CGIAR Technical Reporting 2023

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**EXECUTIVE SUMMARY**

The CGIAR Research Initiative on Fragility to Resilience in Central and West Asia and North Africa (F2R-CWANA) is a regional integrated Initiative that operates as a microcosm of the CGIAR system within the region, incorporating its regional governance structures, and connects with CGIAR Centers in the region and beyond. The Initiative was established by the CGIAR Governance Board in 2022, and it builds upon successful work of the CGIAR Adaptation Program and the Irrigation Decisions and Tools for Sustainability (IDTS) Initiative. The Initiative is also closely connected with the CGIAR Resilience Research Program, which focuses on the development of the CGIAR Resilience Framework. The CGIAR Gender Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.

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The CGIAR Research Initiative on Fragility to Resilience in Central and West Asia and North Africa (F2R-CWANA) is an initiative of the CGIAR System and is supported by the CGIAR Fund. The Initiative is led by the CGIAR System Office and implemented by a Consortium of CGIAR Centers and Partners. It is co-led by Maha Al-Zu’bi, Michael Baum, and other partners. The Initiative is divided into three domains: Genetic Innovation, Resilient Agrifood Systems, and Systems Transformation.

The Initiative activities/interventions do no harm and do not reinforce gender inequalities, and data that are collected are gender disaggregated. The Initiative supports research, innovation, capacity, and policy to improve food security and climate change resilience in Central and West Asia and North Africa. The Initiative operates across the five target countries of Egypt, Lebanon, Morocco, the Republic of the Sudan, and Uzbekistan.

Notable results include the ongoing on-station field trials and gender-sensitive evaluations of eight key crops in the Agritech4Morocco Innovation Challenge, held in 2022. The Initiative has engaged with 1,170 people, produced 39 innovation development outputs, and shared 36 other outputs (mostly related to agrifood systems). In 2023, we operated across the five target countries of Egypt, Lebanon, Morocco, the Republic of the Sudan, and Uzbekistan to report 167 results, including 59 knowledge products, 23 capacity sharing for development, and regional agrifood systems.

Challenges to delivering our 2023 workplan included a 42 percent budget reduction, conflict in the target countries, and the need to ensure that the Initiative's activities do not reinforce gender inequalities.

**Geographic scope**

Regions targeted in the proposal: Egypt ∙ Lebanon ∙ Morocco ∙ The Republic of the Sudan ∙ Uzbekistan

**Website link**

https://www.cgiar.org/initiative/fragility-to-resilience-in-cwana/

**Initiative Co-lead**

Michael Baum

**Initiative short name**

Fragility to Resilience in Central and West Asia and North Africa

**Start - end date**

01/04/2022 – 31/12/2024

**Initiative Co-lead**

Maha Al-Zu’bi, Michael Baum

**Initiative Lead**

Maha Al-Zu’bi, Michael Baum

**Initiative name**

Fragility to Resilience in Central and West Asia and North Africa

**Regions targeted in the proposal**

Egypt ∙ Lebanon ∙ Morocco ∙ The Republic of the Sudan ∙ Uzbekistan

**Website link**

https://www.cgiar.org/initiative/fragility-to-resilience-in-cwana/

**Fact sheet and budget**

The approved budget amounts correspond to the figures available for public access through the Initiative’s website. The approved budget was $4.00M, and the proposal budget was $10.04M. The initiative was approved in 2023.

**Fact sheet and budget**

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A farmer in Egypt shows the nodules on soybean roots that are formed from a symbiotic relationship with soil rhizobia and lead to nitrogen fixation, providing the plant with bioavailable nitrogen. F2R-CWANA supports the Egyptian government in increasing soybean production through a rotational crop rotation and intercropping trials of soybean in wheat-based cropping systems.

Credit: © Samer Attaher / ICARDA

Progress by End of Initiative Outcome

**EOIO 1: Government, civil society organizations, private sector, and international nongovernmental organizations (INGOs) jointly develop strategies and policies to create more effective, socially-inclusive, and resilient national agrifood systems.**

- The Initiative has thematically grouped Work Packages: Work Package 1 on enabling partnerships, platforms, and policies for the development and the scaling of digital innovations; Work Package 2 on genetic diversity of resources, especially water, and considerations of conditions of fragility and conflict; and Work Package 5 on enabling innovation, capacity, and policy development to contribute to the effective, socially inclusive, and climate-resilient transformation of agrifood systems.

