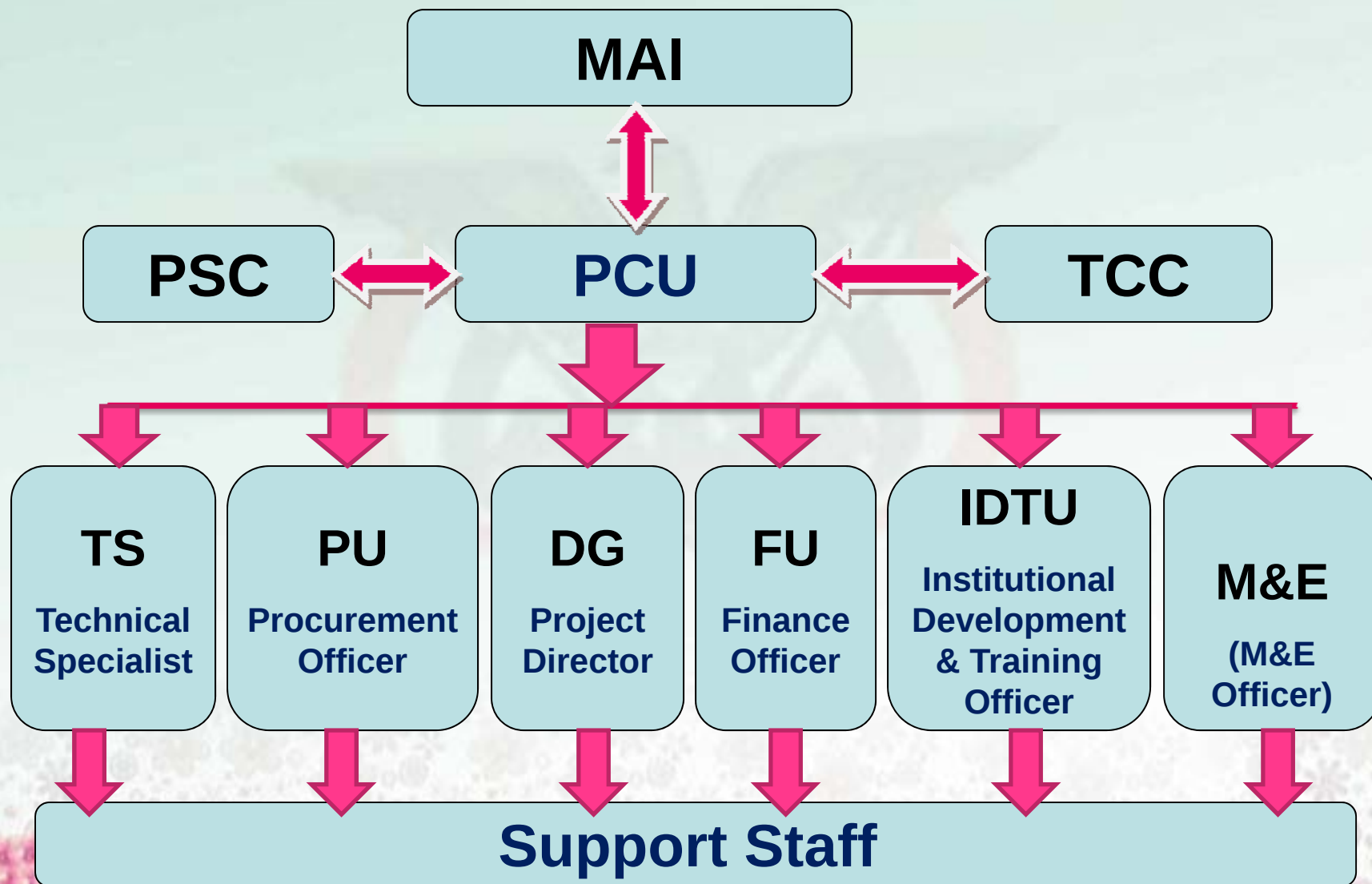
Project outcome

1. Strategy for Climate-Resilient Agriculture for Rainfed Highlands adopted and applied by key national agencies; and
2. Lessons learned from the community pilots are being captured and scaled up.

