



Food and Agriculture  
Organization of the  
United Nations



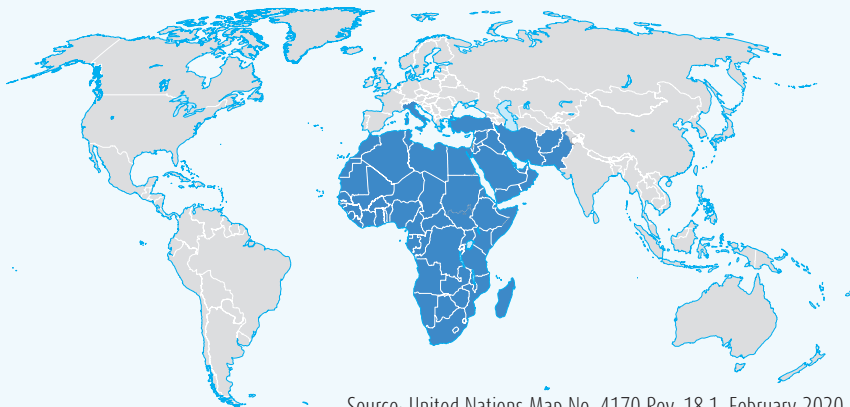
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# Sustainable, resilient and innovative agrifood systems: steps towards achieving the Sustainable Development Goals

In 2015, the Food and Agriculture Organization of the United Nations (FAO) signed a Memorandum of Understanding with three Italian research institutions: *Consiglio Nazionale delle Ricerche (CNR)*, *Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria (CREA)*, and *Agenzia nazionale per la nuove tecnologie, l'energia e lo sviluppo economico e sostenibile (ENEA)*. The partnership works to enhance sustainable food production and improve nutrition. In 2018, the collaboration grew to

include *Istituto Superiore per la Protezione e Ricerca Ambientale (ISPRA)*. The partnership aims to raise awareness, develop capacities and foster the exchange of knowledge in areas such as agriculture, climate change, food quality and nutrition, sustainable food systems, sustainable management of land and water, conservation of biodiversity and ecosystems, the assessment of innovation in rural development programmes, and value chain development through local innovation.

■ Areas of interest for the collaboration



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** Partnership established between FAO, CNR, CREA and ENEA.
- 2018** Renewal of the partnership – ISPRA joins the agreement.

|                                              |                                                      |                                          |                                          |
|----------------------------------------------|------------------------------------------------------|------------------------------------------|------------------------------------------|
| <b>2</b> ZERO HUNGER<br>                     | <b>3</b> GOOD HEALTH AND WELL-BEING<br>              | <b>6</b> CLEAN WATER AND SANITATION<br>  | <b>7</b> AFFORDABLE AND CLEAN ENERGY<br> |
| <b>8</b> DECENT WORK AND ECONOMIC GROWTH<br> | <b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION<br> | <b>13</b> CLIMATE ACTION<br>             |                                          |
| <b>14</b> LIFE BELOW WATER<br>               | <b>15</b> LIFE ON LAND<br>                           | <b>17</b> PARTNERSHIPS FOR THE GOALS<br> |                                          |

CONTRIBUTING TO



# KEY RESULTS

## 01 | Raising awareness

The partnership has organized and participated in a series of events to raise awareness on topics which support the achievement of the Sustainable Development Goals (SDGs). These include advances and trends in integrated pest management; healthy diets through **sustainable food systems** and environmental sustainability and agri-food systems in the Mediterranean; the International Year of Pulses; **prevention and reduction of soil pollution and contamination**; agroecology; **water scarcity**; access to safe, reliable and sustainable water; **benefits of the Mediterranean diet**; food loss and waste reduction; food based dietary guidelines and the assessment of innovation in rural development programmes.

## 02 | Developing capacity

The partnership invests in the next generation of researchers, conducting study tours and offering young scientists from developing countries the opportunity to train with CNR, CREA, ENEA and ISPRA. From 2018-2020, three scientists from African countries were seconded to ENEA to work in the field of soil quality restoration and microbiome application for sustainable agri-food systems. In 2018/2019, two study visits to research facilities allowed participants from developing countries to work on innovation for family farmers and conservation agriculture farms. Since 2019, ENEA and FAO have supported the One Planet network under the Sustainable Food Systems Programme. In 2020, delegates from meteorological services and ministries of North Macedonia and Tajikistan participated in exchanges on strengthening climate services for farmers and building pilot agrometeorology programmes including topics such as data collection, analysis methods and a proposal for the use and modelling of phenological data.

