



**From Fragility to Resilience in Central and West Asia and North Africa (F2R-CWANA):  
Transforming responses to drought and climate variability**

Initiative Lead and Co-Lead	Primary CGIAR Action Area	Estimated 2022 - 2024 Budget
Michael Baum Maha Al-Zubi	Resilient Agri-food Systems	\$40 - \$60 M

**Challenge**

Drought and climate variability are CWANA's primary climate hazards, exacerbating prevailing challenges in the world's most water-stressed and socially-fragile region. These compounding factors fuel a perpetual cycle of vulnerability, and inequality, worsened by 9 active armed conflicts (<https://bit.ly/3eHxHD3>). WANA hosts over 40% of global IDPs (Internally Displaced People) (<https://bit.ly/3ajd3aG>) and 33% of refugees (<https://bit.ly/3x0wHSJ>). In Central Asia, youth unemployment propagates widespread labour migration (<https://bit.ly/3tpk814>). Increasing "feminization of agriculture" indicates new exposure levels for women comprising more than half the agricultural labour force (<https://bit.ly/2Qxvt0h>).

Rainfed systems constitute the main source of staple food and proteins, making rainfall variability a key concern. Irrigated systems - important for local nutritious foods, diversification and incomes - use more than 85% available freshwater resources in the region (<https://bit.ly/3dnzmxQ>; <https://bit.ly/3sijWiQ>). Increased inter-sectoral competition, including for aquatic food systems, demands that agricultural water consumption, productivity and quality be addressed urgently. Land degradation and salinization from poor water and soil management, compounded by erosion and overgrazing, amplify these challenges. The conditions lead to critical loss of CWANA's biodiversity across ecological zones.

Dependence on imports of cereals and exports of cash crops escalates concern about virtual water trade and water security. COVID-19 spotlights trade uncertainties and the need to ensure food and nutrition security, market access, and value addition. Producers, SMEs (small and medium enterprises) and value chain actors struggle to access resources to manage risks and are not adequately supported by policies and institutions.

Science and co-designed innovation bundles are required to address interconnected challenges and support evidence-based, inclusive decision-making to accelerate system resilience.

**Objective**

F2R-CWANA will co-develop, scale and implement solutions that reduce fragility and accelerate resilience to drought and climate variability across CWANA's agrifood systems, from farm to regional level. We build on strengths of existing innovation platforms, linking focus and geographies, and integrate solutions. By 2024, hundreds of thousands of stakeholders will adopt innovations that enhance production and marketing of staple and locally-important nutritious foods while restoring water resources, soil health and agrobiodiversity. From farm-to-fork, the Initiative promotes gender- and socially-inclusive governance and decision-making for common benefits and opportunities across value-chains, responding to market-demand and generating enhanced value-addition. This will improve livelihood security, raise incomes, reduce poverty among tens of thousands of value-chain actors, particularly women, youth, migrant/displaced and conflict-affected groups. F2R-CWANA will build integrated capacity at multiple scales to mitigate drivers of fragility and conflict particular to CWANA (climate, environment, social and economic), which propagate inequality, insecurity, and threaten systems resilience. At multiple levels, we will support broad stakeholder collaboration across value-chains and sectors to effectively manage risks and tradeoffs, improve policy and operational coherence, and build synergies.

In proposed countries, transition to more coherent policies promoting joint benefits across water management, energy, food production and growth will be supported. Knowledge, data exchange, engagement of partners in neighboring countries will enhance collaboration, accelerating environmental, social and economic resilience and empowering diverse populations facing physical and social risks unique to the region. We will first target low-intensity situations and intend to expand our remit into active conflict contexts (e.g. Iraq, Syria, Yemen).

**Theory of Change**

F2R-CWANA will transform fragile contexts and accelerate resilience to drought and climate variability among communities, businesses and countries in the region, thereby increasing livelihood security, promoting inclusion and cohesion, and reducing poverty. F2R-CWANA will intervene at strategic entry points from farm-to-fork, at basin, national and regional levels, in partnership with producers, agribusinesses, support services, investors, national agricultural research systems and decision-makers. To strengthen rainfed (WP1) and irrigated (WP2) agrifood systems, CGIAR, partners and target communities will co-create innovation bundles that incorporate technologies, capacities and incentives for inclusive, sustainable value chains and investments that are resilient to climate variations, and compounding economic, social, conflict and environmental risks that make CWANA especially fragile.

Across scales and sectors, F2R-CWANA will promote collaborative governance, evidence-based decision-making and inclusive investment (WP3) through policies and data platforms that de-risk and promote alignment, scaling and impact of WPs 1 and 2.

