



Food and Agriculture  
Organization of the  
United Nations

## Regional Initiative on Water Scarcity for the Near East and North Africa (WSI)

Regional  
Initiative

on

Water  
Scarcity





## **FAO's new strategic framework**

Starting in 2012, the FAO went through a Strategic Thinking Process to elaborate, from the global trends, the conditions under which agricultural development is foreseen to take place. The FAO's core functions and comparative advantages of being a knowledge-based agricultural agency are shaping the mechanisms through which these challenges are tackled.

As a result of this process, a transformational change is expected to take place, to shape the role of the FAO in assisting the beneficiary countries in order to enhance delivery and impact of the various FAO programmes under the aegis of its mandate. These programmes are committed to reflect regional priorities, through precise Results-Based Approach. During this process, various strategies and guiding principles have been developed for improved collaboration within the UN system, with non-governmental and civil society organizations, and with the private sector. Furthermore, major changes have been introduced in order to enhance the ability of the FAO's Decentralized Offices to deliver activities. These changes have led to an improved process of regional prioritization and an enhanced ability to respond to regional priorities in a more effective and timely manner.

As part of the process of formulating the FAO's New Strategic Framework, the three main goals of the Organization were revised and five strategic objectives were developed.

### **3 main goals**

- the eradication of hunger, food insecurity and malnutrition
- the elimination of poverty and the driving forward of economic and social progress for all
- the sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations

## 5 Strategic Objectives



### Strategic Objective 1:

Help eliminate hunger, food insecurity and malnutrition



### Strategic Objective 2:

Make agriculture, forestry and fisheries more productive and sustainable



### Strategic Objective 3:

Reduce rural poverty



### Strategic Objective 4:

Enable inclusive and efficient agricultural and food systems



### Strategic Objective 5:

Increase the resilience of livelihoods to threats and crises

## Working modalities

The FAO creates and shares significant information about food, agriculture and natural resources in the form of global public goods, making sure that this is not a one-way flow. The FAO also plays a 'connector role' through identifying and engaging with various partners, and facilitating a dialogue between those who have the knowledge and those needing it. By turning knowledge into action, the FAO fosters a mutually-reinforcing cycle between the field and national, regional and global initiatives. By joining forces, the FAO facilitates partnerships for food and nutrition security, agriculture and rural development between governments, development partners, civil society and the private sector.

An innovative modality has been the establishment of the 'regional initiatives' as a mechanism to provide 'focus' on the regional priorities leveraging on a set of key approaches, listed in the following box.

## Key approaches

- Putting information within reach and supporting the transition to sustainable agriculture
- Strengthening political will and sharing policy expertise
- Bolstering public-private collaboration to improve smallholder agriculture
- Bringing knowledge to the field
- Supporting countries to prevent and mitigate risks

## The FAO's competitive advantage as 'implementing agency'

- The FAO is a global knowledge organization that is specialized in providing policy assistance and technical cooperation to its Member Countries. Partnering with the FAO offers access to best practices and lessons learned from projects in the field conducted both by the Organization and by others
- The FAO has a dedicated multi-disciplinary workforce able to provide technical assistance in a large variety of technical disciplines in support of project implementation to ensure world-class technical standards
- The FAO's technical expertise and administrative support capacity are strategically deployed both in its headquarters and throughout its entire decentralized network of offices at regional, sub-regional and country level

# FAO Regional Office for the Near East and North Africa (NENA)

## Six Regional Priorities

During the 2012 FAO Regional Conference for the Near East, the following priorities were identified:

- Enhancing food security and nutrition and strengthening capacity to address vulnerability
- Protecting and managing scarce and fragile natural resources and adapting to climate change
- Fostering sustainable and inclusive agricultural production
- Enhancing livelihoods of rural people, smallholders and vulnerable populations
- Developing efficient, sustainable and competitive food systems and reducing food losses and waste
- Increasing resilience of livelihood systems of communities and ecosystems to threats and crises

Besides the regional priority areas, three main cross-cutting themes have also been identified to further support the actions that will lead to the achievement of regional goals. They are: i) knowledge generation and sharing; ii) gender equity; and iii) regional cooperation.

## Three Regional Initiatives

Three *Regional Initiatives* have been formulated in the NENA region. They reflect the priorities expressed by the Member Countries and are based on the principles of country ownership, participation and partnership. They focus on innovations and enhanced collaboration between the countries of the region. They emphasize the need for multidisciplinary approaches to addressing problems, both with Member Countries and with regional and international partners. Regional initiatives rely on *Delivery Teams* that include professionals at both the decentralized offices and at headquarters.

- Building Resilience for Enhanced Food Security and Nutrition

This Regional Initiative aims at supporting countries of the region in their efforts to achieve their goals in food security and nutrition while being exposed to challenges of acute vulnerabilities, shocks and stresses. Priorities of individual countries in the region reflect a shared need for building resilience not only to cope with these vulnerabilities, shocks and stresses but also to tap in to opportunities for strengthening long term capabilities. The initiative focuses on building resilient food security and nutrition institutions, markets and production systems. It emphasises a multi-disciplinary approach integrating the political, economic, social and environmental dimensions that are essential to achieving development in complex, multi-hazard risk situations. In so doing, the initiative will combine emergency assistance - where early action is essential to assist those requiring immediate attention - with longer-term development goals that attend to the need of the country and its progress in the future. It will also enhance access to relevant information in the region with the aim of increasing collaboration and policy coordination among Member Countries.