- In 2023, the operational context for the F2R-CWANA Initiative was a microcosm of the whole CGIAR system within the region, working primarily through the Alliance of Bioversity and CIAT, CIMMYT, CIAT, and ICARDA, with partners in Lebanon, Morocco, Sudan, and Uzbekistan.

- The overarching aim of F2R-CWANA is for our co-created research, results in 2023 also being reported in another 30 countries.

- Work Package 1 on enabling partnerships, platforms, and policies for the development and the scaling of digital innovations included considerable efforts in maintaining the existing teams and in building new ones in the region.

- The focus of this work continued in Egypt, as does work on regional seed trade integration into the NARES system.

- Solutions for wheat-based cropping systems across the CWANA region remain integrated into the NARES system continues at a rapid pace. Solutions for wheat-based cropping systems across the CWANA region remain integrated into the NARES system.

- EOIO 2: Government, private sector, and civil society organizations support and facilitate the on-farm and ex-situ conservation of agrobiodiversity in CWANA.

- The Initiative has thematically grouped Work Packages: Work Package 1 on enabling partnerships, platforms, and policies for the development and the scaling of digital innovations; Work Package 2 on genetic diversity of resources, especially water, and considerations of conditions of fragility and conflict; and Work Package 5 on enabling innovation, capacity, and policy development to contribute to the effective, socially inclusive, and climate-resilient transformation of agrifood systems.

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- Work Package 1 on enabling partnerships, platforms, and policies for the development and the scaling of digital innovations included considerable efforts in maintaining the existing teams and in building new ones in the region.

- The focus of this work continued in Egypt, as does work on regional seed trade integration into the NARES system.

- Solutions for wheat-based cropping systems across the CWANA region remain integrated into the NARES system.

- EOIO 3: Government, civil society organizations, and farmers support and facilitate the on-farm and ex-situ conservation of agrobiodiversity in CWANA.

- The Initiative has thematically grouped Work Packages: Work Package 1 on enabling partnerships, platforms, and policies for the development and the scaling of digital innovations; Work Package 2 on genetic diversity of resources, especially water, and considerations of conditions of fragility and conflict; and Work Package 5 on enabling innovation, capacity, and policy development to contribute to the effective, socially inclusive, and climate-resilient transformation of agrifood systems.

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- The focus of this work continued in Egypt, as does work on regional seed trade integration into the NARES system.

- Solutions for wheat-based cropping systems across the CWANA region remain integrated into the NARES system.
EOIO 5: Government, civil society organizations, and private sector put into practice the integrated management of food, land, water, and energy systems.

EOIO 6: Government, private sector, civil society organizations, and other food value chain (FVC) actors scale up innovations for FVC climate risk management.

Work Package progress

WP1: Innovations in partnerships, policies, and platforms for the effective, inclusive, and climate-resilient transformation of agrifood systems

The natural water distillation innovation of Manhat, a finalist in the Agritech4Morocco Innovation Challenge (2022) and participant in the Agritech4Uzbekistan Innovation Challenge (2022) and in the Agritech4Lebanon Innovation Challenge (2022) and participant in the 15th Salon International de l’ Agriculture au Maroc, uses the natural water cycle as an ally to sustainably produce water to irrigate crops on floating farms, thereby providing solutions to water scarcity and accessibility to fresh food.