F2R-CWANA will support smallholders and other value chain actors to adopt innovations that increase productivity, and food and nutrition security under water-scarce conditions while generating incomes, promoting livelihood security and restoring freshwater resources, soils and agro-biodiversity. Data and knowledge exchange across sectors and geographies will accelerate scaling of integrated solutions to maximize resilience through synergies between water, energy, food and economic systems. CWANA's development challenges span from "stable" to "active conflict" situations. We will focus on a selection of countries representative of this context, where CGIAR is positioned to build on partnerships and local development priorities, thus validating and demonstrating impact pathways for additional countries.

## From Fragility to Resilience in Central and West Asia and North Africa (F2R-CWANA): Transforming responses to drought and climate variability

### Highlights

De-risk and diversify for security and growth: Champion integrated responses to risk across scales and value chains through scientific research, digitalization, cooperation and knowledge exchange on sustainable intensification, diversification and agro-ecology for enhanced income, land and water productivity, and nutritious diets, in turn strengthening governance across sectors and reducing fragility/conflict.

Advance a socially transformative agenda: Empower vulnerable populations - including women, youth, migrants/displaced and conflict-affected communities - across all work packages, activities and sectors, through collaborative solution-building, governance and investment, and by improving equitable access to resources, services and markets to promote sustainable green growth and resilience across scales.

Enhance production and employment under water scarcity: Co-deliver innovation packages adapted to context and enabling conditions, and build coalitions between key value chain actors to manage drought and create jobs with mechanized systems that can produce more staple and locally nutritious food, including plant and animal protein, utilizing dryland agrobiodiversity.

Provide enabling environments for sustainable water (re)use and circular economy: Co-develop inclusive policies, incentives and opportunities for actors within value chains to invest in and benefit from socio-technical innovation bundles that promote water productivity and use of non-conventional water sources, renewable energy and agro-ecological principles, simultaneously supporting integrated source-to-sea management.

Harness the energy of the private sector: Help investors reduce the risk of investment and promote business incubation networks that leverage and scale innovations for more inclusive and competitive value chains with a focus on small agribusinesses, smallholders, women, youth and other vulnerable groups.

### Work Packages

	Scope of Work	3-year Outcomes
<p>Next Generation Rainfed Agrifood Systems: Socio-technical innovation bundling to support climate adaptation and value addition</p>	<p>Co-designing innovation bundles for investment and climate/water-smart value chains of staples (wheat), animal protein and nutritious crops under low and variable rainfall through: (1) efficient seed systems; (2) utilizing native dryland agrobiodiversity; (3) climate-smart agricultural practices for sustainable intensification; (4) digital information dissemination; (5) capacity for value addition and inclusion.</p>	<p>At least 100,000 smallholders, agribusinesses, and value chain actors, with focus on vulnerable groups (youth, migrants, conflict-affected), including 30% women, use innovations that increase productivity by 5-20% and maintain agrobiodiversity under limited and variable rainfall while generating market access and more stable incomes, and enhancing carbon sequestration.</p>
<p>Next Generation Irrigated Agrifood Systems: Socio-technical innovation bundling for non-conventional water and energy use</p>	<p>Co-designing innovation bundles for investment and sustainable provision of locally-important nutritious foods including fish, through: (1) water- and energy-efficient practices; (2) circular economy including use of non-conventional water; (3) digital innovation for precision agriculture and improved multi-scale management and productivity; (4) genetic innovations; (5) capacity for value addition and inclusion.</p>	<p>At least 100,000 smallholders, agribusinesses, and value chain actors, with focus on vulnerable groups (youth, migrants, conflict-affected), including 30% women, use innovations that help them better manage drought across irrigated systems to enhance land and water productivity by 5-20%, and market and employment opportunities, while restoring freshwater resources and agro-biodiversity.</p>
<p>Nexus for growth, inclusion and security: Strengthening governance and policy coherence to drive synergies and impact - and to mitigate conflict and fragility</p>	<p>Strengthening multi-level, cross-sectoral, collaborative governance systems through: (1) evidence-based inclusive policy and incentives; (2) co-designed decision-support tools for impact including water and food/nutrition management platforms; (3) multi-actor and sector partnerships and services, including SMEs, for maximized synergies and trade-off management, empowering populations confronted by interconnected risks, including fragility and conflict.</p>	<p>Stakeholders in four countries ranging from "stable" and fragile contexts, collaborate across sectors and geographies, and lead a transition to more coherent policies, governance and data platforms, promoting synergies between water management, energy, food production and economic growth at watershed and country levels to drive impact at scale.</p>

**From Fragility to Resilience in Central and West Asia and North Africa (F2R-CWANA):  
Transforming responses to drought and climate variability**

