



Benchmarking Innovations for Sustainable Agri-food systems under climate change in the Mediterranean Region: what do ICARDA and the CGIAR have to offer?



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DDG-R

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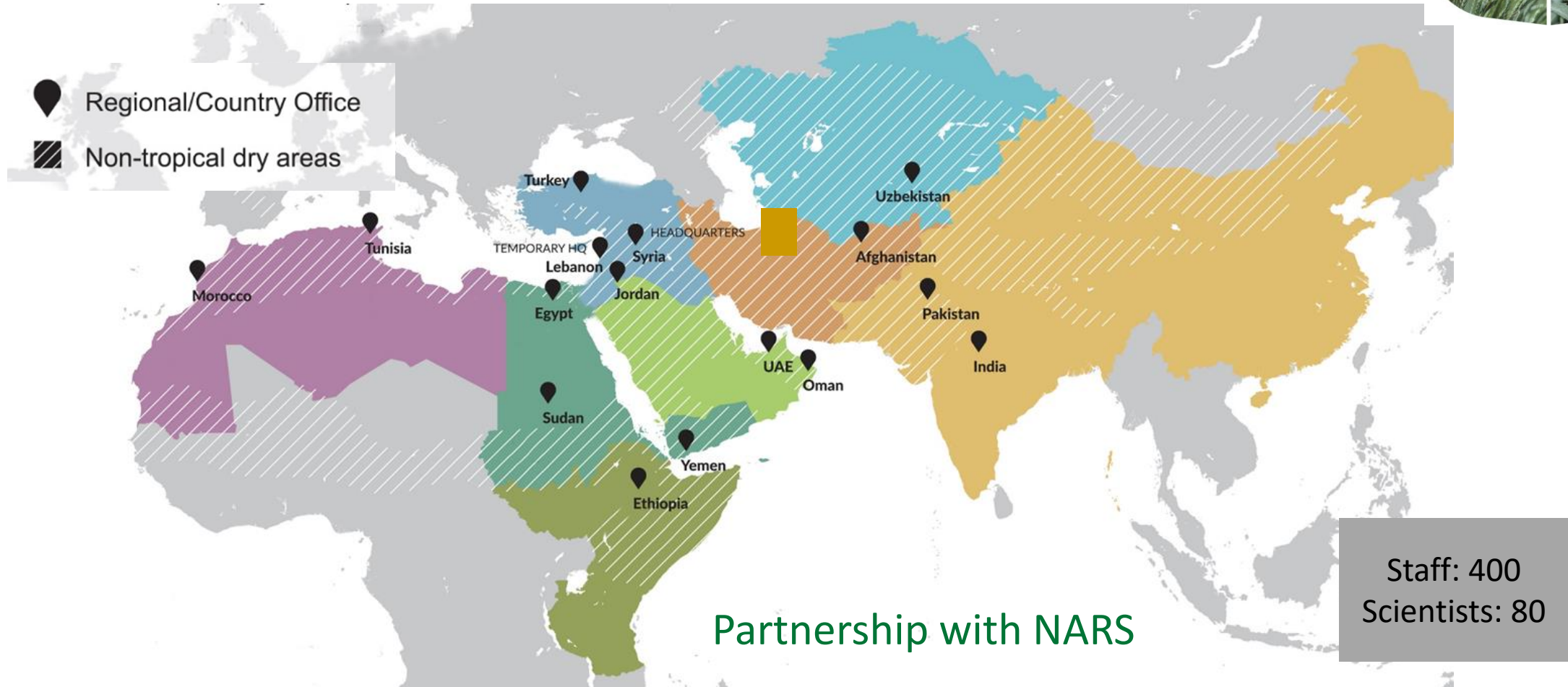
icarda.org

