

Positioning the Drought Action Catalyst for Drought Resilience: A Strategic Framework

The Drought Action Catalyst strategy is published by the International Water Management Institute (IWMI). Giriraj Amarnath (Principal Researcher – Disaster Risk Management and Climate Resilience, and Research Group Lead – Water Data for Climate Resilience, International Water Management Institute [IWMI], Colombo, Sri Lanka), led the development of this strategy document, in a rigorous, collaborative, and iterative process that was enriched by substantive technical inputs, critical reflections, and strategic guidance from IWMI colleagues, including Rachael McDonnell (Deputy Director General – Research for Development, IWMI, Colombo, Sri Lanka), Mohsin Hafeez (Director – Water, Food, and Ecosystems, IWMI, Lahore, Pakistan), Alok Sikka (Emeritus Scientist, IWMI, New Delhi, India), Vidhisha Samarasekara (Director – Water, Climate Change, and Resilience, IWMI Colombo, Sri Lanka), Mark Smith (Director General, IWMI, Colombo, Sri Lanka), Naga Manohar Velpuri, (Research Group Leader – Water Data Science for Action, IWMI, Colombo, Sri Lanka), and Ian Overton (Director – Water Data Science, IWMI, Colombo, Sri Lanka).

The process was also informed by consultations with country partners in India, Pakistan, Sri Lanka, and Zambia, alongside a series of discussions with CGIAR Centers and a range of partner organizations. These engagements have helped ground the strategy in real-world operational contexts, ensuring relevance across diverse institutional, geographic, and policy settings.

This acknowledgment reflects the collective contributions that have shaped the strategy. Overall, the document represents a synthesis of technical expertise, strategic foresight, and practical experience aimed at advancing a shared vision for transforming drought risk management from reactive response to proactively building resilience.

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Page v : Deduru Oya Reservoir affected by severe drought (Samurdhi Ranasinghe/IWMI)

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Acronyms and Abbreviations

AF	Adaptation Fund
AF-DEWS	Afghanistan Drought Early Warning Decision Support
AI	Artificial Intelligence
AICCRA	Accelerated Impacts of CGIAR Climate Research for Africa
COP	Conference of Parties
CSA	Climate-smart agriculture
DRR	Disaster Risk Reduction
EW4All	Early Warnings for All
FAO	Food and Agriculture Organization of the United Nations
FEMA	Federal Emergency Management Agency
GCF	Green Climate Fund
GDP	gross domestic product
GESI	Gender Equality and Social Inclusion
IDMP	Integrated Drought Management Programme
MAR	Managed Aquifer Recharge
MEL	Monitoring, Evaluation and Learning
MENA	Middle East and North Africa
NAP	National Adaptation Plan
NbS	Nature-based Solutions
NDC	Nationally Determined Contribution
Pak-DMS	Pakistan Drought Monitoring System
ROI	Return on Investment
SADMS	South Asia Drought Monitoring System
SDG	Sustainable Development Goal
SIDS	Small Island Developing States
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
WMO	World Meteorological Organization
ZADMS	Zambia Drought Monitoring System

Foreword

Drought is the only major natural hazard that develops slowly enough to be anticipated, yet it remains one for which the world is least prepared. Droughts already cost an estimated USD 307 billion annually, and more than 75% of the world's population is expected to be affected by droughts mid-century with an estimated 4.8-5.7 billion living in areas that are water-scarce for at least one month each year. Despite compelling evidence that every dollar invested in preparedness can yield returns of up to tenfold, the overwhelming share of disaster funding continues to flow toward post-event response. The imperative to shift from reactive crisis management to proactive, science-based resilience has never been clearer.



The Drought Action Catalyst responds directly to this challenge. Developed by the International Water Management Institute (IWMI) on behalf of CGIAR and introduced at the sixteenth session of the Conference of the Parties to the United Nations Convention to Combat Desertification (UNCCD COP16), the Catalyst converts decades of proven science, digital innovation, and global partnership into government-led drought action. Through its three interconnected pillars—monitoring and early warning, vulnerability and risk profiling, and drought readiness and anticipatory action—it works with national institutions to build systems that countries own, operate, and sustain, with gender equality and social inclusion embedded throughout.

This Strategic Framework presents the Catalyst's rationale, capabilities, operational model, and roadmap to 2030. We invite partners - governments, financing institutions, businesses, and implementers- to join us in realizing a shared vision: a world where no community is caught unprepared by drought.

A handwritten signature in black ink, appearing to read 'Mark Smith'.

Mark Smith

Director General, International Water Management Institute (IWMI)



Executive Summary

Developed on behalf of CGIAR, the Drought Action Catalyst is an International Water Management Institute (IWMI)-led project that aims to provide a global platform to accelerate the transition from reactive drought crisis management to proactive, science-based drought resilience. The Catalyst—introduced in December 2024 at the sixteenth session of the Conference of Parties to the United Nations Convention to Combat Desertification (UNCCD COP16) in Riyadh, Saudi Arabia—fills a critical gap: despite decades of research, proven technologies, and established approaches to drought management, vulnerable countries and communities still lack the mechanisms necessary to convert available knowledge into prompt action on the ground.

There is a clear sense of urgency. Approximately 80% of the global population is expected to be impacted by drought by 2050, and droughts already cost an estimated USD 307 billion annually. The world has seen some of the most extensive and destructive droughts in recorded history between 2023 and 2025, with over 90 million people in Eastern and Southern Africa experiencing severe food insecurity and unprecedented impacts on energy systems, trade flows, and ecosystems across continents. Despite strong evidence that every dollar invested in proactive drought preparedness can yield returns of up to tenfold, 88% of weather-related disaster funding continues to be directed toward reactive post-event response.

In order to expedite tried-and-true drought resilience solutions, the Catalyst is intended to serve as an all-in-one solution that mobilizes CGIAR's science, innovation, and international relationships in conjunction with government and community leadership. It is supported by an integrated investment framework that spans interventions prior to, during, and following a drought. It functions through three interconnected pillars: monitoring and early warning; vulnerability and risk profile; and drought readiness and anticipatory action. The strategy is supported by digital technologies such as decision-support dashboards and SukhaRakshak AI, an artificial intelligence (AI)-driven multilingual drought advisory system created by IWMI to assist smallholder farmers in India.

The Catalyst employs a demand-driven, locally led approach based on IWMI's demonstrated field experience in India, Sri Lanka, Mali, the Middle East and North Africa (MENA) region, and Zambia. It is implemented through codesigned National Drought Action templates in each target nation with Gender Equality and Social Inclusion (GESI) being a fundamental component of all governance and activities. The Catalyst intends to demonstrate a replicable, scalable model for drought resilience by 2030, with initial pilots being implemented in South Asia, and Eastern and Southern Africa. This will help achieve climate adaptation targets, Sustainable Development Goals (SDGs), and the anticipated global drought regime, which will be finalized at UNCCD COP17 in Mongolia in 2026.

The Drought Action Catalyst's justification, capabilities, Theory of Change, operational model, investment approach, partnership landscape, and roadmap are all presented in this strategic framework. The target audience includes governments, donors, development partners, and other stakeholders who are considering participation or investment in the project.

The Drought Action Catalyst: Vision and Mission

Vision: A future where every community is drought resilient, recovering quickly through early warning, action, and response.

Mission: To close the gap between what is known about drought and the actions needed to address it, by transforming established research, digital innovation, and international collaboration into government-led drought action at the national level.

The world remains least prepared for drought, even though it is the only major natural hazard that develops slowly enough to be anticipated. The information, resources and evidence required to take early action are already available. What is lacking is the system that delivers them to the ministers, task forces, extension agents, and communities that need to use them in a timely manner.

That mechanism is the Drought Action Catalyst. It is a demand driven platform created by IWMI on behalf of CGIAR and introduced at the seventh session of the Conference of Parties to the United Nations Convention to Combat Desertification (UNCCD COP17). The Catalyst works with national institutions to create integrated drought monitoring, risk profiling, and anticipatory action systems that countries can own, operate, and maintain.

Our promise to partner countries

Each country participating in the Catalyst can expect four key outcomes: (i) a national drought risk profile broken down by sector, geography, and social group; (ii) a codesigned National Drought Action template outlining pre-agreed early actions and the funding to support them, aligned with its National Adaptation Plan (NAP) and Nationally Determined Contribution (NDC); (iii) integrated systems for drought monitoring, risk profiling, and anticipatory action; and (iv) a trained national team capable of operating and sustaining all three without outside assistance.

What the catalyst is not

The Catalyst is neither a new organization, a rival international project, nor a humanitarian response system. It does not aim to replace current advisory services, replicate the normative work of intergovernmental organizations, or host national systems indefinitely. It is a time-bound accelerator that is intended to become obsolete in every nation by 2030 and has a clear exit strategy (see section 13).

1. Background and Rationale

1.1 The Global Drought Crisis

Among the most destructive natural disasters, droughts result in widespread displacement, economic harm, and fatalities. Over 1.6 billion people in 117 countries experienced droughts between 2000 and 2024, which led to 25,000 fatalities and over USD 240 billion in direct economic damages (European Commission Joint Research Centre and UNCCD 2024; WEF 2025). New data, however, indicates that the actual scale is much greater. Drought-related losses, trade disruptions, energy system failures, health effects, and ecological degradation are all included in the projected USD 307 billion annual global cost of drought. These effects are predicted to be significantly worsened by climate change: under moderate emission scenarios, approximately 70% of the world's land area may see a decline in soil moisture by mid-century, and by 2050, drought is predicted to affect 80% of the world's population (Thomas et al. 2024; UNCCD 2025).

Due to the combination of long-term climate change, the 2023 to 2024 El Niño event, and increased human pressures on land and water systems, the years 2023 to 2025 have seen some of the most extensive and destructive drought periods in recorded history (Figure 1). A UNCCD-supported report characterized this as a “slow-moving global catastrophe” (UNCCD 2025).

More than 90 million people in Eastern and Southern Africa are experiencing severe hunger or need food assistance. Wheat and maize crops have often failed in Ethiopia, Zimbabwe, Zambia, and Malawi. In 2024, Zimbabwe lost 9,000 cattle to starvation and thirst, while corn prices doubled, and the country's corn harvest dropped 70% year on year.

Horn of Africa: Drought-related starvation in Somalia is estimated to have killed 43,000 people in 2022 alone. By the beginning of 2025, a quarter of Somalis, or 4.4 million people, experienced crisis-level food insecurity, with 1.7 million children experiencing acute malnutrition and 784,000 predicted to reach emergency levels.

Energy crisis in Southern Africa: In April 2024, the Zambezi River in Zambia fell to 20% of its long-term average. Hospitals, bakeries, and factories were forced to close when the Kariba Dam's generation capacity dropped to just 7%, resulting in blackouts lasting up to 21 hours every day. Water levels in Victoria Falls decreased by 70% from 2023.

Amazon Basin: Record-low river levels in 2023 and 2024 disrupted drinking water supplies, caused transportation issues for hundreds of thousands of people, and resulted in the mass deaths of fish and over 200 endangered river dolphins. Fires affecting approximately 20% of the Amazon Rainforest were caused by widespread deforestation and worsening drought, endangering the rainforest's ability to absorb carbon.

International trade: The Panama Canal's declining water levels reduced daily vessel transit by more than one-third, from 38 to 24 ships, resulting in significant disruptions to international trade, such as declines in US soybean exports and shortages in grocery stores across the UK.

Effects on food prices: Drought disrupted the production and supply chains of key agricultural commodities, notably rice, coffee, sugar. Shortages brought on by dry weather in India and Thailand drove sugar prices up in the US by 8.9%. The price of coffee increased by approximately 80%, reaching its highest level in almost 50 years.

MENA region: Morocco has suffered from a severe drought for almost six years, with rainfall levels falling to less than 40% and water reserves declining by 75%. Over 1,600 sinkholes were created in Turkey because of the drought's acceleration of groundwater depletion.

North America: Tree-ring records indicate that the current megadrought in Mexico and the United States—the regions longest for more than 20 years—is likely the most severe in 1,200 years.

