Food and Agriculture Organization of the United Nations

Climate-smart agriculture application at the Near East and North Africa region focusing on Egypt

MOHAMED ABDEL MONEM

REGIONAL OFFICE FOR THE NEAR EAST AND NORTH AFRICA

FAO

Outline

Food and Agriculture Organization of the United Nations

- Global context
- Projected effect of climate change in Near East and North Africa region.
- Vulnerability of Egypt to Climate Change.
- Climat Smart agriculture approach.
- Possible Climat Smart Agriculture practices in Egypt.
- Final messages

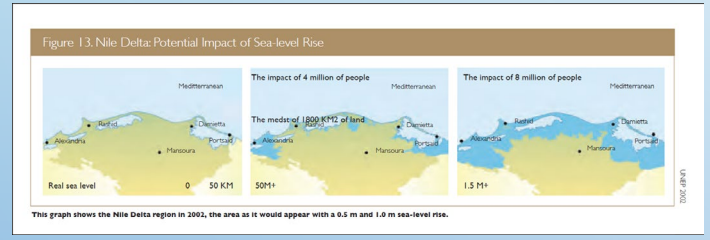
Global context

- **Paris Agreement:** 195 parties to the UNFCCC agreed to limit the increase in global average temperature to below 2°C.
- IPCC 2018 report on 1.5 degree: calls for reviewing the NDCs and increase the ambition of CO2 emission.



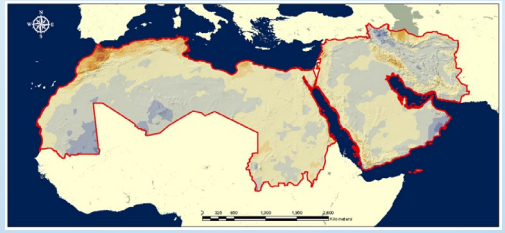
Regional Setting: Impact of climate change

Sea level rise



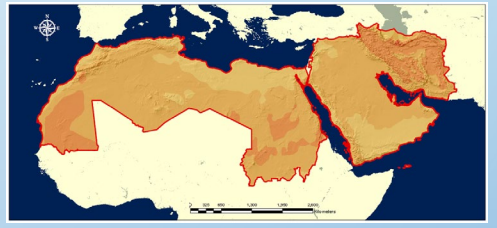
Sea level rise : Nile Delta region in 2002 and as it will appear with 0.5 m sea level rise ….UNEP 2002

Change in precipitation



Precipitation trends are largely decreasing across the region until the end of the century, though limited areas expected to exhibit an increase in the intensity and volume of precipitation