**Impact Area Contributions**

<b>Nutrition, health &amp; food security</b>	Adoption of innovations that increase food production stability and enable access to affordable safe and nutritious foods for millions of households and consumers in the CWANA region including contextually relevant protein and nutritious food such as legumes, cereals, vegetables, animal protein and fruit/nuts from across CWANA's agricultural production systems.
<b>Poverty reduction, livelihoods &amp; jobs</b>	By 2030, value chains will be more inclusive, benefiting millions of people across a broad representation of the population, both in "stable" and fragile situations. Innovations intended to enhance profitability and incomes will assist hundreds of thousands to exit poverty - with particular focus on women, youth migrant/displaced and conflict-affected groups.
<b>Gender equality, youth &amp; social inclusion</b>	In "stable" and fragile situations, contribute to empowerment of hundreds of thousands of women, youth, migrant/displaced and conflict-affected groups by strengthening their role in decision-making and enhancing their economic opportunities through more equitable access to financing, inputs, services, markets and jobs.
<b>Climate adaptation &amp; greenhouse gas reduction</b>	Millions of value chain actors benefitting from climate-adapted innovations making their livelihoods more resilient to drought and climate variability. Innovations include climate-smart varieties and practices, use of non-conventional water resources and renewable energy. A mitigation co-benefit will contribute to a reduction of CO2-eq emissions by 20% across the value chains.
<b>Environmental health &amp; biodiversity</b>	Contribute to improved management of hundreds of thousands of hectares of degraded land in CWANA. Consumptive water use in food production will be reduced through enhanced efficiency and (re)use of non-conventional water resources. Contribute to preservation of dryland agrobiodiversity and availability of plant genetic accessions.

**Impact on SDGs**



**Regions**

Central and West Asia and North Africa (CWANA)

**Countries**



**From Fragility to Resilience in Central and West Asia and North Africa (F2R-CWANA):  
Transforming responses to drought and climate variability**

**Innovations**

Accelerating resilience in rainfed agrifood systems - scale out drought and temperature tolerant crop varieties, agronomic practices building on agroecological principles to support pollinators and soil/water management, supported by digital climate information services, policies and outreach for enhanced drought management to address drivers of fragility and displacement, particularly for agro-pastoralists.

Accelerating resilience in irrigated agrifood systems - produce contextually relevant, highly nutritious and equitably accessible food using less water, protecting resources, and mitigating competition and conflict, through integrating drought tolerant cropping systems with irrigation systems using recycled resources, low or green energy, aqua/hydroponics, agrivoltaics and digital services.

Accelerating resilience through integrated policy and governance - building from government commitments to greening and from foresight insight, support multi-ministerial, cross-sectoral planning and monitoring across food, land and water systems to manage tradeoffs and increase sustainability, including actions to de-risk drought impacts, support inclusion and cohesion, and reduce fragility and conflict.

Accelerating resilience through scaling/investment/employment - multi-actor engagement and strengthening of the financial ecosystem to provide incentives to entrepreneurs, development agents and other stakeholders across the farm-to-fork spectrum to invest in socio-technical innovations to support drought resilience in "stable" and also fragile and conflict-affected situations, while also tackling poverty.

Accelerating resilience through food/nutrition management platforms - linking across food value chains to connect locations of production to those of demand, bring markets closer to consumers to reduce waste, support nutritious local food consumption, bring stability to farmers and fishers, reduce carbon and water footprint, and tackle drought and fragility.

**Key Partners**

<b>Demand</b>	Government	Ministries of Agriculture, Water, Environment, Economy, Finance and Trade of Morocco, Egypt, Lebanon and Uzbekistan at the national and local levels
	Multilateral	Bilateral and multilateral agencies (e.g., United Nations (UN) programme agencies, regional development banks and funds, regional development cooperation organizations, regional commissions, bilateral donors)
	Partner Country based NGO	Agriculture cooperatives and councils, water user associations, consumer associations
	Private Sector	Impact investors, trade associations, transnational corporations in the food and beverage industry, organizations promoting environmental and social governance (ESG) standards
	Private Sector in Aid Recipient Country	Chambers of Commerce, members of the food and beverage industry, and organizations that support private sector incubation
<b>Innovation</b>	Academic, Training and Research	Innovation centers of international and local universities that link research to application in food, land, energy and water sectors
	Government	National Agricultural Research Systems (NARS), Academies of Science and Innovation Centers
	Partner Country based NGO	Farmer and consumer associations
	Private Sector in Aid Recipient Country	Water, energy and agricultural data and technology companies developing innovations
	Public Private Partnership	Innovation programmes supporting youth and women entrepreneurs, and SMEs
<b>Scaling</b>	Government	Extension services and policy development with Ministries of Energy, Water and Agriculture Policy development with Ministries Transportation, Labour, Trade and Finance Innovation centers
	Multilateral	UN programme agencies, regional development cooperation organizations, regional development banks and funds- which are supporting entrepreneurship, micro-financing, SMEs, financing schemes focusing on women, youth, fragile/at-risk communities, including migrants and displaced persons, to support innovation and funding
	Partner Country based NGO	Civil society organizations advocating for needs of youth, women, displaced persons and other vulnerable groups; agriculture councils
	Private Sector	Food and beverage processing, retail and trading industry; digital service providers/ information and communications technology (ICT); Chambers of Commerce
	Public Private Partnership	Regional Innovation Hub for Middle East and North Africa, and Central Asia that support scaling of existing innovations through technical assistance and grants and end-users and access to finance National programs supporting Public-Private-Partnerships (Countries or European Union (EU))