“

**Drought is a silent killer. ...
It infiltrates, depletes resources, and slowly runs
life. Societies begin to fall apart when energy,
food and water all go at once.**

— Ibrahim Thiaw
former UNCCD Executive Secretary

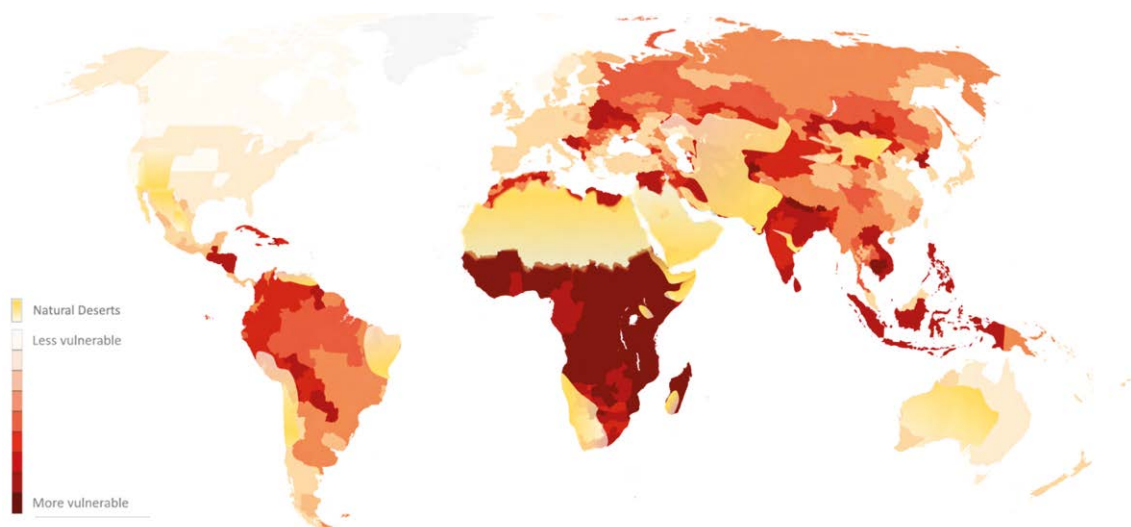


Figure 1. Global drought hotspots from 2023 to 2025, and affected populations.
Source: Tsegai et al. 2023

According to Wilhite (2012), the current pattern of drought response is a hydro-illogical cycle: motivation shifts to apathy as rain returns, and widespread awareness only emerges when water scarcity reaches a critical stage (Figure 2). According to Zaveri et al. (2023), moderate to severe droughts lower GDP per capita growth rates by 0.39% and 0.85%, with low- and middle-income countries in arid regions suffering the greatest relative losses. By making proactive drought resilience the default operating mode, the Drought Action Catalyst is intended to end this loop.

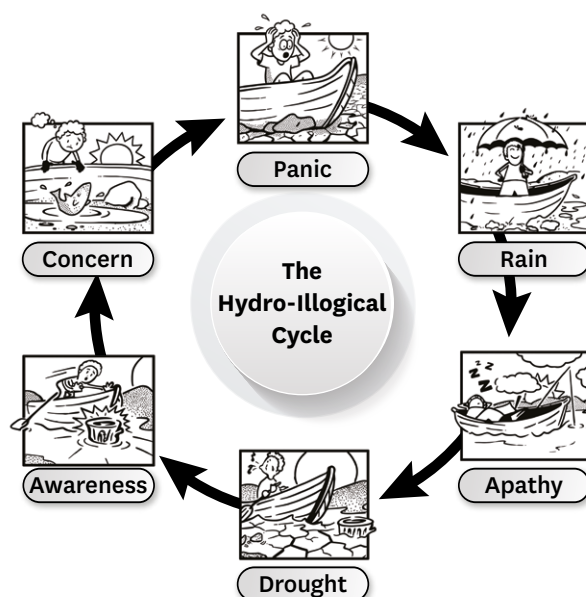


Figure 2. The hydro-illogical cycle and the case for proactive investment.
Source: Wilhite 2012

1.2 The Proactive Investment Gap

Global funding infrastructure is still mostly reactive, despite overwhelming evidence that proactive drought management yields greater returns. Currently, post-event responses account for 88% of weather-related catastrophe funding, mobilizing emergency aid and relief only after a crisis has already materialized. Although this humanitarian aid is crucial for saving lives, it does not reduce the long-term risks posed or prevent the next calamity. The need for humanitarian funding has grown from USD 20.3 billion in 2016 (59% financed) to USD 56.1 billion in 2023 (43% funded), indicating that the existing strategy is not only reactive but also underfunded.

There is a clear economic case for switching to proactive investment:

Return on Investment (ROI) for mitigation: According to estimates from the Federal Emergency Management Agency (FEMA) of the United States, every dollar spent on drought mitigation saves at least two dollars in avoided disaster-related expenses. In general, each dollar of government spending on assistance for readiness and mitigation is estimated to generate six dollars in reduced future losses.

Early warning returns: Worldwide, investments in drought monitoring and early warning systems alone might generate up to USD 35 billion annually. The ROI from early warning systems is about tenfold.

Triple dividend of resilience: According to Organization for Economic Co-operation and Development (OECD) research, proactive adaptation lessens the direct effects of drought, lowers economic uncertainty to allow for long-term planning, and produces socioeconomic benefits including increased agricultural output and decreased poverty (OECD 2025). Proactive drought investment can yield returns that are up to ten times higher than the initial outlay.

Nature-Based Solutions: Up to USD 27 in enhanced ecosystem services and livelihood benefits can be produced for every dollar invested in nature-based drought solutions.

1.3 The Policy Window: Converging Mandates, Aligned Capability

In December 2024, the Drought Action Catalyst was introduced at UNCCD COP 16, when almost 200 countries pledged to prioritize drought resilience and land restoration. The Riyadh Global Drought Resilience Partnership raised USD 12.15 billion for 80 vulnerable countries; 39 decisions were adopted in the areas of science, land tenure, rangelands, gender and agriculture; new caucuses were established for Indigenous Peoples and local communities; the World Drought Atlas was introduced; and the UNCCD, United Nations Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity (CBD) started coordinating through the Rio Trio Initiative. Despite this, the parties were unable to agree on the structure of a global drought regime.

One negotiation does not determine the Catalyst's significance. The same transition from reactive drought relief to anticipatory, funded, institutionally-owned drought management is currently required by several processes.

- UNCCD: ongoing negotiations for a world drought regime through COP17 in Mongolia (August 2026) and beyond, using field evidence provided by the Catalyst diagnostics, governance models, and early action procedures.
- UNFCCC: a persistent gap between NAPs and NDCs, and drought resilience as an adaptation outcome under the Global Goal on Adaptation (GGA).
- Sendai Framework and Early Warnings for All (EW4ALL): by 2027, the Catalyst's monitoring and trigger capabilities will provide universal early warning coverage.
- Climate and catastrophe finance: the risk profiles and triggers generated by the Catalyst are necessary for the Riyadh Global Drought Resilience Partnership, the Green Climate Fund, the Fund for Responding to Loss and Damage, and development bank lending.
- Water, food and ecosystems: The Global Biodiversity Framework, Ramsar commitments on freshwater ecosystems, SDG 6 and SDG 2 review, and the 2026 UN Water Conference.

On the supply side, the window is also open. Eight science programs, the CGIAR Scaling for Impact Program, and four Accelerators make up CGIAR's 2025–30 research portfolio, which provides the Catalyst with a permanent delivery platform as opposed to a project-by-project assembly. Early warning and anticipatory action are anchored by the CGIAR Climate Action Program; drought-tolerant systems, soil moisture management, and watershed restoration are provided by the CGIAR Sustainable Farming Program and the CGIAR Multifunctional Landscapes Program; fragile and conflict-affected settings are addressed by the CGIAR Food Frontiers and Security Program; results are carried into national policy and to scale by the CGIAR Policy Innovations Program and the CGIAR Scaling for Impact Program; and the three pillars of the Catalyst are supported by the CGIAR Accelerator on Gender Equality and Inclusion, the CGIAR Accelerator on Capacity Sharing, and the CGIAR Accelerator on Digital Transformation. In this portfolio, IWMI is the leader in water systems science.

Instead of using customized lobbying for each, the Catalyst will engage all of them from a single evidence base, which includes policy briefs, country results, and a regular progress report.

1.4 Why the Drought Action Catalyst, and Why Now?

Governments and local stakeholders still face challenges in accessing and applying this information on the ground, despite there being several solutions and success stories in drought management. In order to increase drought resilience, a system to close the gap between existing knowledge and useful action is needed.

The Drought Action Catalyst, an IWMI-led project on behalf of CGIAR intended to serve as a one-stop shop for drought decision-makers, is IWMI's solution to close the gap. The Catalyst was introduced at UNCCD COP16 in 2024 with the goal of strengthening cooperation and accelerating action. To support the timely implementation of drought resilience measures on-the-ground, it unites IWMI, related CGIAR Centers, and a global network of partners. The Drought Action Catalyst seeks to achieve this by leveraging CGIAR's scientific and innovative capabilities in conjunction with government and community leadership. To safeguard vulnerable populations from drought, it will essentially expedite tried-and-true solutions and expand current partnerships that combine political will, funding, and creativity.

1.5 Positioning within the Global Drought Architecture

The Drought Action Catalyst enters an already crowded field. Since 2022, an anticipatory action community has emerged, alongside a financial partnership, a global early warning initiative, and an alliance of committed governments for global drought governance. These developments are encouraging, and the Catalyst intends to support these initiatives rather than duplicate or compete with them (Table 1).

The Catalyst occupies a distinct and currently underutilized position within this architecture: the country-level delivery layer. Existing initiatives are robust in terms of single-pillar technical support, finance tools, normative guidance, and political commitment. However, few are set up to co-design an operational system spanning all three drought management pillars, reside inside a national ministry for three to five years, and then turn it over. The Catalyst fills this gap, helping to ensure that commitments made at COP are translated into systems that function effectively at the district level.

Table 1. Catalytic drought investment phase in Ethiopia

Initiative	Primary contribution	How the Catalyst complements it
International Drought Resilience Alliance (IDRA)	Political mobilization and high-level commitment among member states and organizations.	IWMI is a member of IDRA. The Catalyst will submit country outcomes into IRDA procedures and provide the alliance with an operational implementation pathway, which is the technical and institutional package that transforms membership commitments into functioning national systems.

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Initiative	Primary contribution	How the Catalyst complements it
UNCCD Drought Initiative and Riyadh Global Drought Resilience Partnership	Normative framework development, the road to a global drought regime at COP17, and large-scale financing commitments for vulnerable countries.	The Catalyst provides field data to guide regime design and provides a ready-to-use delivery mechanism for quick conversion of Riyadh Global Drought Resilience Partnership funding into national results.
Integrated Drought Management Programme (IDMP), World Meteorological Organization and Global Water Partnership (GWP)	The three-pillar conceptual framework, national drought management policy guidelines, and global technical standards.	Instead of offering a substitute, The Catalyst fully embraces the IDMP architecture and operationalizes it domestically with the addition of CGIAR agricultural research, socioeconomic analysis, and digital delivery.
Early Warnings for All (EW4All) and CREWS	Universal multi-hazard early warning coverage by 2027, with associated financing for Least Developed Countries (LDCs) and Small Island Developing States (SIDS).	The Catalyst contributes drought-specific monitoring capability to the EW4All pillars, and extends coverage beyond warning generation into the pre-agreed action protocols that make warnings consequential.
Anticipatory action community (Risk-informed Early Action Partnership [REAP], Anticipation Hub, International Federation of Red Cross and Red Crescent Societies [IFRC] forecast-based financing, World Food Programme)	Trigger design, pre-arranged humanitarian financing, and anticipatory action protocols at operational scale.	The Catalyst expands coverage beyond warning production into pre-agreed action protocols that make alerts consequential and adds drought-specific monitoring functionally to the EW4ALL pillars.
Global Shield against Climate Risks; Fund for Responding to Loss and Damage	Pre-arranged and post-event climate risk finance.	In order to disburse against drought, these instruments need risk profiles, impact data and trigger architecture, all of which are created by the Catalyst, which also increases the country's capacity to use them.
World Bank Drought Risk and Resilience Assessment (DRRA); development bank programs (Zaveri et al. 2023)	Standardized diagnostic methodology and large-scale investment lending.	The Catalyst presents national drought plans as an investment-ready pipeline for development bank financing and connects its country diagnostics with DRRA methodology.

