

Policy Brief 37

From Policy to Implementation: Adaptation to the Impacts of Climate Change on Agriculture in Egypt

Prepared by:

Fatma Barakat
Hagar Salama
Hager Yehia Shalaby
Nahla Taher
Rachad Bani Samari

Under the Supervision of:

Dr. Sherwat Elwan



1. Background

Agriculture in Egypt is highly vulnerable to climate change. Originally, the climate in Egypt is dry, hot, and desertic, with low precipitation. However, climate change-induced temperature fluctuations, acute heat waves, desertification, and droughts have harshened the already difficult climatic conditions. In 2021, the yields of several key crops, such as mangoes and olives, decreased by 40% and 80%, respectively, due to climate change (Enterprise, 2021). As shown in the chart below, reductions in crop yield are expected to decrease significantly by 2050.

Confronted with devastated farms, increasing cost of food, and hunger, adapting to the impacts of climate change on agriculture has become one of the most pressing policy issues for the government. As the crisis intensifies, it is set to trigger severe economic disruptions to the Egyptian economy, affecting poverty, and increasing inequality, with a financial cost of USD 55.3 billion from 2020 to 2050 (Perez et al., 2021). The context poses a complex policy context: How can we sustain agricultural productivity and food security amidst a changing climate?

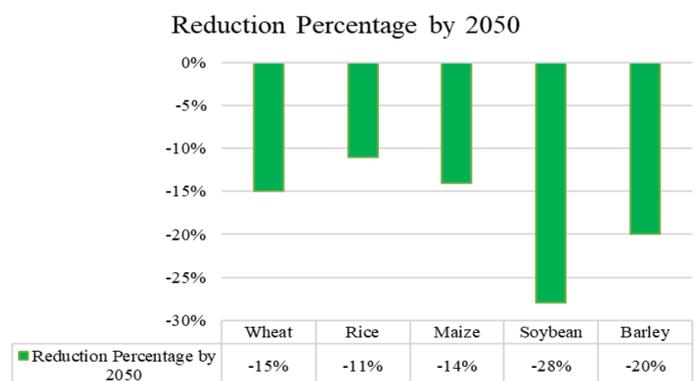


Figure 1. Project reduction of crop yield by 2050 according to the type of crop.

Source: Egypt Human Development Report (2021) - Graph by Authors

2. The Problem: Addressing the Policy to Implementation Gap

The Egyptian government adopted policies, strategies, and laws over the years to enhance adaptation to climate change in agriculture. However, farmers are still witnessing a “climate carnage” as adaptation policies have yielded limited results on the ground.

Egypt’s main adaptation challenge is neither science nor planning-based, but that of effective implementation. While strategies are available, their implementation has been the main challenge. **Thus, this paper will address the strategies implementation gap by providing policy interventions to enable the government to effectively and efficiently operationalize its adaptation plans in agriculture.**

3. Why Address the Problem?

By addressing how to implement its decade-long strategies, Egypt can achieve several outcomes that address key economic, social, and environmental challenges to meet current and future needs and ensure long-term sustainability. The main outcomes of enhancing climate change adaptation in agriculture are highlighted in Figure 2.

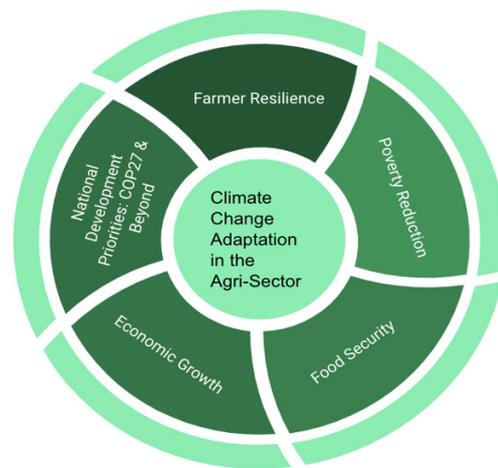


Figure 2. Associated Outcomes of Climate Change Adaptation in Agriculture (Source: Authors)

4. Who are the Involved Actors?

Adapting to the impacts of climate change on agriculture involves a wide array of stakeholders who play diverse roles in policy formulation, adoption, and implementation. These actors can also influence policy outcomes based on their influence (power), interest, and level of support.

