



LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

LAO PDR SECTORAL ADAPTATION STRATEGY AND ACTION PLAN FOR AGRICULTURE AND FORESTRY SECTORS 2026-2030

UNDER THE NATIONAL ADAPTATION PLANNING PROCESS

JUNE 2026

MINISTRY OF AGRICULTURE AND ENVIRONMENT

**Lao PDR Sectoral Adaptation Strategy and Action Plan (SAP) for Agriculture and Forestry (2026–2030)
under the National Adaptation Process.**

Prepared under the guidance of:

Department of Environment (DoE), Ministry of Agriculture and Environment, Government of Lao PDR

With the support of:

Green Climate Fund (GCF) and the Global Green Growth Institute (GGGI) through the *Readiness Project*, titled
“*Support for Mainstreaming Climate Change Adaptation into Sectoral Planning in Lao PDR*”.

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Acknowledgements

The Government of the Lao People's Democratic Republic recognizes the critical importance of addressing climate change and its far-reaching impacts on socio-economic development, natural resources, and the livelihoods of communities across the country. As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, the country has reaffirmed its commitment to enhance climate resilience and transition towards sustainable development pathways. These commitments are supported by national frameworks such as the Decree on Climate Change and the National Strategy on Climate Change by 2030, which set the ambitious target of achieving net-zero emissions by 2050.

In this context, the Ministry of Agriculture and Environment (MAE), through the Department of Environment (DOE), is leading efforts to mainstream climate change adaptation across key sectors. Building on the National Adaptation Plan (NAP) finalized in 2025, this Sectoral Adaptation Strategy and Action Plan (SAP) for the Agriculture and Forestry Sector (2026–2030) provides a focused roadmap to strengthen adaptive capacity and resilience within this climate-sensitive sector.

The SAP was developed under the Green Climate Fund (GCF)-funded Readiness, titled “Support for Mainstreaming Climate Change Adaptation into Sectoral Planning in Lao PDR”, implemented by MAE with technical assistance from the Global Green Growth Institute (GGGI). It translates the NAP’s overarching priorities into actionable strategies, building upon the findings of the Sectoral Climate Risk and Vulnerability Assessment (SCRVA) and extensive consultations with sectoral focal points, development partners, and local stakeholders. This document translates the strategic direction of the NAP into actionable and measurable steps for the Agriculture and Forestry Sector by setting out medium-term objectives, strategic adaptation actions, and an accompanying monitoring and evaluation framework for the period 2026–2030. It aims to guide national and subnational authorities in integrating climate adaptation measures into their respective policies, strategies, and investment plans to reduce vulnerability and safeguard livelihoods.

On behalf of the DOE, I would like to extend our appreciation to all ministries, agencies, and partners who contributed technical input and expertise throughout the development process. The DOE extends its sincere appreciation to GCF for its financial support and to GGGI for its technical assistance in facilitating the development of this SAP. The contribution of sectoral focal points, provincial departments, and all partners involved in consultations and technical discussions is gratefully acknowledged. Their expertise and engagement have been instrumental in shaping the priorities and proposed actions contained in this strategy.

The successful implementation of this SAP will require continued partnership, collaboration, and resource mobilization. We would like to emphasize the importance of sustained support in the form of finance, technology transfer, and capacity building from a broad range of domestic and international stakeholders. By strengthening cooperation and leveraging available resources, Lao PDR aims to enhance the resilience of its agriculture and forestry sectors, reduce vulnerability to climate impacts, and contribute to the country’s broader efforts to build climate-resilient and sustainable future.