The unique contribution of the catalyst

To our knowledge, no other platform combines three features: direct access to CGIAR's agriculture, livestock, socioeconomic, and food systems science along with water and climate expertise; integrated capability across all three drought management pillars rather than one; and a track record of co-designing and transferring operational national drought systems—such as the South Asia Drought Monitoring Systems (SADMS), Pakistan Drought Monitoring System (PakDMS), MENA Drought, Zambia Drought Monitoring System (ZADMS), Afghanistan Drought Early Warning Decision Support (AF-DEWS) and Mali Drought Monitoring System (MaliDMS)—which are all still in use within national institutions. The value of the Catalyst lies not in any single technology but in this combination of integrated expertise and clear commitment to national ownership and transition.

2. Drought Resilience Capabilities of IWMI and CGIAR Centers

Effective drought resilience initiatives in Asia and Africa are supported by IWMI's strong multidisciplinary experience in scientific research, socioeconomic analysis, policy engagement, and institutional capacity-building, which it shares with the larger CGIAR network. Over the past 20 years, IWMI has developed drought monitoring and early warning systems that convert satellite and climate data into useful information for planners and at-risk populations (see *Appendix A*).

The full scope of the three pillars is covered by the integrated drought management portfolio that IWMI and its CGIAR partners have created, spanning early warning and real-time monitoring, risk assessment and planning, and on-the-ground preparedness measures like contingency planning, Nature-based Solutions (Nbs), and community-level action. The Catalyst's integrated model is supported by this positioning across all three pillars, which is what distinguishes the IWMI-CGIAR method.

2.1 Drought Monitoring and Early Warning

In order to map drought severity and provide early alerts, IWMI's SADMS combines real-time weather forecasts allowing local authorities across seven South Asian countries to take prompt mitigation action. Building on these developments, IWMI introduced a consolidated drought management platform (IWMI Drought Monitor) that makes data and tools for proactive drought risk management easily accessible to decision-makers in South Asia, MENA, and Africa.

India's pilot districts—Amravati, Aurangabad, and Kurnool—have demonstrated the impact of SADMS, which has produced positive outcomes on the ground. Farmers took prompt action by using SADMS advisories for real-time contingency planning, such as switching to different crop kinds and adding extra irrigation during dry times. They achieved yields that were noticeably higher than those of adjacent control fields without SADMS assistance. Even during periods of drought, soybean yields rose by 7–8 quintals per acre (700–800 kg), pigeon pea by 5–6 quintals (500–600 kg), and cotton by 12–14 quintals (1200–1400 kg), resulting in higher revenues and better food security. This experience shows that farmers may significantly lower drought-related losses and provide more resilient harvests when early warning is combined with early interventions.

By providing vital layers of data and analytical skills, CGIAR Centers enhance IWMI's monitoring infrastructure. To ensure that drought alerts are pertinent not only hydrologically but also in terms of agricultural and livelihood impact, CGIAR's climate information services—such as seasonal forecasting tools, crop–climate modeling from the International Maize and Wheat Improvement Center (CIMMYT) and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and pastoral early warning systems supported by the International Livestock Research Institute (ILRI)—feed into and strengthen

the monitoring platforms. Instead of being abstract meteorological outputs, these early warning systems are actionable for farmers and extension organizations due to the convergence of climate science with agricultural intelligence.

IWMI has created and implemented drought monitoring systems that are specific to each country and region. These systems are co-developed with national agencies and are customized to local requirements.

- **India Drought Monitor:** Building on the SADMS framework, this system was developed in close partnership with the Indian Council of Agricultural Research (ICAR) and its Central Research Institute for Dryland Agriculture (ICAR-CRIDA), linking weekly drought monitoring and seasonal forecasts to district-level agricultural contingency plans that guide national, state, and district authorities in initiating timely mitigation measures.
- **AF-DEWS Tool:** This cloud-based platform, launched in 2023, integrates meteorological, hydrological, and agricultural drought indicators to provide near real-time drought monitoring in Africa.
- **PaK-DMS:** Based on the SADMS framework, PaK-DMS offers national and provincial drought monitoring tailored to Pakistan, combining local meteorological data and satellite-derived indices to facilitate prompt decision-making by federal and provincial disaster management authorities.
- **MENA Drought Monitoring (MENAdrought):** Using an enhanced Composite Drought Index (eCDI), this map-based drought monitoring and early warning system covers Jordan, Lebanon, Morocco, and Tunisia and has been operational since 2020.
- **ZADMS:** Created for the Zambian Ministry of Agriculture under the CGIAR Initiative on Climate Resilience (ClimBeR) and World Bank-funded Accelerated Impacts of CGIAR Climate Research in Africa (AICCRA) program, this national drought monitoring and early warning was introduced in February 2023.
- **MaliDMS:** Using the Food and Agriculture of the United Nations (FAO) WaPOR satellite data, this cloud-based program provides drought monitoring in almost real-time (10 days). The formal release is anticipated in 2026; a beta version developed in 2025.

2.2 Drought Risk Profiling, Vulnerability Assessment, and Planning

Beyond monitoring, IWMI and CGIAR have been instrumental in assisting countries in determining what and who are most vulnerable to drought—and in converting that knowledge into institutional frameworks, contingency plans, and action protocols that link early warning to prompt, coordinated response.

IWMI collaborated with national institutions in Morocco to improve drought risk assessment and assist in the creation of frameworks for drought action planning connected to early warning indicators. A crucial step in Morocco's shift from a reactive crisis response to anticipatory management during its severe six-year drought was assisting in the establishment of threshold-based decision protocols that linked observed drought indices to pre-planned interventions in the agriculture and water sectors. Additionally,

IWMI encouraged the incorporation of nature-based approaches into Morocco's strategy to reduce the risk of drought. These included determining the priorities for landscape restoration that could protect agricultural systems from future dry spells and evaluating watershed degradation as a contributing factor to drought vulnerability.

IWMI helped Jordan create drought contingency planning procedures by collaborating with the Ministry of Water and Irrigation alongside agriculture authorities to create reaction plans specific to the country's severe water shortage. This allowed Jordan to include drought preparedness into its larger climate adaptation strategy by identifying priority intervention zones, risk profiling vulnerable water-dependent industries, and improving institutional coordination capacity across ministries. In addition to institutional planning, IWMI highlighted the importance of sustainable groundwater management and managed aquifer recharge (MAR) as essential nature-based elements of Jordan's drought resilience, acknowledging that safeguarding and replenishing aquifer systems are among the most effective long-term drought mitigation investments in water-scarce regions.

By assisting provincial and district-level contingency planning and connecting seasonal forecast data to prepositioned agricultural advice, IWMI strengthened Sri Lanka's drought response architecture. These initiatives made it possible to distribute drought relief more precisely and shorten response times, especially for smallholder farmers in the dry zone.

Building on the PaK-DMS monitoring system, IWMI assisted Pakistan in creating a national drought contingency plan that established threshold-based triggers for proactive action throughout the nation's drought-prone provinces. By connecting seasonal forecasts and real-time drought indicators to pre-planned response measures, this initiative linked agricultural agencies with federal and provincial disaster management authorities, strengthening Pakistan's ability to transition from ad hoc crisis response to systematic drought preparedness.

In order to ensure that the monitoring system translates directly into institutional response, IWMI collaborated with the Ministry of Agriculture and disaster management organizations in Zambia to create early action protocols and link monitoring system triggers to specific contingency measures, such as seed distribution, water rationing guidelines, and livestock management advisories.

The SADMS pilot in India supported the creation of the district-level drought contingency plans that were triggered by the system, going beyond simple monitoring. Agricultural organizations demonstrated the entire early warning-early action chain by using SADMS warnings to provide real-time crop switching and irrigation scheduling advice.

These risk profiling efforts have benefited greatly from the socioeconomic and livelihood vulnerability studies provided by CGIAR Centers, particularly the International Food Policy Research Institute (IFPRI) and ILRI. While ILRI's pastoral vulnerability assessments have ensured that livestock-dependent communities—often among the most drought-exposed and least served by conventional agricultural planning—are included in risk profiles and contingency frameworks, IFPRI's work on drought impact modeling and food security projections has helped countries understand the downstream economic consequences of drought at household and national levels. The integration of CGIAR's socioeconomic and livelihood analysis with IWMI's institutional planning experience guarantees that drought risk profiles are not only technically sound but also socially and economically relevant.

As these national engagements demonstrate, IWMI and CGIAR capabilities go far beyond technology deployment. In each instance, collaboration has occurred within national institutional frameworks to develop planning capabilities, codesign governance structures, and create operational connections between data systems and decision-making procedures that are critical to successful drought management.

2.3 Drought Preparedness, Mitigation, and Anticipatory Action

Before, during, and after drought episodes, IWMI and CGIAR provide a full range of preparedness and mitigation capabilities that convert risk knowledge into practical on-the-ground interventions.

Climate-smart agriculture (CSA) and drought-tolerant systems

Pillar 3 interventions build on climate-smart agricultural solutions that CGIAR Centers have developed and promoted. Farmers in South Asia and Southern Africa are able to sustain yields under water constraints because of the deployment of drought tolerant crop varieties from CIMMYT and ICRISAT. Deficit irrigation and conservation agriculture are two sustainable dryland farming methods that the International Center for Agricultural Research in the Dry Areas (ICARDA) has developed. Through better livestock management, fodder systems, and early destocking procedures, ILRI has increased pastoralist systems' resistance to drought-related losses. During dry spells, these methods have allowed farmers and pastoralists to preserve agricultural yields, soil health, and asset bases (Lal 2024; Farooq and Siddique 2017; Banerjee et al. 2023; Timu et al. 2024).

Nature-based Solutions (NbS) and watershed management

As fundamental tactics for creating long-term drought resilience, IWMI has been a supporter of integrated watershed management and NbS. According to data from UNCCD and partner assessments, every dollar spent on nature-based drought remedies can result in up to USD 27 in enhanced ecosystem services and livelihoods. IWMI's work in this field includes groundwater recharge and MAR throughout Africa and India, showing how strategic recharge structures—such as check dams, percolation ponds, and recharge wells—can stabilize water tables and prolong water availability during dry seasons. IWMI also supports soil and water conservation through watershed projects in Eastern Africa, India, and Sri Lanka, encouraging practices such as conservation tillage, mulching, and contour bunding that improve soil moisture retention. In addition, ecosystem restoration initiatives strengthen hydrological resilience by helping to restore degraded watersheds and wetlands that act as natural drought buffers. IWMI has also worked to integrate NbS into national drought management and climate adaptation plans in countries like Jordan, Morocco, and Zambia to ensure that watershed rehabilitation and ecosystem conservation are acknowledged as essential drought preparedness investments rather than independent environmental projects.

Financial risk transfer and anticipatory finance

CGIAR has developed drought risk financing tools, particularly through ILRI and IFPRI. Index-based livestock insurance programs, which have been tested in Ethiopia, Kenya, and Niger, provide payments to pastoralists based on satellite-derived vegetation indices before livestock losses become catastrophic (Banerjee et al. 2023). These tools close the loop between detection and protection by immediately integrating Pillar 1 monitoring data into Pillar 3 financial readiness (Ikeda 2021).

Partnerships and scaling through local systems

CGIAR Programs in Eastern and Southern Africa, such as Ukama Ustawi and the World Bank-backed AICCRA, have collaboratively developed locally led resilience solutions to assist growing drought risk. These solutions include crop diversification, drought-tolerant varieties, sustainable intensification of agriculture, and digital climate advisory services accelerated through Small and Medium-sized Enterprises (SMEs). In order to ensure that scientific advancements are scaled up with local ownership for long-term sustainability, IWMI and CGIAR researchers also work with legislators to include drought risk reduction into national climate adaption plans and water legislation.