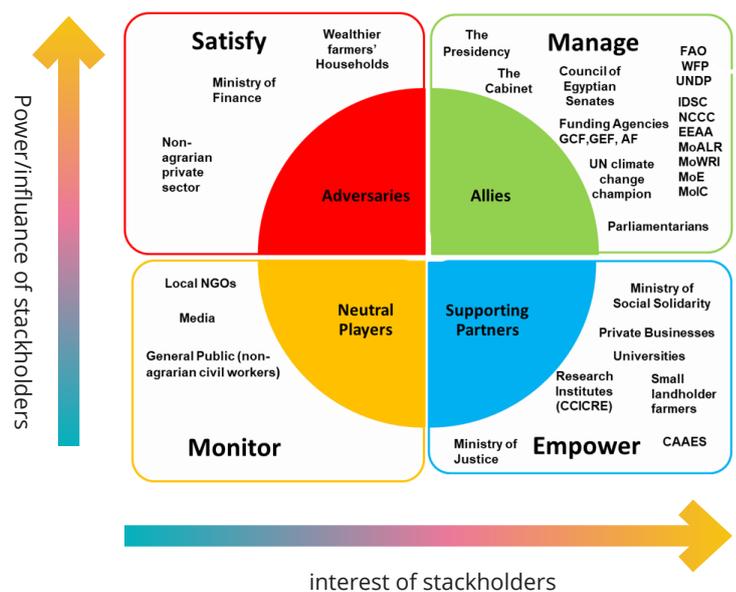


Figure 3. Key Stakeholders Analysis on “Power-Interest” Matrix (Source: Authors, based on literature review and meetings with diverse stakeholders).