- Small-scale Agriculture for Inclusive Development

The overall objective of this Regional Initiative is to support countries in reducing rural poverty in the region through a cohesive programme addressing small-scale agriculture development. It will address the challenges of small-scale agriculture using a three-pronged approach: (i) improve the understanding of various types of smallholders, their labour dimensions, linkages with markets and their barriers in order to support evidence-based policy and strategies and to prioritize interventions as well as better target public and private investment; (ii) sustainably improve productivity, quality, value addition, social sustainability and viability of the sector; (iii) empower small holders engaged in agriculture, forestry and fisheries, including strengthening professional organizations and supporting the creation of decent rural employment opportunities for youth and women.

- Water Scarcity

The Regional Initiative on Water Scarcity has been formulated to support the countries of the NENA Region to cope with one of their most striking challenges: the pursuit of food and water securities, for a sustainable social and economic development, under an unprecedented severe escalation of water scarcity. The objectives of the initiative are: enhancing policies, investments, governance and best practices to sustainably increase water and land productivity; providing tools for strategic planning of optimal and sustainable allocation of scarce water resources; implementing a regional collaborative strategy for a water-reform agenda.

## NENA Region



**Countries of the NENA region:** Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi, Sudan, Syria, Tunisia, Emirates, Yemen, West Bank and Gaza.



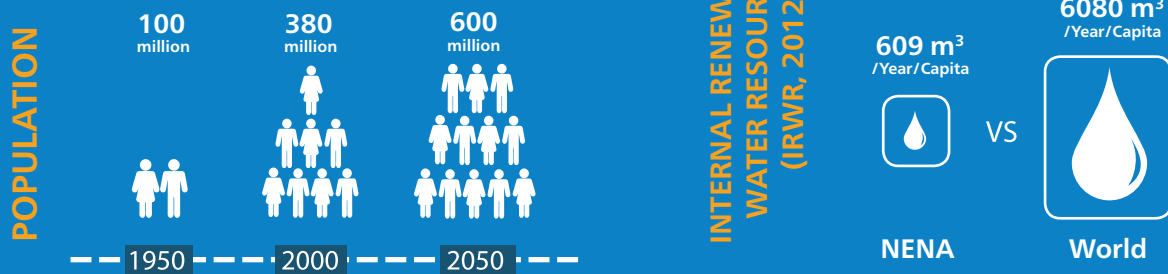
## Regional Initiative on Water Scarcity for the Near East and North Africa (WSI)

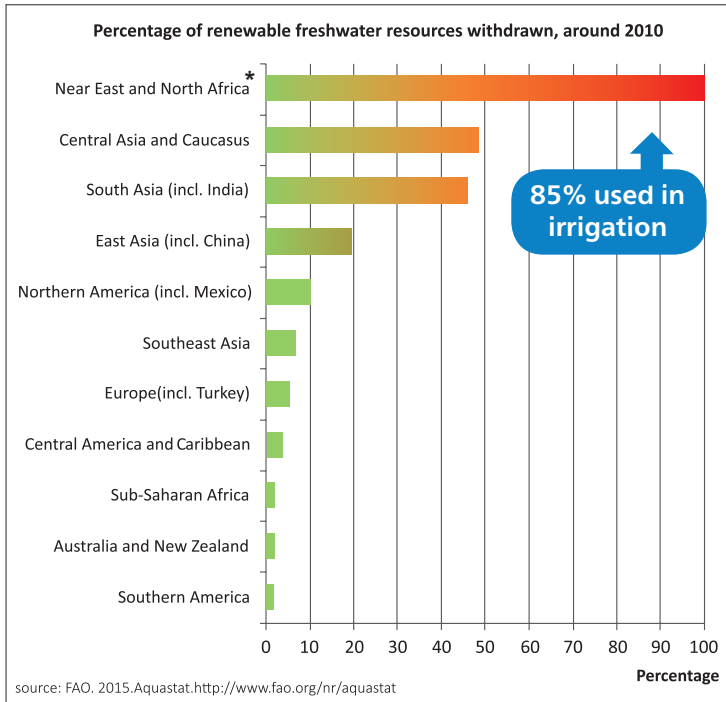
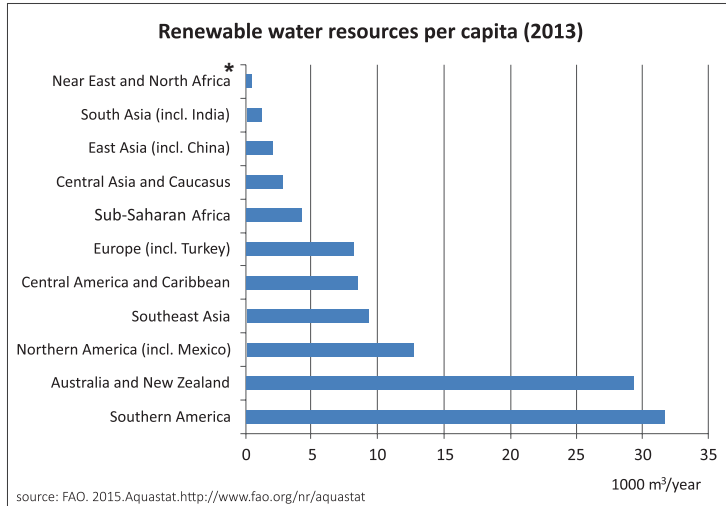
### Rational