2.4 An Integrated Capability Across All Three Pillars

The Drought Action Catalyst builds on the combined capabilities of IWMI and CGIAR, bringing together real-time monitoring, institutional planning and contingency design, Nbs and watershed management, CSA, financial risk transfer and policy engagement. This depth of knowledge in all three drought management pillars—based on proven field outcomes in numerous countries and areas—is unmatched by any other platform. The Catalyst’s value proposition and its capacity to change the global paradigm from reactive crisis response to proactive drought resilience are defined by this integration more than any particular tool or technology.

3. Theory of Change

The foundation of the Drought Action Catalyst's Theory of Change is a diagnosis of the reasons why tried-and-true drought solutions consistently fall short: (i) knowledge-to-action gaps, where proven solutions exist but do not reach the communities and decision-makers who need them; (ii) fragmented institutional responses, where drought management is divided across ministries and agencies with no coordinating mechanism and no agreed-upon trigger for acting; (iii) misaligned financing, where the vast majority of resources flow to reactive crisis response rather than proactive preparation; and (iv) unequal reach, whereby warning and response are least effective for women, youth, pastoralists, and marginalized groups, meaning that overall improvements may not necessarily benefit the most vulnerable.

Removing any one of these barriers alone will not alter the system (Figure 3). This diagnosis leads to the core causal claim of the Catalyst. Warnings will turn into action within the allotted lead time if a nation has operational monitoring with predetermined agreed triggers (Pillar 1), risk profiles that identify who and what is exposed (Pillar 2), and pre-agreed, financed, early interventions entrenched in permanent institutions (Pillar 3). Additionally, drought losses will decrease, and the reduction will last beyond the project's duration if that activity is inclusive by design and nationally owned. As a result, every barrier is paired with a pillar and an enabling lever; no pillar is used in isolation. This shift can be observed, documented, and replicated in other countries and regions.

Intermediate outcomes (by 2027)

To assess progress prior to the release of results, the Catalyst separates what it anticipates by 2030. By 2027, at least one anticipatory action will have been triggered by an established threshold rather than a crisis; the national drought task force will meet on a regular schedule with representation from women and pastoralists; a preparedness budget line will have been proposed through the national budget process; and drought triggers will be formally agreed upon and issued by a mandated national authority in each pilot country. These intermediate conditions are essential foundations for achieving the Catalyst's intended results by 2030.

Spheres of control, influence, and interest

The Catalyst influences its results, manages its outputs, and contributes to its impact yet is unable to claim sole attribution for them. IWMI, CGIAR Centers, and partners are directly accountable for delivering outputs. Decisions made by national institutions determine the results, and rather than being directly credited, the Catalyst's role will be evaluated through contribution analysis. Impact-level changes in lives, livelihoods, and development gains are shaped by rainfall, markets, conflict, and policy factors that lie beyond the Catalyst's control. The Catalyst will commission independent, counterfactual evaluation in at least two pilot countries to evaluate the return-on-investment thesis that underpins its own reasoning, and reporting will adhere to this distinction throughout.

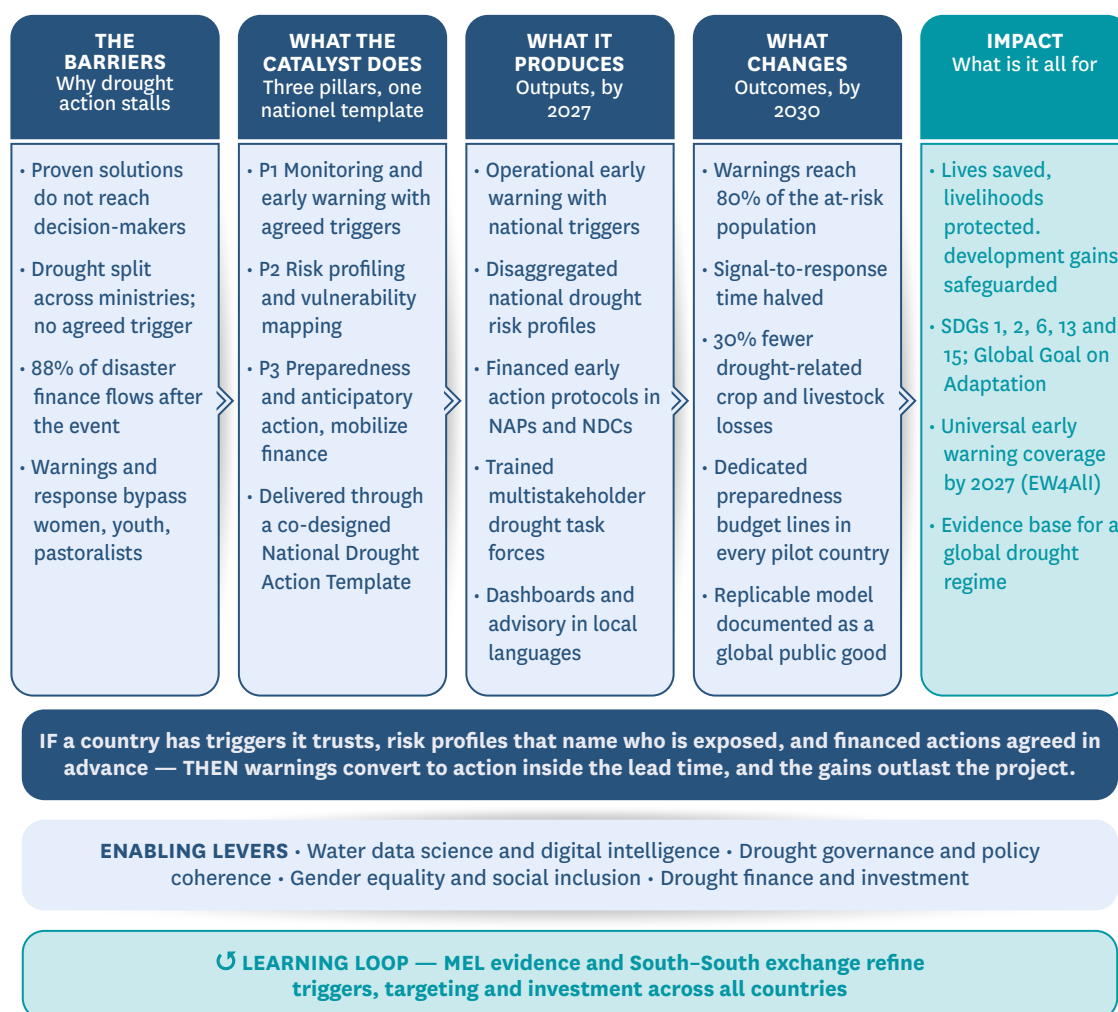


Figure 3. Theory of Change: Drought Action Catalyst

Impact

By 2030, the Catalyst hopes to have advanced progress towards SDGs 1 (No Poverty), SDG 2 (Zero Hunger), SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action) and SDG 15 (Life on Land), as well as national climate adaptation targets, and the GGA, by saving lives, protecting livelihoods and safeguarding development gains in the face of drought. In addition to producing data to guide the creation of a worldwide drought regime under the UNCCD, the Catalyst will help the E4ALL goal of achieving universal coverage by 2027.

A loop of learning rather than a straight line

Instead of being linear, the Theory of Change is iterative. The MEL system uses data produced in each country—including trigger performance, false alarms, adherence to advisories, and the cost-effectiveness of early action—to improve triggers, targeting, and investment decisions in all other countries. As a result, the assumptions underlying the Theory of Change are regarded as testable hypothesis subject to ongoing review. Each of these hypotheses is connected to a causal link it underwrites, and are reviewed alongside the risk matrix presented in Section 10 during the interim model assessment in 2027 (see section 15).

4. Deployment at the Country Level

A National Drought Action template (see *Appendix B*) codeveloped with local stakeholders will be used in each target nation to operationalize the Drought Action Catalyst. In order to customize drought-resilience solutions to national realities, this participatory method brings together government agencies (agriculture, water, disaster management, etc.), technical institutions, and community actors. This is a validated, field-tested IWMI approach rather than a theoretical model. Similar approaches have been successfully implemented by IWMI in India, Sri Lanka, Mali, Zambia, and throughout South Asia. Codesigned drought monitoring and early action systems have improved early warning lead times, strengthened institutional capacity, and produced quantifiable on-the-ground results (e.g., yield gains of 20–40% in Indian pilot districts and faster, better-targeted drought response by agencies in Sri Lanka and Zambia).

4.1 The Demand-Driven, Locally Led Sequence

The Catalyst uses a demand-driven, locally led process to identify drought risks, current plans, institutional preparedness, and capacity shortages. To ensure integration into national systems, a customized package of interventions covering the three pillars—monitoring, risk profiling, and preparedness—is then codesigned. The Catalyst provides governments with a dependable, scalable route to operationalize strong drought management and anticipatory action systems by expanding on IWMI’s validated models and showcasing observable results in several nations.

A national-level catalyst project will consist of:

- Forming a multistakeholder drought task team that includes representatives from civil society, technical organizations, and ministries.
- Creating or revising a national drought plan that complies with NDCs and NAPs.
- Implementing tools (AI advisory services, decision dashboards, and drought monitoring systems).
- Testing community-based initiatives, such as anticipatory cash transfers, water conservation, and climate-smart farming.
- Increasing local capacity through South-South exchanges, workshops, and training.
- Integrating with current initiatives such as social protection systems, farm extension initiatives, and national climate adaptation plans.

4.2 Expected On-the-Ground Results

The Catalyst is expected to deliver measurable outcomes: communities adopting drought-tolerant crop varieties, governments putting in place water storage and preparedness measures ahead of crises, local authorities activating contingency funds before impacts escalate, and farmers receiving timely and actionable drought warnings. Specific activities will be tailored to each country's context. Initial pilots have been planned in locations like South Asia and Eastern and Southern Africa, with the potential to spread to additional drought prone regions in Sub-Saharan Africa, Central America, MENA, and Small Island Developing States (SIDS).

4.3 The National Drought Action Template

A common National Drought Action template is intended to offer a standardized structure that can be modified locally. This keeps interventions rooted in local institutions, interests, and expertise while ensuring that countries gain from common global lessons. This implies that the Catalyst is integrated into national systems as a useful support system that nations can maintain, expand, and implement rather than as an external initiative. The Catalyst approach is both internationally transferable and locally meaningful because of its structure's clarity and operational flexibility (see *Appendix B* for the whole template).

5. Strategic Approach and Fundamental Principles

The main tenets of the Drought Action Catalyst's approach serve as the foundation for all of its initiatives:

Promote future-proofed drought resilience policies and actions: Assisting nations in fortifying their drought plans, policies, and governance to make them climate-resilient and forward thinking. In order to institutionalize proactive drought risk reduction, this entails updating management plans and enabling policies (for example, drought is addressed in water and agriculture planning).

Locally adapt solutions and tools: This emphasizes a bottom-up, participatory approach in which communities and local experts cocreate interventions (i.e., technology, practices, financing methods). To ensure relevance and acceptance, tried-and-true innovations from around the world are tailored to local situations rather than imposed.

Fortify drought planning and governance systems: Strengthening organizations and the collaboration required for successful drought response. This entails defining governmental tasks, creating task forces or committees to address drought, and coordinating efforts across many sectors (such as water, agriculture, meteorology, and disaster management) to provide a cohesive response.

Strengthening capacity-building and knowledge-sharing: Serving as a bridge that links nations to international training, data, and expertise. Support workshops, South-South learning, and an open knowledge portal to help practitioners share what works and develop skills.

Mainstream GESI: Making sure that all initiatives are created with equality in mind, acknowledging that the efforts of drought are not equally dispersed, and that inclusive methods produce better, long-lasting results.

Iterative learning and continuous improvement: Use an iterative approach to test and validate tools, forecasts, and interventions against real outcomes, compare results with predictions, and refine methods accordingly. This ensures continuous improvement, stronger reliability, and growing user confidence over time.

Cross-cutting this approach demonstrates a dedication to collaboration and creativity. The Catalyst brings together governments, research organizations (including CGIAR Programs), non-governmental organizations, the commercial sector, and communities in a collaborative impact model since it is based on the idea that no one organization can address drought on its own. In order to guide action, it also makes use of scientific research and technology innovation (such as climate models, AI technology, and remote sensing). A strong Monitoring, Evaluation, and Learning (MEL) system is constructed, to monitor progress, adjust tactics, and guarantee accountability. As part of a MEL–GESI optimization framework, GESI considerations are integrated into all activities (see section 9). The Catalyst guarantees that its initiatives are inclusive, scalable, and grounded in research by upholding these principles.