5. Policy paper conceptual framework

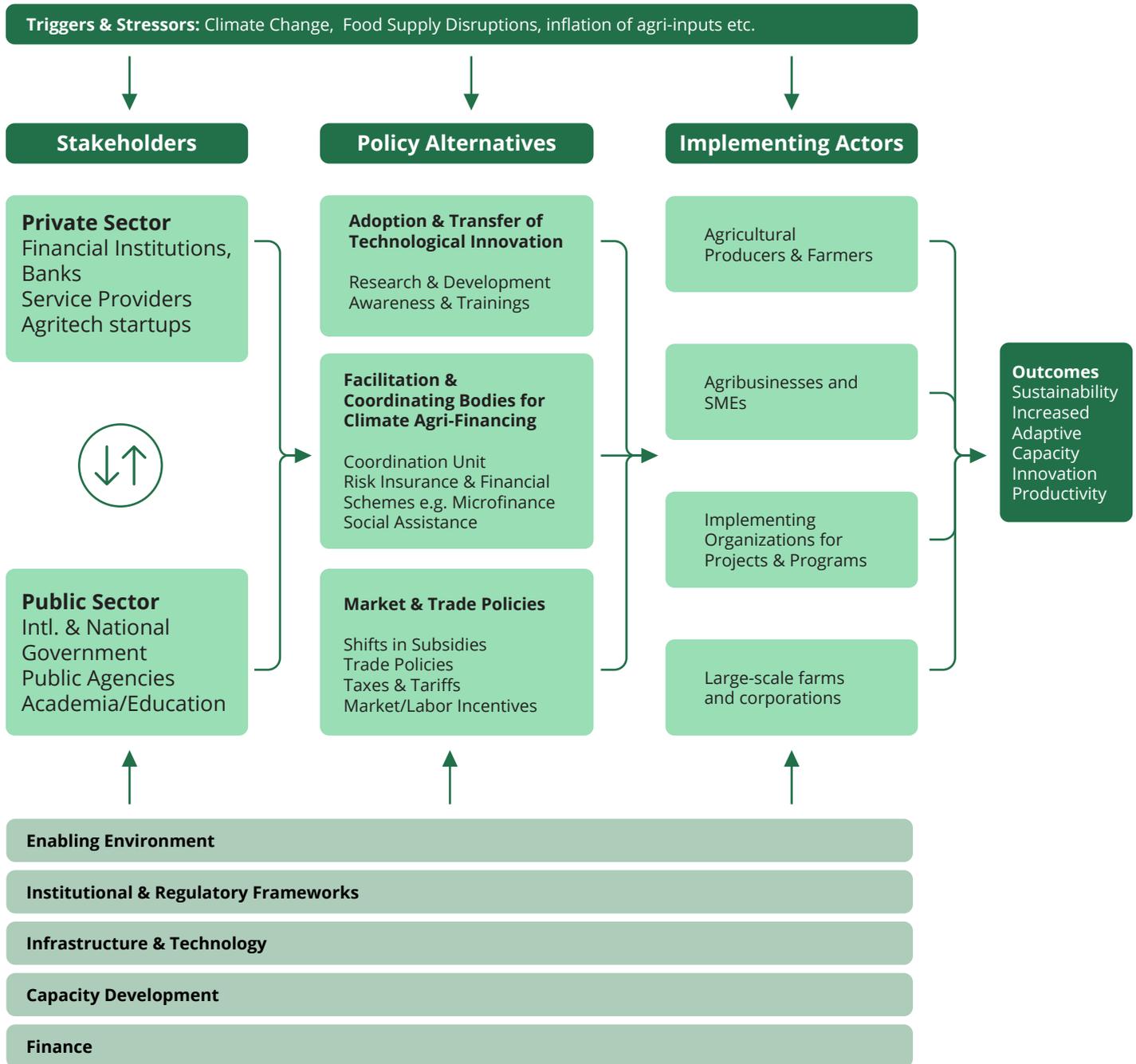


Figure 4. Proposed Conceptual Framework to Bridge Policy Implementation Gap for Agricultural Adaptation to Climate Change.
(Source: Authors).

6. Policy Alternatives

1. Promote the Adoption and Transfer of Sustainable, Climate-Adaptive Agricultural Innovation Technologies (Farmer-centric approach).

- Transferring and adopting technological advances in the agricultural sector, using sustainable agricultural practices and technologies that can adapt to climatic changes while delivering co-benefits for low carbon transition and the environment.
- These solutions include enhancing technology transfer, access to data, and early warning systems to support sustainable water, land, soil, and crop management and deliver climate-adaptive agricultural transformation.
- **Proposed Action:** Building action-oriented partnership - The Ministry of International Cooperation and the Ministry of Environment set up and operationalize a technology transfer, capacity building, and knowledge exchange framework on Climate Change Adaptation and Early Warning Systems (EWS) in agriculture under partnerships such as the Egypt - EU Cooperation on Climate Energy and Green Transition.

2. The Specialized Climate Finance and Resource Mobilization Unit that can enhance access to comprehensive climate financing mechanisms for adaptation in the agricultural sector (Responsible Finance).

- Supporting responsible financing mechanisms to address the financing and funding gaps for adaptation in the agricultural sector at the national and farmer levels and coordinate national funding mechanisms with relevant institutions, including agricultural banks.
- These mechanisms should include support at the national level through financing agricultural development adaptation projects and support to SMEs, cooperatives, and individual smallholder farmer levels, including agricultural climate risk insurance, agribusiness support, financing schemes for adopting climate-smart technologies, and climate-adaptive social safety nets.
- **Proposed Action:** Create a climate financing, and resource mobilization unit within the Ministry of Environment specialized in adaptation finance for agriculture.

3. Adopt economic policies, including market structure options, trade policies, and management of losses across the agricultural value chains.

- Promoting market and trade policies that aim to reform agricultural development and incentivize the agricultural sector to shift towards the production of climate-resilient and sustainable crops that are optimal in terms of value, water, resource efficiency, and climate tolerance while meeting local needs.
- These tools include trade policies, taxes and tariffs, market incentives, and shifts in subsidies.
- **Proposed Action:** Promote local production of drought-tolerant and high-value crops, promote import of water-intensive, climate-vulnerable crops, support local market linkages and value chain support, reduce trade barriers, and reduce post-harvest agricultural losses and food waste, particularly focusing on climate-related impacts.

