



Food and Agriculture  
Organization of the  
United Nations



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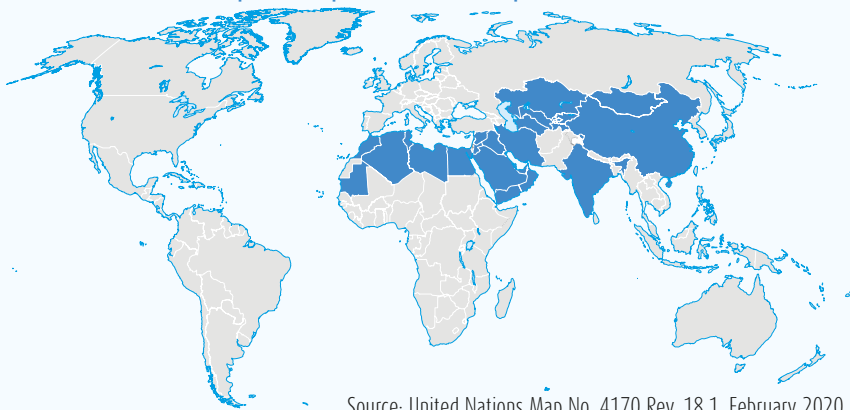
# Building resilience and sustainability into food systems in marginal environments

The Food and Agriculture Organization of the United Nations (FAO) and the International Center for Biosaline Agriculture (ICBA) work together in marginal environments to increase agricultural productivity, improve food security and nutrition, enhance water security, and ensure better livelihoods in a sustainable way. This collaboration, based on a Memorandum of Understanding signed in March 2015, focuses on individual and institutional capacity development, as well as knowledge and technology transfer, with the aim to carry out joint projects in the field where feasible.

#### MAIN AREAS OF ACTIVITIES:

- Forestry and agroforestry;
- Climate change;
- Watershed management;
- Sustainable livestock production;
- Gender;
- Development and environmental economics;
- Territorial approaches;
- Value chains and agribusiness.

■ Countries where the partnership activities were implemented



Source: United Nations Map No. 4170 Rev. 18.1, February 2020

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

## PARTNERSHIP MILESTONES

- 2015** MoU signed between FAO and ICBA.
- 2017** WASAG launched.
- 2019** ICBA signed Article 15 of the International Treaty on Plant Genetic Resources for Food and Agriculture.
- 2019** Addendum to the MoU signed to expand areas of collaboration.
- 2020** The MoU between FAO and ICBA renewed.
- 2020** ICBA joins the FAO e-learning Academy.

CONTRIBUTING TO





# KEY RESULTS

**01** | Under the project titled “Unlocking the potential of Protected Agriculture to improve nutrition, contribute to food security, and cut water consumption in the GCC countries”, FAO, ICBA and the Center for Agriculture Research in the Dry Areas (ICARDA) shared knowledge with UAE stakeholders on innovative protected agriculture technologies. This included the installation of a semi-controlled greenhouse at the research station of the Ministry of Water and Environment (2016).

**02** | ICBA hosted the *Water Accounting Training 306: Introduction to Water Accounting Plus (WA+)* organized by the FAO office in Afghanistan for national counterparts working in water resource management (2018).

**03** | ICBA and FAO launched the Global Soil Salinity Map at the Global Forum on Innovations for Marginal Environments, aiming to develop national capacities in the management of salt-affected soils (2019).

**04** | ICBA, in collaboration with FAO, supported the organization of the 1st WASAG International Forum on Water Scarcity in Agriculture, held in Cape Verde (2019). FAO and ICBA are presently developing a proposal for agricultural transformation in Cape Verde in collaboration with key national stakeholders.

**05** | ICBA trained thirty-five (35) women family farmers from Egypt, Jordan, Mauritania, Morocco, Palestine, Tunisia, and the UAE in the following three themes: a) Climate-smart alternative crops and value chain approach to adapt to climate change, b) Sustainable and climate-smart practices for crop production and efficient use of natural resources to achieve food security, and c) Artificial intelligence technologies for food security and sustainable agriculture production.