## 03 | Data and knowledge management

The partnership contributed to the FAO/WHO Global Individual Food Consumption Data Tool, the International Treaty on Plant Genetic Resources for Food and Agriculture, the World Information and Early Warning System (WIEWS) of the Commission on Genetic Resources for Food and Agriculture and the Global Framework on water scarcity in agriculture, by providing harmonized data on individual food consumption, assessing diets, disseminating information to develop policies to reduce hunger, promoting the conservation and sustainable use of plant genetic resources for food, agriculture and the fair sharing of its benefits, and enhancing the efficiency of water in agriculture. In 2020, CREA concluded two agreements with FAO on the secondment of researchers to the Secretariat of Silva Mediterranea, while FAO and ISPRA signed an ad hoc agreement to cooperate on SDG Indicator 6.4.2 to map Italian levels of water stress and disaggregated river basin districts for the period 2015-2019. Activities were based on the outcomes of ISPRA hydrological water budget model (BIGBANG), and further national data.

## 04 | Guidelines and publications

Several publications focused on the methodology developed through the Livestock Environmental Assessment and Performance (LEAP) partnership to promote guidelines aimed at introducing a harmonized international approach. Publications include **Measuring and modelling soil carbon stocks and stock changes in livestock production systems**, **Water use in livestock production systems and supply chains**, and the **Environmental performance of pig supply chains**. The book **"Soil and Pulses: symbiosis for life"**, highlighted the importance of pulses in crop rotation methodologies for the sustainable management of soils, food production, nutrition security and resilience to climate change. During the update of FAO's food-based dietary guidelines website, the collaboration targeted the development, implementation and evaluation processes, as well as the sustainability approach.

## 05 | Projects

The partners are involved in initiatives devoted mainly to Mediterranean countries such as IT4PRIMA (Partnership targeting research and innovation in the Mediterranean area) developed with the aim of organizing information and disseminating activities on strategy, content and objectives related to the PRIMA Program in Italy. Under the EU funded IMPRESA project, FAO collaborated with ENEA to support a research project on integrated pest management (IPM) in olive production. The project resulted in large-scale adoption and dissemination of the model in Italian olive groves. FAO and CREA collaborated on EU-funded research projects, namely:

- MODEXTREME: MODelling vegetation response to EXTREMe Events;
- ForBIO: Fostering Sustainable Feedstock Production for Advanced Biofuels on underutilised land in Europe;
- BIOPLAT-EU: promoting sustainable use of underutilized lands for bioenergy production through a web-based platform for Europe.

## LOOKING FORWARD

Going forward, the parties will continue to concentrate on cross-cutting activities, including innovation, policy, advocacy, knowledge sharing, capacity development on themes such as gender and youth empowerment, nutrition, and the linkages between environmental issues and agri-food systems. The collaboration will also focus on participatory tools, methods and approaches, and embrace the Agricultural Innovation Systems (AIS) perspective.

Ongoing projects include supporting the organization of the 8th World Congress on Conservation Agriculture; developing case studies focusing on Italy and the disaggregation of the SDG indicator 6.4.2 on water stress at sub-national level; a follow-up to the study tour implemented in 2020 to create phenology layers in North Macedonia to assess the suitability of crop conditions under future climate scenarios; and the development of additional joint initiatives such as fellowships to promote and enhance research activities. The partnership is also actively involved in the 26th Session of the International Commission on Poplars and Other Fast-Growing Trees Sustaining People and the Environment and the 2nd International Agrobiodiversity Congress.



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## AREAS OF COLLABORATION

Since the beginning of the collaboration, the partnership has concentrated its efforts on fostering advocacy, capacity development, innovation and knowledge exchanges in the following areas: integrated sustainable approaches to agricultural production, food and nutrition, processing and value-addition of agri-food products, sustainable use of natural resources (air, soil and water) and biodiversity conservation.

## IN PARTNERSHIP WITH CNR, CREA, ENEA, ISPRA

Founded in 1923, **CNR** is the largest Italian public research institution. With a network of seven departments, 90 research institutes and 8 600 employees, CNR promotes innovation and technological solutions, advises public bodies, and contributes to the development of human resources.

The leading Italian research organization on agri-food topics, **CREA** was created in 2015 from the union of two other research institutions: the Consiglio per la ricerca e la sperimentazione in agricoltura (CRA) and the Istituto nazionale di economia agraria (INEA). The institute's 12 research centers, over 1 400 research and technical staff units and 66 experimental farms focus on agri-food supply chains and related cross-cutting thematic areas. Founded in 1952, **ENEA** was reorganized in 2015 and currently has 2 600 staff distributed across 11 research centers. ENEA promotes research and technological innovation, and provides advanced services to businesses, public administration and citizens in the sectors of energy, environment and sustainable economic development.

**ISPRA** is a public research body enjoying technical and scientific independence; it responds to the environmental protection obligations set by the national law such as control, monitoring, assessment, prevention, inspection, technical and scientific advice, as well as information and communication, education and training, including on water resource, soil and land, nature and biodiversity conservation, providing also technical support to public authorities. ISPRA receives general guidance from the Minister for the Ecological Transition. Following the entry into force of Law 132/16, ISPRA coordinates the National System for Environmental Protection (SNPA) composed of the 19 Regional and 2 Province's Italian Environmental Protection Agencies.

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