Preferred policy Intervention: The most suitable policy alternative that can address the dilemma of bridging the implementation gap between adaptation strategies and the reality on the ground and ensure effectiveness, and efficiency, while guaranteeing an economic return for the country is **Policy Option (2): Create a specialized climate finance and resource mobilization unit under the Ministry of Environment** that can enhance access to climate financing for adaptation in the agricultural sector. This unit will enhance the effectiveness of advocacy and climate finance proposals and coordinate national climate finance initiatives in agriculture for more impact. Financing mechanisms will enhance the inclusiveness and reach of climate finance to a wider range of stakeholders.

7. How to Implement the Policy?

The preferred policy alternative consists of the creation of a national coordination & resource mobilization unit that would serve functions related to advocacy, finance mobilization, technical support, and coordination from financing to delivery, as demonstrated in figure 5:

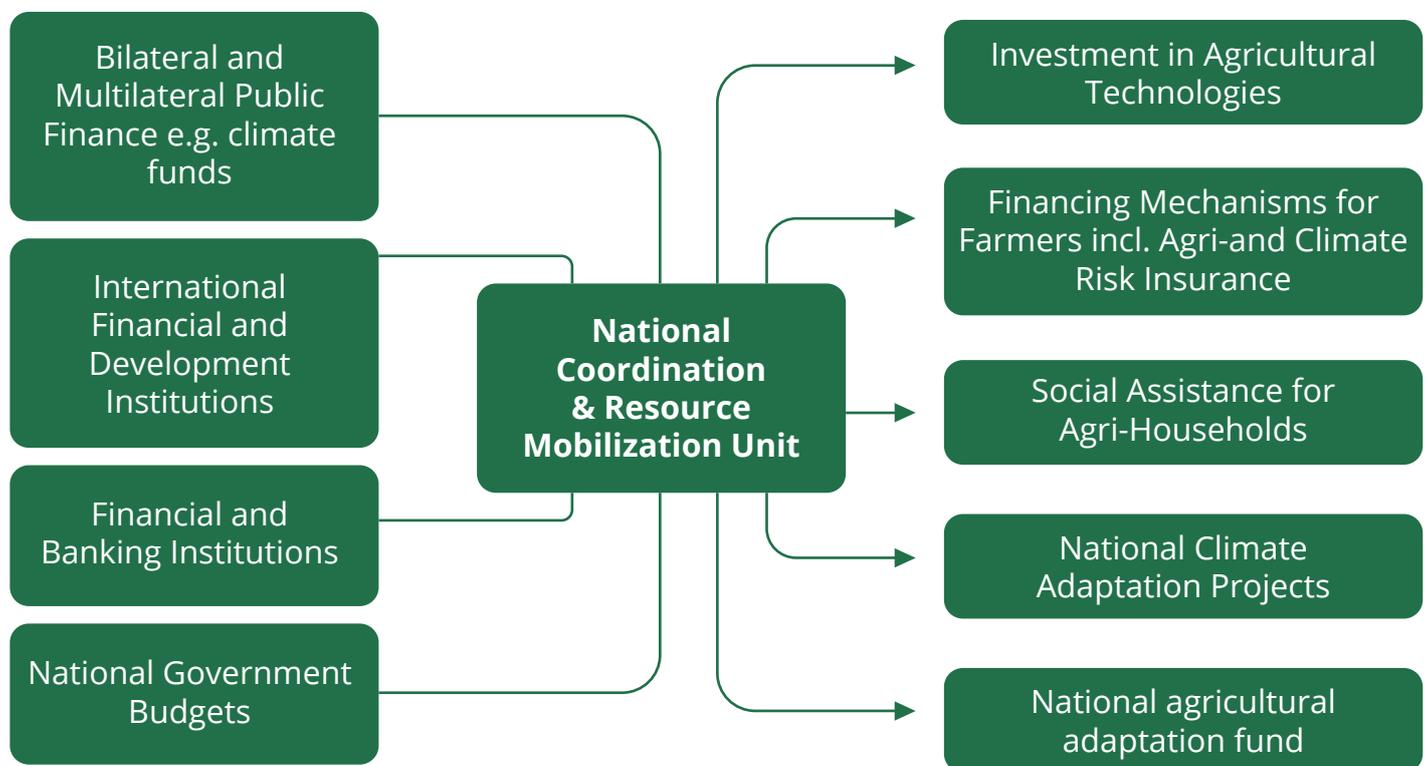
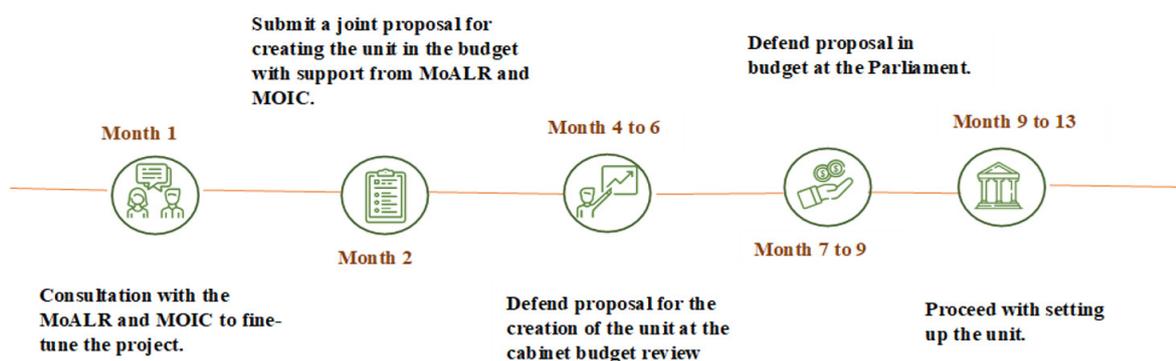


