

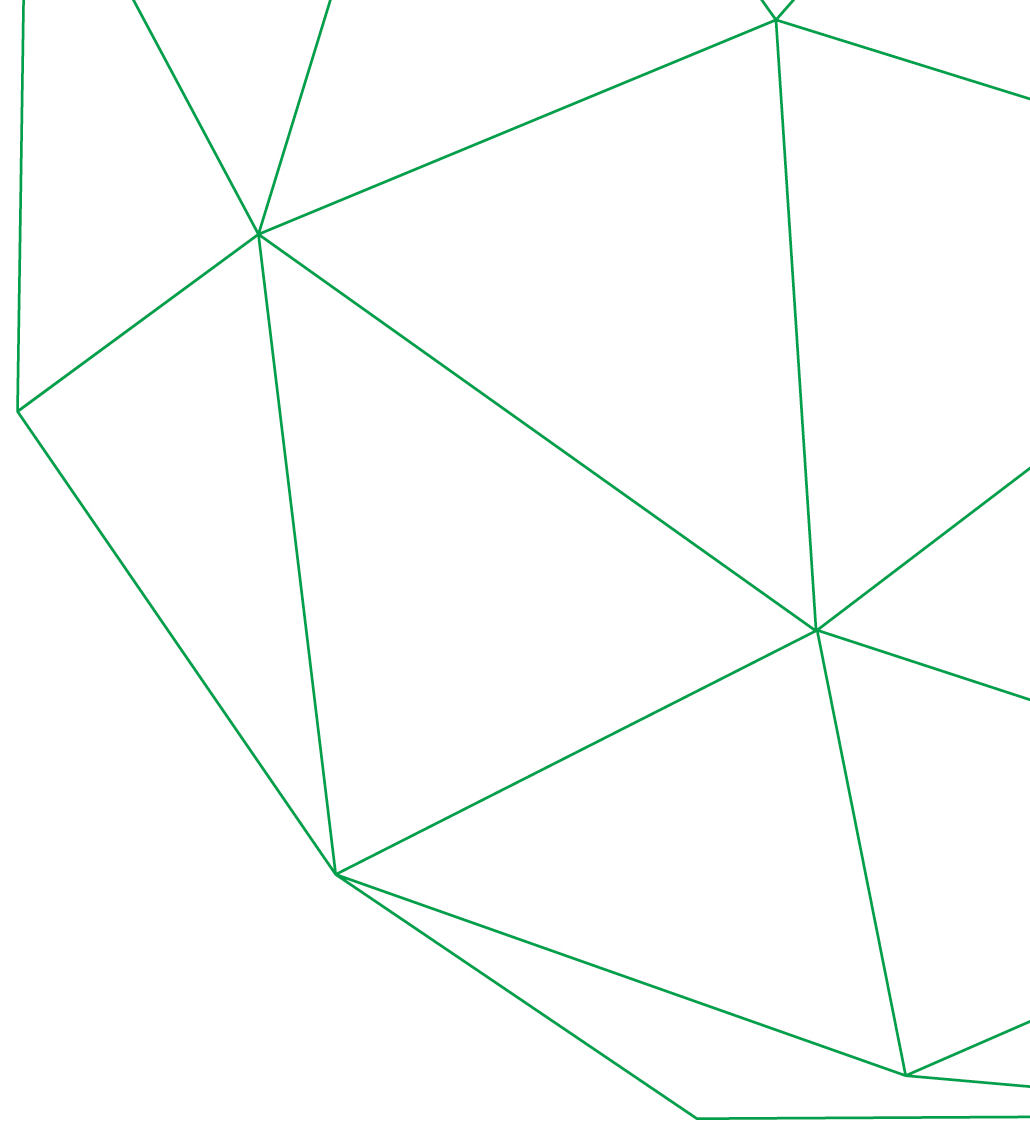
GREEN
CLIMATE
FUND

GCF REGIONAL DIALOGUE
with MIDDLE EAST & NORTH AFRICA

Fragility to Resilience in CWANA Initiative

Michael Baum

Rabat, Kingdom of Morocco
24–28 June 2024



F2R- CWANA Fragility to Resilience Initiative



From Fragility to Resilience in Central and West Asia and North Africa: Transforming responses to drought and climate variability (F2R-CWANA) will aim at building resilient agri-food systems in the CWANA region, primed to withstand the effects of climate change and generate better livelihoods for rural communities.