The Near East and North Africa (NENA) Region, already naturally exposed to chronic shortage of water, will be exposed in the coming decades to a severe intensification of water scarcity due to several drivers, including demographic growth, tendency to increase food self-sufficiency to reduce vulnerability to import and price volatility, urbanization expansion, energy demand and overall socio-economic development. Per capita fresh water availability, which has already decreased by 2/3 over the last forty years, will probably decrease by another 50% by 2050. Furthermore, there is an alarming trend observed over last decades showing that the NENA Region is experiencing more frequent, intense and long droughts as a consequence of Climate Change. Agriculture, which consumes already more than 85% of available fresh water resources, will face strong challenges in keeping the same water allocation while sustaining food security and rural economy.

Countries in the Region need to plan strategically their water resources allocation, review their water, food security and energy strategies to ensure that they are aligned with the imperative of making the best use of each single drop of water.

### Facts and figures about NENA





\* Near East and North Africa's Countries : Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, West Bank and Gaza, Oman, Qatar, Saudi, Sudan, Syria, Tunisia, Emirates, Yemen.

## AGRICULTURAL SECTOR



Contribution to Regional GDP



Agriculture provides jobs and incomes for 38% of the region's economically active population

## WATER RESOURCES

70% of NENA total area exists under desert and arid conditions



> 60% of water resources flow from outside national and regional boundaries.

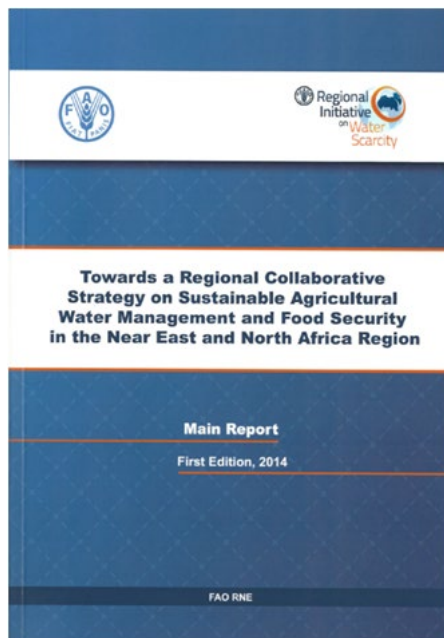
## A regional approach for water management

In 2013, FAO has launched the Regional Initiative on Water Scarcity, providing as first output a *Regional Collaborative Strategy on Sustainable Agricultural Water Management in the Near East and North Africa Region*, following a vast participatory approach.

The *Regional Collaborative Strategy* represents a framework to assist countries in identifying and streamlining policies, investments, governance and practice that can sustainably improve agricultural productivity and food security in the Region. More specifically, the *Regional Collaborative Strategy* seeks:

- finding structured mechanisms addressing problems related to water for Agriculture in NENA Countries
- to identify systematically information and knowledge gaps and key problems in water for Agriculture and provide solutions
- to highlight the need for strengthening knowledge, cooperation and coordination amongst stakeholders at local, National and Regional levels
- to support and complement existing Regional Initiatives such as the *Arab Water Security Strategy 30-2010*, the *Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR)*, the *Arab Strategy for Sustainable Agricultural Development* and the *Arab Disaster Risk Reduction Strategy*

Furthermore, the initiative is built on the principle of exchanges and cooperation between Countries of the Region and on South-South Cooperation. Finally, the Regional Collaborative Strategy was endorsed at the FAO Regional Conference for NENA in February 2014.



## 7 Focus areas of work

- 1. Strategic planning and policies:** Water accounting, food-supply cost curve, knowledge-gap analysis, medium-term scenario of development and water-food-energy nexus approaches will be adopted in support of water and food security strategic planning and policies. Transboundary water implications will be considered where appropriate
- 2. Strengthening/reforming governance:** Support countries in reviewing/reforming the institutional framework governing the inter- and intra-sectoral management of water resources
- 3. Improving water management performances and productivity in major agricultural systems and in the food chain:** Support countries to improve agriculture water management performance and water productivity in both rainfed and irrigated agriculture and along the food 'value-chain'
- 4. Non-conventional water use:** Support actions to enhance the supply-side of the water budget through the optimal use of non-conventional waters (brackish water, treated wastewater, greywater, and desalinized water)
- 5. Climate change adaptation, resilience and drought management:** Promotes assessment of climate change impact on agriculture, adaptation strategies to climate change and drought management policies and practices
- 6. Building sustainability:** Support solid groundwater governance conducive to higher levels of productivity and reduction of pollution. Soil salinity will be addressed in critical agricultural areas. Support countries in their effort to combat desertification and in the adoption of sustainable land management practices
- 7. Benchmarking, monitoring and reporting of water consumption and productivity:** Promote mechanisms of benchmarking, monitoring and reporting on progress towards the achievement of agreed national and regional targets on water consumption and productivity