6. Pillars of Action: Monitoring, Risk Profiling, and Anticipatory Measures

The Drought Action Catalyst is organized around the three interconnected pillars of the well-established Integrated Drought Management Programme (IDMP) framework (WMO and GWP 2014): monitoring and early warning; vulnerability and risk profiling; and preparedness and anticipatory action. Together, these pillars encompass the entire proactive drought risk management cycle (Figure 4).

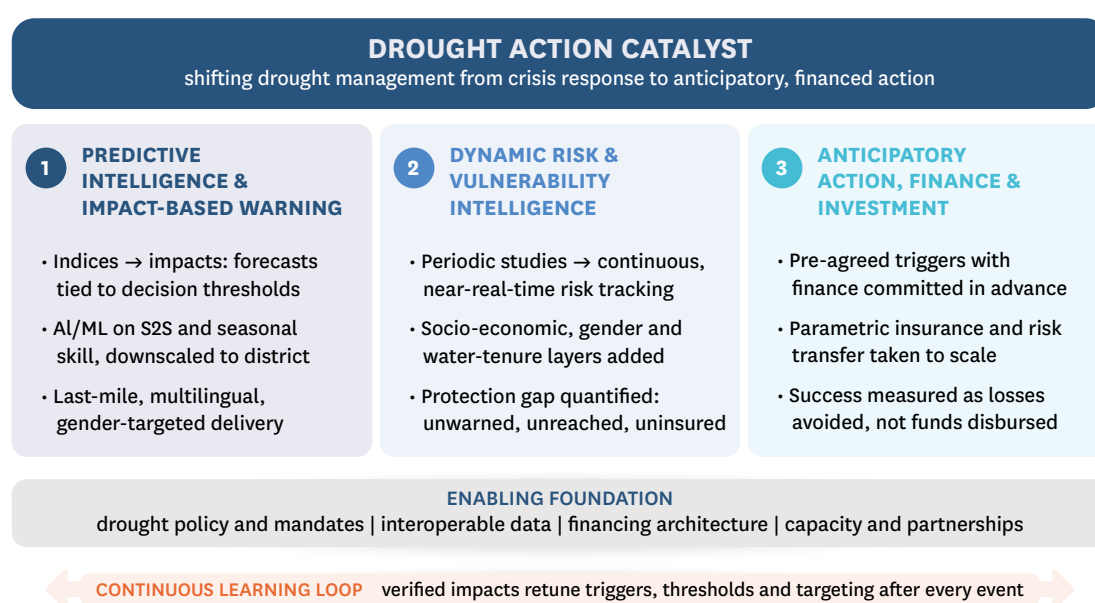


Figure 4. Three pillars of integrated drought management

6.1 Pillar 1: Monitoring and Early Warning

The main goals of this pillar are to monitor drought indicators and send out early warnings. This entails enhancing conventional monitoring (eg., rainfall, river flows, soil moisture) and integrating technology, such as satellite remote sensing, AI-based climate forecasts, and community reporting through mobile applications. The goal is to create efficient early warning systems that give decision makers and communities at risk timely, trustworthy information. The Catalyst makes it possible for stakeholders to foresee droughts before they worsen and take prompt action to save lives and livelihoods by investing in thorough monitoring and prediction.

Global gaps highlight the necessity of this pillar: just 40% of SIDS and fewer than half of least developed countries (LDCs) currently have sufficient multi-hazard early warning systems. The Catalyst's drought monitoring tools are intended to directly support the WMO's EW4ALL efforts, which aims for universal coverage by 2027.

6.2 Pillar 2: Vulnerability and Risk Profiling

Pillar 2 constitutes determining who and what is most vulnerable to drought. Comprehensive drought risk assessments—including sector-specific impact analyses (such as those on agriculture, water supply, livestock), mapping of vulnerable populations and areas, and comprehension of the underlying causes of vulnerability (such as poverty, gender disparities, ecosystem degradation)—will be supported by the Catalyst. The result is a comprehensive drought risk profile for each context that highlights priority areas and groups to inform planning. Planners can make sure resources are used effectively by focusing interventions (such as water tank installations or fodder banks) where they are most required and by having a thorough understanding of the risk landscape.

6.3 Pillar 3: Drought Preparedness and Anticipatory Action

Moving from reaction to readiness and early action is the key focus of this pillar. It encourages the creation of proactive drought plans at national and local levels, which specifies what should be done ahead of time in the event of a drought warning. Additionally, it encourages the application of risk-reduction strategies like CSA practices (i.e., drought-tolerant crops, better soil management), sustainable water management (i.e., rainwater harvesting, aquifer recharge, effective irrigation), and community-driven proactive measures (e.g., destocking livestock early, distributing drought contingency feed, or scaling up social safety nets before food insecurity peaks). The Catalyst helps communities resist the effects of drought and recover quickly by promoting readiness and planned action.

Each pillar supports the other: for example, improved risk profiling (Pillar 2), is informed by improved monitoring (Pillar 1), and both provide efficient and early reaction (Pillar 3). Through these pillars, the Drought Action Catalyst provides a comprehensive set of interventions that are customized to local needs and include data and forecasts, planning and analysis, and on-the-ground actions.

7. Investment Framework: Pre-, During-, and Post-Drought Interventions

Making wise investments prior to, during, and following drought occurrences is necessary to build drought resilience. The Catalyst suggests an integrated investment architecture (Figure 5) that guarantees assistance during every stage of the drought cycle:

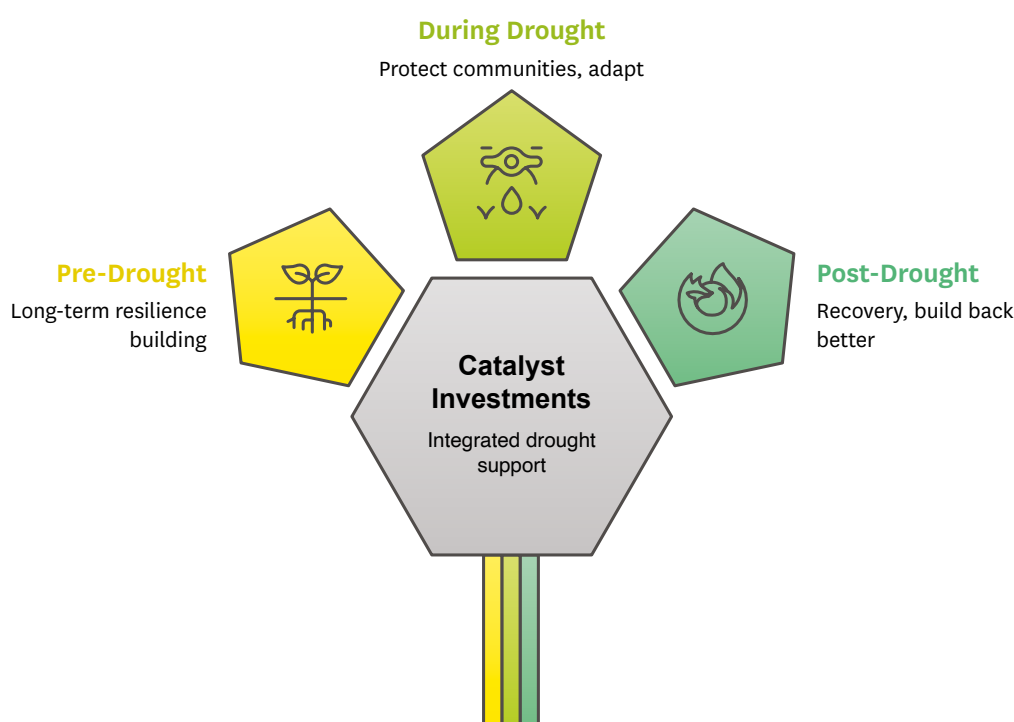


Figure 5. Catalytic investments across different drought phases and their integrated support

7.1 Pre-Drought (Preparedness) Investments

The Catalyst works with countries to invest in long-term readiness and resilience during non-drought periods or prior to a drought. This includes actions like enhancing groundwater recharge, building or renovating small reservoirs, conserving and restoring ecosystems (watersheds, rangelands, etc.) to protect against drought, diversifying livelihoods (introducing drought-tolerant crops or other sources of income), and setting up financial risk mechanisms (eg., contingency funds, index insurance for farmers). Updating drought management plans, educating local committees, and conducting drills are all important investments in drought readiness and institutional capacity. By decreasing risks in advance, these proactive measures lessen the effects of future droughts.

7.2 During Drought (Response and Adaptation) Actions

The Catalyst will assist in initiating emergencies and preventive measures to safeguard communities during drought. Interventions could include: releasing emergency water supplies (e.g., via tankers or strategic boreholes), quickly expanding social safety nets or food and cash aid to drought-affected households, deploying livestock support (eg., fodder distribution and veterinary services) to prevent asset loss, and enforcing water sharing plans to manage scarcity, all under the guidance of early warning triggers. Adaptive actions are also encouraged, such as assisting communities adopt water-saving practices or advising farmers to modify planting dates and crop selections based on projections. These during-drought measures can prevent irreversible harm and save lives and livelihoods by connecting early warning to early action.

7.3 Post-Drought (Recovery and Building Back Better) Initiatives

Following a drought, rehabilitation and long-term risk mitigation become the main priorities. In order to help communities recover and become more resilient to future droughts, the Catalyst will fund post-drought investments. This could entail restocking herds or seeds for farmers, restoring damaged land (through reforestation, soil conservation, etc.), and rehabilitating water systems (eg., repairing wells and desilting tanks), conducting after-action reviews, and incorporating the lessons learned from the drought response into better drought plans or policies. The post-drought era presents a chance to build back better, either by expanding successful pilot projects into wider practice or reconstructing infrastructure to a higher standard of climate resilience.

The best global practices in disaster risk management and climate adaptation are in line with this staged investment strategy, which covers prevention, response, and recovery (Table 2). It contributes to the paradigm shift from reactive crisis relief to a proactive risk management cycle, where resilience outcomes are maximized with each dollar invested at the appropriate time.

Table 2. Catalytic drought investment phase in Ethiopia

Phase	Core Goal	Example Investment (Ethiopia Case)
Pre-drought (preparedness)	Mitigate risk and reduce future impact severity	Index-based insurance and water security: establish a subsidized index-based livestock insurance scheme for pastoralists in the Somali region. Rehabilitate and expand community-managed groundwater recharge ponds in the Afar region.
During drought (response and adaptation)	Protect assets and livelihoods by linking early warning to early action	Anticipatory cash transfer: when the early warning system (based on rainfall and vegetation indices) hits a drought watch trigger, automatically release pre-arranged cash transfers to registered vulnerable households before food insecurity becomes acute.
Post-drought (recovery and building back better)	Restore livelihoods and strengthen long-term resilience to future droughts	Resilient infrastructure and policy: Provide targeted microfinance/ seed grants for restocking livestock (using drought-tolerant breeds). Fund the development of climate-resilient community granaries and integrate drought lessons into the regional disaster risk management policy.

8. Accelerating Drought Mitigation through Data-Driven and Inclusive Digital Solutions

The Drought Action Catalyst's primary facilitators—digital technology and data science—increase the scope and efficacy of actions. We will seek two key digital innovations:

8.1 SukhaRakshak AI: IWMI's Multilingual Drought Advisory System

IWMI's multilingual, AI-powered drought advisory system is called SukhaRakshak AI. It converts seasonal forecasts, agronomic data, and drought monitoring results into simple, location-specific advice that is sent to farmers via mobile phone in their native language. It is the last-mile delivery layer of the Catalyst, bridging the gap between field-scale decisions and national-scale alerts.

