ICARDA: Sustainable Agricultural Development in the Dry Areas

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Australia and ICARDA
Ties that Bind

• Much of southern Australia has the same kind of Mediterranean climate as in the CWANA region. Hence sharing of research material, technologies and expertise mutually rewarding.

• Australian scientists on the Board of Trustees and staff of ICARDA.

• GRDC is supporting two positions at ICARDA in wheat and chickpea breeding.

• Australia is a donor to ICARDA.
Major Challenges of Agriculture in Dry Areas
The Changing Environment
Desertification/Land Degradation

Source: Millennium Ecosystem Assessment
Relative water poverty projections to 2025

Group 1 (mainly West Asia and North Africa)
Group 2 (mainly Sub-Saharan Africa)
Access to Water and Food Security are Dramatically Linked

Environmental Poverty

Drought

Salinity

Biotic stress
Effects of global warming

- Crops and livestock will face increased heat stress
- Developing countries in the south are likely to be negatively affected
- 11% decrease in cultivable rainfed land area projected by 2080 in developing countries
- The severest impact is expected to be in the Near East, North and Sub-Saharan Africa
Human Poverty

Income less than 1 US dollar a day: 360 million
Conflict
Lack of employment opportunities

Socio-political upheavals

Food insecurity

Drought, heat waves,

Global CO₂ emissions (climate change)

Land degradation, water scarcity, loss of biodiversity

Desperation leads to unsustainable use of natural resources

Population growth

Migration

Poverty, hunger and malnutrition

Interrelationships between key challenges in dry areas

The Poverty Trap
Pathways out of Poverty

- Better Livelihoods
  - Resilient production systems
  - Less CO₂ emissions
  - Improved food security
  - Pro-poor policy and institutional options
- Better employment opportunities
- Diversification and access to markets
- Sustainable use of natural resources
- Human resource development
- Peace and social stability
- Improved food security
- Resilient production systems
ICARDA’s Mission

“To contribute to the improvement of livelihoods of the resource poor in dry areas by enhancing food security and alleviating poverty through research and partnerships to achieve sustainable increases in agricultural productivity and income, while ensuring the efficient and more equitable use and conservation of natural resources.”
ICARDA’s Global Mandate

- Barley
- Lentil
- Faba Bean
- Water-use Efficiency
ICARDA’s Regional Mandate

- Chickpea
- Durum Wheat
- Bread Wheat
- Forage Legumes
- Rangeland and Small Ruminant Nutrition Improvement
ICARDA’s Geographic Mandate

CWANA
Dry areas outside CWANA
ICARDA’s Major Research Programs

- Biodiversity and Integrated Gene Management
- Integrated Water and Land Management
- Diversification and Sustainable Intensification of Production Systems
- Social, Economic and Policy Research
Contribution of ICARDA’s Research Outputs to the Millennium Development Goals and CGIAR Priorities
Three Pillars of Sustainable Agriculture

- Natural Resource Management
- Crop Genetic Improvement
- Institutions, Policy, and Community Approach

Integration in Field
Major Shifts in the New Strategy

• More emphasis on risk management, drought mitigation, and adaptive capacity of agriculture to climate change

• Greater emphasis on integrated water and land management, in addition to crop genetic improvement

• Increased emphasis on improving water productivity per unit of water.

• Increased emphasis on socio-economic research

• Strong emphasis on diversification and marketing research for income generation and improving nutrition

• Enabling farmers to move from subsistence agriculture to market-oriented production

• Increased global coverage (Sub-Saharan Africa, South Asia, China, and Latin America)
The Research Continuum

- Developing Country NARS
- ICARDA
- Advanced NARS
ICARDA’s Outreach Programs

- Latin America
- West Asia
- Central Asia and the Caucasus
- Nile Valley and Sub-Saharan Africa
- North Africa
- South Asia and China (Proposed)
- Arabian Peninsula
- Highlands

CWANA

Dry areas (outside CWANA)