Credit: © Manhat
## WP2: Genetic innovations, seed systems, and agrobiodiversity conservation for climate-resilient food and nutrition security

**Output**

- Stakeholder consultations conducted to prioritize and validate a portfolio of genetic innovations for CWANA.
- Performance of advanced trials at National Innovation Platforms (NIPs) and on-farm trials evaluated using gender-sensitive participatory methods.
- Awareness created with farmers and beneficiaries on new genetic innovations through field demonstrations and other gender-sensitive participatory methods.
- Selected advanced lines characterized and prepared for national release/registration, including germplasm multiplied for distribution to NARES.
- Opportunities for seed system diversification identified and analyzed.
- Socially inclusive business models for early generation seed (EGS) production of less commercial crops through community-based seedproducer associations developed and promoted.
- Policy reviews and recommendations to increase the effectiveness of the conservation, use and distribution of genetic resources & genetic innovations in CWANA. Agrobiodiversity co-developed and promoted.
- Knowledge, tools and innovations for the in situ and ex situ conservation of endemic CWANA agrobiodiversity co-developed with relevant groups, including local communities, and promoted.
- Assessments of endemic agrobiodiversity collected for conservation in genebanks.

**COG**

- Global Genetic Innovation Initiative (GGII) developed FitforADaptations that are specifically targeted to the requirements of stakeholders in CWANA.
- NARS and recommended advanced lines for release/registration to national portfolio of genetic innovations.
- Private sector and civil society organizations, including women and youth-led groups, are involved in on-farm and ex-situ conservation of agrobiodiversity in CWANA.
- Private sector and civil society organizations, including women and youth-led groups, are involved in on-farm and ex-situ conservation of agrobiodiversity in CWANA.

**Outcome**

- Improved genetic conservation and nursery management, among others.
- Under the leadership of the Livestock and Climate Initiative, F2R-agrobiodiversity conservation tools were conducted in Morocco for survey results and discuss conservation options.
- Indigenous and locally significant agrobiodiversity. This includes areas for community-based management and conservation of agrobiodiversity in CWANA.
- Indigenous and locally significant agrobiodiversity. This includes areas for community-based management and conservation of agrobiodiversity in CWANA.

**CoC**

- Draft Genetic Innovation Strategy developed.
- Socially inclusive business models for early generation seed (EGS) production of less commercial crops through community-based seedproducer associations developed and promoted.
- Policy reviews and recommendations to increase the effectiveness of the conservation, use and distribution of genetic resources & genetic innovations in CWANA. Agrobiodiversity co-developed and promoted.
- Knowledge, tools and innovations for the in situ and ex situ conservation of endemic CWANA agrobiodiversity co-developed with relevant groups, including local communities, and promoted.
- Assessments of endemic agrobiodiversity collected for conservation in genebanks.

## WP3: Sustainable intensification of farming systems for climate-resilient reduction of yield gaps

**Output**

- The state of the natural resource base and causes of yield gaps in CWANA's diverse farming systems analyzed.
- Solutions to bridge the yield gap in diverse CWANA farming systems analyzed, bucketed into locally appropriate packages, and promoted.
- Genotype x Environment Management Practice (GxExM) interactions across diverse environments and promoted.
- Socially inclusive investment strategies and business models for using the best solutions on-developed and promoted.

**COG**

- Government, civil society organizations, and farmers support and facilitate the on-farm and ex-situ conservation of agrobiodiversity in CWANA.
- Government, civil society organizations, and farmers support and facilitate the on-farm and ex-situ conservation of agrobiodiversity in CWANA.

**Outcome**

- NARS staff, extension officers, researchers and the private sector share the knowledge and capacity to apply best solutions to decompose yield gaps.
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**CoC**

- Government, civil society organizations, and farmers scale-up bundling solutions to decompose yield gaps.
- Government, civil society organizations, and farmers scale-up bundling solutions to decompose yield gaps.
WP4: Integrated food, land, water, and energy systems for climate-resilient landscapes

- **Output**: Socially inclusive policy recommendations for land, water, food, and energy systems for climate-resilient landscapes.
- **Outcome**: Government, civil society organizations, and private sector put into practice the integrated management of food, land, water, and energy systems.

WP5: Scaling innovations and digital tools for climate-resilient food value chains

- **Output**: Climate information data and services for food value chain (FVC) actors co-developed, scaled, and promoted.
- **Outcome**: Research institutes, civil society organizations, and private sector use climate information services to strengthen climate risk management.

**t/VIP** (WP4) **(ZvP)**

- **t/VIP**: The reference [1]{vZv} with **t** and **V**.
- **WP4**: Work Package 4.
- **ZvP**: Work Package 5.
- **(ZvP)**: Work Package 5 progress against the theory of change.