Rather than being conceptual, the system is operational. Currently reaching approximately 50,000 farmers, it was developed and tested in India in collaboration with the state agriculture departments of Andhra Pradesh, Karnataka, Maharashtra, and Telangana. Within 24 months it is expected to reach an estimated one million farmers. Its evidentiary base sets it apart from generic conversational tools: instead of relying on free online content, its warnings are based on IWMI's own drought monitoring systems and verified agronomic counsel, making each response traceable and defensible.

Three guidelines for growth

Accessibility: The system remains usable in areas with poor literacy and limited connectivity through voice interfaces, multiple languages, and low-bandwidth SMS/USSD delivery.

Trust: User data is managed with express consent in accordance with applicable data protection laws. Advisories are vetted before distribution, and local experts curate the knowledge base.

Complementarity: Designed to be integrated with government platforms, the system enhances national extension services rather than replacing them.

By transferring the underlying architecture instead of replicating the India implementation, SukhaRakshak AI will be expanded to new countries through collaboration with national agencies under the Catalyst. This enables each country to run advisories using its own data, languages, cropping systems, and institutional channels.

8.2 Decision Support Tools and Data Platforms

The Catalyst will implement sophisticated data analytics and decision-support tools to help with evidence-based decision-making. This entails expanding upon existing platforms, such as the IWMI Drought Monitor, which offers satellite-based drought maps and trends, and combining them with hydrological models, socioeconomic data, and climate change projections. The outcome will be user-friendly dashboards and tools that assist local and national authorities in assessing choices and visualizing drought risk scenarios.

To indicate where actions are most needed, a planning dashboard might, for example, incorporate real-time rainfall shortfalls, reservoir levels, and crop status data. The impact of various mitigation efforts could be simulated by policy makers using another tool (e.g., If we invest in X number of water harvesting structures in Region Y, how many people could we protect in the next drought?). Alert systems, maps, and predictive analytics that translate complex data into useful insights will be included in these decision-support tools. In order to connect government systems and other climate information services, all digital solutions will be built with interoperability in mind.

9. Role of GESI

Not everyone is equally affected: women, youth, the elderly, and marginalized communities frequently bear the brunt of drought impacts and have the fewest means to adapt. According to WMO data, over 700,000 people died from droughts between 1970 and 2019, with women and girls in Africa being disproportionately affected. Thus, a key component of the Drought Action Catalyst is GESI. To ensure that drought resilience building is inclusive and advantageous to all societal sectors, the efforts will mainstream GESI considerations at every stage.

Inclusive planning and participation: The Catalyst will encourage women and other socially disadvantaged groups to actively participate in the development and execution of drought solutions. The project will seek balanced representation and leadership from many groups, including national committees and community organizations. For instance, Indigenous Peoples may be consulted on water management techniques, or women farmers' cooperatives may be involved in creating local drought plans.

Targeted vulnerability analysis: To identify different vulnerabilities, assessments will be broken down by gender, age, and social group under pillar 2 (Risk Profiling). The assessments conducted by the Catalyst will determine who is most at risk and why, including households headed by women, laborers without land, and ethnic minorities living in distant places. This data will inform how interventions are customized.

Empowering women and marginalized groups: The project will boost women's empowerment by enabling women's savings organizations to handle drought contingency funds or by making CSA training accessible to female farmers. Similarly, it will respect and incorporate the traditional knowledge of marginalized populations (such as pastoralists and tribal groups) into the Catalyst's tools and tactics.

MEL and accountability for GESI: The Catalyst's MEL system will specifically monitor GESI results. Metrics like the number of women and young people receiving training, closing of gender gaps in early warning information access, proportion of female led institutions involved, disaggregated drought vulnerability indices, and improvements in livelihood resilience among vulnerable groups are examples of key performance indicators.

10. Risk Assumption and Mitigation

An honest evaluation of the hazards that could obstruct developments is necessary for the Drought Action Catalyst to be implemented successfully (Table 3). Key risks and related mitigation techniques are listed in the risk matrix that follows:

Table 3. Risk management framework for the Drought Action Catalyst Program

Risk	Level	Impact	Mitigation Strategy
Political instability or changes in government priorities	Medium	Disruption of institutional partnerships and project continuity	Embed the Catalyst within multistakeholder structures that transcend political cycles; diversify country portfolio; build relationships across political lines and with technical agencies
Insufficient or delayed funding mobilization	Medium –high	Reduced scope of pilots and delayed implementation timelines	Diversify the donor base across bilateral, multilateral, and climate finance; demonstrate ROI through early quick wins; pursue blended finance with the private sector
Weak data infrastructure in target countries	High	Unreliable monitoring systems and delayed early warnings	Use satellite-based systems to complement ground data; invest in capacity-building for national meteorological agencies; leverage CGIAR's global datasets
Low technology adoption by end-users (farmers, local officials)	Medium	Digital tools underutilized; limited impact on communities	Codesign tools with users from the outset; ensure local language support and low-bandwidth functionality; train extension workers as intermediaries; iterate based on user feedback
Partner coordination challenges or fatigue	Medium	Fragmented efforts, duplication, or gaps in coverage	Clear governance structure with defined roles (see Appendix C); regular coordination through a Catalyst Coordination Unit (CCU); streamlined reporting and a shared MEL framework
Climate variability exceeds projections	Low–medium	Systems overwhelmed by unprecedented drought severity or frequency	Build adaptive management into all tools and plans; design for scenario flexibility; maintain learning loops through MEL; stress-test systems against worst-case scenarios
Sustainability risk: dependency on external support	Medium	Systems atrophy after the project ends; reversal of gains	Embed within national institutional structures from day one; establish domestic financing mechanisms; open-source digital tools; Training of Trainers model (see section 13)

11. Results Framework and Monitoring

The Catalyst uses a common MEL framework that is aligned with the relevant country's reporting systems and CGIAR's performance requirements. With baselines to be established in the first year of each country's engagement, the results framework presented below offers SMART indicators for each of the three pillars (Table 4).

Table 4. Outcome-level performance matrix for the Drought Action Catalyst

Outcome Area	Indicator	Target (2030)	Potential Beneficiaries	Data Source
Early warning coverage	% of the target population receiving timely drought warnings (disaggregated by gender)	80% in pilot countries	Smallholder farmers and pastoralists; extension services; district disaster management authorities	Monitoring system data; household surveys
Response time	Reduction in the average time from drought signal to institutional response (days)	50% reduction	National and subnational disaster management agencies; drought task forces	Government records; task force logs
Agricultural resilience	% reduction in drought-related crop/livestock losses in pilot areas	30% reduction	Farming and livestock-keeping households; agriculture ministries; extension services	Agricultural statistics; farmer surveys
Governance	Countries with operational, updated national drought plans integrated into NAPs/ NDCs	All pilot countries	National ministries (agriculture, water, disaster management); regional and local governments	Policy document review
GESI integration	% of women and marginalized groups in drought planning bodies	40% representation	Women, youth, and marginalized groups; women's cooperatives and community organizations	Participation records; gender audits
Digital adoption	Active users of decision-support tools and the AI chatbot	50,000 users	Farmers; extension agents; water user associations; local officials	Platform analytics
Financing shift	Dedicated drought preparedness budget lines or contingency facilities established	All pilot countries	Finance ministries; national governments; insurance providers; vulnerable households (indirect)	Budget documents; finance ministry
Knowledge products	Number of case studies, toolkits, and policy briefs published and disseminated	20+ products	Governments of other drought-prone countries; development partners; researchers and practitioners	Publication records

To encourage adaptive management and knowledge transfer, learning activities and South-South exchanges will be organized. Results will be assessed, lessons will be recorded, and ongoing progress will be measured through yearly evaluations and facilitated cross-national learning exchanges.

12. Expected Benefits and Outcomes

The Drought Action Catalyst will have substantial immediate and long-term effects by 2030 if it is implemented effectively (Figure 6). Notable anticipated results include:

- **Improved early warning and response:** Partner nations will have more robust early warning systems and well-defined drought response procedures, enabling them to take prompt action when drought signals appear. It is anticipated that this will reduce livestock and crop losses as well as humanitarian crises. Emergency reaction times may shorten and lead times for drought warnings may lengthen, giving farmers additional weeks to prepare.
- **Enhanced community and ecosystem resilience:** Millions of rural households in pilot regions will adopt drought-resilient practices (such as drought-tolerant crop varieties, water-efficient irrigation, and soil moisture conservation) through on-the-ground interventions. Despite variations in rainfall, this will improve household incomes and food security. Additionally, ecosystems will benefit from stabilized groundwater levels and restored watersheds, which will act as a buffer against future droughts.
- **Strengthened policies and institutions:** Governments will formalize improved drought governance, coordination between ministries will improve, and national drought plans and policies will be updated and operational. Development planning will increasingly incorporate drought risk management. This may result in the creation of long-term budget lines or funding sources for drought preparedness.
- **Social and economic benefits for vulnerable groups:** Women and marginalized groups will be less vulnerable as a result of the Catalyst's emphasis on GESI. Anticipated outcomes include increased participation of minority communities in local planning, better adaptability among low-income households, and improved access to resources for female farmers.
- **Knowledge and scalable models created:** By recording and sharing lessons, the Catalyst will create global public goods (e.g., training modules, toolkits, and case studies). The initiative's goal is to establish a repeatable model by 2030 so that other nations, funders, and international programs can adopt it (e.g., expansion through collaborations with UNCCD's Drought Initiative or other CGIAR climate projects).

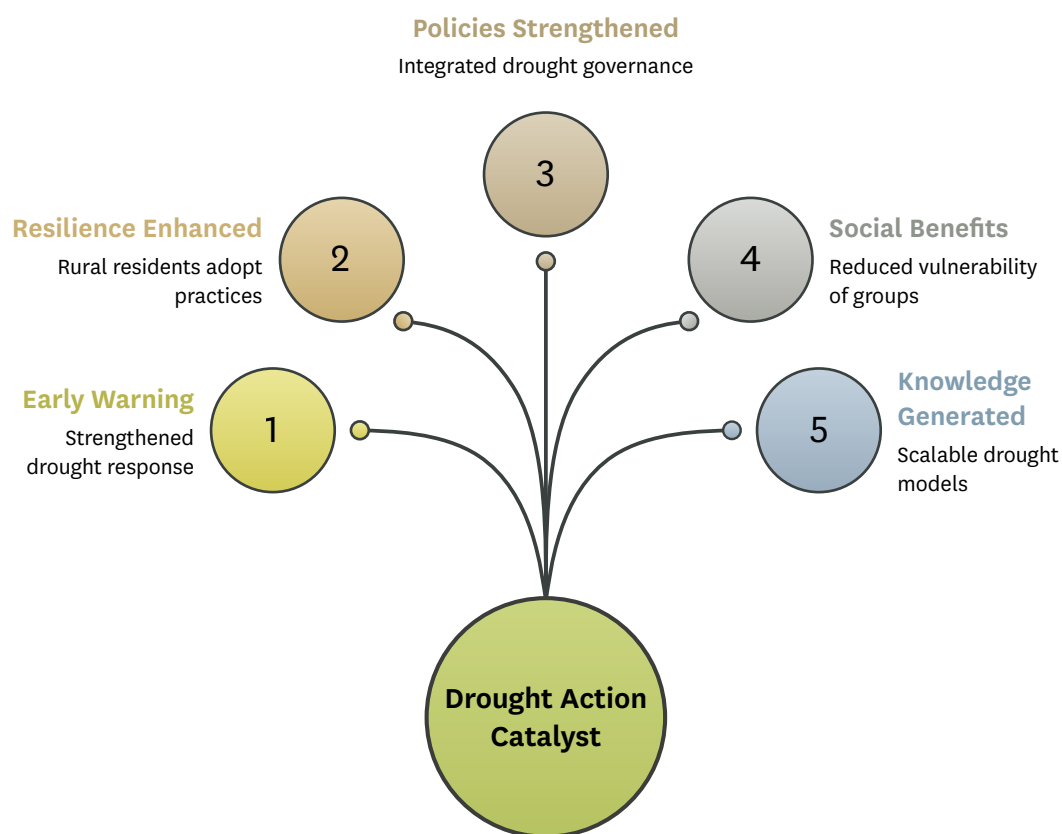


Figure 6. Drought Action Catalyst: Immediate to long-term benefits pathway

When taken as whole, these results indicate that nations participating in the Drought Action Catalyst will be safer and better equipped to respond to the next drought. Success will ultimately be measured the extent to which it saves lives, secures livelihoods, and safeguards development gains—all of which will contribute towards advancing the SDGs and climate adaption targets.