## Partnership in support of the Regional Initiative on Water Scarcity

<b>ACSAD</b>	Arab Center for the Studies of Arid Zones and Dry Lands
<b>AOAD</b>	Arab Organization for Agricultural Development
<b>AWC</b>	Arab Water Council
<b>CEDARE</b>	Center for Environment and Development for the Arab Region and Europe
<b>CIHEAM</b>	International Center for Advanced Mediterranean Agricultural Studies
<b>DRC</b>	Desert Research Center
<b>DWFI</b>	Daugherty Water for Food Institute
<b>GIZ</b>	German Cooperation Agency
<b>ICARDA</b>	International Center for Agricultural Research in the Dry Area
<b>ICBA</b>	International Center for Biosaline Agriculture
<b>IWMI</b>	International Water Management Institute
<b>LAS</b>	League of Arab States
<b>NWRC-Egypt</b>	National Water Research Center
<b>UNESCO</b>	UN Educational, Scientific and Cultural Organization
<b>UNESCWA</b>	UN Economic and Social Commission for Western Asia
<b>WB</b>	World Bank
<b>WFP</b>	World Food Program

## Innovation

The Regional Initiative on Water Scarcity is intended to provide support to the NENA countries through 'changes' in the mechanisms of cooperation and coordination which leverage on few novel elements, notably:

- (i) establish a Regional Collaborative Platform among the NENA Countries to create a broad consensus, and ownership, on the water reform agenda in the Region, in terms of both policies and governance
- (ii) design a *Strategic Partnership*, actions-oriented and results-based, that would generate a critical mass of 'capacities' to deliver an 'impact-at-scale'
- (iii) develop original and forward-looking ways of visioning future trajectories of development in order to plan strategically the allocation of the limited water resources
- (iv) adopt modern technical and institutional solutions to increase the efficiency and productivity of water use in Agriculture
- (v) reposition farmers at the center of the sustainable management of land and water resources and strengthen their empowerment
- (vi) engage the private sector in the investments, governance and practices related to the food value-chain and the introduction of latest technologies
- (vii) elaborate and implement incentive frameworks that would effectively promote the adoption of solutions by farmers
- (viii) devise 'metric' mechanisms and tools to measure results in support of policy-making and decision-making processes, taking advantage of latest technologies (e.g., satellite remote sensing)
- (ix) promote capacity development, from inside and outside the Region, based on 'exchange of solutions', 'learning from each-other' experiences, including 'community-based field demonstrations' and 'farmers field schools'

## Budget 2014-15

The Regional Initiative on Water Scarcity has mobilized about USD20 Million for the biennium 2014-15.

## Deliverables/Results 2014-15

### REGIONAL/SUB-REGIONAL LEVEL

#### The Regional Collaborative Platform

The *Regional Collaborative Platform* is an important 'structured mechanism' of the Regional Initiative on Water Scarcity to implement the *Regional Collaborative Strategy* and to accelerate the implementation of Agricultural Water Management solutions in the NENA Region.

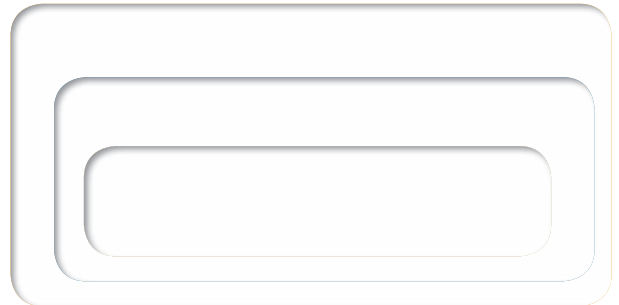
It is a collaborative knowledge and communication platform serving a network of stakeholders working together to upgrade capacities and to improve the management of scarce water resources for agriculture, irrigation and food security in the NENA Region.

#### *Architecture*

- A web based knowledge platform
- A non-web based outreach for knowledge advance and sharing, capacity development and policy fora

#### *Selected Issues/Themes of the Regional Collaborative Platform*

- Groundwater
- Irrigation Modernization
- Governance reform of water institutions (e.g. decentralizations, water user associations, basin authorities)
- Water Consumption, Water Productivity and Water Saving in Agriculture
- Drought Management and Climate Change



## Support to the 'Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region' (RICCAR)

- *Institutional capacities assessment in the Region dealing with climate change and its impact on agriculture and food security* is being carried out. More than 10 countries have completed their country report and the full Region is expected to be finalized by the end of 2015. A Region-level report will be produced as well to derive a structured collaboration among countries in the area of climate change vulnerability analysis and adaptation, including combating desertification and drought management
- *Climate Change Adaptation Solutions for the Green Sectors of Selected Zones in the NENA Region (Project)*