Primary Impact Area



Climate Adaptation
& Mitigation

Countries

Egypt, Lebanon, Morocco,
Sudan and Uzbekistan



WorldFish

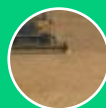


IRRI

Alliance



Climate change &
Climate risk
management



Fragility and
conflict



Resilience



Water scarcity



Food security



Food, feed, land,
water, and energy
systems



Accelerators

The Innovation Platforms (IP) of CWANA



- Research farm
- Multi-layer
- Multi stakeholders
- A watershed
- Rural communities
- Urban settlements



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National Alliances of Stakeholders



Guide the prioritization of innovations

To ensure alignment to the national vision
Reveal gaps along the agri-food value chain

- Propose strategic solutions
- Scale-up proven solutions and technologies



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Genetic Innovations: 27 Crop x Country Combinations

In collaboration with ABI & Market Intelligence & Seed Equal:

Stakeholder meetings in:

- Morocco
- Egypt
- Sudan
- Lebanon
- Uzbekistan

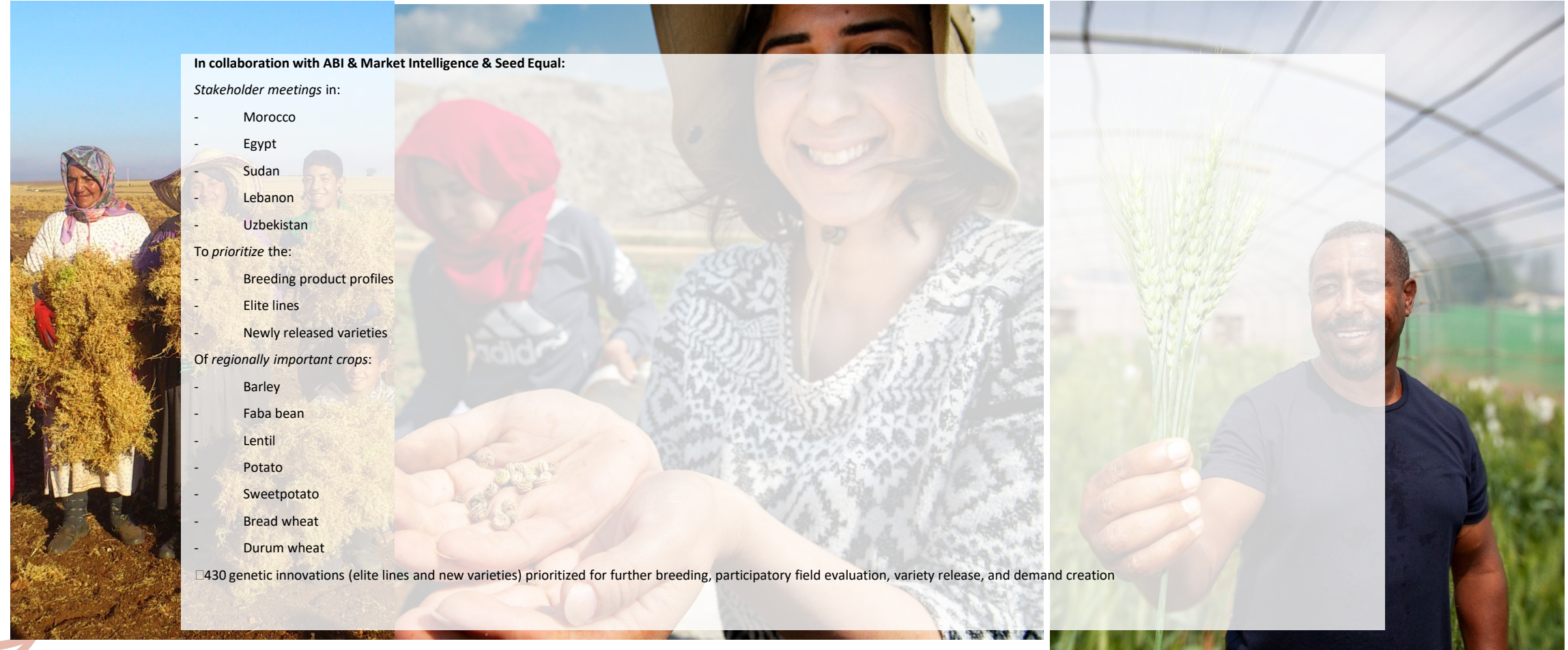
To prioritize the:

- Breeding product profiles
- Elite lines
- Newly released varieties

Of regionally important crops:

- Barley
- Faba bean
- Lentil
- Potato
- Sweetpotato
- Bread wheat
- Durum wheat

430 genetic innovations (elite lines and new varieties) prioritized for further breeding, participatory field evaluation, variety release, and demand creation



F2R- CWANA Regional Integrated Initiative

Barley-Wheat mixture for baladi bread in Egypt



- **Barley-Wheat flour mixtures increase loaf production in baladi bread.** 20% Barley in the mix produces **14% more bread loaves**
- **Increased food security:** Potential to increase production of barley in NRL and marginal areas and reduce imports
- Enhanced nutritional security through **healthier bread.** Mixed breads have higher iron, zinc and β -Glucan
- Study commissioned by ICARDA with ARC Egypt



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F2R and PRIMA projects (MountainHer MedWealth)

Continued support for women cooperatives in Morocco, Tunisia, and Lebanon:

- driving normative, economic and social change in local and policy communities through coupling social and technical interventions, Gender Transformative Approaches and fostering national dialogues:
 - Leadership and marketing trainings (Nov 2023 in Lebanon, planned for May in Tunisia)
 - Fostering national dialogues (Dec 5 in Tunisia, Lebanon planned in April 17 and Siam Morocco Event in April)

Gender Platform MENA and Climate Gender Strategy are gaining traction:

- Invited to present in a workshop on gender, conflict & displacement in the context of climate change in the Middle East, hosted by United States Institute of Peace and Rice University's Baker Institute for Public
- Invited by the Carnegie Endowment for International Peace to develop pod cast on CNN Arabic entitled '2 Degrees' for a session on Women's Vulnerability to climate change in MENA
- Invited by the German Embassy in Egypt, UM6P in Morocco and USAID in Morocco to present on women and climate vulnerability in MENA

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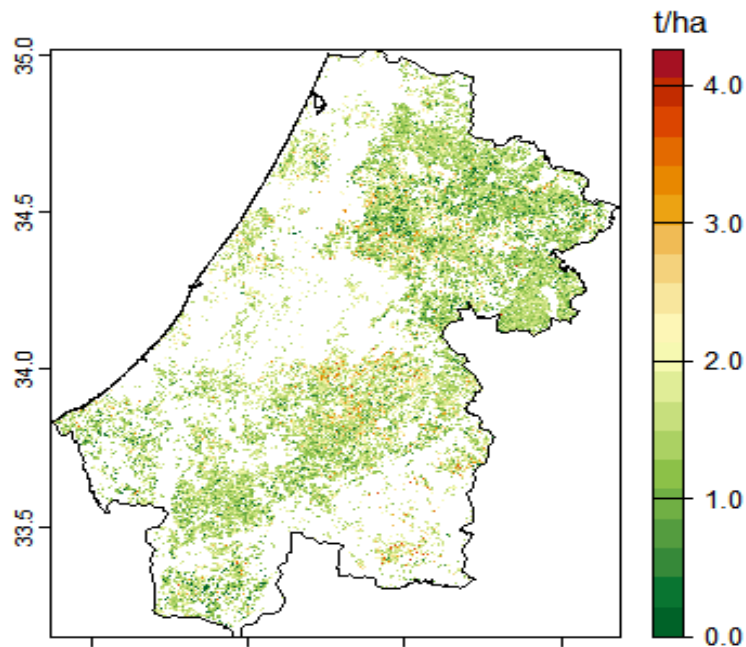
Gender research