**t/VIP** (WP5) **(ZvP)**

- **t/VIP**: The reference [1]{vZv} with **t** and **V**.
- **WP5**: Work Package 5.
- **ZvP**: Work Package 5.
- **(ZvP)**: Work Package 5 progress against the theory of change.
Work Package progress rating summary

<table>
<thead>
<tr>
<th>WORK PACKAGE</th>
<th>PROGRESS RATING &amp; RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Progress rating</td>
</tr>
<tr>
<td></td>
<td>The progress of Work Package 1 in 2023 is largely in line with the PORB and TOC, with the exception of the work being conducted in Wad Medani, Sudan. The affected areas of work are national alliance of stakeholder meetings and the characterization of the Wad Medani research station.</td>
</tr>
<tr>
<td>2</td>
<td>Progress rating</td>
</tr>
<tr>
<td></td>
<td>The progress of Work Package 2 in 2023 is largely in line with the PORB and TOC, with the exception of the work being conducted in Wad Medani, Sudan. The affected areas of work are the on-station field trials of elite lines and newly released varieties of barley, bread wheat, faba bean, chickpea, and lentil, and the stakeholder consultations related to the regional seed trade policy.</td>
</tr>
<tr>
<td>3</td>
<td>Progress rating</td>
</tr>
<tr>
<td></td>
<td>The progress of Work Package 3 in 2023 is largely in line with the PORB and TOC, with the exception of the work being conducted in Wad Medani, Sudan. The affected areas of work are the genotype by environment by management trials, and the Sudanese Agronomy Community of Practice. Although CIMMYT has hired a new scientist position, which commenced in July 2023, the individual is currently based outside the region while the hosting agreement in Egypt is being finalized.</td>
</tr>
<tr>
<td>4</td>
<td>Progress rating</td>
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<tr>
<td></td>
<td>The progress of Work Package 4 in 2023 is in line with the PORB and TOC.</td>
</tr>
<tr>
<td>5</td>
<td>Progress rating</td>
</tr>
<tr>
<td></td>
<td>The progress of Work Package 5 in 2023 is in line with the PORB and TOC.</td>
</tr>
</tbody>
</table>

Definitions

- **On track**: Annual progress largely aligns with Plan of Results and Budget and Work Package theory of change. Can include small deviations/issues/delays/risks that do not jeopardize success of Work Package.
- **Delayed**: Annual progress slightly falls behind Plan of Results and Budget and Work Package theory of change in key areas. Deviations/issues/delays/risks could jeopardize success of Work Package if not managed appropriately.
- **Off track**: Annual progress clearly falls behind Plan of Results and Budget and Work Package theory of change in most/all areas. Deviations/issues/delays/risks do jeopardize success of Work Package.
F2R-CWANA has profiled 39 innovations ranging from genetic innovations being evaluated in field trials at an Innovation Readiness Level (IRL) 4 to proven innovations such as the Agritech Innovation Challenges, the climate data extractor, and IAA systems at an IRL of 9. Diagram sourced from the CGIAR Results Dashboard on 11 March, 2024.

**Pipeline overview**

<table>
<thead>
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<th># of innovations</th>
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</tr>
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<tr>
<td>13</td>
</tr>
<tr>
<td>17</td>
</tr>
<tr>
<td>29</td>
</tr>
</tbody>
</table>

**External partners collaborating to 2023 results**

- Western University
- Wageningen University and Research Centre
- Uzbekistan Venture Capital Association
- United Nations Convention to Combat Desertification
- National Academy of Sciences of Tajikistan
- Norwegian University of Life Sciences
- FE Indorama Agro LLC
- Uzbek Research Institute of Vegetable-Melon Crops and Potato
- United Nations Economic and Social Commission for Western Asia
- The World Bank
- United Nations Development Programme
- Research Institute of Plant Industry (Uzbekistan)
- Insitut Agronomique et Vétérinaire Hassan II
- Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan
- Office National du Conseil Agricole/National Office of the Agricultural Council (Morocco)
- Ministry of Agriculture (Uzbekistan)
- Ministère de l’Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts
- Mohammed VI Polytechnic University
- Ministry of Agriculture, Development and Rural Affairs
- Ministère de la Défense et de la Sécurité Publique
- Fragility to Resilience in Central and West Asia and North Africa
- Food and Agriculture Organization of the United Nations
- United Nations Industrial Development Organization
- Leibniz Institute of Agricultural Development in Transition Economies
- Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan
- Office National du Conseil Agricole/Office of the Agricultural Council (Morocco)
- United Nations Economic and Social Commission for Western Asia
being less explicitly targeted. Diagram sourced from the nutrition (through food security), environment/biodiversity, and climate change were the main targets of the Initiative, with gender equality and poverty reduction.