Implementation Arrangements

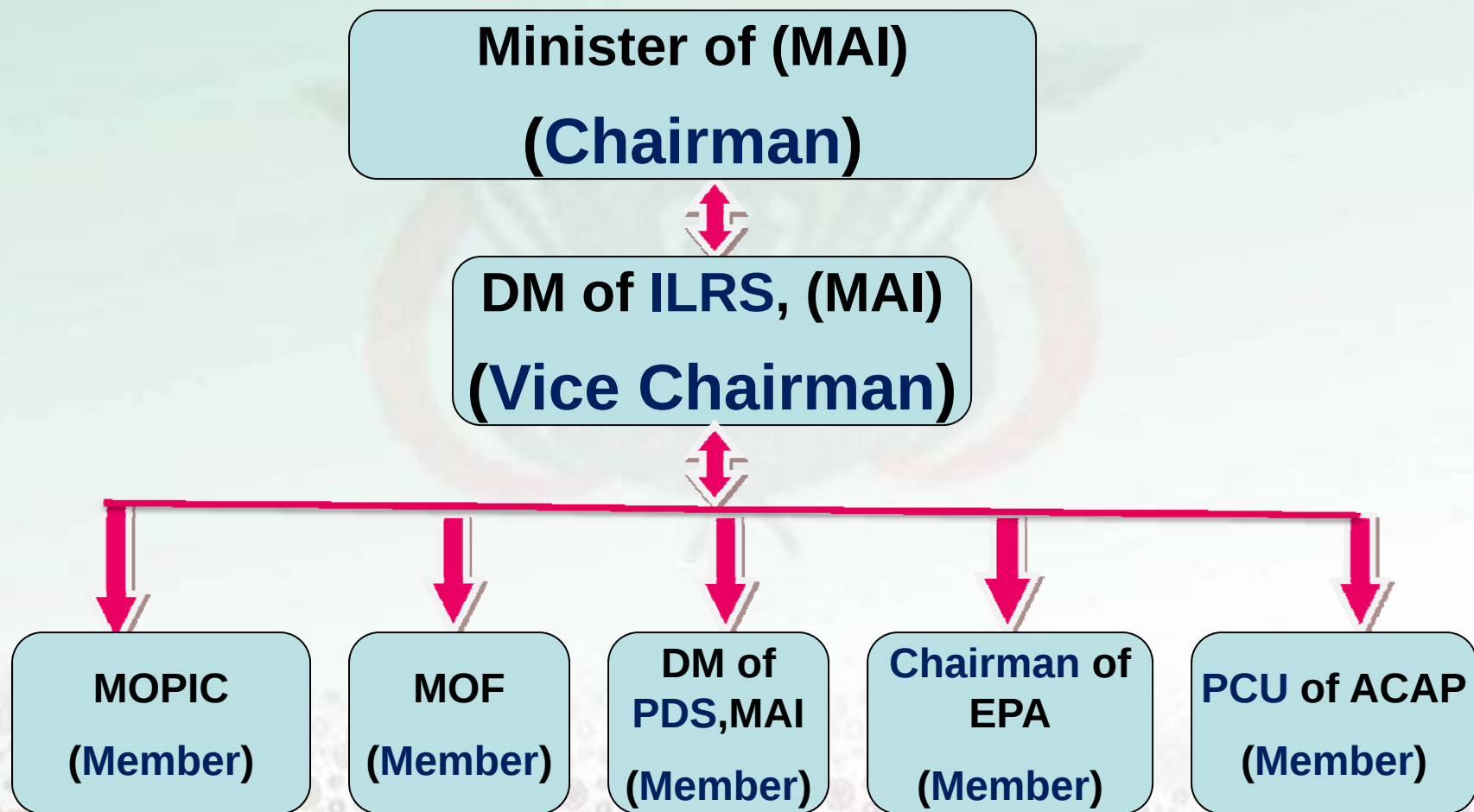
- The ACAP will be implemented over 4 years, with primary coordination provided by the MAI, and day-to-day implementation by the PCU and FUs of the GSCP (4 Governorates).
- At the community level the JSFDS follows closely the approach adopted by the GSCP, where the main focus is to work in partnerships with local formal or informal/traditional institutions. Farmers

Project Management



Implementation Arrangements

Project Steering Committee Structure (PSC)



Implementation Arrangements

Project Steering Committee (PSC)



Project Coordination Unit (PCU)

Project Director

Technical Specialist (NRM/CC)

Finance

Procurement

Institutional Development
& Training Unit (IDT)

M&E



Technical Coordination Committee

PCU

AREA

CAMA

NWRA

MAI

Other agencies as needed

Project Components

- Component 1: **Agro-biodiversity and Traditional Knowledge Utilization**
- Component 2: **Climate Change Modeling and Capacity Building**
- Component 3: **Integrating Climate Change into Rainfed Agriculture**
- Component 4: **Project Coordination and Management**

Challenges in ACAP

- Unfortunately after the Bank has suspended disbursement due to security condition in the country and Diesel shortage, implementation of major activities was suspended.
- The activities to be financed under non extended PHRD (CCIG) Grant were major activities and new sources are being explored to implement these activities.