### Objectives

- Generation of climate change scenarios to targeted time horizons; vulnerability investigation for water resources, food-security and livelihood vulnerability; estimate of the socio-economic consequences of the anticipated climate change impact
- Provide tailored adaptation measures for the green sectors to include cropping, forestry, rangeland, and fishery production systems derived for the selected -zones- of the Arab Region, pre-defined climate change scenarios and targeted time-horizons
- Upgrading the RICCAR framework for an improved performance of climate change impact assessment in the agricultural sector and on food security by adopting the FAO *AquaCrop* model

### Partners

GIZ, UN-ESCWA, LAS, ACSAD

### Expected results

- Strengthening the 'Arab Regional Knowledge Hub' on climate and water
- Build capacity for assessment on climate change impact on food and water security
- Scale-up and accelerate implementation of coping strategies (at policy, institutional and good practices level) to rise farming- and food-system resilience
- Strengthen National policies on climate change adaptation



## Support to the adoption and implementation of National Drought Policy (NDP) and the Integrated Drought Management Programme (IDMP) in the NENA Region

### Objectives

- Produce a Report on the characterization and management of the current situation of drought, its impacts and the way it is managed, in the NENA to serve as background for preparing drought management guidelines tailored for actual needs by the Region
- Implement a Regional Capacity Development Workshop on National Drought Policies (development and implementation) to address risk-based management approach which includes much greater emphasis on drought monitoring and early warning, risk assessment, and management planning, and involves all the primary sectors concerned with drought in a coherent and integrated manner

### Partners

WMO, UNCCD Secretariat, CBD and UN-Water

### Expected Results

- Representatives of the Ministries of Agriculture, Water Resources and Environment from all NENA Countries have enhanced their capacity to elaborate policies in Integrated Drought Management

## Guidelines for brackish water use for agriculture production in the NENA Region

### Objectives

- Collect Good Agricultural Practices (GAPs) and research results on brackish water use from pilot countries in the NENA Region
- Train key stakeholders (Training of Trainers) on the sound use of brackish water according to the set guidelines through seminars and workshops and various educational material
- Supporting member countries for adapting national programs and policy to turning low-quality water into resources and contributing to develop their capacity on related fields while using brackish water

### Partners

AWC and National Governmental Agencies

## Expected results

- Countries adopt the jointly developed guidelines for brackish water use in agriculture and will have higher capacity to scale-up their dissemination and use at field level
- Augment the stock of water resources through higher use of brackish water in agriculture

## Monitoring water productivity by Remote Sensing as a tool to assess possibilities to reduce water productivity gaps (Project)

### Objectives

- Development of the benchmarking and monitoring database, covering the Region of NENA, mainly through Remote Sensing, to assess agricultural land and water productivity
- Assess variability and potential of agricultural land and water productivity and derive related gaps
- Analyze the options for closing the land and water productivity gaps, accounting for sustainability implications
- Design a programme of capacity development targeted to different stakeholders for their empowerment in increasing land and water productivity
- Elaborate an action framework to provide workable solutions, available for stakeholders at different scales from the policy level to the farm level- to sustainably increase agricultural land and water productivity



### Partners

UNESCO-IHE, DWFI, IWMI, ICBA, AWC

### Expected results

- Establishment of a sound methodology and regional operational platform to benchmark and monitor agricultural land and water productivity
- Provide the evidence for sound policies, governance and farm practice to lift the income and livelihood of rural sector and increase productivity, efficiency and saving of water in agriculture

## **Support the League of Arab States to align National Action Plans to the UNCCD Strategy to combat desertification**

### **Objectives**

- Workshop on Alignment and Implementation of National Action Plans (NAPs) to the UNCCD -10year Strategy
- Establishment of a Regional Platform (integrated with the Regional Soil Partnership) to support countries in the implementation of NAPS

### **Partners**

LAS, ACSAD, UNCCD, IUCN; the Global Mechanism of the international Convention to combat Desertification (GM); ESCWA; UNESCO; The Global Environmental Facility (GEF); Islamic Educational, Scientific and Cultural Organization (ISESCO)

### **Expected Results**

- Countries have enhanced their capacity to upgrade policies and strategies to combat desertification

## **Opportunities to unlock the potential of Protected Agriculture for cutting water consumption in the Gulf Cooperation Council (GCC) Countries, while supporting improved nutrition and food security Objectives**

- To carry out an assessment of potential expansion of New Generation of Green Houses (NGGH) in the GCC Countries. A quantitative 'business & environmental cases' with 'trades-off', 'costs' and 'benefits' in the adoption of the (NGGH) is developed to provide public and private parties with the entire spectrum of 'gains' and associated 'costs' which would eventually lead to attract the interest of stakeholders and investors over the opportunities offered by this protected agriculture solution to cut water consumption while producing nutritious food

### **Partners**

ICARDA, ICBA, GCC Country specialized Institutions in protected agriculture

## **Expected results**

- GCC Countries would develop investment plans to expand their land allocation to Protected Agriculture with significant saving in water consumption to produce food

