

Early Warning System Programming and Investment Opportunities in

LAO PDR

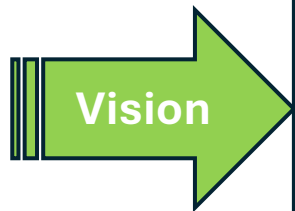
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The policies/roadmap/strategies that prioritize Early Warning System and Climate Information Services in DMH LAO PDR

- ▶ **Role and Responsibilities of Department of Meteorology and Hydrology**
- ▶ National Meteorological and Hydrological Services (NMHSs) are public agencies mandated to provide public meteorological and hydrological information and warning services
- ▶ DMH is responsible for the operation and maintenance of all hydro-meteorological observation networks, and provision of weather and flood forecasts, and severe weather warnings all over the country
- ▶ DMH is committed to its activities for protection of live and properties as well as support for resilient and productive everyday living based on the vision as below:



Provide fast, accurate, and understandable meteorological and hydrological information for everyone, ensuring the ability for preparedness and response for climate change and natural disasters

Climate Information Services been piloted or operationalized for any sector in LAO PDR (agriculture, water, energy, transport, tourism, or others)

What challenges did you encounter and lessons learned from these

Sector	Institutional Arrangement of Climate Service Delivery	Challenges	Lessons Learned
Agriculture	Weather Forecast: <ul style="list-style-type: none"> • Short range • Weekly bulletin • Medium range • Long range: 1 – 3 months • Seasonal outlook: 6 months to one year • Agro-met forecast 	<ul style="list-style-type: none"> • Networks and facilities • Insufficient equipment and tools • Lack of personnel • Uncertainty short and long term of regional weather forecast models 	Ability to share and disseminate information for early warning from the center to the local level
Water	Flood Forecast: Short range: 1 – 2 days forecast for Mekong River (update every day)	<ul style="list-style-type: none"> • Lack of drainage system • The flood forecast is existed in six stations along Mekong River and one tributary at Xebangfai river, the lack of flood forecast system in many tributaries caused big challenge for flood forecasting in the country. 	<ul style="list-style-type: none"> • Flood forecast tools should be uprated • Expand and enhance the automation flood forecasting system along the tributaries in country of Lao PDR
Energy	Flood Forecast: Short range: 1 – 2 days forecast for Mekong River , Mekong tributaries, Dams (update every day)	<ul style="list-style-type: none"> • Hydro-Meteorological network upgrade automatic station. • The increasing impacts of climate change are leading to water shortages during the dry season due to drought, and flooding during the monsoon season 	<ul style="list-style-type: none"> • Lack of information dam release • Data and information on Dam's water management sharing is limited. • Energy infrastructure are threatened by consequences of climate, in particular flooding.

DMH of Lao PDR for Climate Information and Early Warning System priorities articulated in ADB's Country Program Strategy (CPS) and programming pipeline/projects in Lao PDR?

ADB CPS Priority/ Strategic Objective	ADB Programming Pipeline/ Projects
Promoting Sustainable Public Finance	Sustainable Rural Infrastructure and Watershed Management Sector Project
Enabling Equitable Access to Services	Flood and Drought Mitigation and Management Sector Project
Advancing Climate Commitments	Sustainable Agrifood Systems Sector Project
	Greater Mekong Subregion Smart and Sustainable Tourism Infrastructure for Inclusive Growth Project
	Northern Rural Infrastructure Development Sector Project
	Urban Environment Improvement Investment Project
Expand the EWS coverages to different sectors, for example, health sector	Green Primary Care Project

What potential Climate Information and Early Warning System sectoral investments could your country and ADB work together?