International Center for Agricultural Research in the Dry Areas

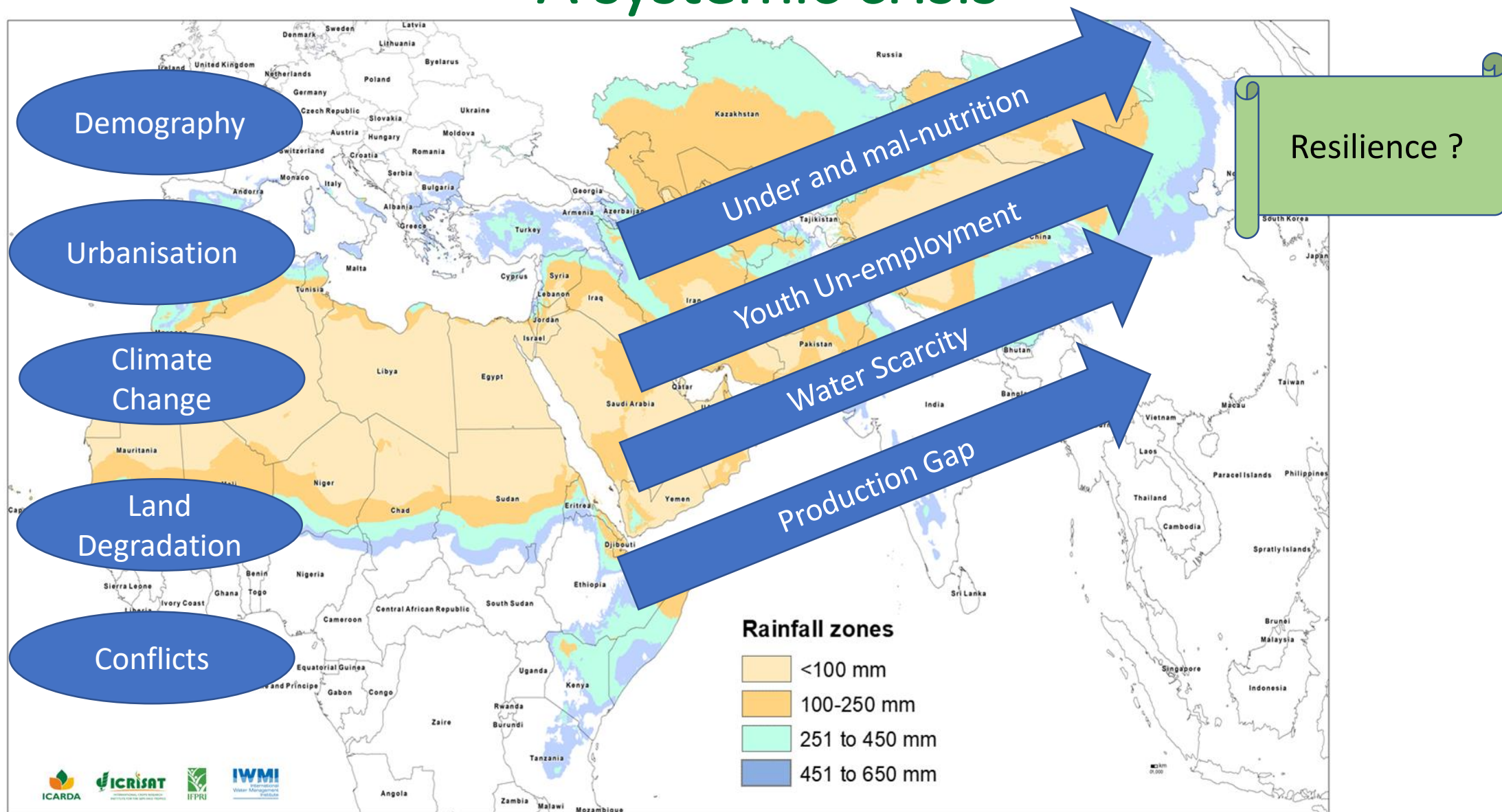
cgiar.org
A CGIAR Research Center



ICARDA is a **decentralized R4D** international institute for **agri-food systems** in non tropical **drylands**