Sustainable intensification



Developed methodology for yield gap decomposition

Combining ground information, remote sensing, simulation & machine learning



Wheat yield gap 2020-2021, Rabat-Sale-Kenitra, Morocco

Developed four bundle solution 'trainers training' booklets in wheat soybean for Egypt, Sudan and Uzbekistan



Tips to manage weed seed bank under conservation agriculture-based farming systems in drylands

Weed management in the drylands is complex because of heterogeneous soil conditions, increasing frequency of extreme events (drought, torrential rainfall, and extreme temperatures), a wide range of environmental requirements of botanically diverse weed species, and limited farmers' resources. Weeds can survive under adverse conditions, as they extract more water and nutrients from the soil, thereby reducing crop yield by 37 to 79% in dryland agriculture. Weeds are the most detrimental factor in decreasing the water availability to growing crops in dryland, where weeds alone can reduce more than 50% of crop yield competition for

Established Agronomy-Community of Practice (A-CoP): in 3 countries (Egypt, Sudan)



Sustainable intensification



Established: G x E x M Experimentation in all countries



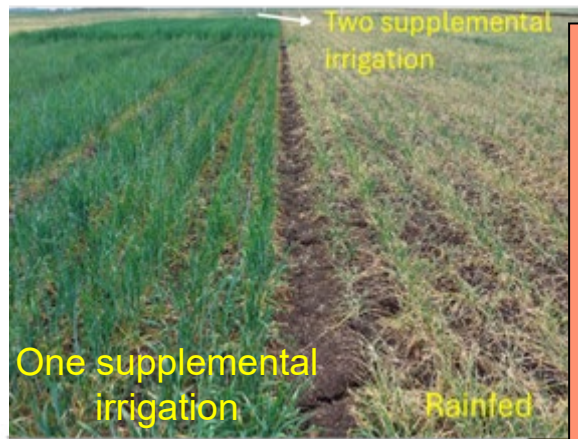
Crop Diversification: resilience and diversify the farm income

Supported soybean- mission of
Egypt government



Climate smart mechanization & its value chain

1. **Raised bed planters:** >100,000 ha under mechanized raised beds in Egypt & expanding other countries, Sudan, Syria
2. **Low-cost No-till seeder:** supporting for 1 M hectare CA in Morocco



Supplemental irrigation over 1 M ha Morocco can reduce wheat imports by 35% in drought year

Explored crop diversification option: Morocco Egypt:
Crops: Sorghum, millet, mungbean, maize, soybean, quinoa, forages



Farmers perception about the bed planter

"The machine is amazing! It's so easy to use and works really well. As a farmer, it's a game-changer for me. Not only does it make my work more efficient, but it also helps me save on seeds and fertilizers." - **Tharwat Mohamed AbelAziz, Farmer**



Genotype × environment × agronomic management interaction to wheat yield in the Mediterranean rainfed environments of Morocco: Process based modeling