Project Intervention:

Coping mechanisms

Improving Traditional knowledge on
Water Harvesting , soil conservation

and rehabilitation of degraded

terraces

through

Community participation

Community Participation



1-Water harvesting Terraces rehabilitation



Terrace Rehabilitation



Terrace Rehabilitation



Component 2: NEW WATER STORAGE TANKS



Terrace Rehabilitation



Rehabilitation of Traditional Ponds and Cistern



Component 2: REHABILITATION OF EXISTING WATER STORAGE TANKS



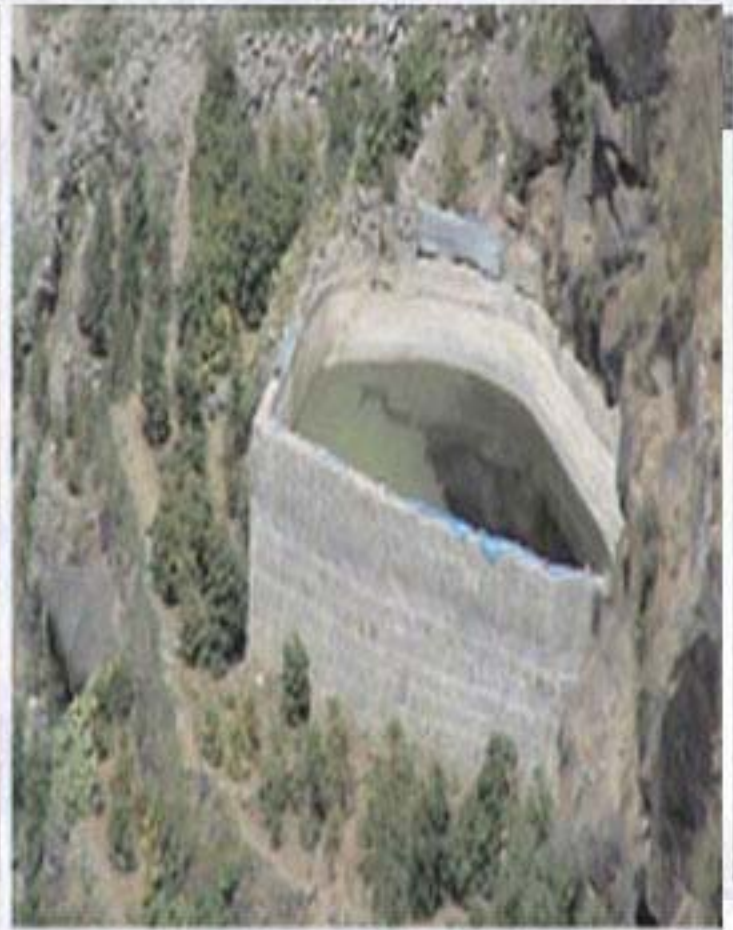
AGRO-BIODIVERSITY AND CLIMATE ADAPTATION PROJECT

Traditional subsurface cisterns through community participation



Source: SFD

NEW WATER STORAGE TANKS



Component 2: REHABILITATION OF EXISTING WATER STORAGE TANKS



REHABILITATION OF EXISTING WATER STORAGE TANKS



TRADITIONAL UNDERGROUND CISTERNS



Component 2: TRADITIONAL UNDERGROUND CISTERNS



NEW WATER STORAGE TANKS



REHABILITATION OF EXISTING WATER STORAGE TANKS



BANK PROTECTION WORKS IN UPLANDS



Sbate Breakers / Check Dykes



Component 2: Spate Improvement Works



Component 2: Spate Improvement Works



Component 2: Terrace Rehabilitation



REHABILITATION OF EXISTING WATER STORAGE TANKS



Component 2: TRADITIONAL UNDERGROUND CISTERNS



Component 2: CANAL CONTROL STRUCTURES



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Thank you