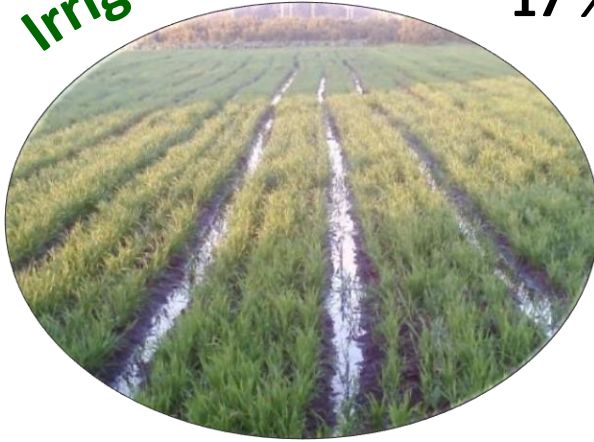
A systemic crisis



Opportunities ← Innovation X DiversitieS

Irrigated

17 %



58 %

Agro-pastoral



Rainfed

22 %



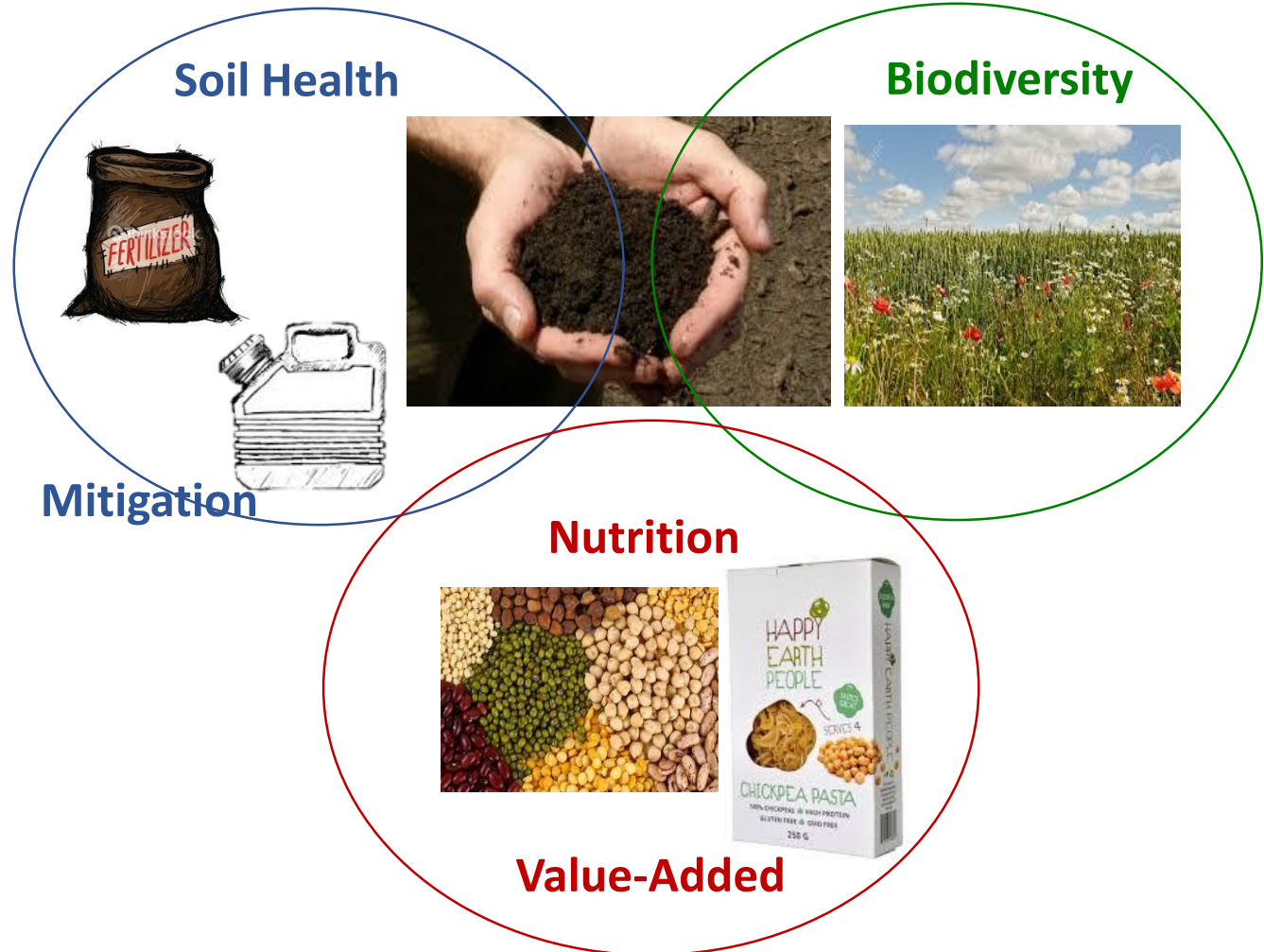
3 %

Desert farming

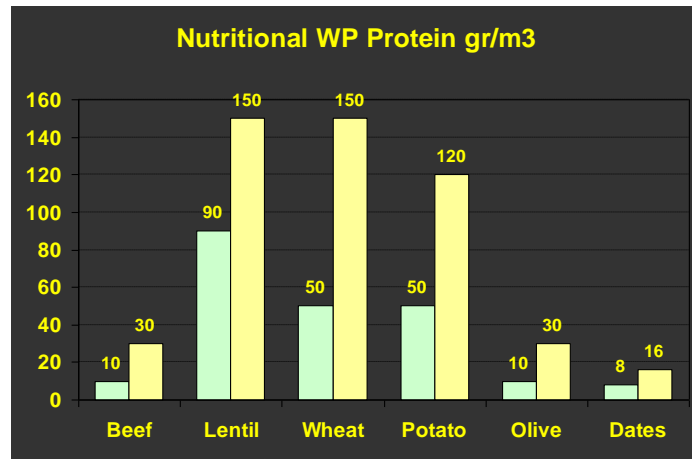
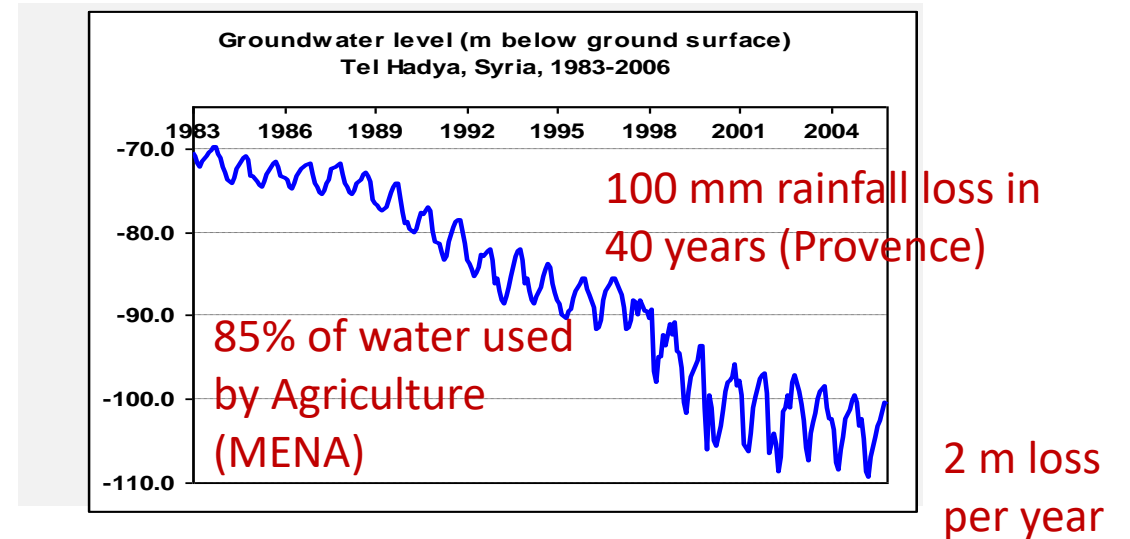
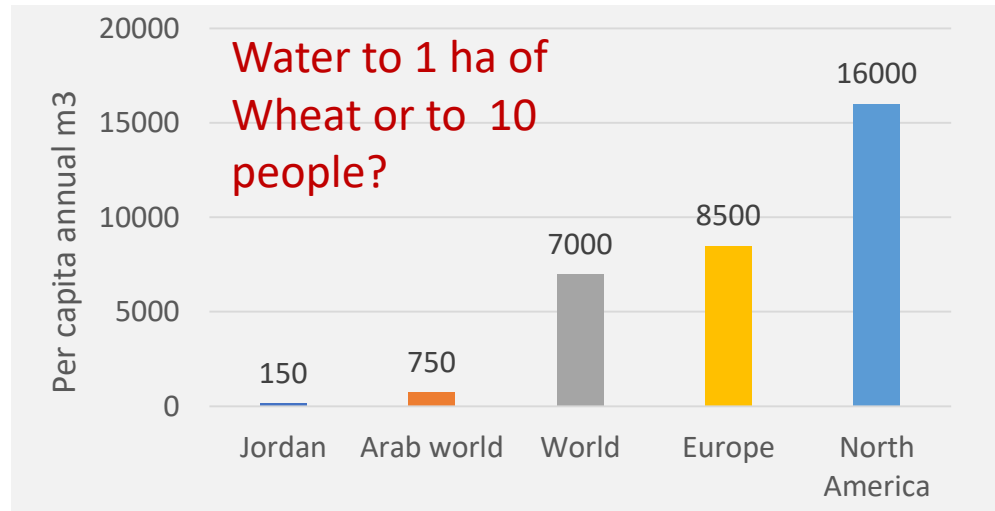


