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# Nile Valley and Red Sea Regional Program

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## Introduction

The Nile Valley and Red Sea Regional Program (NVRSRP) was ICARDA's first out-reach program, initiated in 1979 as the Nile Valley Project (NVP) with Egypt and Sudan, and expanded in 1985 to include Ethiopia. After Yemen joined the program in 1995, the project became NVRSRP. Eritrea has also become an active NVRSRP member. The population of the NVRSRP countries is 195 million, representing 38% of the population of the West Asia and North Africa (WANA) region with 72% living in the rural areas. Yet, the Gross National Product (GNP) is the lowest in the region, ranging from US\$ 140 in Ethiopia to \$740 in Egypt. The main goals of NVRSRP are to increase the income of small-holder farmers and improve food security and livelihoods of rural and urban low-income sectors of the populations through improving the productivity and sustainability of the highly diverse agricultural production systems. During the past six years NVRSRP has been funded through restricted projects, such as: IFAD-supported project in Egypt, Ethiopia, Sudan and Yemen; European Commission's support for collaborative research in Egypt; Netherlands's support for research in Ethiopia; Danida's support for research in Eritrea; CIDA's support for work in Eritrea, Ethiopia, and Sudan; and the World Bank and IDRC support for activities in Yemen. Projects implemented within the NVRSRP countries have received technical backstopping from all MegaProjects and Units at ICARDA. Main research thrusts are to combat biotic and abiotic stresses that reduce crop yields and yield stability of the main food legume and cereal crops. More recently, research has been conducted on natural resources conservation, which addresses farm-level water management and soil degradation.

## Achievements

The NVRSRP established several problem-solving regional networks as part of its strategy to strengthen basic and applied research-for-development with support from IFAD. The main achievements of the networks were:

- **Cereal Rusts Network:** Using the recommended resistant cultivars for controlling rust diseases resulted in increased yield and profitability. An integrated management package for the control of rust diseases was developed.
- **Wilt, Root-Rot and other Diseases of Cool-Season Food Legumes Network:** Management options, including host resistance for major legume diseases, were developed and tested with farmers' participation.

- **Aphids and Major Virus Diseases Network:** Several surveys for viruses and aphids were conducted in the region, and high incidence in specific locations was identified. Integrated management options for controlling the aphids and the viruses they transmit were developed and disseminated to farming communities of Egypt, Ethiopia and Sudan
- **Thermo-Tolerance and Yield Stability of Wheat in Hot Environments Network:** In Egypt, salt-tolerant wheat cultivars as part of a recommended production package, gave higher grain yield compared with local cultivars. In addition, evaluation of the NVRS Regional Heat Tolerance Yield Trial showed high yield potential under both normal and heat stress conditions. In several locations in Sudan the wheat varieties ‘Imam’ and ‘Wadi el Neil’ were the best in the northern region, whereas the varieties ‘Neilain’ and ‘Debeira’ were the best in the Gezira and southern part of the Nile State.
- **Drought Tolerance in Cereal and Legume Crops Network:** The new Egyptian barley cultivar, Giza 2000, with high-yield potential under drought conditions, was released. Promising barley genotypes for drought tolerance in Egypt and Ethiopia were identified. High-yielding, medium-maturity and drought-tolerant wheat genotypes were identified. Use of manure and furrows irrigation improved wheat WUE by about 13% in farmers’ fields. Participatory on-farm evaluation of chickpea varieties in the central highlands of Ethiopia proved that the promising variety ICCV 89303 produced higher grain yield than the other tested varieties. In Sudan, chickpea demonstration plots of improved production technology proved that the improved variety ‘Shendi’ released earlier is still among the best yielding varieties in the Nile State.
- **Socioeconomic studies** were conducted in Egypt, Ethiopia, Sudan and Yemen, focusing on production costs, marketing and consumption by the different communities. Studies also included analysis to explain the reasons behind different adoption rates of new production technologies by the farming communities.
- **Human resource capabilities of NARS** have been strengthened through training and scientific visits. Between 2000 and 2005, a total of 115 NARS personnel received non-degree training in specialized training courses. Regional interaction was enhanced through joint research planning and implementation, formal research networks, traveling workshops and regional coordination meetings.

## Current Activities

NVRSRP has 12 on-going projects: one regional, 3 in Egypt, 2 in Eritrea, 2 in Ethiopia, and 4 in Yemen. As some of these projects are coming to a completion, new project proposals are being developed, some were submitted to donors for funding and others are still under preparation. Projects development is carried out with close consultation with NARS.

In addition to the special projects, ICARDA continuously provides the NARS with a variety of nurseries representing promising breeding lines, training in different areas, scientific research information and other services through the HQ, MPs, and Units.

## **Future Plans**

NVRSRP will work to strengthen and maintain regional activities by supporting the regional networks. Research areas suggested by NARS in their priority-setting exercises during the coordination meetings to enhance and strengthen inter-regional cooperation include utilization of marginal water, IPM, cereal production improvement under saline soils, crop-range-livestock integration and on-farm water management. Efforts will be made for full partnership with Eritrea. Cooperation and complementarity between ICARDA and advanced institutions and universities will be strengthened.