As a regional integrated Initiative, F2R-CWANA aims to achieve impact across all five CGIAR Impact Areas. Tagging of the 2023 results to Impact Areas indicates that Egypt (41), Lebanon (23), and Sudan (17), with spillover effects in 30 other countries, including Jordan (10), Tunisia (8), Kazakhstan (7), Syria (6), United Arab Emirates (5), and Tajikistan (5). Diagram sourced from the dashboard on 14 March, 2024.

The map illustrates the distribution of results reported by geographic location. In 2023, F2R-CWANA primarily operated in Morocco (44 results), Uzbekistan (44), and food security.

The result did not target any of the Impact Area objectives. Significant: The result has made a significant contribution to any of the Impact Area objectives, even though the objective(s) is not the principal focus of the result.

The result is principally about meeting any of the Impact Area objectives, and this is fundamental in its design and expected results. The result would not have been undertaken without this objective.

Not targeted: The result did not target any of the Impact Area objectives, even though the objective(s) is not the principal focus of the result.

Percentage of reported results tagged to CGIAR Impact Areas

<table>
<thead>
<tr>
<th>Impact Area</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Nutrition, health and food security</td>
<td>31%</td>
</tr>
<tr>
<td>Poverty reduction, livelihoods and jobs</td>
<td>21%</td>
</tr>
<tr>
<td>Gender equality, youth and social inclusion</td>
<td>7%</td>
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<tr>
<td>Climate adaptation and mitigation</td>
<td>28%</td>
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<tr>
<td>Environmental health and biodiversity</td>
<td>41%</td>
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<td>Agriculture and rural development</td>
<td>11%</td>
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Number of results

<table>
<thead>
<tr>
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<th>Number of results</th>
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<tbody>
<tr>
<td>Nutrition, health and food security</td>
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<tr>
<td>Poverty reduction, livelihoods and jobs</td>
<td>64</td>
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<tr>
<td>Gender equality, youth and social inclusion</td>
<td>61</td>
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<tr>
<td>Climate adaptation and mitigation</td>
<td>48</td>
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<tr>
<td>Environmental health and biodiversity</td>
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Partnerships

External partners contributing to results, per country

<table>
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<tr>
<th>Country</th>
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<td>Morocco</td>
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<td>Uzbekistan</td>
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<td>Egypt</td>
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<td>Lebanon</td>
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<td>Jordan</td>
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<td>Syria</td>
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<td>Sudan</td>
<td>37</td>
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<tr>
<td>28 other countries</td>
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</table>

Number of results

<table>
<thead>
<tr>
<th>Impact Area</th>
<th>Number of results</th>
</tr>
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<tbody>
<tr>
<td>Agriculture and rural development</td>
<td>40</td>
</tr>
<tr>
<td>Youth and social inclusion</td>
<td>64</td>
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<tr>
<td>Gender equality</td>
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<td>Poverty reduction</td>
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<td>Nutrition, health and food security</td>
<td>42</td>
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<tr>
<td>Environmental health and biodiversity</td>
<td>28</td>
</tr>
<tr>
<td>Climate adaptation and mitigation</td>
<td>64</td>
</tr>
</tbody>
</table>

Partnerships and Fragility to Resilience in Central and West Asia and North Africa's impact pathways

F2R-CWANA collaborates with key international organizations, such as the Institut National de la Recherche Agronomique and environment-related NARES, ministries, and agencies in the countries, such as the Institut Agronomique et Vétérinaire Hassan II in Morocco; Tashkent, and International Agricultural University in Uzbekistan; Cairo University in Egypt; the Southern Research Institute of Agriculture and the Water and Forests in Morocco; the Agricultural Research Center and the Ministry of Agriculture, Fisheries, Rural Development, innovation development and use, and policy and research and across all the impact pathway types of capacity building of students—the next generation who will continue to confront these issues facing agrifood systems at all levels.