Krishna Prasad Devkota¹, Mina Devkota², Rachid Moumadel³, Vinay Naing⁴

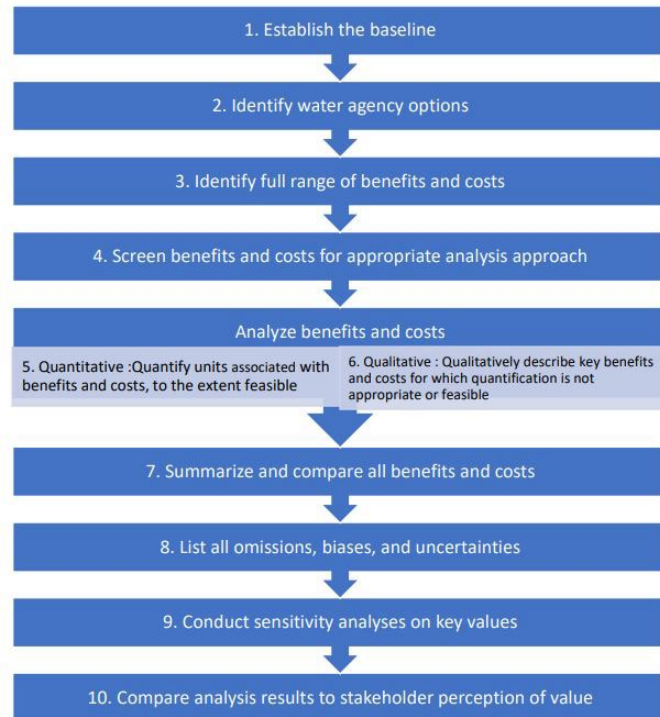


Genotype and agronomic management interaction to enhance wheat yield and water use efficiency in the Mediterranean rainfed environment of Morocco I. Field data analysis

Mina Devkota¹, Krishna Prasad Devkota², Mohammed Karim³, Vinay Naing⁴

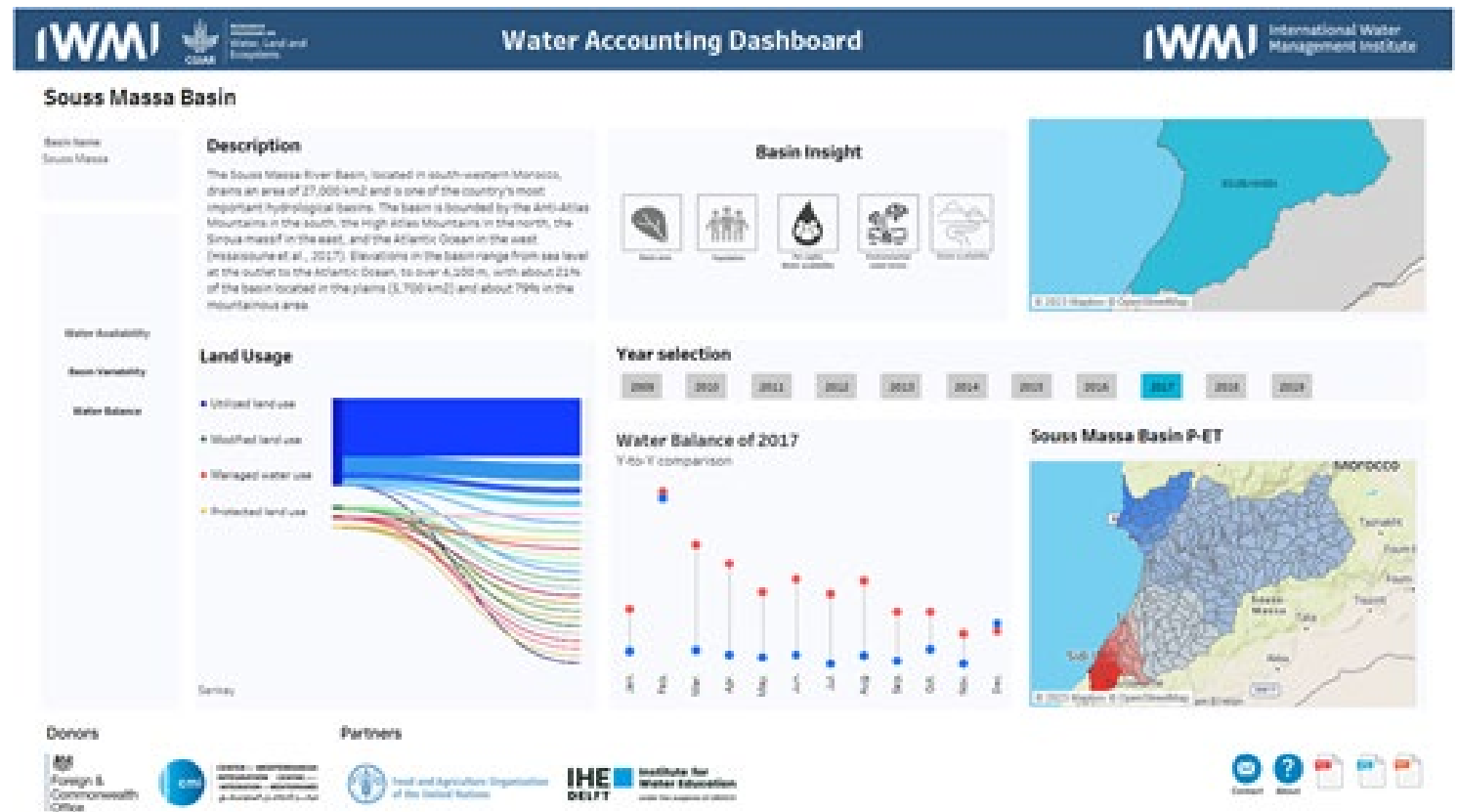
Integrated food, land, water and energy systems for climate resilient landscapes