# From Fragility to Resilience in Central and West Asia and North Africa (F2R-CWANA): Theory of change

## Challenge

- **Drought and climate variability** exacerbate challenges in the world's most water-stressed and socially-fragile region, where conflict and migration are common development challenges
- **Migration flows are among the world's largest** and increasing "feminization of agriculture" reveals inclusion and equity challenges
- **Increased inter-sectoral competition** for water resources demands that agricultural water consumption, productivity and quality be addressed urgently
- **Land degradation, salinity and biodiversity loss** further amplify the challenges
- **Dependence on cereal imports** highlights the need to ensure food and nutrition security, while exports escalate concern about the virtual water trade balance
- **Producers, SMEs, and value chain actors** struggle to access resources to manage risks and are not adequately supported by policies and institutions

## Demand partners

- Governments
- Producers and food industry
- Consumer associations
- Cooperatives and councils
- Impact investors, trade associations
- Bilateral and multilateral agencies

## Work Packages

### Innovation partners

- **Next Generation Rainfed Agrifood Systems:** Socio-technical innovation bundling to support climate adaptation and value addition
- **Next Generation Irrigated Agrifood Systems:** Socio-technical innovation bundling for non-conventional water and energy use
- **Nexus for growth, inclusion and security:** Strengthening governance and policy coherence to drive synergies and impact, and to mitigate conflict and fragility

### Scaling partners

- NARS
- Innovation programs for youth/women entrepreneurs
- Farmer/consumer associations
- Data/tech companies
- University innovation centers

## Outputs

- **Co-designed innovation bundles for investment and climate/water-smart value chains under low and variable rainfall** through seed systems, agrobiodiversity, climate-smart agriculture, digital information, capacity for value addition and inclusion
- **Co-designed innovation bundles for investment and sustainable provision of nutritious foods** through water/energy efficiency, circular economy and use of non-conventional water, digital innovation and improved multi-scale management and productivity, genetic innovations, capacity for value addition and inclusion
- **Multi-level, cross-sectoral tradeoff and synergy management** through evidence-based policy advice, co-designed decision-support tools, multi-actor and sector partnerships and services – for stable and fragile contexts

## Outcomes

- Governments (extension and policy)
- Innovation hubs and PPPs
- Civil society actors
- Regional and multilateral banks/agencies
- Food, retail and trading industry
- Digital service providers

- Smallholders and other value chain actors **use innovations that increase productivity and maintain agrobiodiversity under limited and variable rainfall** while generating market access and stable incomes, and enhancing carbon sequestration
- Smallholders and other value chain actors **use innovations that help them better manage drought across irrigated systems** to enhance land and water productivity and market and employment opportunities, while restoring freshwater resources and agro-biodiversity
- In stable to fragile contexts, stakeholders **collaborate across sectors and lead a transition to more coherent policies, governance, and data platforms** promoting synergies between water, energy, food and economic growth to drive impact at scale

## Impact areas

- **Nutrition, health and food security:** improved access to affordable and nutritious food
- **Poverty reduction, livelihoods and jobs:** more inclusive value chains, enhanced profitability and incomes
- **Gender equality, youth and social inclusion:** empowerment of women, youth and vulnerable groups
- **Climate adaptation and mitigation:** livelihoods more resilient to drought and climate variability
- **Environmental health and biodiversity:** restoration of degraded land and reduced consumptive water use



sphere of control

sphere of influence

sphere of interest

Collaborate with the following thematic initiatives (and others as relevant), leveraging relevant innovation and partnerships, for impact in CWANA:

<i>NEXUS Gains</i>	<i>ASPIRE</i>	<i>Foresight</i>
<i>ClimBeR</i>	<i>Sustainable Intensification of</i>	<i>Accelerated Breeding</i>
<i>Transformational agroecology</i>	<i>Mixed Farming Systems</i>	<i>Rethinking Food Markets and</i>
<i>National policies and strategies</i>	<i>Excellence in Agronomy</i>	<i>Value Chains</i>
<i>HER+</i>	<i>Enabling traits, tools and</i>	<i>Nature-positive solutions</i>
<i>Harnessing digital technologies</i>	<i>technology services</i>	