13. Sustainability and Exit Strategy

The Drought Action Catalyst project is built with long-term sustainability in mind. Global development programming experience has demonstrated that if sustainability is neglected, even high performing programs may fall apart. The Catalyst uses a comprehensive sustainability framework based on four supporting pillars to address this:

13.1 Institutional Embedding and National Ownership

The Catalyst is not intended to be an independent external initiative. The Catalyst ensures that capacity, data infrastructure, and governance mechanisms endure beyond the project period by collaborating with government agencies to create National Drought Action templates and integrating technologies into national systems. In particular:

- Rather than being established as independent organizations that cease to operate when funds expire, national drought task teams will be embedded within current institutional structures (usually under a lead ministry like agriculture or disaster management),
- IWMI offers transition support rather than long-term hosting for drought monitoring systems, which are intended to operate on national data infrastructure.
- National drought plans created under the Catalyst will have a legal and policy standing that extends beyond the project since they will be incorporated into official NAPs, NDCs, and national development strategies.
- All government employees, not only project workers, receive training and certification in data interpretation, system operation, and emergency preparedness.

13.2 Financial Sustainability

In addition to connecting drought resilience investments with national adaptation financing, catastrophe risk management budgets, and insurance systems, the Catalyst collaborates with governments to create specific budget lines for drought preparedness. Even when the external project's funding ends, the economic justification—which can generate benefits of up to USD 10 for every USD 1 invested—provides a strong basis for sustained public financing, even after external project funding ends. Specific mechanisms for financial sustainability include:

- Helping governments create or increase national drought contingency reserves with explicit trigger mechanisms linked to early warnings levels.

- Connecting ongoing infrastructure and capacity investments to international climate finance instruments (eg., Green Climate Fund (GCF), Adaptation Fund (AF), and bilateral climate funding)
- Creating risk transfer and insurance products that lower financial risk and generate income, such as index-based insurance for farmers and pastoralists.
- Involving private sector partners in sustainable business models that can support digital tools and consulting services on a commercial basis, such as agribusiness, technology, and insurance providers.
- Proposing budget reallocations from reactive emergency spending to preparedness investment by showcasing cost savings from proactive management.

13.3 Technology Sustainability

The Catalysts' digital tools are made with sustainability in mind from the beginning:

- Through open-source code and open data standards, national or regional technical partners can maintain, modify, and upgrade tools without relying on IWMI.
- Low operating expenses and cloud-based design allow for ongoing and thorough national budgetary allocations.
- Model updates, data pipeline management, and system maintenance training for national technical personnel.
- Collaborations with national research centers and universities to offer continuous innovation and technical assistance.

13.4 Transition and Handover Plan

An explicit transition trajectory is part of the Catalyst's three-phase roadmap:

Phase 1 (2025–2026): As the principal implanting partner, IWMI offers substantial assistance. National teams collaborate on the development of systems.

Phase 2 (2026–2027): Operational duties are gradually transferred to national institutions. IWMI becomes a technical advisor and quality assurance supplier instead of an implementer.

Phase 3 (2028–2030): Complete operational ownership is assumed by national institutions. IWMI's responsibilities shift to light-touch quality assurance, peer learning facilitation, and innovative support. The Global Drought Resilience Knowledge Network functions as an independent peer-to-peer network.

Each participating nation should have the following by the end of Phase 3: (i) independent drought monitoring and early warning systems operating on national infrastructure; (ii) institutionalized drought governance mechanisms with dedicated funding; (iii) trained personnel maintaining and updating all tools and plans; and (iv) active participation in regional and global learning networks that sustain knowledge exchange without external project support.

13.5 Risk Mitigation for Sustainability

The following are important sustainability risks and ways to mitigate them:

- Mitigate government turnover risks by embedding the initiative in policy and permanent institutions, supported by demonstrated impact. The risk of brain drain, or the departure of skilled employees can be reduced by partnering with national institutions to create a continuous capacity pipeline, Training of Trainers models, and institutional knowledge management systems.
- The risk of technology obsolescence can be addressed through engagement with technology suppliers for continuous development and modular, standards-based architecture that permits component upgrades.
- Early involvement with national budget processes (two to three before transition), a diverse financing approach, and a phased rather than sudden handover are ways to mitigate the risk of funding shortfalls during transition.

14. Partnership Landscape and Scaling Potential

The Drought Action Catalyst is based on partnerships (see *Appendix C*); it is a coalition of several actors, each contributing special qualities to increase impact. The landscape of partnerships consists of:

14.1 CGIAR and Scientific Partners

The Catalyst leverages the global research network of CGIAR as an IWMI-led initiative. It is aligned with CGIAR's Climate Action Program, Food Frontiers and Security Program, Better Diets and Nutrition Program, Policy Innovations Program, and other pertinent science accelerators and programs on ecosystems, water, and land, such as the CGIAR Scaling for Impact Program. Expertise from other CGIAR Centers (aside from IWMI) will be provided, through data scientists supporting climatic information services, socioeconomic experts assisting in the design of insurance systems (IFPRI, ILRI), and crop scientists advising on drought-tolerant cultivars (CIMMYT, ICRISAT, etc.).

14.2 National Governments and Local Authorities

The government of each member nation serves as the main partner, offering legitimacy and leadership. In-country Catalyst activities will be co-chaired by ministries in charge of agriculture, water resources, the environment, and disaster management. Since they frequently carry out community-led initiatives, local governments and district authorities are particularly crucial. Scaling and maintaining drought resilience strategies require political ownership and assistance from national and local authorities.

14.3 International Agencies and Programs

The UNCCD Drought Initiative, the WMO/Global Water Partnership (GWP)-led Integrated Drought Management Programme (IDMP), the EW4All initiative, and humanitarian groups like the Red Cross/Red Crescent's forecast-based financing programs are just a few of the international initiatives that the Catalyst supports and works with. Drought resilience is linked to food security and disaster response initiatives through partnerships with UN agencies (i.e., FAO, World Food Programme [WFP] and United Nations Development Programme [UNDP]). Important partners for cofinancing include development banks and climate funds, such as the World Bank, African Development Bank, GCF. Additionally, the Catalyst is in line with the Paris Agreement's GGA and the Sendai Framework for Disaster Risk Reduction.

14.4 Civil Society and Community Organizations

Numerous Catalyst inventions will be implemented mostly by non-governmental organizations (NGOs), farmer organizations, and community-based organizations. For these practitioners to exchange knowledge internationally, the Catalyst will establish networks. Local advocates for drought resilience, such as women's self-help groups and Water User Associations (WUAs), will be given more authority.

14.5 Private Sector and Innovators

Innovation and additional resources are brought in by working with business partners. Startups and tech firms may work together to develop digital tools. Insurance and financial institutions are essential in order to scale drought insurance or credit products. Resilient inputs or seeds can be distributed through partnerships with agribusinesses. Public-private partnerships will be investigated to manage large data platforms and finance infrastructure. The Catalyst facilitates the introduction of creative ideas from entrepreneurs to communities and governments, supporting broader adoption.

The Drought Action Catalyst provides a solid basis for growth because of its extensive partnership network. This network of partners can quickly duplicate the strategy abroad once pilot countries show success: governments provide demand and institutionalization, CGIAR and IWMI supply the knowledge backbone, and international organizations and financiers support resource expansion. The Catalyst is intended to serve as a worldwide alliance for drought resilience, and because it is an open, collaborative platform, more partners or nations may join over time. The goal is to develop a self-sustaining coalition by 2030 that will continue to promote investment and innovation in drought preparedness long after the original initiative has ended.

15. Next Steps and Roadmap to 2030

From its origin until 2030, the Drought Action Catalyst has a clear path that is strategically integrated with global climate and development milestones, such as the EW4All target (2027), the SDG timeline (2030) and UNCCD COP17 in Mongolia (2026). The three phases comprise the following steps:

Phase 1 – Initiation (2025–2026): Laying the Foundation

The main objective of this foundational phase is to establish the fundamental operational structure, obtain the initial resources, and pilot sites.

1.1 Project formalization and governance

The Drought Action Catalyst program concept and governance will be formalized by IWMI, CGIAR Centers, and key partners. This entails outlining the project's terms of reference as well as the roles and obligations of essential partners.

1.2 Resource mobilization

Securing crucial seed money from willing donors and creating a special coordination unit/ secretariat for the Catalyst to oversee multinational operations.

1.3 Pilot country selection and baseline

Certain criteria will be developed for country selection. Through consultation with governments and stakeholders, a small number of pilot countries—such as one in South Asia, one in Southern Africa, and possibly others in Central America or East Africa—will be verified by mid-2026. In these countries, baseline research and thorough stakeholder mapping will begin right away.

1.4 Digital prototyping

A prototype data platform for real-time drought monitoring and an early version of the AI chatbot (such as SukhaRakshak and WaterCoPilot) are among the fundamental digital tools that will be created.

1.5 Partnership activation and launch

Memoranda of Understanding (MOUs) will be formally activated through partnerships with CGIAR Initiatives and other collaborators. Local participation and coordination of interventions will begin with a launch workshop or event in each pilot nation.

1.6 Immediate next steps: 2026– 2027 (action plan)

- IWMI will host the Drought Action Catalyst Global Hub, which will launch and coordinate multi-country programming, partner engagement, and innovation scaling.
- Pilot country selection and engagement: Based on partner readiness, government need, and vulnerability, two to three priority countries will be selected from MENA, South Asia, or Eastern/Southern Africa. Baseline evaluations will be conducted by Q4 2026.
- Establishment of national drought taskforces: To cohead national-level Drought Action Catalyst programming, guarantee alignment with NAPs/NDCs, and mobilize early action, multistakeholder taskforces will be established in each pilot country.
- Secure approximately USD 5–10 million in initial cofinancing through targeted engagement to major funders (GCF, AF, World Bank, bilateral agencies) in order to mobilize seed funding and technical partnerships. By early 2027, five to ten letters of engagement will be established with CGIAR Centers, UN organizations, businesses, and NGOs.
- Key tools and prototypes rollout: Early warning triggers, national drought dashboards, beta versions of the SukhaRakshak AI chatbot will be deployed in a few chosen nations. By the mid-2026, user-centered testing and iterative improvements will be conducted.
- Knowledge-sharing and visibility events: Participation in knowledge-sharing events will be scheduled at important international forums (such as UNCCD COP17 in Mongolia, 2026 UN Water Conference, and Africa Climate Week).

Phase 2 – Implementation and Learning (2027–2028): Test, Refine, and Prove

2.1 Full implementation of pillars

In the pilot countries, the three pillars of the Catalyst will be fully operationalized. Each country will implement a customized set of interventions, including monitoring systems, vulnerability assessments, and preparatory measures.

2.2 Digital innovation and field testing

The digital innovations will undergo rigorous field testing and refinement based on iterative, user-centered feedback from communities and decision-makers.

2.3 Monitoring, evaluation, and adaptive learning

Progress will be monitored through a robust MEL system. Results will be assessed, key takeaways will be documented, and ongoing, adaptive progress will be ensured through yearly evaluations and facilitated cross-country learning exchanges.

2.4 Demonstrating early outcomes

Early observable results (such as an operable early warning system or a community drought management action plan in implementation) should be visible by 2027–2028. To create momentum, successes will be shared, particularly at UNCCD COP17, and knowledge products (e.g., guides, case studies) will be created.

2.5 Interim model assessment

An interim evaluation of the basic Catalyst model will be carried out in 2027, formally assessing its efficacy and identifying best practices to guide the worldwide scaling approach.

Phase 3 – Scaling and Mainstreaming (2028–2030): Driving Global Systems Change

3.1 Exponential expansion (smart scaling)

Invite additional high-priority, drought-prone countries to engage through a systematic approach, with an emphasis on Sub-Saharan Africa, South Asia and other drought-vulnerable regions. This expansion will be supported by using digital replication models and setting up regional delivery hubs.