The Asian Development Bank (ADB) is a key partner for Lao PDR, and collaborating, promoting resilience and sustainable development on Climate Information and Early Warning Systems (CIEWS) is a strategic priority. Here are key potential investment areas:

Indicative Project/ Investment Title	Timeframe	Sectors Involved	Implementing Agency
Digital livestock transformation in Laos: <ul style="list-style-type: none">Establishment of a digital livestock tracking system and custom system improved regulationDevelopment of an epidemiology monitoring and forecasts systemDevelopment of decision making and market intelligence for livestock supply chain and small and medium enterprisesData distribution and system awareness	2027-2032	Agriculture and Food Systems; Meteorology and Climate Services; Trade and Customs; Public Health and Veterinary Services; Finance/SMEs; Education/Capacity Building; and Development Partners & International Agencies.	Jointly implement by Ministry of Agriculture and Environment: MAE

Indicative Project/ Investment Title	Timeframe	Sectors Involved	Implementing Agency
Water Resource Management and Hydropower Vital	2025-2030		Ministry of Agriculture and Environment, Ministry of Industry and Commerce
Disaster Risk Reduction (DRR) and Urban Resilience	2025-2030		Ministry of Labour and Social Welfare and Ministry of Public Works and Transport
Transport and Infrastructure Protecting	2025-2030		Ministry of Public Works and Transport

What measures and reforms are needed to ensure sustainability of the identified Climate Information and Early Warning System investments?

To ensure the sustainability of Climate Information and Early Warning System (EWS) investments, several measures and reforms are necessary. These focus on strengthening institutional, technical, financial, and community aspects. Here are some key measures:

Indicative Project/ Investment Title	Institutional Arrangement	Policy Reform	Budget Reform
<p>Digital livestock transformation in Laos:</p> <ol style="list-style-type: none"> 1. Establishment of a digital livestock tracking system and custom system improved regulation 2. Development of an epidemiology monitoring and forecasts system 3. Development of decision making and market intelligence for livestock supply chain and small and medium enterprises 4. Data distribution and system awareness 	<p>MAE will act as Executing Agency, with DOPC leading coordination across key departments and partners. Customs, other ministries, and digital initiatives will support integration, while ADB and partners provide technical and financial support. A national steering committee chaired by MAE will oversee implementation and ensure strategic alignment.</p>	<p>The policy reform would move Lao PDR from fragmented, project-based digital initiatives toward a cohesive national policy framework for digital agriculture and climate services, legally backed, interoperable, and linked to export competitiveness, resilience, and financial inclusion.</p>	<p>The proposed \$40 million project for climate-resilient agri-food systems in Lao PDR will be financed through ADB loans, grants, and partner co-financing, with the Government contributing about 10% in counterpart support.</p>

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<p>The climate information Services for health sector:</p> <ul style="list-style-type: none">• There is lack of formal climate and health outcome forecast, for example, with the change of rainfall level what will be the prone disease• Regular climatic data sharing is needed• Technical support to establish climate information services in health platform is needed		MOH and MAE	Jointly implement by DHHP and DMH

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Scaling up a climate-resilient meat export industry in Lao PDR	<ol style="list-style-type: none">1. Modelling and forecast climate change and health outcome impacts2. Sectoral coordination	Include into the national health development plan	Present the health development plan to different stakeholders, including DPs and private sectors and perform funding source mapping

Indicative Project/ Investment Title	Institutional Arrangement	Policy Reform	Budget Reform
Institutional Capacity Building		<ul style="list-style-type: none"> ▪ policies and regulations that mandate the integration of climate risk management into development planning. ▪ Strengthen policies that facilitate data sharing, privacy, and security. 	<p>Budgetary Allocation: The most important reform. Advocate for a dedicated annual line item in the national budget for operations and maintenance (O&M) of the CIEWS. This should cover salaries for technical staff, routine maintenance, utilities, and communication costs. ADB can help make the economic case for this investment by demonstrating cost-benefit analyses.</p>
Financial Sustainability			
Technical and Technological Upgrades			
Legal and Policy Frameworks			
Community Engagement and Education			

Are your country's Climate Information and Early Warning System priorities articulated in ADB's Country Program Strategy (CPS) and programming pipeline/projects in your country?

Lao PDR's climate information and early warning system priorities are articulated in the Asian Development Bank's (ADB) Country Partnership Strategy (CPS) and its programming pipeline. The CPS specifically identifies sustainable natural resource management and climate resilience as a key priority. This aligns with Lao PDR's own national strategies, which emphasize climate change mitigation and adaptation in sectors like agriculture, water resources, and disaster risk management.

Indicative Project/ Investment Title	Institutional Arrangement	Policy Reform	Budget Reform
Data Management and Accessibility			
Monitoring, Evaluation, and Learning			
Integration into Development Planning			
Promoting Regional and International Cooperation			



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