## **Technical assistance for the potential introduction and production of Quinoa in Algeria, Egypt, Iraq, Iran, Lebanon, Mauritania, Sudan, and Yemen**

### **Objectives**

- Assessing the potential for introducing, producing and adopting Quinoa in countries of the NENA Region, being a drought tolerant crop and resilient to climate change
- Fostering and strengthening transfer of knowledge, competencies and exchange of experience and best practices in relation to the production, evaluation, management, utilization and marketing of Quinoa under diverse farming systems and agro-ecological regions available locally

### **Partners**

ICBA, ICARDA, INIA (National Institute of Agricultural Innovation), McGill University, Qatar University, agribusiness companies, seed enterprises and NGOs

## **Expected results**

- NENA Countries will have an important alternative to traditional crops in adapting to climate change and drought, while enhancing the production of high nutritious food

## **Developing Effective Practices for Combating Desertification in Arab States**

### **Objectives**

- Procurement of specific equipment for soil moisture monitoring, weather variable monitoring and nitrogen15- fertilizer for Nitrogen Use Efficiency field studies
- Field test for best management practices to improve nutrient and water use under saline conditions
- Identify salt-tolerant cultivars of different crops to utilize salt-affected land

- Support coordination actions between Research Institutions involved in this ‘Planned Action’ and UNCCD-related Governmental Institutions to achieve effective implementation measures to combat desertification

## Partners

IAEA, ICBA, Selected Institutions of the Arab Countries

## Expected results

- Country capacity in developing and adopting effective practices to combat desertification is improved

## NATIONAL LEVEL

### Increasing water productivity in irrigated agriculture of large-scale irrigation schemes (Morocco & Tunisia)

#### Objectives

- *Preparation of a framework.* Agriculture water productivity indicators will be defined and used as a tool to present past trends, summarize current performances, and quantify the impact of future investments. The framework will represent a detailed guideline to carry out a comprehensive assessment of the irrigation sector in a given country, to identify appropriate interventions (a) within large-scale irrigation schemes, operated by publicly or through public-private-partnership (PPP), (b) within medium and small irrigation schemes, managed by farmers groups or through PPP, and (c) within private irrigation managed by individual farmers
- *Application of the framework at pilot-country level.* The framework will be applied in pilot-countries of the WSI on a rolling basis (starting with Morocco and Tunisia).
- *A broad stakeholder’s validation.* The ‘framework’, considering preliminary results of the pilot-country analysis, will then be validated, discussed and improved for finalization through a stakeholder’s consultation involving all other countries of the Region



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## Partners

World Bank, CIHEAM, National Governmental Agencies, WUAs and Farmers Groups, private sector

## Expected results

- Well-designed proposals for investments and interventions in the irrigation sector that will increase agricultural water productivity and enhance farmers' livelihood, while improving overall rural economy, food security and/or water saving

## Support Cooperation on Agricultural Water Resource Management in the Lower Mesopotamia -Tigris and Euphrates- (Iran & Iraq)

### Objectives

- Formulate a hydro-economic optimization model to assess hydrologic and environmental risks under different development scenarios
- Develop capacity building for national institutions in water resource management through the application of advanced water-management FAO tools and standard methods (e.g., CROPWAT, AQUACROP and MASSCOTE)
- Enhance understanding of river basin management, and water quality issues at sub-basin level, and improve water quality monitoring
- Set-up a technical and institutional platform for a water resources early warning system that involves all parties in planning responses to threats
- Establish a cooperation and coordination mechanism and a water-quality research Center for the lower Mesopotamia
- Implement "on-ground" pilot projects and investment in agriculture water infrastructure as part of a comprehensive water scarcity management programme

## Partners

National Institutions and Agencies, Farmers and water users groups

## **Expected results**

- Countries are prepared to improve their water management practices, both considering quality and quantity aspects, as a result of improved technical and analytical knowledge being used within agricultural and energy sectors

## **Scenario Analysis to address 'food security' under 'water scarcity' and respond to the resources-sustainability challenge in countries of the NENA Region (Morocco, Oman, Jordan, Egypt)**

### **Objective**

- Preparation of Country Reports on 'Water Accounting', 'Food Supply Cost Curve' and 'Gap Analysis' providing investigation of optimal allocation of water, through alternative and combined options, to achieve food supply targets. Recommendations for improved policies are highlighted as well

### **Partners**

Selected National Ministerial Agencies to establish an inter-sectoral Multi-Disciplinary Team

### **Expected results**

- The National Multi-Disciplinary Team (NMDT) established in each Focus Countries will have a better understanding of the inter-linkages between sectoral strategies, based on quantitative analysis of food-supply (internal production and import), energy and water demand/development and financial investment requirement to achieve higher food security at national level and more sustainable development and water resources use. This will in turn provide an enhanced assistance by the NMDT to Policy/Decision makers of their countries

## Support to UAE Governmental Agencies

### *1. Development of a Federated Water Laws and related Water Accounting mechanisms for advanced Water Governance in the United Arab Emirates*

