Introduction

The International Water Management Institute, a CGIAR research center is a research-for-development organization, with offices in 14 countries and a global network of scientists operating in more than 30 countries. For over three decades, our research results and projects have led to changes in water and land management that have contributed to social and economic development.

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IWMI promotes the need to integrate water management strategies into broader climate adaptation efforts. This approach acknowledges that water-related risks and impacts, such as droughts, floods, water scarcity, and water quality degradation, are key challenges to climate change adaptation.

What are the adaptation gaps?

While member states, development partners and civil society have substantially progressed in addressing water and climate adaptation challenges, several priority gaps still exist. These gaps represent areas where further attention and action are needed to enhance water security and build resilience to climate change. Presented below are key priority gaps:

1. **Integrated Approaches**: Many regions still struggle with the integration of water and climate adaptation efforts. A holistic and integrated approach is needed to address the interconnected nature of water resources, climate change, and other sectors such as agriculture, energy, and urban planning.

2. **Knowledge and Data Gaps**: There are gaps in knowledge and data related to water and climate change impacts, vulnerability assessments, and adaptation strategies. More research and data collection are needed to improve understanding of local and regional water systems, climate projections, and the effectiveness of adaptation measures.

3. **Financing and Investment**: There is a significant gap in financing and investment for water and climate adaptation projects. Adequate funding is required to support infrastructure development, research, capacity building, and implementation of adaptation measures at various scales.

4. **Governance and Institutional Capacities**: Strengthening governance structures and institutional capacities for water and climate adaptation is crucial. This includes improving coordination among different sectors, enhancing stakeholder engagement, and developing effective policies, regulations, and enforcement mechanisms.

5. **Technology Transfer and Innovation**: Promoting technology transfer and innovation in water and climate adaptation is crucial. Access to appropriate technologies, including climate-resilient

infrastructure, water-efficient practices, and early warning systems, can enhance adaptive capacity and reduce vulnerability.

6. **Community Engagement and Equity**: Ensuring the inclusion of vulnerable communities, marginalized groups, and indigenous peoples in decision-making processes is a priority. Community engagement and participatory approaches are essential for developing context-specific adaptation strategies that address the needs and rights of all stakeholders.

Examples of how IWMI is supporting member states in different regions

- **Establishing flood forecasting and early warning system in Nepal**
  Nepal, a landlocked country in the Himalayas, is prone to floods due to its geographical characteristics, monsoonal rainfall patterns, and numerous rivers and tributaries. Floods in Nepal pose significant risks to both rural and urban areas, affecting the population, infrastructure, agriculture, and overall socioeconomic development. With the assistance of the Asian Development Bank to the Department of Hydrology, Ministry of Water Resources, the International Water Management Institute is currently implementing flood forecasting and early warning systems which are crucial tools for strengthening the resilience of vulnerable populations to floods. By providing timely and accurate information about flood risks, these systems can help communities and authorities take proactive measures to protect lives, property, and infrastructure. Importantly the work focuses on actively involving communities in awareness campaigns for timely early action. This includes educating the population about flood risks, evacuation routes, emergency contacts, and appropriate response actions. Community participation enhances the effectiveness of the system and fosters a culture of preparedness.

- **Promoting regional cooperation through South Asia Drought Management System (SADMS) across South Asia nations for better drought preparedness**
  The South Asia Drought Monitoring System plays a crucial role in improving drought preparedness and response in the region. By facilitating data-driven decision-making and fostering regional collaboration, the system contributes to building resilience and minimizing the socioeconomic and environmental impacts of drought in South Asia. The system integrates various data sources and tools to provide timely and accurate information on drought onset, severity, and spatial extent. The SADMS promotes capacity building and knowledge exchange among South Asian countries. It encourages collaboration in data sharing, technical expertise, and drought monitoring and management best practices. Capacity-building workshops, training programs, and joint research initiatives are organized to strengthen regional cooperation. The SADMS supports policy development and decision-making processes related to drought management. For example, in India, through National Rainfed Area Authority (NRAA) and National Drought Management Authority (NDMA), IWMI supports the three pillars of integrated drought management in 12 drought-prone states with an expected investment of 150 million USD by the Government of India. By providing reliable and up-to-date information, the system assists policymakers in formulating effective strategies and policies to mitigate the impacts of drought and enhance resilience. IWMI has been recognized for the SADMS with Geospatial World Excellence Award by Geospatial Industry in Netherlands.