Figure 5: Climate Finance Flows and Mechanisms through a National Coordination Unit
(Source: Authors).

To set up this unit, an implementation plan is proposed with key action points and a suggested timeline:



8. Key Recommendations

Along with the key action points, several recommendations are proposed to the Ministry of Environment to support an integrated and comprehensive approach to enhancing responsible financing coordination and mechanisms:

- Adopt an integrated, multi-stakeholder, and multi-sectoral approach to climate change adaptation efforts in agriculture in Egypt.
- Consider the economic, social, and environmental dimensions and integrate policy and financing efforts that address the multi-level barriers and challenges to climate change adaptation from the national level to community, and farmer levels.
- Actively engage the private sector through private-public partnerships (PPP)s, including agricultural, technology, and financial service providers, academia, research institutions, and other industries to improve the efficient implementation of strategies.
- Promote a joint action in agriculture that builds on the momentum of the successful national coordination and designation of climate focal points across national institutions ahead of COP27. Similarly, the designation of agriculture-specific focal points across relevant institutions could serve as an opportunity to further support national coordination.
- Adopt a farmer-centered, participatory approach: Involve farmers in the implementation of adaptation strategies and encourage indigenous knowledge sharing to further localize adaptation efforts.
- Target the most vulnerable: In implementing the recommended policy intervention, the Ministry of Environment should primarily respond to the needs and enhance the adaptive capacity of farmers affected by climate impacts, particularly smallholders, women, and youth.
- With ongoing efforts in agricultural development, there is a major priority to integrate climate change adaptation strategies into the long-term development priorities and implementation of ongoing national-level agriculture mega-projects, as well as infrastructure development, to ensure their long-term sustainability.
- Stakeholders, including the proposed coordination unit, may map existing and future investments in national projects and initiatives, focusing on agricultural and rural development, and establish opportunities to leverage existing financial investments.

«All the academic references used in this brief are mentioned in the policy paper.»

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