Agro-biodiversity for a One Health Approach

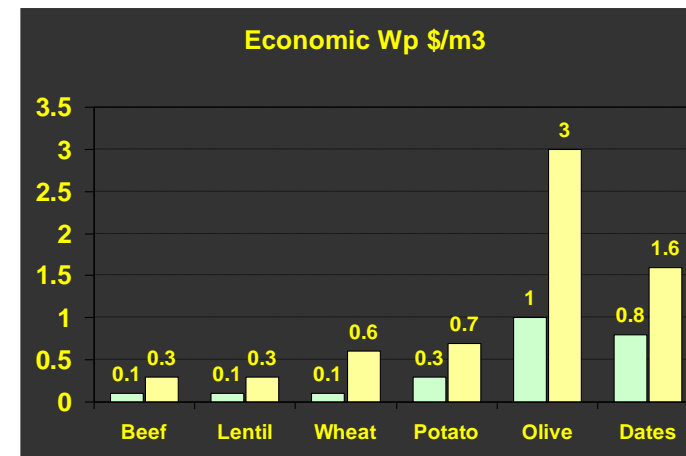
Healthy Diet → Diversified Farms



Water scarcity: limit or opportunity for diversified agri-food systems?



Explore Trade-Offs and Synergies in Water Productivity



Combine or Separate commodities in the field ?