Water Reuse Cost Benefit Analysis Methodology / MA



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Water Accounting + Dashboard MA – Sous Masa Watershed



Water, Energy, Food, and Carbon footprint (WEFC) nexus

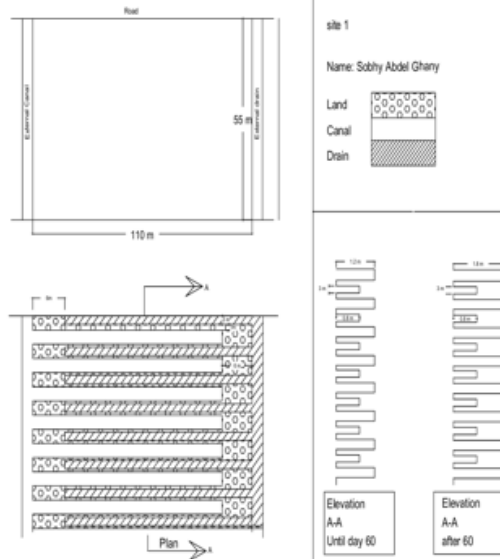


Project Objectives:

- Efficient soil salinity leaching by creating a network of (i) internal canals connecting from the external canal into the fields and (ii) parallel internal drains connecting from the fields into the external drain.
- Developed On-farm Water, Energy, Food, and Carbon footprint (WEFC) nexus index for quantitative assessment of on-farm integrated resources management.

Key Findings:

- 84% decrease in soil salinity and a 96% decrease in internal drain water salinity.
- The WEFC index proved that furrow irrigation excels in heavy soils and fields of surface drip irrigation in light soils are on top of the ranked 2,402 fields.



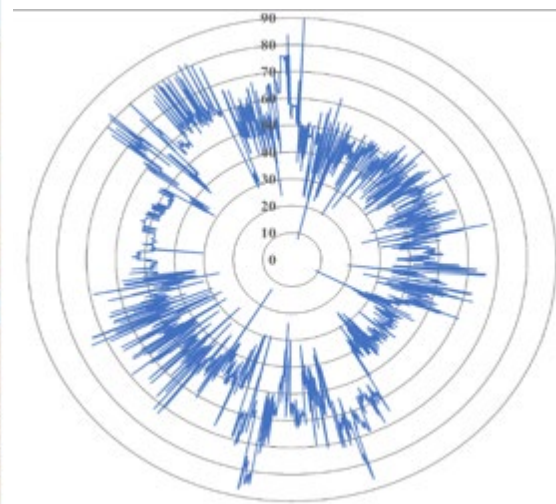
A) During establishment



B) Final established network

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**Thermal-based
irrigation**



**On-farm WEFC
Nexus Index**

Cap Dev: AgriTech4Morocco Challenge

A background image showing a group of people, including a woman in a red shirt, standing in a well-lit room with large windows.