Yours Sincerely,



Mr. Aloune Sayavong

**Department of Environment,
Ministry of Agriculture and Environment.**

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Acronyms and Abbreviations

ADB	Asian Development Bank
AFD	Agence Française de Développement
AFoCO	Asian Forest Cooperation Organization
ASEAN	Association of Southeast Asian Nations
CECCAP	Implementation of Centric Evolving Climate Change Adaptation Process
CBA	Community-Based Adaptation
CEDAW	Convention on the Elimination of all Forms of Discrimination Against Women
CRVA	Climate Risk and Vulnerability Assessment
CSO	Civil Society Organization
DAE	District Office for Agriculture and Environment
DALAM	Department of Land Administration and Management
DCC	Department of Climate Change [former department merged into DoE]
DMH	Department of Meteorology and Hydrology
DOA	Department of Agriculture
DOE	Department of Environment
DOF	Department of Forestry
DPC	Department of Planning and Cooperation
DPWT	District Office of Public Works and Transport
DRM	Disaster Risk Management
DWR	Department of Water Resources
EbA	Ecosystem-based adaptation
EGDP	Ethnic Group Development Plan
EU	European Union
FAO	Food and Agriculture Organization of the United Nation
FLEGT	Forest Law Enforcement, Governance and Trade
FPIC	Free Prior Informed Consent
GAAP	Gender Action and Action Plan
GBV	Gender Based Violence
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEDSI	Gender Equality Disability and Social Inclusion
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GIZ	Deutsche Gesellschaft für International Zusammenarbeit
GOL	Government of Land
HDI	Human Development Index
HI	Heat Index
IDA	International Development Association
IFC	International Finance Corporation
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
IWA	International Water Association
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
LAK	Lao Kip
LDC	Least Developed Country
LUIS	Land Use Information System
LWU	Lao Women Union
M&E	Monitoring and Evaluation

MAE	Ministry of Agriculture and Environment
MAF	Ministry of Agriculture [former ministry merged into MAE]
MCA	Multi Criteria Analysis
MEM	Ministry of Energy and Mines [former ministry merged into MIC]
MIC	Ministry of Industry and Commerce
MIS	Management Information System
MONRE	Ministry of Natural Resources and Environment [former ministry merged into MAE]
MPI	Ministry of Planning and Investment
MRC	Mekong River Commission
NAFRI	National Agriculture and Forestry Research Institute
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NBS	Nature-based solutions
NBCA	National Biodiversity Conservation Area
NCAWMC	National Commission for the Advancement of Women, Mothers and Children
NDC	Nationally Determined Contribution
NGO	Non-Government Organizations
NPA	National Protected Area
NPDS	National Power Development Strategy
NSEDP	National Socio-Economic Development Plan
NSCC	National Strategy on Climate Change
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
ODA	Official Development Assistance
PAE	Provincial Office for Agriculture Environment
PDNA	Post Disaster Needs Assessments
PET	Potential Evapotranspiration
PIU	Project Implementation Unit
PMU	Project Management Unit
PPP	Public Private Partnership
RCP	Representative Concentration Pathways
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SAP	Sectoral Adaptation Plan
SAR	Situation Analysis Report
SAP	Sectoral Adaptation Strategy and Action Plan
SDG	Sustainable Development Goal
SFM	Sustainable Forest Management
SSP	Shared Socio-Economic Pathways
SWG	Sector Working Group
TWGCC	Technical Working Group for Climate Change
UN	United Nations
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNEP	United Nation Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
USDA	United States Department of Agriculture
UXO	Unexploded Ordinance
VPA	Voluntary Partnership Agreement
WASH	Water Sanitation and Hygiene
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization
WUA	Water User Associations

Terminology

Adaptive Capacity: The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damage, to take advantage of opportunities, or to cope with the consequences [1].

Climate Smart Agriculture (CSA): Climate-smart agriculture is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate. CSA aims to tackle three main objectives: sustainably increasing agricultural productivity and incomes, adapting and building resilience to climate change, and reducing and/or removing greenhouse gas emissions, where possible [1]

Climate Resilience: The capacity of social, economic, and environmental systems to cope with a hazardous event or trend, maintaining essential functions, identity, and structure while also adapting and transforming. [2].

Climate Scenario (SSP/RCP): Standardized projections used to describe possible climate futures based on greenhouse gas emission trajectories. **Representative Concentration Pathway (RCP)** represents climate modelling scenarios representing different greenhouse gas concentration trajectories adopted by the IPCC and **Shared Socioeconomic Pathway (SSP)** represents Scenarios describing possible societal futures used with RCPs to project climate impacts. [2]

Early Warning: Giving an early warning means to issue a notification and declaration of a surveillance area through media broadcasting and other means quickly, accurately and in a timely manner to allow the people, communities, organizations and all parties to have enough time to prepare in advance to respond to potential disasters [1]

Ecosystem-based Adaptation (EbA): Ecosystem-based adaptation is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change [1]

Exposure: The nature and degree to which a system is exposed to significant historical and projection of climatic variations [1].