icarda.org

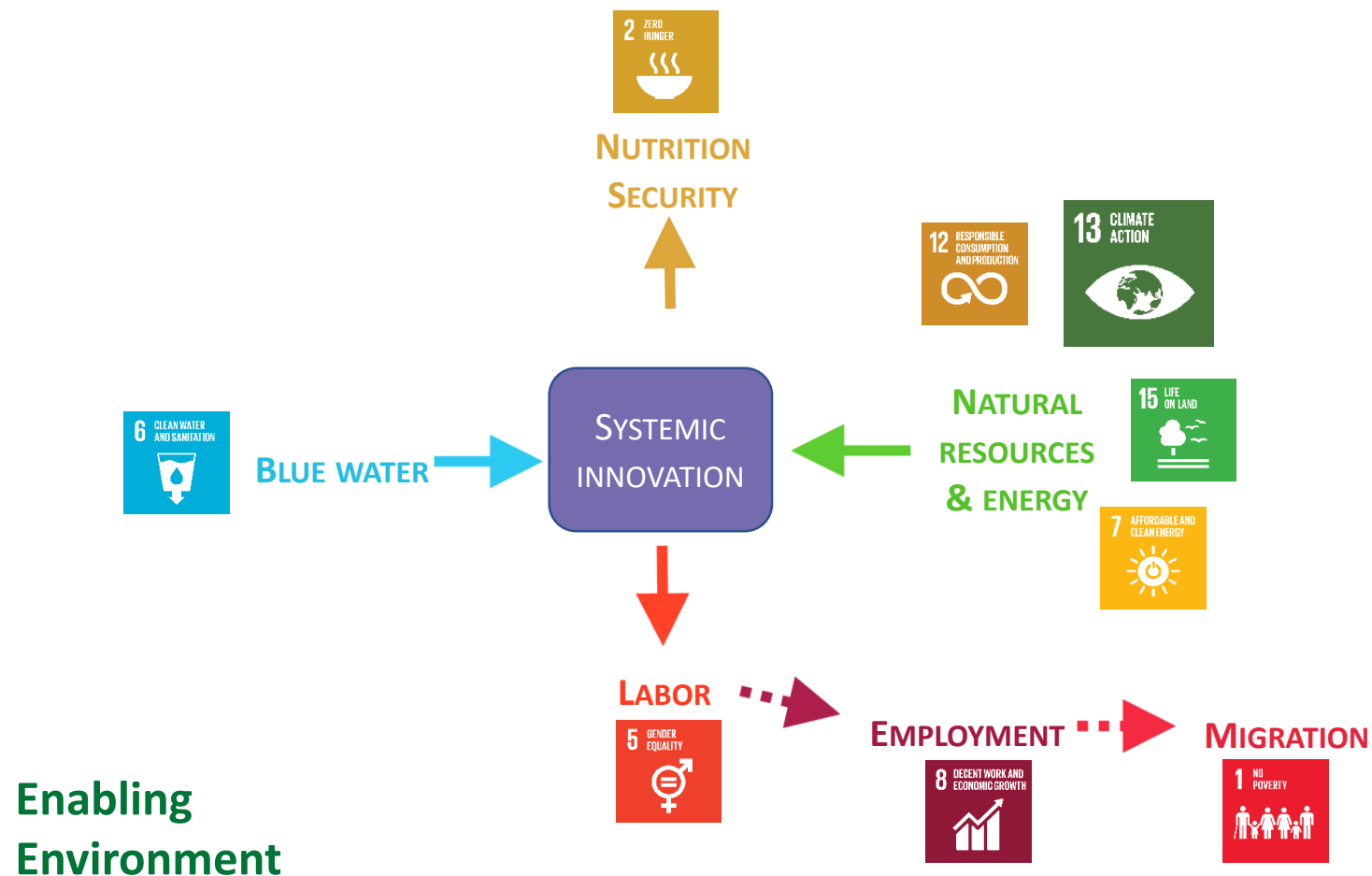
Traditionnall

Improved

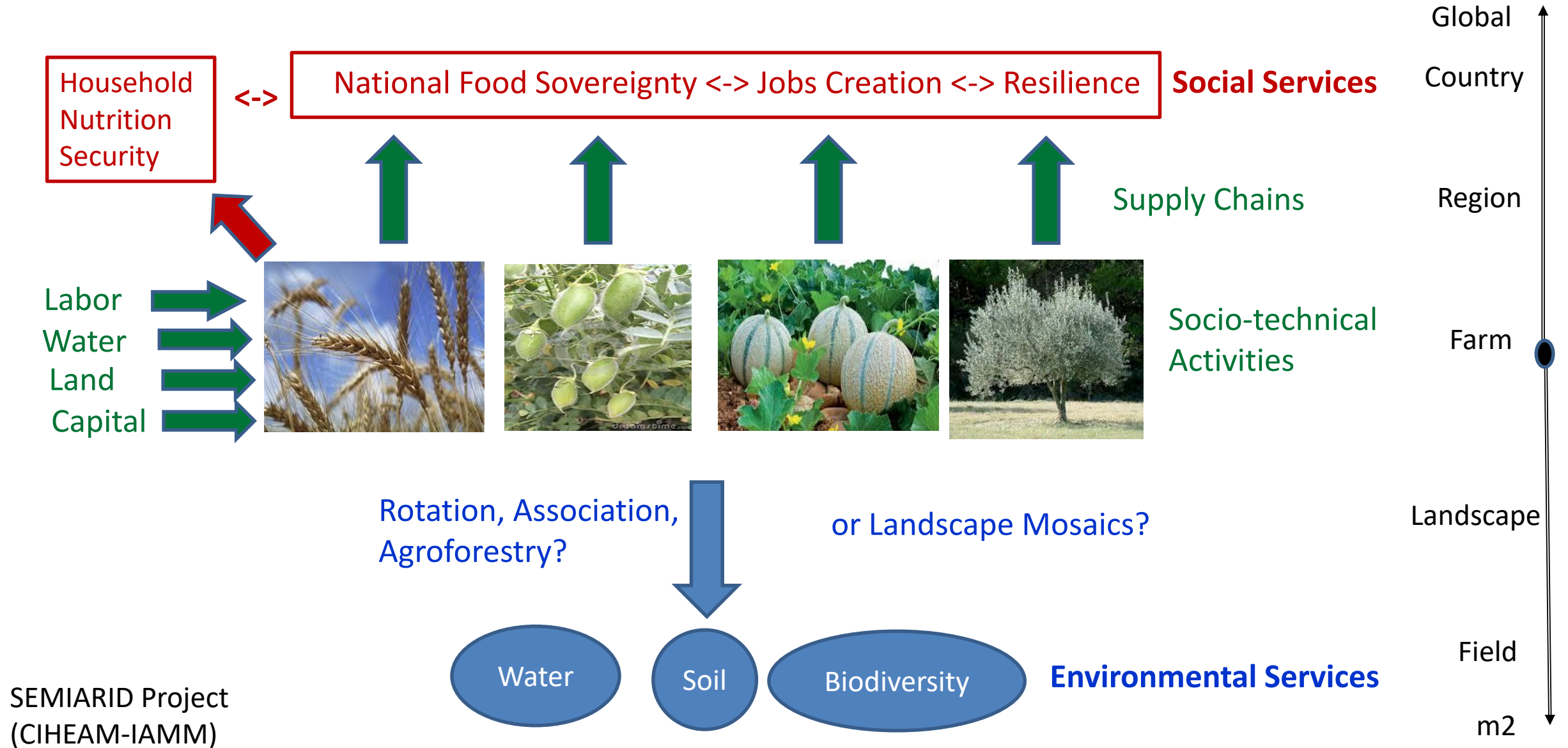
Components



Systemic Innovation



“Cropping Agro-biodiversity” A Multi-scale and Multicriteria Problem



SEMIARID Project
(CIHEAM-IAMM)

(Hammouda et al., 2019). (Lamanda et al. 2012 – Merot et al., 2017).