#### **Objectives**

- Prepare a relevant water resources accounting at individual Emirates and at Federal (UAE) levels, including all sources of waters (conventional and non-conventional, surface and groundwater) and all users (agriculture, urban, industry, landscape, etc.) with withdrawals and consumptions
- Provide an assessment of the present status and performance of the monitoring system of the water resources quantity and quality in the Emirates and a critical evaluation of the requirements for its upgrade and modernization
- Review of existing governance mechanisms, laws and norms supporting the management of water resources of individual Emirate
- Propose a new Federated Law and Governance architecture for the UAE

#### **Partners**

Selected Ministerial Agency of the UAE

#### **Expected results**

- Improved monitoring, reporting and governance capacity of water resources use throughout the Emirates



## 2. Empowerment of the Agricultural Innovation Center of the Ministry of Environment and Water (MoEW)

### Objectives

- Equip the Agricultural Innovation Center of the Ministry of Environment and Water (MoEW) with a range of greenhouse solutions for improved crop quality and productivity, cost and energy efficiency, and water saving
- Install a prototype of New Generation of Green Houses (NGGH) having the potential of saving up to 90% of water through condensation and reuse of the water transpired by plants

### Partners

ICARDA, ICBA, MoEW, Technical University of Berlin, private sector

### Expected results

- Significant increased nutritious-food productivity; considerable water saving; substantial reduction of high-nutrition food import



## 3. Monitoring and Evaluation of the Use of Treated Wastewater in Agriculture in the Abu Dhabi Emirate

### Objectives

- Review and evaluation of on-going data collection on the use of treated wastewater in Abu Dhabi, with associated quality and quantity assessment
- Formulation of a proposal for transforming on-going data collection into a comprehensive Monitoring and Evaluation System for the use of treated wastewater in agriculture

### Partners

WHO, Abu Dhabi Food Control Authority (ADFCA)

## **Expected results**

- A well designed Monitoring and Evaluation System for the use of treated wastewater in agriculture ready to be implemented within the Abu Dhabi Emirate and that can serve to be replicated in all other Emirates of the UAE. The system will provide the quality control for a safe use of the treated wastewaters in agriculture

## **Solar Powered Water Lifting for Irrigation in the Nile Delta of Egypt**

### **Objectives**

- Define technical specifications of the solar system to provide energy to mesqa pumping station
- Purchase and install solar equipment on site
- Raise awareness amongst local farmers and WUA to operate and maintain the system. Training session provided to farmers on the potential uses of the solar system, and to WUA board on operation and maintenance of the solar system
- Build capacity of technical staff of Government/relevant stakeholders to maintain guidance to farmers and sustainability of intervention beyond project period

### **Partners**

Ministry of Water Resources and Irrigation, Ministry of Agriculture and Land Reclamation, Ministry of Electricity and Energy, National Water Research Center, Agricultural Research Center, University of Helioptis, private sector

### **Expected results**

- Contribute to reduce vulnerability of farmers in the Nile Delta to energy black-out that impact farmers productivity, to eliminate environmental pollution of the old diesel pumps and to cut down greenhouse gas emission

## Promotion of gender-sensitive indicators in agricultural water management (Tunisia & Algeria)

### Objectives

- Analysis of the political and legislative framework on gender issues and agricultural water management
- Compilation of data sources and gender statistics in the field of agriculture and water management and identification of the limitations and gaps in the availability of sex-disaggregated statistics on agricultural water
- Organization of a workshop with key national institutions to (i) present the results of the AQUASTAT study on gender-sensitive indicators in 2007, (ii) propose gender-sensitive indicators and select those considered most important in relation to national development policy objectives and (iii) reflect on the actions to be taken at the level of national institutions for improving gender data and statistics

### Partners

Selected National Ministerial Departments and Institutions

### Expected results

- Improved information on women's contribution to agriculture and water management for its use in strategic planning and policies

## Strengthening Agricultural Water Efficiency and Productivity on the African and Global Level-Entry (Morocco)

### Objectives

- Enhance capacity for improved crop water productivity and water use efficiency in small scale agriculture conducting training programmes on AquaCrop and MASSCOTE at regional and national levels
- Enhance water harvesting capacity for agriculture through assessment of the status, performance and scope for improving water harvesting for agriculture and training program on water harvesting
- Prepare national water audits taking into consideration different agro-ecological zones
- Develop investment profile for the identification of Agricultural Water Management priorities at national level and build national capacity

## **Partners**

Ministère de l'agriculture et de la pêche maritime, Ministère de l'énergie, des mines, de l'eau et de l'environnement, INRA, ENA, IAV Hassan II, COMADER, AUEA; AgWA, CAADP

## **Expected Results**

- Contribute to an improved management of water resources in a sustainable manner which will ultimately lead to reduced hunger and poverty in the project areas

## **Exploring Challenges and Opportunities in Building Partnerships to Enhance Investment in Agricultural Water Management in Africa and to Achieve Green and Inclusive Growth Objectives set under the Ten Year Strategy of the African Development Bank (Egypt & Tunisia)**

## **Objectives**

- Assess impact of 15 years of AWM projects funded by the AfDB (2010-1995) to provide recommendations on agricultural water-related investments and for the establishment of a strategic partnership for AfDB