Higher temperature

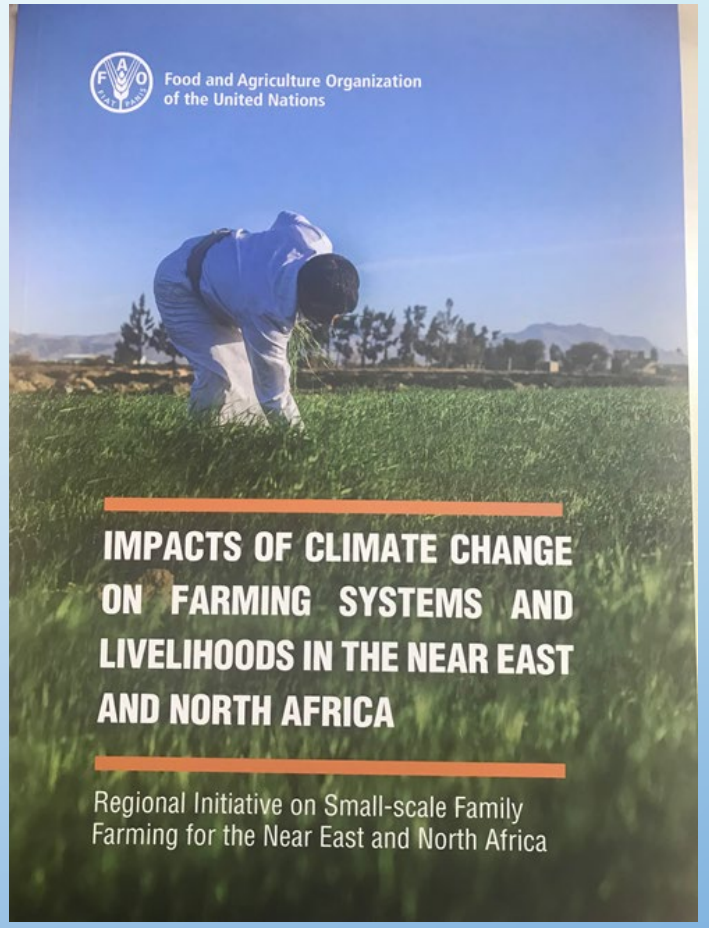


1.2-1.9°C rise by 2046-2065 in a moderate scenario

1.7-2.6°C rise by 2046-2065 in a worst-case scenario

Impact of climate change on farming system and livelihoods in the Near East and North Africa”.

- A study was done by the FAO RNE (2018).
- To determine the implications that climate change will have for small-scale farmers.
- It developed climate impacted farming system maps that demonstrate impact of the projected temperature and precipitation changes on the farming systems of the region by the mid-century (2046–2060) in a moderate and worst-case scenario.
- Hot spot areas for agriculture under a changing climate were identified,



Vulnerability of Egypt to Climate Change

- Egypt contributors 0.63% to the global CO2 emission yet it is one of the countries that are greatly impacted by the climate change.
- Nile Delta accounts for more than 50% of Egypt's economic activity through agriculture, industry and fisheries. It contributes 20% of the Egypt's GDP and account for 30% of the labor force.
- 60% of Egypt's annual fish catch are from three main delta lagoons, Idku, Burullus and Manzalla, separated from the Mediterranean by 0.5- 3km sand belt and dune system.
- Coastal flooding would lead to a decline in water quality in coastal freshwater lagoons and corresponding adverse impacts on fisheries and biodiversity.
- 3.3% of total land area of the Nile Delta will be lost to the sea, including the submersion of approximately 16 km2 of fertile currently cultivated land.

- Climate change impact on the Nile flows including mainly sensitivity to precipitation on the Ethiopian highlands.

Climate change governance in Egypt

- At the institutional level, while framework for climate change adaptation exists in Egypt, local level policies and actions need to be strengthened to ensure effective implementation of adaptation and mitigation effects.

- Egypt's third National Communication on Climate Change (2016) provided a clear analysis of not only the challenges facing the institutional set-up of the climate change management but also opportunities for institutional strengthening.

- Egypt's vision 2030 (2016) , The sustainable agricultural development strategy (2009), and Egypt's national strategy for adaptation to climate change and disaster risk reduction (2011) are important tools in place to address climate change impact.