Rainfed



- Loss of soil fertility (organic matter, compaction)
- Weeds, pests and diseases
- Risky farming

Legume-based agro-ecology for cereal systems

Conservation Agriculture



Forages and Pulses



“De-risking” solutions for farmers



Irrigated



Input-based Intensification



- Loss of Soil Fertility
- Salinization
- Soil Health (← Pesticides and Fertilizers)

Water as a socio-ecological driver

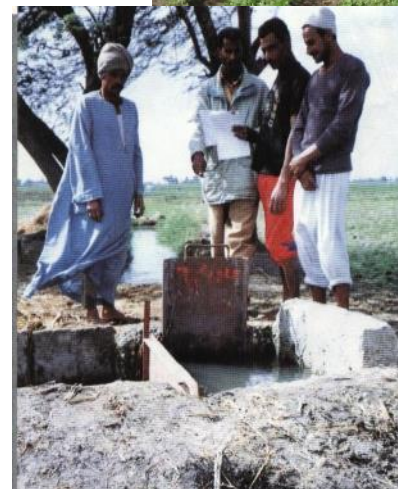
Diversity-based Intensification



Create decent jobs

Feed the family

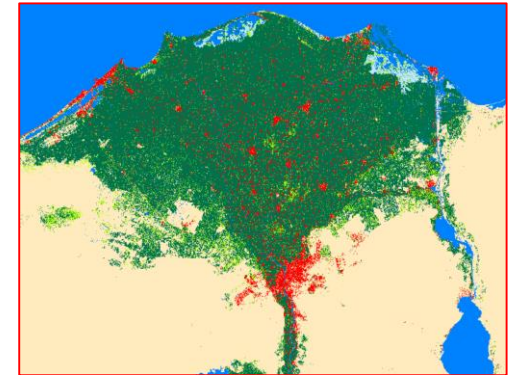
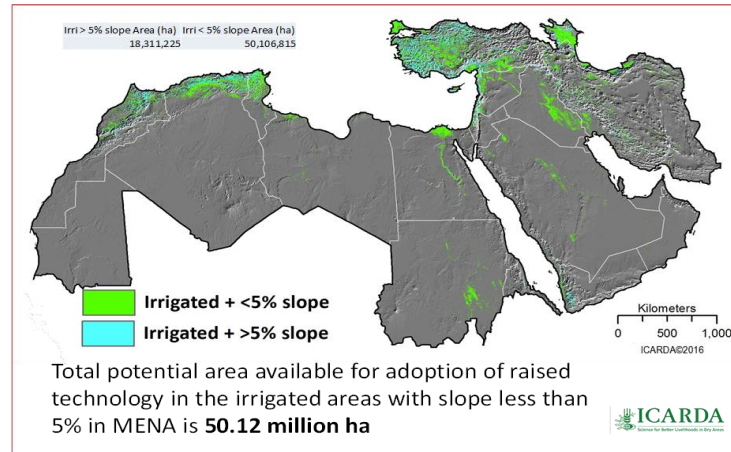
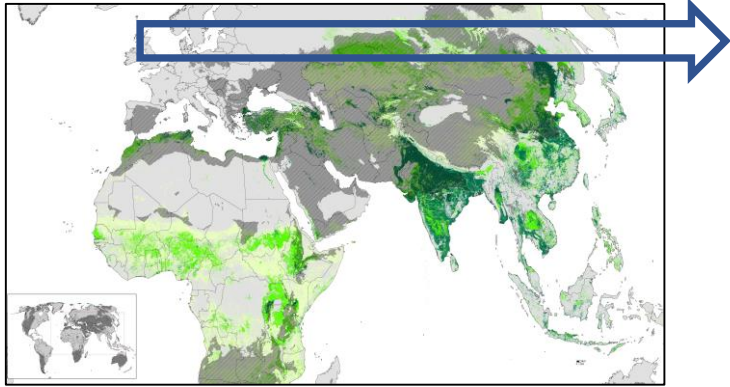
Feed the urban poor



Water Management

Scale-Out “Innovations”

Similar Systems and Context



Mechanized Raised-Bed Planting Wheat



Ethiopia, Jordan,
Iraq, Morocco,
Nigeria, Sudan,
Tunisia and
Uzbekistan

- Less irrigation water (- 25%)
- More yields (+30%)
- Less seeds (-50%)

