Integrating and Scaling Innovations for Dryland Agriculture.

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We need a Framework for Scaling Systemic Innovation rather than Component Innovation

Five MODULES supported by a Digital Interface to Design and Manage R4D Projects for Systemic Transformation of Dryland Agri-food systems

1. **SHARE** Knowledge, Technologies and Data
2. **COMBINE** Technologies in Systemic Innovation
3. **ACCELERATE** co-design with Farmers Communities
4. **ENABLE** Policies and Institutions for Systemic Innovation
5. **INTEGRATE** Innovations and Methods

**DryArc Interface**

Commodity-based and Component-based innovations (eg. New varieties, new equipment....)

Existing Platforms (national, regional, international)

A framework in discussion with FAO and countries (NARS, Australia...)

https://geoagro.icarda.org/gee/dryarc/
A diversity of Challenges and Solutions in the Drylands

Irrigated
17%

More nutrition and job per drop

Rainfed
22%

More food per drop
card.org

Agro-pastoral
58%

Increase Socio-economic Water Productivity

Desert farming
3%

Socio-ecological Resilience

Land Degradation Neutrality and Livelihood

SHARE Knowledge, Technologies and Data

NENA Agricultural Land (2.5 M km²)
1. Plant breeding as the trigger of the innovation process but the innovation is a system

Rice-fallow system with pulse crops in South Asia (Bangladesh, India and Nepal)

New variety

Adapted Crop Management

In a farm-household context

In a Value-chain

Digital Advisory Services for scaling

Suitable areas for Lentil in 2018/2019

150,000 farmers beneficiary

Seeds hubs

Crop imp.

Daal mills

Value chains

Storage units

Market Aggr.

High Medium Low NS

Seeds hubs

Digital Advisory Services for scaling

(Funded by IFAD, ICAR India)
2. Systemic Innovation requires conducive policies and agri-business

Mechanized raised Bed and diversification in Egypt

The Egypt wheat strategy targets 800,00 ha cultivated under RB system by 2023

National policies on wheat self sufficiency and water management

Private companies investing in R&D

New Wheat varieties with adapted crop, water and soil management

(Funded by EU, Germany)
3. Co-design with local communities is key for success

The agro-sylvo-pastoral systems in Jordan and Tunisia

ACCELERATE co-design with Farmers Communities

Upstream land and water management

Collective management of grazing

Downstream management of dual-purpose crops and forages

Biodiversity conservation

A flexible approach to the restoration of degraded rangelands

Value-chain for local products
4. Sustainability is in a transformative pathway not in a single solution

(Wheat in Africa)

Phase 1: a rapid transformation based on a priority crop

Enabling Environment

Policies, regulations, guidelines, investment incentives

Wheat Grain Value Chain

Wheat production Clustering farmers Farmers cooperatives Farmers associations

Contract farming

Allied Services

Access to agri-services (seeds, fertilizers, agro-chemicals) Access to finances (capital, credits)

Wheat Marketing Aggregation Storage Logistics (transportation)

Rural infrastructures Grain quality grading Premium based pricing

Agro-processing Flour mills Food products

Finances

Sustainability assessment

Phase 2: diversification and natural resources management

Wheat Income Jobs

(TAAT Wheat project funded by AfDB)
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Digitalisation increases our transformative capacity if it provides the right services to each stakeholder.