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Climate Risks And The Changing Landscape of Food Security In The Arab Region

Improving Capacities to Address Food Security Issues Through An Integrated Approach of Disaster Risk Reduction

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Though a lot of efforts and progress have been achieved in disaster preparedness to strengthen the capacity of communities to withstand, respond to and recover from hazards, many other risk factors have not yet received proper attention.

Demand-side factors (rising population, changing consumption patterns due to higher income and climate change) keep on increasing in a disproportionate way of the supply–side factors (natural resources: water and land).

MENA region is the most water scarce and food import–dependent region in the world. It is projected to be a mirror of this situation: It is predicted that dry areas will become drier and droughts will become more severe and frequent; rainfall patterns will become more volatile and unreliable; sea levels will rise; and the occurrence of extreme events, such as frosts and flash floods, will increase. Leading to alarming 25% decline of precipitation and 25% increase in evaporation rates, and 20% decrease in crop yields.

The increased water scarcity combined with greater climate variability will threaten food production, limits economic development and human health and well being, increasing food insecurity and vulnerability.
How can we set in motion a capacities development initiative that increases resilience towards food security and climate change adaptation?
We are all aware of the Capacity cycle diagram... Yet its implementation has failed to:

- Reach the inclusion and coordination of as many stakeholders as possible.
- Implement accurate assessments of climate-related risks to assess the cost-effectiveness of different risk reduction and management strategies, in order to optimize funding and development planning.
- Place more emphasis on bottom-up approaches.
- To coordinate the intersecting nature of the DRR and CC initiatives.

1. They are from different origins but overlap each other.
2. CC magnifies disaster risks severity.
3. CC and DRR are not sectors in themselves and can only be implemented through the policies of other sectors.
A comprehensive capacity needs assessment for the human and institutional situation to assess the capacity gaps in both knowledge and skills in the targeted activity (CA).

Ability to motivate and mobilize stakeholders, build harmony, create partnerships and networks, Coordination with different stakeholders, plan and manage large group processes, maximize and manage diversity, etc.

capacity building: include the social aspect of technical exchange in any training and practice on the field.

Using problem solving approach.

DRR INTEGRATED APPROACH ACROSS CAPACITIES DEVELOPMENT METHODOLOGIES

Bottom up approach: include the individuals, communities and local government as part of the solution.
Using problem solving approach (PSA) to understand through dialogues with targeted farmers:

- Their visions about existing agriculture,
- The problems they face and their ideas about possible alternative farming system(s);
- Evaluating and selecting alternatives (SWOT);
- Implementing applicable solutions.

Farmers taking part in discussion of their own practices and conceptions.
- Social organizations within and between stakeholders.
- Social positions within the same group.
- Types of relation between farmers, extension workers and private sectors.
- Building systematic instead of sectorial visions (Farmers, extension workers …etc.).
Policy and Management Options

Supply enhancement
(Increased access to conventional water resources, re-use of drainage water and wastewater, desalination, and pollution control).

Demand management
(Reduce water losses; Increase water productivity; and Water re-allocation between sectors.)

In this presentation we will focus on Demand management, through the adoption of Conservation Agriculture (CA) practices. CA is a broad umbrella term for all practices that conserve soil quality and enhance water productivity.
Factors limiting yields in rainfed agriculture in the targeted areas:

- Soil degradation, due to rapid depletion of soil organic matter, low soil fertility, wind and water erosion, compaction of the subsoil layers, crusting, hard pan formation (Frequent intensive tillage),
- Water scarcity (Severe and frequent drought cycles),
- Increased prices of fuel, agricultural inputs and food products,
- Farmers can’t access research, extension services and capacity building.
- Extension concepts are still traditional and not innovative,
- 38.30% of poor work in agriculture.
Capacity needs assessment implemented by cross sectoral stakeholders: European research institutes (UdL, IRC), ACSAD, ACF, Ministry of Agriculture Extension Services Department, the farmers and representatives of their communities and local government.

Coordination and decision-making among cross sectoral institutions and levels related to agriculture, water, technology, private sector, civil society, communities and the government.
Integrated capacity building through:

- **Training of Trainers (Extension workers) on CA techniques, principles, weed and crop residue management, CC adaptation tools, to get the beneficial consequences of CA (Yield increase, improvement of livelihoods and food security).**
- **Using PSA to achieve the Social Aspect of technical change within the communities.**
- **Training of farmers on what is CA, the necessary skills, the required technology, to improve productivity, reduce costs and improve food security, as a model to become more resilient when facing a disaster risk (Drought and heat waves).**
- **Integration of gender wherever possible.**

- **Creation of a technological innovation** – a local build up of a machine direct drill.
- **Involvement of the private sector and the local manpower to build the machinery and be trained on it.**
Almost 30% increase in crop yield under CA

Average of 40% fuel economy under CA
In general, Integrated DRR capacity building helped ACF and ACSAD in achieving their goal by:

- Equipping farmers with the principles and knowledge on CA as a sustainable, profitable and productive way of farming.

- Provide stakeholders and partners with practical knowledge and skills in the application of CA practices for different socio-economic and agro-ecological environments and improve their capacity to cope with the drought cycles.

- Provide stakeholders with approaches and methodologies for wide scale adoption of CA to increase the resilience of the cropping systems to CC and achieve FS.
Once farmers try conservation tillage, almost none revert to conventional tillage.