Flood: The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas that are not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods, and glacial lake outburst floods. Climate change is projected to increase the rainfall in much of the Mekong Region as well as expected to increase rainfall intensity. Floods would therefore potentially become more frequent and more severe [1]

Greenhouse Effect: The process by which greenhouse gases in the earth's atmosphere absorb infrared radiation from the sun, reflect some of it back into space and emit some of it towards the earth. This natural process provides for relatively stable and mild temperatures on earth and in the atmosphere. However, human activity can change the concentration of greenhouse gases in the atmosphere, which can amplify the greenhouse effect [1].

Hazard: A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. [1].

Heatwave: A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage [1].

Heat Index (HI): Index that combines air temperature and relative humidity to represent the perceived temperature or how hot conditions feel to the human body. Although primarily developed for assessing human comfort and health risks, it is also relevant for agriculture and livestock management. High HI values indicate increased heat stress that can affect crop growth, reduce yields, and impair livestock performance. Days with a HI > 36°C during the growing season are considered critical thresholds, as they lead to declines in feed intake, reduced animal productivity, and heightened heat-related stress in both plants and animals [3].

Impacts: Effects on natural and human systems. In this report, the term ‘impacts’ is used to refer to the effects on natural and human systems of physical events, of disasters, and of climate change. [1].

Mitigation: Mitigation means the process of reducing greenhouse gas emissions and enhancing carbon sinks. [1]

Nature-based Solutions (NbS): Actions that protect, sustainably manage, and restore natural or modified ecosystems to address societal challenges effectively and adaptively. [3]

Representative Concentration Pathways (RCPs): Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases (GHGs) and aerosols and chemically active gases, as well as land use/land cover. The word representative signifies that each RCP provides only one of many possible scenarios that would lead to the specific radiative forcing characteristics. The term pathway emphasizes the fact that not only the long-term concentration levels but also the trajectory taken over time to reach that outcomes are of interest. RCPs were used to develop climate projections in CMIP5.

- RCP2.6: One pathway where radiative forcing peaks at approximately 3 W m^{-2} and then declines to be limited at 2.6 W m^{-2} in 2100 (the corresponding Extended Concentration Pathway, or ECP, has constant emissions after 2100)
- RCP4.5 and RCP6.0: Two intermediate stabilization pathways in which radiative forcing is limited at approximately 4.5 W m^{-2} and 6.0 W m^{-2} in 2100 (the corresponding ECPs have constant concentrations after 2150).
- RCP8.5: One high pathway which leads to $>8.5 \text{ W m}^{-2}$ in 2100 (the corresponding ECP has constant emissions after 2100 until 2150 and constant concentrations after 2250).

Risk: The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. Risk results from the interaction of vulnerability, exposure, and hazard. In this report, the term risk is used primarily to refer to the risks of climate-change impacts [1].

Scenario: A plausible and often simplified description of how the future may develop based on a coherent and internally consistent set of assumptions about driving forces and key relationships. Scenarios may be derived from projections but are often based on additional information from other sources, sometimes combined with a narrative storyline [1].

Sensitivity: Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate variability or change. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range or variability of temperature) or indirect (e.g., damage caused by an increase in the frequency of coastal flooding due to sea level rise).

Vulnerability: Vulnerability refers to sensitivity and inability to cope with the impacts of climate change [1].

Executive summary

Climate Change Context in Lao PDR

Lao PDR faces mounting climate risks that increasingly threaten the country's sustainable development trajectory and the resilience of its population. Its geographic diversity and socio-economic dependence on natural resources, particularly in agriculture, forestry, and water, make it highly vulnerable to climate variability and extremes. Observed trends include rising mean temperatures (approximately +1°C since 1950), shifting rainfall patterns, and increased incidence of floods, droughts, landslides, and heatwaves. Rainfall patterns are becoming more erratic, with historical declines of over 200 mm annually and future projections indicating more intense wet-season rainfall and prolonged dry periods. These changes are already translating into longer droughts, intensified heatwaves, and shifts in seasonal cycles, posing significant risks to food and water security, ecosystems, and human health. Riverine flooding is also exacerbated by altered rainfall-runoff dynamics and upstream hydropower development, while flash floods frequently impact urban centers and upland provinces face heightened exposure to prolonged dry spells, erosion, and landslides.