Institutes, universities, and research institutions that are partners include the State Agrarian University, Westminster International University in Canada (collaborating on gender research); Tashkent, and International Agricultural University in Uzbekistan; Cairo University in Egypt; the Southern Research Institute of Agriculture and the Water and Forests in Morocco; the Agricultural Research Center and the Ministry of Agriculture, Fisheries, Rural Development, innovation development and use, and policy and research and across all the impact pathway types of capacity building of students—the next generation who will continue to confront these issues facing agrifood systems at all levels.

Agricultural Research Corporation in Sudan. F2R-CWANA works with these partners across all Work Packages on fundamental research of local, national, and international importance and the clear pathway for scaling to beneficiaries to achieve long-lasting development outcomes and impacts.

Working in close collaboration with their respective partners, the CGIAR Systems Research Programs coordinate and facilitate a global research strategy that enables collective action required to achieve the transformation of agrifood systems and the Sustainable Development Goals.

These partnerships and collaborations ensure that our efforts align with national priorities and strategies, with NARES and their respective ministries and associated agencies, and continue to confront these issues facing agrifood systems at all levels.

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Section 6: Annual Technical Report 2023

Fragility to Resilience in Central and West Asia and North Africa's internal portfolio network

Portfolio linkages and Fragility to Resilience in Central and West Asia and North Africa's impact pathways

RECOMMENDATION

Supporting Rationale

Adaptive management

Diagram sourced from the
Connections are sized by the number of reported results. Collaborations where only one result was reported with a linkage between two Initiatives are excluded.

RECOMMENDATION

Supporting Rationale

Adaptive management

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Supporting Rationale

Adaptive management

Diagram sourced from the
Connections are sized by the number of reported results. Collaborations where only one result was reported with a linkage between two Initiatives are excluded.

RECOMMENDATION

Supporting Rationale

Adaptive management

Diagram sourced from the
Connections are sized by the number of reported results. Collaborations where only one result was reported with a linkage between two Initiatives are excluded.
Morocco’s Souss-Massa basin faces shrinking freshwater resources due to prolonged droughts, extreme heat, and unsustainable extraction, threatening the region’s vital agricultural production of cereals, vegetables, fruits, and nuts and the livelihoods of half its workforce. IWMI’s Online Water Accounting Dashboard offers stakeholders a user-friendly visual tool to monitor current water status and trends, empowering informed decision-making for the sustainable and equitable management and cross-sectoral governance of scarce freshwater resources.

The Online Water Accounting Dashboard will help Morocco’s Souss-Massa Basin Agency manage scarce freshwater resources across multiple sectors.

The online Water Accounting Dashboard will help Morocco’s Souss Massa Basin Agency manage scarce freshwater resources through informed water management in the Souss-Massa basin.

The usefulness of the Online Water Accounting Dashboard has not gone unnoticed elsewhere—work will start in 2024 to replicate the dashboard in the Okavango Basin, Volta Basin, Zambezi Basin, and CWANA. The dashboard empowers decision-makers to ensure the long-term sustainability of this precious resource.

This dashboard is an invaluable tool for effective communication. It allows the Souss-Massa Basin Agency to engage with all its partners in a clear and informative way.
An agrifood processor from a women’s cooperative in Morocco makes couscous. Women’s cooperatives are a key means through which women in rural areas can organize themselves to generate income. The CGIAR Research Initiative on Fragility to Resilience in Central and West Asia and North Africa supports women and women’s cooperatives in the Middle East and North Africa to overcome the obstacles they face in farming, value-addition, marketing, and market access, and in holding management and leadership roles.

Credit: Dina Najjar / © ICARDA

Climate-smart raised-bed planting of crops in Egypt improves input use efficiency, minimizes production costs, and increases crop yields.

Credit: © ICARDA