

# LEARNING REVIEW OF CIF-SUPPORTED HYDROMET AND CLIMATE SERVICES PROJECTS

*The Climate Investment Funds' (CIF) Pilot Program for Climate Resilience (PPCR) was designed to support vulnerable countries in increasing their resilience and ability to adapt to the impacts of climate change. This learning review takes stock of the progress made from CIF PPCR investments in the development and delivery of hydromet and climate services (HMCS) in 12 projects and presents the lessons learned. It also identifies priorities and opportunities for more effective and sustainable investments in future HMCS projects.*

## CONTEXT

The learning review considered 12 PPCR projects<sup>1</sup> in some of the world's most vulnerable countries, which have high exposure to climate risks and hydro-meteorological hazards and a history of under-investment in hydromet and climate services (HMCS). The projects were funded by CIF and co-financed by the African Development Bank, the Inter-American Development Bank, and the World Bank through PPCR funding of USD222 million (grants of USD122 million and loans of USD100 million). By design, these projects were primarily focused on strengthening HMCS through 1) observations and monitoring; 2) data and information management; and 3) service delivery.

## KEY FINDINGS

### FOCUS OF INVESTMENTS IN THE HMCS VALUE CHAIN

- 1 Along the HMCS value chain (see figure), the projects' primary capital expenditures were distributed as follows: observations and monitoring (47 percent), capacity building (20 percent), data and information management (14 percent), and research, forecasting, and modeling (14 percent).** Due to chronic under-investments, rehabilitating and extending observation systems was a key priority. As the first major investments in HMCS for many countries, these projects were necessary to lay a strong foundation for future work across the HMCS value chain. Project activities included extending and upgrading observation networks, improving the management of data and information, capacity building, along with stakeholder engagement through data sharing, collaborations, project co-creation, feedback mechanisms, and training.



## QUICK FACTS

### PUBLICATION DATE

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### RELEVANT CIF PROGRAM

Pilot Program for Climate Resilience (PPCR)

### IMPLEMENTING AGENCY

WS Atkins International Ltd

### RELEVANT COUNTRIES

Bolivia, Dominica, Grenada, Haiti, Jamaica, Mozambique, Niger, Nepal, Republic of Tajikistan, Saint Lucia, and Saint Vincent and the Grenadines

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<sup>1</sup> These 12 projects include investments in 11 country-specific projects and a dedicated Caribbean Regional project.

- 2 The component within the HMCS value chain that had the lowest share of capital investment (5 percent) was service development and delivery.** Service development and delivery under the projects are mainly carried out by operational staff of the implementing agencies, the cost of which is usually not fully accounted for in project budgets, unlike hydromet equipment. In most cases, grant funding cannot be allocated to cover operational costs.

## KEY ENABLING FACTORS FOR PROJECT SUCCESS

- 1 The integration of a clear vision, a long-term strategy, and an investment plan for HMCS in alignment with national development priorities.** This enabled National Meteorological and Hydrological Services (NMHS) to secure government funding and formed a basis for collaboration between government ministries.
- 2 Sustainable funding streams from governments.** Adequate core funding from governments helped ensure that the costs of staff development and retention, operations, and, in some cases, significant improvements of the Information and Communications Technology (ICT) infrastructure could be covered.
- 3 Establishing a customer focus and a service delivery culture within the NMHS and other suppliers.** The involvement of end-users in the design of services and the institution of accessible feedback mechanisms helped ensure continuous service improvements.
- 4 Strong partnerships with diverse stakeholders.** Global and regional meteorological institutions supported capacity building, while strong inter-ministerial collaborations enabled more effective data sharing and service development. Technical assistance from multilateral development bank partners also provided training and capacity building in procurement and project delivery.

## PRIORITIES FOR FUTURE INVESTMENT

- 1 Continued investment along the full HMCS value chain, but with a much greater focus on service development and delivery.** Now that some foundational work on HMCS has been accomplished, future activities should focus on better addressing the needs of end-users.
- 2 Targeted capacity building and skills development** to bridge the gap between improved observation networks and service delivery. Improved services would increase the climate resilience of key economic sectors, such as agriculture and water supply.
- 3 Further increasing the density of observations networks** to address significant monitoring gaps and improve data coverage.
- 4 Strengthening partnerships and collaboration through demand-led and co-created project design processes** across regions, government agencies, key sectors, and vulnerable communities to promote buy-in and collaboration.
- 5 Improving quality of climate information and services that inform decision-making in priority sectors** (e.g., water, agriculture, health) to secure and maintain government support. This can also support aspirations for revenue generation from private sector clients of NMHS tasked with greater cost recovery.
- 6 Ensuring the continuous maintenance and improvement of services,** particularly in the absence of sustainable funding. Potential solutions include improved policies, strengthened government partnerships, and working with external partners.



Photo: Planning Institute of Jamaica (PIOJ)

## RECOMMENDATIONS

### FOR PROJECT DESIGN

- Projects should be designed in alignment with a national long-term strategy for the modernization of HMCS, while incorporating some flexibility to factor in contingencies that can arise in politically unstable and highly vulnerable developing country contexts.
- A demand-led, co-creation approach through extensive collaborations and partnerships between all stakeholders (governments, agencies, experts, suppliers, and end-users) could ensure that the scoping of the projects addresses user needs and contextual limitations.
- The design process should consider national economic, climate, and disaster risk reduction priorities and user requirements for weather and climate information and then work backwards along the HMCS value chain to identify the investments needed to improve specific products and services.
- Sustainability must be a core principle in the design of HMCS projects, to ensure the operational costs of managing observation networks and improved services can continue to be met after project completion.

### FOR PROJECT IMPLEMENTATION

- NHMS should develop strong partnerships with different government ministries, including establishing clear mandates for (i) providing hydromet services and (ii) sharing core climate data. This can ensure that user requirements are met and avoid the development of competing observation networks and services.
- Strengthening partnerships and regional collaboration with World Meteorological Organization designated Regional Climate Centers and peers in neighboring NMHS can support both capacity building and the improvement of regional services. Working together ensures that smaller service providers avoid additional costs of specific activities, such as developing Numerical Weather Prediction models.
- Partnerships with the private sector should also be cultivated to deliver value-added services that integrate observations or modeling data with sector- and business-specific data and insights to inform decision making, instead of focusing on sales of basic datasets. In general, open data policies have been shown to deliver greater national socioeconomic benefits and help make a stronger case for government funding.
- To make a stronger business case for capital investment and operational funding, NMHS should invest in strategy and long-term planning. Ultimately, public weather services are essential to prevent severe damage and losses from extreme weather events and hydromet-related natural hazards, with their concomitant impacts on key economic sectors in developing countries.

## HYDROMET AND CLIMATE SERVICES (HMCS) VALUE CHAIN



### OBSERVATIONS AND MONITORING

- Meteorological stations
- Hydrological stations
- Tidal gauges
- Weather radar



### DATA AND INFORMATION MANAGEMENT

- High performance computing
- Data collection
- Automated weather stations
- Data storage & analysis
- Website & servers



### RESEARCH, FORECASTING, AND MODELING

- Satellite products
- Numerical weather forecasts
- Early warning & special forecasts



### SERVICE DEVELOPMENT AND DELIVERY

- Information products
- Client relations
- International obligations & data exchange

## TRAINING AND CAPACITY STRENGTHENING