- **CGIAR initiative on Climate Resilience program in Zambia implements a facilitation planning tool - The Climate Smart Governance Dashboard: Supporting nations to prepare for and adapt to climate hazards**

  Climate change is bringing increasingly variable weather and more frequent floods and droughts to low- and middle-income countries. If these nations are to adapt to such changes in the medium- to long-term, they need a three-pronged approach. Firstly, they must develop evidence-based, cross-sectoral adaptation plans and policies at a range of scales in collaboration with diverse departments and organizations – including those required to fulfil the National Adaptation Plan (NAP) process of the United Nations Framework Convention on Climate Change (UNFCCC). Secondly, they need to monitor the mitigation and adaptation projects they implement, so they can evaluate progress towards meeting the adaptation plans they develop, as well as global development goals. And thirdly, they need to have a way to identify gaps where additional funding and effort is required. The Climate Smart Governance (CSG) Dashboard is designed to support nations to do all the above. The CSG Dashboard promotes a holistic approach involving public-sector departments (water, agriculture, meteorology, finance) and private-sector organizations (funding bodies, data providers, insurers, NGOs, CSOs) is needed to plan an effective response to climate shifts in the medium- to long-term. The CSG Dashboard brings these entities together, provides critical data and analytical tools to underpin mitigation and adaptation planning, facilitates monitoring of progress towards national and global goals, and highlights knowledge and investment gaps. The dashboard will be launched in Zambia with strategic engagement with the Ministry of Green Economy and Environment and later this year in Sri Lanka, Senegal and the Philippines.

- **Promoting disaster risk insurance program in developing countries to address losses and damages in Africa and Asia**

  Tens of thousands of small-scale disasters occur each year throughout the world because of flooding, landslides, fires and storms. These events are not reported in international databases. Yet, their impact can be just as damaging as large disaster, causing death, injury and loss of livelihoods. The concept of index-based flood insurance, developed by the International Water Management Institute (IWMI) and other organizations, aims to provide financial protection to individuals and communities affected by floods. Rather than traditional indemnity-based insurance, which requires complex assessments of individual losses, index-based insurance uses predefined indices or triggers to determine payouts. The insurance scheme establishes specific indices or triggers that are correlated with flood events. These indices could be based on river water levels, rainfall measurements, or other hydrological variables. The insurance payout is triggered when the index exceeds a predetermined threshold. The product was tested with several insurance companies in Bangladesh, Sri Lanka, India and Southern Africa and re-insurance with SwissRe. The product has been tested over 17,000 household and compensation provided to flood affected communities over 170,000 USD and presently being scaled by Green Delta Insurance Company over 100,000 households in collaboration with microfinance to accelerate financial access to increase farm income and livelihood resilience.

References

- https://www.iwmi.cgiar.org/
- https://www.cgiar.org/
- https://www.iwmi.cgiar.org/success-stories/how-hi-tech-insurance-is-helping-farmers-survive-floods/
- https://www.iwmi.cgiar.org/publications/iwmi-working-papers/iwmi-working-paper-199/
- https://bit.ly/2BnDQEl
- https://wle.cgiar.org/news/digital-defenses-can-high-tech-insurance-flood-proof-vulnerable-farmers
- https://www.iwmi.cgiar.org/2020/11/iwmi-receives-the-2020-geo-sustainable-development-goals-sdg-award/
- https://green-delta.com/2020/10/compensation-for-bangladeshs-farmers-hit-by-floods/