Challenge call for Agri-Tech solutions to support Morocco's Generation Green 2020-2030 Strategy

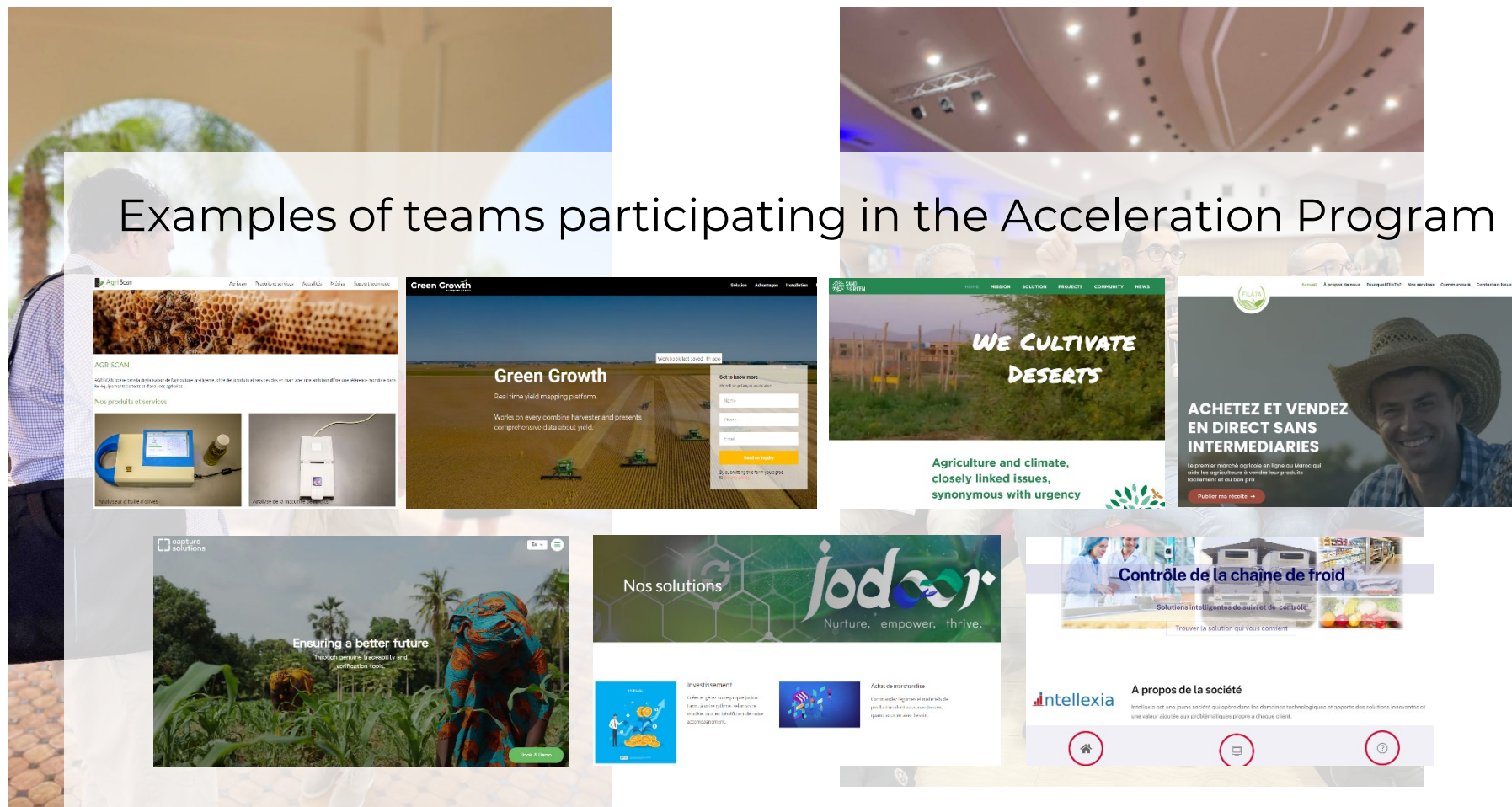
- Country-specific assessment, design, and launch of the Challenge Call
- Kick-off event
- **Bootcamp & pitch day** to build capacity on user-centric design, user participatory evaluation, how to pitch to investors – 20 teams from eight countries
- **Nine-week long Acceleration program & demo day** for teams to develop actionable pathways to scale, strengthen the scientific validity of their solution, and create networking opportunities with CGIAR and industry players – 10 teams
- **Post-program support** – 3 teams
- Dissemination



Cap Dev: AgriTech4Morocco Challenge



Examples of teams participating in the Acceleration Program



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Thank you