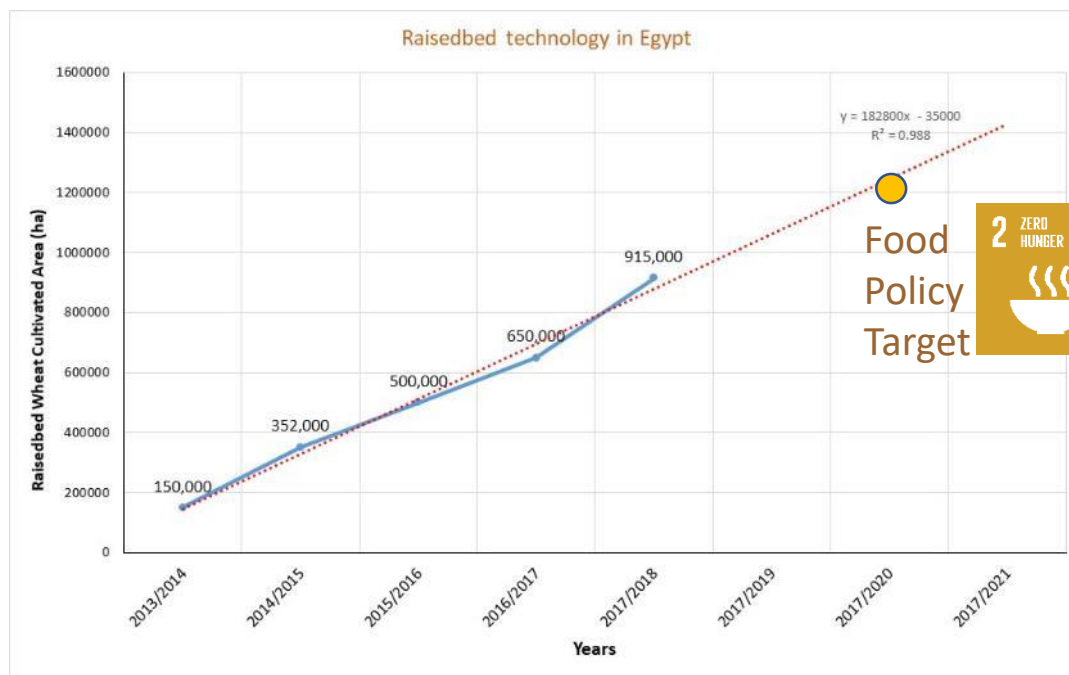
22 governorates

10% of Egypt's total
wheat area (125,000 ha)

Upscaling to Food Systems at the National Level



RSB Wheat (Feddans)



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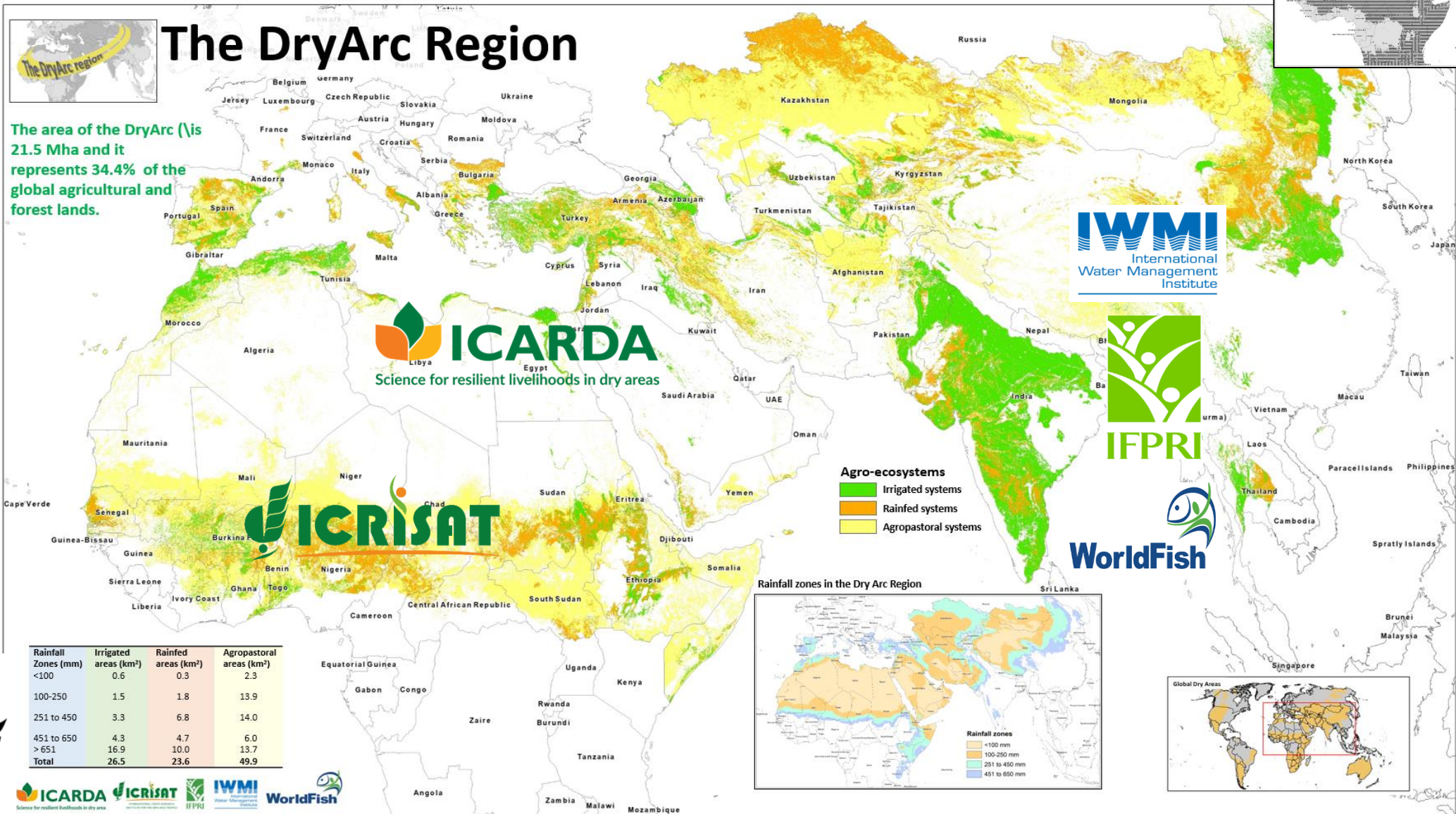
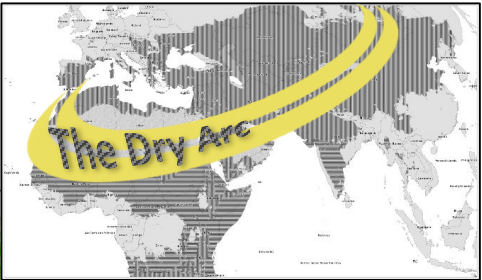