## **Partners**

AfDB, AgWA, CAADP

## **Expected results**

- The performance of already implemented AWM projects is assessed/increased; investments in AWM are increased; and strategic partnerships are established

## Increasing water productivity in irrigated and rainfed agriculture at community level (Egypt, Jordan, Morocco, Tunisia)

### 1. Scaling-up of integrated mechanized raised-bed production packages to improve water and land productivity and farmers' income (Egypt)

#### Objectives

- Accelerate the adoption of mechanized raised-bed production packages in small-scale farming systems with a strong focus on gender equity for effective development
- Support decision makers to better manage scarce natural resources in Egypt
- Improve farmers' livelihood and country food security
- Outreach 220 small-holder farmers

#### Partners

ICARDA, Farmer communities in Nile Delta and Assiut Governorate and pertinent local Governmental Agencies

#### Expected results

- Increased yield and water productivity
- Increased income for farmers



### 2. Adoption of small-scale, affordable greywater systems for irrigation (Egypt, Jordan, Tunisia)

#### Objectives

- To accelerate the adoption of small-scale, affordable greywater systems for irrigation by small-holder farmers
- Six greywater systems installed serving about 1000 farmers

#### Partners

ICARDA, Farmer communities and pertinent Governmental Agencies

## **Expected results**

- Save fresh water
- Pollution control and other environmental benefit
- Increased farmers' income

### *3. Up-scaling of deficit supplemental irrigation for improved water and land productivities and farmer's income increase (Morocco, Tunisia)*

## **Objectives**

- To disseminate and accelerate wide-scale adoption of proven deficit supplemental irrigation techniques and associated agronomic practices for increased productivity
- Develop tools (models, guidelines, and recommendations) to support decision makers in better management of the scarce natural resources
- Outreach 240 small-holder farmers

## **Partners:**

ICARDA, Farmer communities and pertinent Governmental Agencies

## **Expected results**

- Increased water and land productivity
- Higher farmers' income

#### *4. Up-scale of Conservation Agricultural practices to improve water and land productivity, reduce land degradation and increase farmer's income (Jordan, Morocco, Tunisia)*

##### **Objectives**

- To identify most appropriate Conservation Agricultural practices for selected farming systems in the targeted countries
- To upscale Conservation Agriculture (CA) agronomic package through farmers' participation and field demonstrations
- Outreach 200 farmers' field over 420 ha

##### **Partners**

FAO, ICARDA, Farmer communities and pertinent Governmental Agencies

##### **Expected results**

- Enhanced soil conservation
- increased water use efficiency
- reduced input costs
- increased yields and farmer's income

#### *5. Gender, socio-economics and impact assessment of water saving technologies packages (Egypt, Morocco)*

##### **Objectives**

- Test contextually relevant approaches for out-scaling the training of women, men and youth farmers in new and improved practices of irrigation and water saving technologies
- Assess and monitor the impact, feasibility and potential for scaling out of water saving technologies on women and men farmers to promote policy dialogue and consideration of broad national uptake

##### **Partners**

ICARDA, Farmer communities and pertinent local Governmental Agencies

## Expected results

- Manual for women and youth training in water productivity and water saving technological packages
- A program of women training institutionalized with the Ministries of Agriculture
- About 500 women and 10 young trainers trained in water productivity technological packages; and at least 5000 women are reached by the project through farmer-to-farmer communication
- Methodologically valid and rigorous empirical evidence of the impact of water productivity and water saving technological packages, and constraints identified to adoption and opportunities for scaling up
- Policy briefs

## Decentralized management of water use in the Sana'a basin to sustain water resources and rural livelihoods (Yemen)

### Objectives

- Build awareness of farmers, organized in WUAs, of the consequences of the present groundwater depletion rates, which may worsen under the influence of climate change, and prepare them to take action towards sustainable groundwater management
- Implementation of water-efficient and climate-smart crop production systems
- Build an enabling environment (socio-economic) that will promote the changes towards sustainable groundwater management and increase farmer's livelihood

### Partners

The Netherland (donor); National Agencies and Water Users Associations (WUA) of Yemen

### Expected results

- WUAs are empowered to negotiate sustainable groundwater management plans, and mechanisms are in place for such negotiation processes, with the support of relevant government institutions. WUAs functions are upgraded so that components other than water management will be included (e.g., markets, agro-industry, etc.)
- Water-efficient and climate-smart crop production systems that are crucial to reduce groundwater abstraction are implemented through IWRM principles and crop production improvements
- Improved income and livelihood of farmers



## **Contacts**

**Clayton Campanhola**

Coordinator Strategic Objective 2

[Clayton.Campanhola@fao.org](mailto:Clayton.Campanhola@fao.org)

**Abdessalam OuldAhmed**

NENA Regional Representative

[Abdessalam.OuldAhmed@fao.org](mailto:Abdessalam.OuldAhmed@fao.org)

**Pasquale Steduto**

Delivery Manager of the Regional Initiative on Water Scarcity

[Pasquale.Steduto@fao.org](mailto:Pasquale.Steduto@fao.org)