3.2 Policy and financial mainstreaming

Make a concerted effort to incorporate the proactive drought resilience concept into international and national government policy. This entails encouraging nations to incorporate drought preparedness directly into their NDCs and NAPs and influencing donor tactics to shift funding approaches from reactive response to proactive preparedness.

3.3 AI-driven resilience network

Create a self-sustaining Global Drought Resilience Knowledge Network using digital tools. In order to make drought risk intelligence a public-good utility, this entails creating a fully commercial-grade, multilingual AI advising service and linking the data platform with national climate data systems.

3.4 Impact verification and legacy

By 2030, all participating countries are expected to demonstrate a quantifiable, documented improvement in drought resilience (e.g., a demonstrable decrease in livelihood and economic losses attributed to drought relative to baseline) (Smith et al. 2025). A thorough end-of-project report will be prepared.

3.5 Global convening

This phase will culminate in a global knowledge-sharing event (potentially a high-level segment at a COP or international conference) in order to disseminate the Catalyst's success model and ensure its long-term institutionalization or evolution beyond 2030.

Flexibility and adaptive management will remain central throughout these stages. The roadmap is intentionally aligned with the SDGs timeline (up to 2030), positioning the Catalyst as a contributor to SDG targets on climate change, zero hunger, and sustainable water management. The Drought Action Catalyst aims to advance this vision by 2030.

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Appendix A. Summary of Key Drought Monitoring and Management Systems

The following table summarizes the key drought monitoring and management systems that IWMI has developed, including regional platforms and country-specific applications.

Table A.1. Overview of IWMI drought monitoring and management systems

System	Coverage	Key Features	Partners	Launched	Target Users
SADMS	South Asia (7 countries)	Remote sensing-based monitoring; weekly updates; seasonal forecasts; multiple drought indices (SPI, soil moisture, vegetation health, IDSI)	Indian Council of Agricultural Research (ICAR), Ministry of Agriculture and Farmers Welfare, South Asian Association for Regional Cooperation (SAARC), UN-SPIDER	2014	National/state/district authorities; extension services; smallholder farmers (indirect)
AFDEWS	Afghanistan	Cloud-based near real-time monitoring; meteorological, hydrological, agricultural indicators; supports decision-making for timely responses	Afghanistan national agencies	2023	Afghan government; humanitarian organizations; farming communities (indirect)
MENAdrought	Jordan, Lebanon, Morocco, Tunisia	Enhanced Composite Drought Index (eCDI); combines meteorological, soil moisture, vegetation stress; early alerts via thresholds	University of Nebraska, USAID, national ministries	~2019	Government policymakers; water/agriculture agencies; farmers/pastoralists (indirect)
ZADMS	Zambia	National monitoring; satellite-based tools; seasonal/sub-seasonal/7-day forecasting; trigger mechanisms linked to contingency plans	Zambia's Ministry of Agriculture, ClimBeR, AICCRA/World Bank	2023	Ministry of Agriculture; meteorological/disaster agencies; extension services; farmers (indirect)
MaliDMS	Mali	Cloud-based 10-day monitoring; FAO WaPOR data; tracks drought on maize, sorghum, millet; bilingual (EN/FR)	FAO (WaPOR), Mali Directorate of Agriculture	2025–2026	National/regional authorities; early warning units; farmers (indirect)

Appendix B. Sample National Drought Action Template

A. Country Context and Rapid Diagnostic

- Overview of drought risk profile: Historical patterns, frequency, and recent impacts (agriculture, water, livelihoods, etc.).
- Existing drought policies/plans: Status of the national drought plan, climate adaptation strategy, contingency funds, etc.
- Institutional landscape: Roles of ministries (agriculture, water, disaster, finance, etc.), meteorological services, and other stakeholders.
- Gaps and opportunities: Data/monitoring gaps, coordination challenges, community vulnerabilities, entry points for action.

B. National Drought Action Objectives

- Reduce drought-related losses in agriculture, water, and food systems.
- Strengthen early warning–early action linkages at national and subnational levels.
- Promote inclusive, locally led drought resilience planning and investment.
- Integrate drought resilience into national adaptation, DRR, and agricultural policies.

C. Pillar-Based Intervention Package

Pillar 1: Monitoring and Early Warning

- Strengthen national drought monitoring systems (e.g., upgrade observational networks).
- Integrate Earth Observation-based drought indices (Standardized Precipitation – Evapotranspiration Index [SPEI], Vegetation Health Index [VHI], Normalized Difference Vegetation Index [NDVI]) and climate forecasts.
- Develop or enhance a user-friendly drought decision dashboard.
- Set up thresholds and triggers for anticipatory action linked to seasonal forecasts.

Pillar 2: Risk Profiling and Vulnerability Mapping

- Conduct national and subnational drought risk assessments.
- Map vulnerability hotspots by sector (e.g., crops, livestock, Water, Sanitation and Hygiene [WASH]).
- Overlay social and GESI-sensitive indicators for inclusive targeting.
- Develop drought scenario analysis and impact modeling tools.

Pillar 3: Preparedness and Anticipatory Action

- Establish/refresh national and local drought preparedness plans.
- Pilot climate-smart agriculture (CSA) and resilient water management interventions.
- Strengthen district-level taskforces and community disaster preparedness groups.
- Implement anticipatory actions (i.e., drought-adapted cropping calendar, water rationing, and pre-positioned feed/fodder).

D. Enabling Conditions and Cross-Cutting Actions

- Governance and institutional coordination: Establish a multi-agency drought resilience task force chaired by a lead ministry.
- Finance and sustainability: Link with national budget frameworks, insurance mechanisms, and identify sources of adaptation finance.
- GESI mainstreaming: Ensure women's participation, include gender-disaggregated risk data, and design inclusive solutions.
- Digital tools and innovation: Deploy an AI-powered drought ChatBot, mobile advisories, and real-time reporting systems.
- MEL: Set up indicators to track drought preparedness, impacts, and response effectiveness; enable feedback loops.

E. Implementation Plan (Illustrative Timeline)

Table B.1. Illustrative implementation timeline and key milestones

Year	Key Milestones
Year 1	Country diagnostic, stakeholder mapping, task force established, pilot site selection, baseline studies
Year 2	Launch digital drought dashboard, finalize drought preparedness plans, initiate anticipatory actions
Year 3	Scale up CSA practices, review and revise risk maps, embed early action protocols in national systems
Year 4+	Mainstream drought resilience into national adaptation plans, scale proven solutions to additional districts

F. Roles and Partnerships

- Lead government ministries: To be specified (typically Agriculture, Water Resources, and Disaster Management).
- Technical partners: IWMI, CGIAR Centers, national research institutions, and meteorological agencies.
- Community stakeholders: Farmer associations, WUAs, women's cooperatives, and local government units.
- Financing and support partners: AF, Green Climate Fund, bilateral donors, UN agencies, and development banks.

G. Catalyst Outcomes

- Timely and reliable drought warnings reaching at-risk communities.
- Operational early action protocols reducing response time and losses.
- Strengthened national drought governance systems and data infrastructure.
- Scaled adoption of drought-resilient practices among farmers and water users.
- Documented models for regional cross-learning and replication.

Appendix C. Drought Action Catalyst Partnership Agreement (Terms of Reference)

Strengthening Collaborative Action for Drought Resilience

1. Purpose of the Partnership

The purpose of this partnership is to operationalize the Drought Action Catalyst through a multi-actor platform that enables timely, inclusive, and science-informed drought resilience interventions. Partners will work together to support the Catalyst’s objectives of bridging research and implementation, scaling innovation, and promoting proactive drought risk management across vulnerable regions—particularly in South Asia and Southern Africa.

2. Partnership Principles

- **Shared vision:** Advancing anticipatory, inclusive, and sustainable drought resilience through coordinated action.
- **Complementarity:** Leveraging each partner’s unique strengths (technical, financial, institutional, grassroots, etc.) to maximize collective impact.
- **Equity and inclusion:** Promoting GESI and locally led solutions in all interventions.
- **Transparency and accountability:** Sharing information openly and ensuring mutual accountability for roles, resources, and results.
- **Evidence and innovation:** Using science and digital technologies to inform decisions and accelerate the uptake of effective solutions.

3. Roles and Responsibilities

a. IWMI and CGIAR Centers

- Provide scientific and technical leadership on drought monitoring, climate adaptation, water systems, and agriculture.
- Facilitate innovation codesign, digital tools (e.g., AI ChatBot), and integrated knowledge platforms.
- Coordinate MEL and ensure results-based reporting.
- Serve as the core implementing partner and secretariat of the Catalyst.

b. National Governments and Local Authorities

- Provide strategic leadership, alignment with national plans, and co-financing where applicable.
- Chair or co-chair national drought task forces; oversee policy integration and national scale-up.
- Facilitate access to data, decision-making platforms, and on-ground coordination mechanisms.

c. International Agencies and Programs

- Provide technical guidance, convening support, and alignment with global frameworks (UNCCD, IDMP, EW4All, Sendai Framework, GGA).
- Support resource mobilization and integration with disaster preparedness, food security, and adaptation portfolios.
- Participate in regional scaling and policy dialogues.

d. Civil Society and Community Organizations

- Mobilize communities, co-implement grassroots interventions, and support participatory planning.
- Ensure inclusion of women, Indigenous Peoples, and marginalized groups.
- Document and disseminate local best practices; act as the feedback channel to inform policy.

e. Private Sector and Innovators

- Offer technologies, data solutions, insurance tools, and climate-smart inputs.
- Participate in codesign and piloting of scalable drought resilience solutions.
- Explore blended finance, social enterprise models, or CSR investments aligned with Catalyst priorities.

4. Partnership Structure and Coordination

- A Catalyst Coordination Unit (CCU) hosted by IWMI will manage day-to-day operations, communications, and monitoring.
- A steering committee will be formed with representation from each partner group to provide strategic direction and review progress annually
- Country-level Drought Action Platforms will be established or strengthened to lead national implementation.
- The partnership will hold biannual review meetings, with thematic working groups (e.g., Digital Innovation, GESI, Finance) convened as needed.

5. Duration and Scope: Collaboration from 2026–30

The Terms of Reference (ToR) covers the initial period of collaboration from 2025 to 2030, with flexibility for partners to enter or exit based on mutual agreement. A mid-term review will be conducted in 2027 to assess progress and make course corrections.

6. Resource Mobilization and Contributions

Each partner is expected to contribute based on capacity and comparative advantage including: technical expertise and staff time; financial contributions or in-kind support; data, tools, or innovations; and access to networks and convening power. IWMI and CGIAR will coordinate the investment strategy, seeking blended financing from development partners, climate funds, philanthropic sources, and domestic cofinancing aligned with national priorities.

7. MEL Framework

The Catalyst will adopt a shared MEL framework, aligned with CGIAR's performance standards and national reporting systems. Partners will contribute to setting indicators, collecting data, and participating in joint reviews. Learning events and South–South exchanges will be facilitated.

8. Communications and Visibility

All partners agree to jointly promote the Catalyst's activities, impacts, and lessons. Branding and acknowledgment of contributions will follow agreed visibility protocols. IWMI will lead knowledge product development (case studies, policy briefs), with co-authorship and partner inputs encouraged.

9. Dispute Resolution and Amendments

Any disagreements shall be resolved amicably through dialogue among relevant parties. This ToR may be reviewed and updated by consensus as the partnership evolves.



The International Water Management Institute (IWMI) is an international, research-for-development organization that works with governments, civil society and the private sector to solve water problems in developing countries and scale up solutions. Through partnership, IWMI combines research on the sustainable use of water and land resources, knowledge services and products with capacity strengthening, dialogue and policy analysis to support implementation of water management solutions for agriculture, ecosystems, climate change and inclusive economic growth. Headquartered in Colombo, Sri Lanka, IWMI is a CGIAR Research Center with offices in 17 countries and a global network of scientists operating in more than 55 countries.

International Water Management Institute (IWMI)

Headquarters

127 Sunil Mawatha, Pelawatte,
Battaramulla, Sri Lanka

Mailing address

P. O. Box 2075
Colombo
Sri Lanka

Telephone

+94 11 2880000

Fax

+94 11 2786854

Email

iwmi@cgiar.org

Website

www.iwmi.org

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