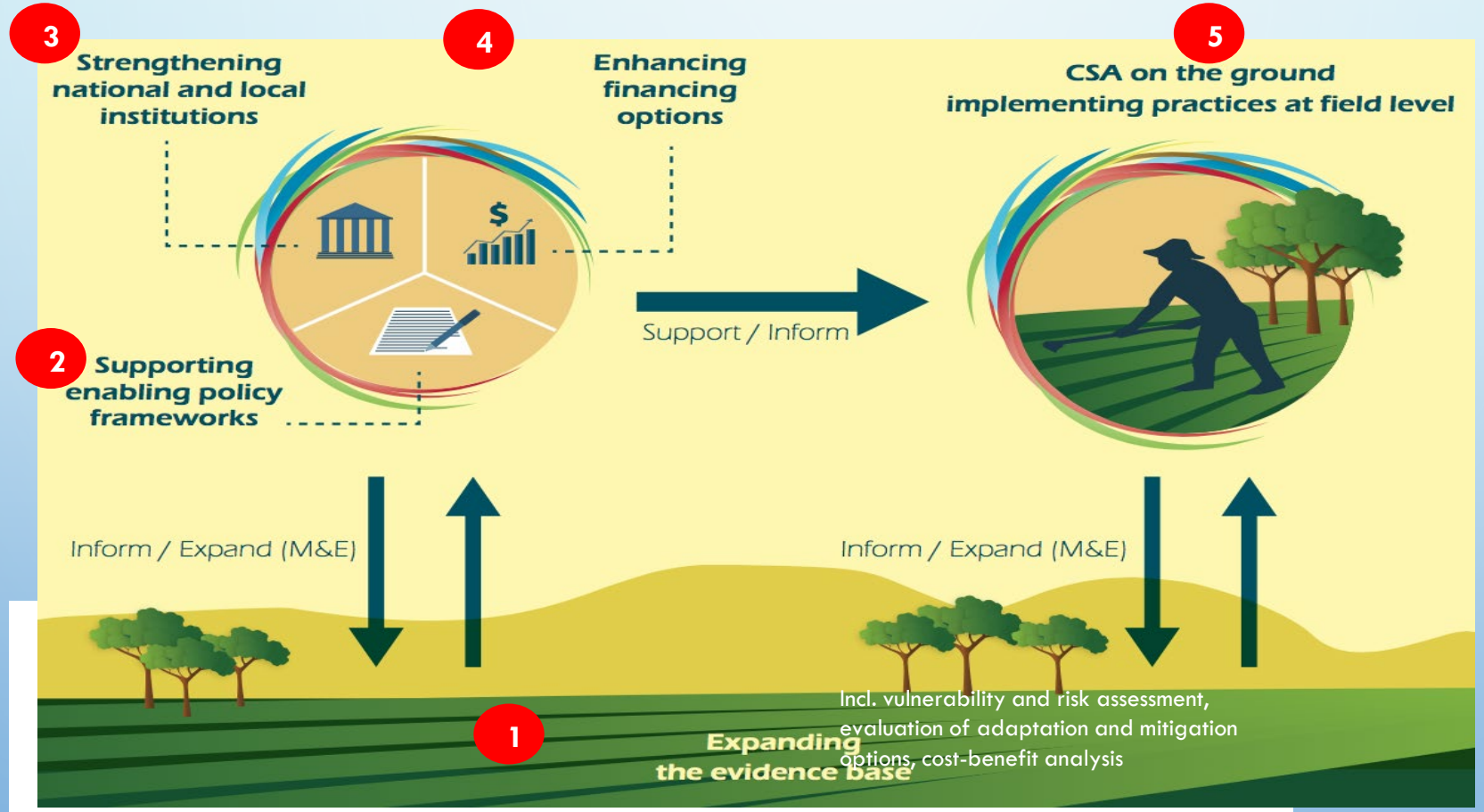
Climate-smart agriculture

- FAO (2010) : "Agricultural that sustainably increases productivity, enhance resilience, reduce/removes GHGs , and enhances achievement of national food security and development goals".

- Practical response to the impact of climate change challenges, CSA is an approach that helps agricultural systems ensure sustainable development and food security in a changing climate.
- Main objectives:
  - ❑ sustainably increasing agricultural productivity and incomes.
  - ❑ Adapting and building resilience to climate change.
  - ❑ Reducing and/or removing greenhouse gas emissions, where possible.

❖ The first regional workshop on climate smart agriculture was organized by FAO/rne in Sudan 2018.

Process to implement the CSA approach



Source: FAO, 2017, Climate-Smart Agriculture Sourcebook – Second Edition

Examples of proposed CSA practices

- Enhance development of new crop verities that are tolerant to drought, heat and disease: utilization of the wealth of drylands plant genetic resources from the gene-bank.
- Development of new short growing crop varieties to reduce their water requirements.
- Soil and water practices to combat salinity: a package for cultivating saline soils that can include introduction of salt-tolerant crop varieties; options for efficient irrigation management system and salt tolerant forage crops – to introduce new livestock system that is not based on traditional crops.
- Expansion of cultivation of crops of economic importance, which can adapt to climate change (e.g. rice), while taking into account the use of new farming systems to adapt to changing expectations in water supply and the gradual replacement of sugar cane by sugar beet.
- Crop-livestock integration packages to cope with climate change.

Final messages

- ✓Climate change is an additional threat to the food security in the Near East and North Africa region.
- ✓Climate change impact differs according to the farming system in the region.
- ✓Agricultural and water sectors in Egypt are extremely vulnerable to climate change. Projected adverse impact on the livelihood and economy of the country is significant.
- ✓Climate smart agriculture principle and practices provide opportunities for climate change adaptation in Egypt.
- ✓Science policy interface is critical in shaping implementation of climate smart agriculture in Egypt.

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THANK YOU

Mohamed.Abdelmonem@fao.org