The economic toll of these hazards is growing rapidly. Between 2009 and 2018, annual losses from disaster events, particularly floods and droughts, nearly quadrupled, from USD 94 million in 2009 to USD 371.5 million in 2018 equivalent to 2.1% of the national GDP and 10.2% of the national budget in that year (NDC Implementation Plan, 2024).

Climate Change impact on Agriculture & Forestry Sectors

Agriculture and forestry are critical pillars of Lao PDR's economy and livelihoods, providing employment for more than two-thirds of the population and ensuring food security, income generation, and ecosystem services. However, both sectors are increasingly exposed to the impacts of climate change.

Extreme Heat Events



Extreme heat events have risen sharply with southern provinces currently the most affected. Such conditions severely threaten crop growth, increase disease incidence, and weaken forest ecosystems, increasing wildfire and mortality risks. Agriculture will require heat-resistant varieties, adjusted cropping calendars, and improved irrigation, while forestry will need stronger ecosystem-based management.

Droughts



Droughts remain a persistent hazard, driven by erratic rainfall and recurrent 14-day dry spells that disrupt rain-fed agriculture and reduce soil moisture. Recurrent dry periods undermine yields, increase replanting costs, and heighten food insecurity, while in the forestry sector they intensify fire risk, pest outbreaks, and ecosystem degradation. Strengthening water storage, drought-resilient crops, and soil conservation is increasingly critical.

Floods



Floods are among the most damaging hazards, especially in central and southern provinces. Events like the 2018 cascade of storms caused extensive damage to over 2,700 villages, destroyed over 100,000 ha of crops, and disrupted irrigation, livestock, and fisheries. Floods trigger erosion, waterlogging, and disease outbreaks in both agriculture and forestry, underscoring the need for climate-resilient infrastructure and watershed management.

Landslides



Landslides and erosion are growing threats in mountainous regions. Intense rainfall and unstable soils destroy croplands, bury fertile topsoil, and damage irrigation networks, undermining food security. In forests, landslides uproot trees, accelerate sedimentation, reduce biodiversity, and diminish carbon storage. Combined with deforestation and land degradation, these hazards reinforce a cycle of declining ecosystem resilience.