**06** | ICBA supports FAO’s inter-regional project “*Catalyzing investments and actions to enhance resilience against Sand and Dust Storms (SDS) in agriculture*” by conducting a study on SDS impacts on agricultural subsectors and organizing a multi-stakeholder workshop (2020-2021).

**07** | FAO, in partnership with ICBA and ICARDA, developed a technical book, **Unlocking the Potential of Protected Agriculture in the countries of the Gulf Cooperation Council**, intended to serve as a blueprint for the NENA region and to raise awareness and disseminate knowledge regarding new protected agriculture technologies and practices to reduce water consumption in crop production (2021).

**08** | FAO and ICBA developed a policy brief (Policy for Agricultural and Food Production in Marginal Environments) for developing marginal lands with the aim to contribute to food security and poverty reduction in marginal environments, which were neglected in the past. Furthermore, a paper, *Marginal Lands: Potential for Agricultural Development, Food Security and Poverty Reduction*, on technical and strategic issues for developing marginal lands has been jointly developed, peer-reviewed, and will be published by the State of the World’s Land and Water Resources for Food and Agriculture (SOLAW 21).

**09** | ICBA is supporting the FAO Programme on Red Palm Weevil (RPW) Eradication by developing a remote-sensing technology for early RPW detection. The program targets date-producing countries in the NENA region (2021-2023).

**10** | Ongoing collaboration between FAO and ICBA aims to introduce and upscale quinoa cultivation in marginal environments as a climate-smart crop with superior nutritional qualities.

## LOOKING FORWARD

With a specific aim to contribute to the achievement of SDGs, FAO and ICBA intend to collaborate in such areas as:

1. Supporting the Saline Agriculture Working Group under the WASAG in policy and scientific research cooperation and in the development of guidelines for saline agriculture;
2. Increasing agricultural productivity in marginal environments by identifying, testing and upscaling appropriate integrated agronomic practices and technologies;
3. Evaluating and promoting salt-tolerant crops such as quinoa in sub-Saharan Africa and the NENA region, including through a joint project proposal;
4. Assisting FAO Members in capacity development, climate change adaptation and mitigation, and adoption of sustainable management practices and policies;
5. Supporting capacity development of smallholder family farmers;
6. Supporting the Global Action for Fall Armyworm Control;
7. Unlocking the potential of non-conventional water for agricultural development in the Maghreb countries;
8. Identifying potential opportunities for research and innovation to achieve food security in the Gulf Cooperation Council (GCC) countries;
9. Providing new and valuable insights on Sand and Dust Storms’ (SDS) impact on agriculture, including establishing a new theoretical and analytical modelling framework to help quantify and analyse the direct and broader socio-economic impacts of SDS in agriculture.

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## AREAS OF COLLABORATION

FAO and ICBA work in partnership on the promotion of biosaline agriculture under the Global Framework on Water Scarcity in Agriculture (WASAG); land reclamation and restoration of degraded lands/soils; FAO’s Global Soil Partnership (GSP); use and management of non-conventional water; application of new technologies for efficient water use; promotion of underutilized species and crop diversification, evaluation and promotion of quinoa, aquaculture and non-conventional and locally available animal feed resources; development of farm management packages for enhanced water and nutrient use; support for smallholder agriculture; preservation and sustainable development of oases ecosystems; climate change adaptation and drought preparedness and management; application of geospatial technology for land and water investigations, and capacity development, particularly on climate change mitigation and adaptation practices.

## IN PARTNERSHIP WITH ICBA

Established in 1999, ICBA is an international, not-for-profit agricultural research organization based in Dubai, the United Arab Emirates (UAE). It is a global center of excellence focused on developing tailor-made solutions for marginal environments - the areas of the world which face the problems of salinity, water scarcity, heat, and drought, among others.

ICBA conducts its research-for-development work under four research innovation themes:

- Management of natural resources in marginal environments;
- Climate change modeling and adaptation;
- Crop improvement and sustainable production;
- Integrated agri-aquaculture systems.