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→ Ex ante Multiscale and Multicriteria Assessment of Innovation to inform Policies

Towards a CGIAR Platform for the Drylands

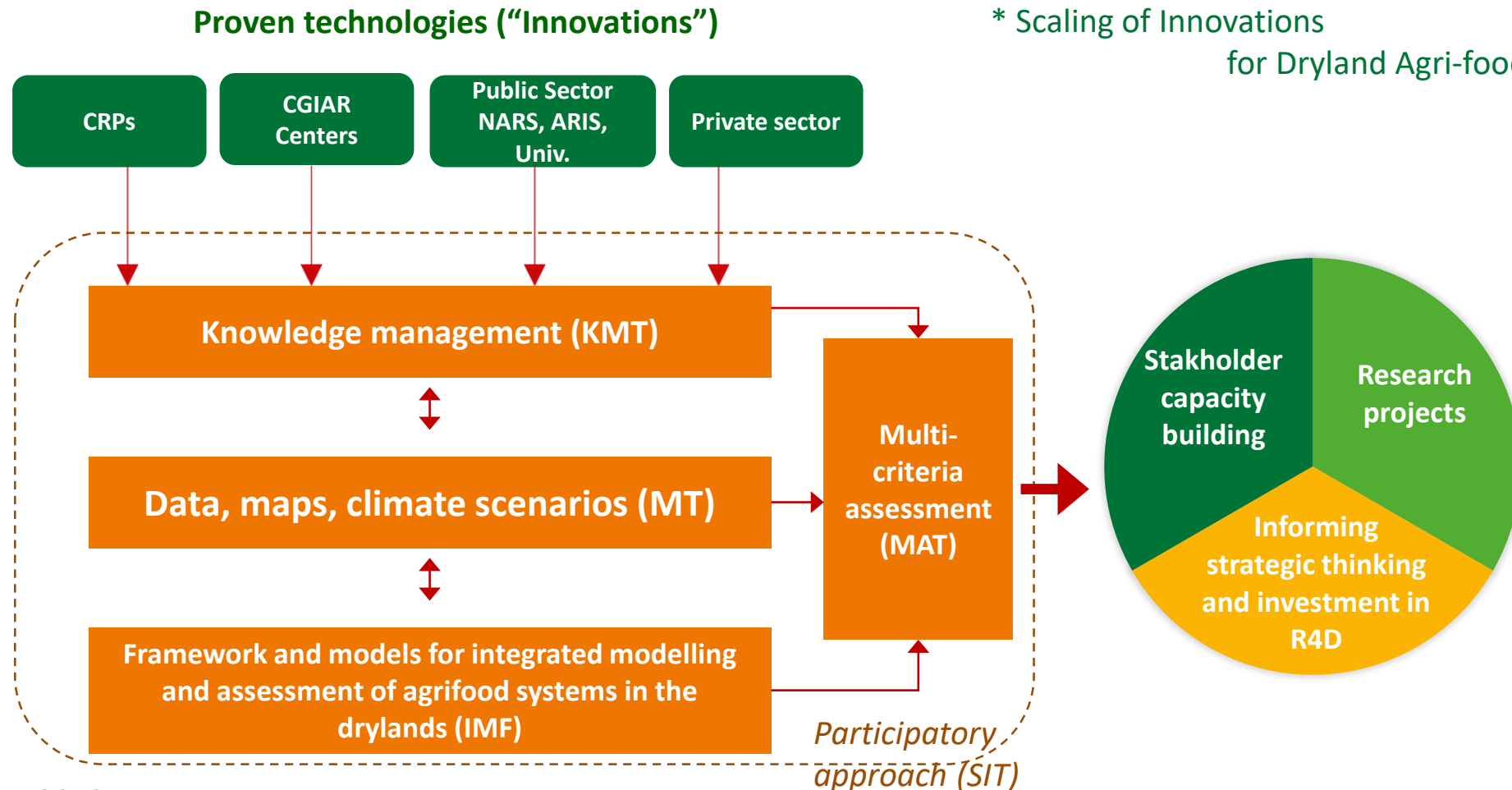


DryArc: The Drylands Interface of the CGIAR with stakeholders

The DryArc Interface: a Combination of Tools for

- * Benchmarking,
- * Integrated Assessment
- * Scaling of Innovations

for Dryland Agri-food systems





Five paradigms for an agro-ecological transition in Mediterranean agri-food systems

1. **Policies and Development** should be based on the **Diversities** (rainfall, farms, diets...) across the Mediterranean basin
2. No **One Health approach** without “cropping agro-bio diversity”
3. **Small ruminants** (and fish) are at the core of resilience (nutritional and social) and circularity under climate change and variability
4. **Innovation should be systemic** to maximize SDGs synergies and minimize trade-offs in the Nexus Nutrition-Water-Employment-Natural resources
5. We have all the building blocks for a **Global Platform** on Agri-food systems in the Mediterranean basin.

Together we can do better

Work with nature



Work beyond the fences