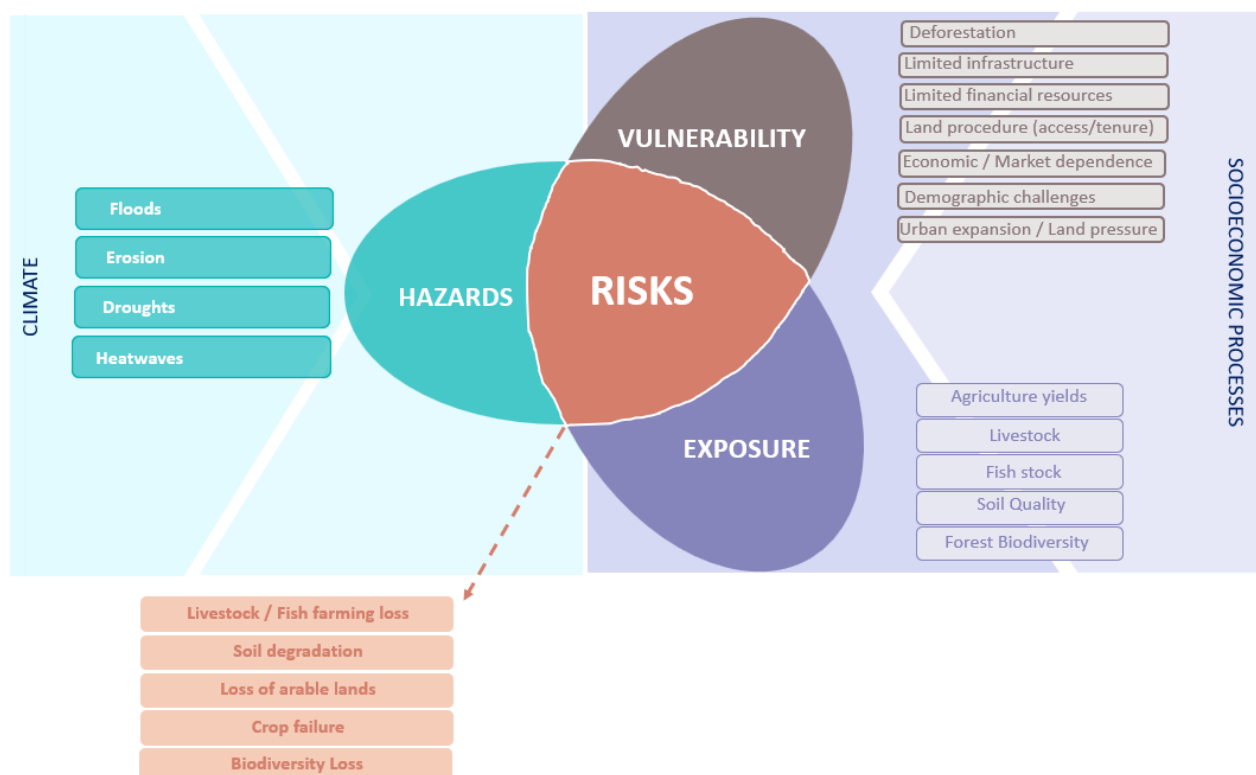


Figure 5: Climate Risk Synthesis for the Agriculture and Forestry sectors

Government of Lao PDR Adaptation response

The Government of Lao PDR recognizes climate change as a critical challenge to sustainable development and poverty reduction. The National Adaptation Plan (NAP) provides the overarching framework for identifying priority vulnerabilities, setting adaptation objectives, and integrating resilience into national, subnational, and sectoral planning. Aligned with UNFCCC guidelines, the NAP aims to reduce exposure to climate risks while strengthening adaptive capacity across communities, ecosystems, and key economic sectors. It also serves as a central mechanism for coordinating development partners, mobilizing climate finance, and embedding adaptation within the 9th National Socio-Economic Development Plan (NSEDPlan) and related national strategies.

As part of these national efforts, and in alignment with the Nationally Determined Contribution (NDC) and the National Strategy on Climate Change (NSCC 2030), the Ministry of Agriculture and Environment (MAE) has developed the Sectoral Adaptation Strategy and Action Plan for Agriculture and Forestry (SAP-AF). This SAP aims to translate the NAP's priorities into concrete adaptation measures and to provide a coherent framework to enhance climate resilience, promote sustainable land and forest management, and support adaptive, inclusive, and low-emission development pathways.

Lao PDR Agriculture & Forestry Sectoral Adaptation Strategies and Action Plans

The SAP-AF emphasizes the integration of Gender Equality, Disability, and Social Inclusion (GEDSI) principles, promoting equitable access to resources and opportunities.

The strategy for the Agriculture Sector outlines two strategic outcomes, four strategic objectives, and eight priority actions for the period 2026–2030. These actions address technical, institutional, financial, and social barriers to adaptation and are structured around the following outcomes:

AGRICULTURE SECTOR ACTION PLAN: BUILDING RESILIENCE FROM THE GROUND UP
Outcome 1: Strengthen Climate-Resilient Water Management for Agriculture
<i>Strategic Objective 1.1: Improve irrigation and water storage capacity</i>
<i>Strategic Objective 1.2: Upgrade drainage and regulate land use</i>
Outcome 2: Enhance Resilience of Farming Systems and Food Security.
<i>Strategic Objective 2.1: Strengthen diversified and climate-smart farming systems</i>
<i>Strategic Objective 2.2: Risk Assessment and monitoring</i>

The strategy for the Forestry Sector outlines two strategic outcomes, four strategic objectives, and seven priority actions for the period 2026–2030. These actions address technical, institutional, financial, and social barriers to adaptation and are structured around the following outcomes:

FORESTRY SECTOR ACTION PLAN: SAFEGUARDING ECOSYSTEMS AND LIVELIHOODS.
Outcome 1: Strengthen Climate-Resilient Forest and Land-Use Management
<i>Strategic Objective 1.1: Improve forest and land-use planning</i>
<i>Strategic Objective 1.2: Promote sustainable forestry practices</i>
Outcome 2: Enhance Forest Protection and Ecosystem Resilience
<i>Strategic Objective 2.1: Restore forests and ecosystems</i>
<i>Strategic Objective 2.2: Control forest fire and seasonal burning</i>

Implementation of the Agriculture & Forestry Sectoral Adaptation Strategies and Action Plans

Implementation of the SAP-AF will be led by the Ministry of Agriculture and Environment in coordination with line ministries and with provincial and district offices to support local delivery, monitoring, and mid-term reviews.

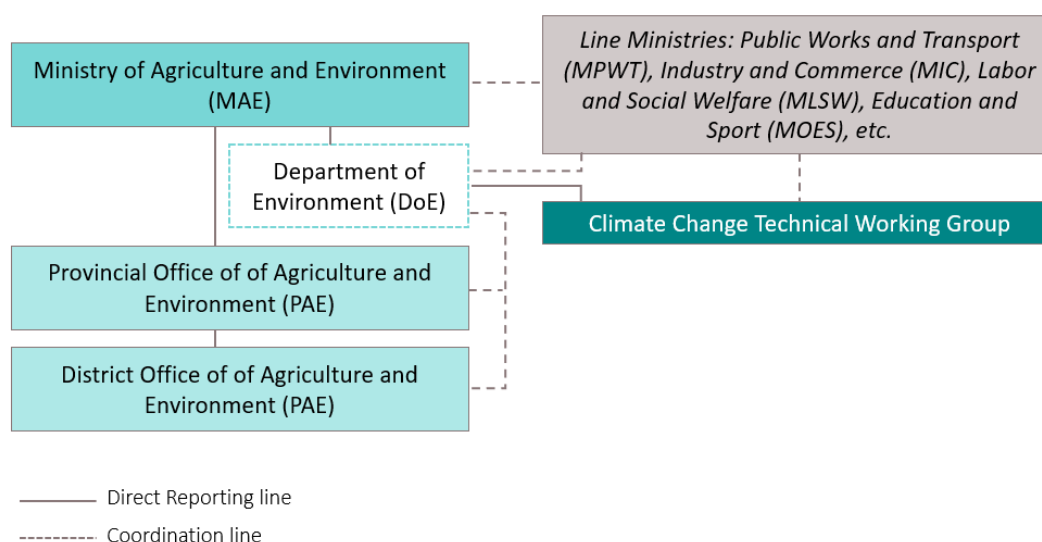


Figure 6: Institutional arrangement for the implementation of the SAP-AF

Implementation will span five years and rely on both government systems and development partner-funded projects. To strengthen effectiveness, the SAP recommends establishing a climate resilience unit within MAE, improving data-sharing, building subnational capacity (including GEDSI integration), and with protocols for involving customary governance structures in both planning and monitoring.

Financing will require a dual approach. While international climate funds (GCF, Adaptation Fund, GEF, LDCF, SCCF) and ongoing donor-supported projects remain essential for scaling and leveraging synergies, the SAP-AF must also be anchored in Government of Lao PDR budgetary processes. The action plan will therefore be aligned with the updated 10th NSEDP (2026–2030) to ensure that priority adaptation measures are progressively integrated into national financing frameworks.

A dedicated monitoring framework, aligned with the NAP, NDC, and UNFCCC reporting systems, will guide progress tracking from 2026–2030. MAE/DoE will lead monitoring in collaboration with sectoral departments and provincial offices, using harmonized, sex-disaggregated indicators. Annual reviews and a mid-term evaluation will assess achievements, identify bottlenecks, and inform adaptive management, ensuring that SAP-AF implementation remains responsive, inclusive, and results-oriented.

Conclusion

Through the SAP-AF, Lao PDR reaffirms its commitment to building resilient agriculture and forestry systems that sustain livelihoods, safeguard biodiversity, and contribute to national climate and development goals. Its implementation will be key to ensuring that the country’s development pathway remains inclusive, sustainable, and climate resilient.

PART I: CONTEXT AND GOVERNANCE

1. Introduction

Agriculture and forestry are central to Lao PDR's economy and rural livelihoods. Agriculture employs around 73% of the population, though its share of GDP has declined to 28% as of 2021 [4]. Rice remains the dominant crop, alongside growing export crops of coffee, maize, bananas, and rubber to regional markets such as China, Vietnam, and Thailand [5]. The Government of Lao PDR has outlined strategic priorities through the Agricultural Development Strategy 2025 and Vision 2030 for Land Management, focusing on food security, sustainable land use, modernization, and investment promotion [6]. Infrastructure developments, including the Laos–China Railway, are improving market access, while efforts are underway to reduce reliance on imported inputs [7].

Forestry is vital to Lao PDR's climate commitments, economic development, and environmental stability [8]. Under the NDC 2.0 and ongoing implementation efforts, the GoL continues to prioritize forest restoration and sustainable land use management as key adaptation and mitigation strategies. The national target to increase forest cover to 70% of the total land area by 2035, led by the MAF (former ministry), reflects the recognition that healthy forests are essential for watershed protection, biodiversity, climate resilience, and the livelihoods of rural communities [9]. While this ambition represents clear progress, implementation challenges persist, including land use pressures, unclear land tenure, shifting cultivation dynamics, and limited enforcement capacity at sub-national levels. These issues are also highlighted in the Adaptation Fund (AF) programming, which stresses the need for integrated land use planning, community-based forest management, and strengthen governance to reduce vulnerability.

Policies promoting sustainable forest management, community participation, and transition towards timber plantation for commercial use are intended to reduce pressure on natural forests [10]. At the same time, Lao PDR's engagement in international mechanisms like the EU Forest Law Enforcement, Governance and Trade (FLEGT) process and REDD+ (Reducing Emissions from Deforestation and Forest Degradation) process demonstrates a commitment to improve forest governance, enhancing transparency, and securing climate finance. However, achieving the NDC and AF adaptation goals will require addressing persistent land use conflicts, strengthening monitoring systems, and ensuring that local communities, who depend heavily on forest resources, are meaningfully included in decision-making and benefit-sharing processes.

The agriculture and forestry sectors face increasing climate risks. Rising temperatures, erratic rainfall, and extreme weather events threaten productivity, food security, and ecosystem health (and thus, services). Projections indicate temperature increases of 1.5°C to 2.5°C by mid-century, with southern provinces like Champasak and Khammouan particularly vulnerable to heatwaves, droughts, and floods [3]. These changes are expected to reduce rice yields by up to 20%, degrade soil and water resources, and increase exposure to pests and forest fires [3].

In this context, adaptation -anticipating and responding to climate impacts- is essential, as global warming will continue despite mitigation efforts. For instance, through sustainable forest management, reforestation, and ecosystem-based adaptation, forests can strengthen resilience to climate impacts, improve watershed protection, and contribute to carbon sequestration, advancing both adaptation and mitigation goals [11].

The GoL recognizes the challenges that climate change poses to its population, natural resources and economy, and has taken considerable measures to identify and address, to the extent possible, current and future climate risks at the policy and operational level. Aligned with its international and global commitments, the GoL has developed a wide array of national (cross-)sectoral strategies and action plans which have been translated into a national legal

framework, focusing on adaptation of climate change, sustainable and green growth, and disaster management since the late 1990s [3]. These include:

- climate change national strategies (2010, 2023) [12]
- health adaptation national strategy (2023) [13]
- green growth national strategy (2019),
- disaster risk reduction strategy (2020) [14]
- national sectoral policies on forestry (2005), natural resources and environment (2015), water (2023), housing and urban development (2023), and gender equality (2021).

2. Lao PDR National Adaptation Planning (NAP) Process

GoL policy efforts towards climate change adaptation has translated into updating or creating cross or sector-specific national legal frameworks on climate (2019) [15] and meteorology (2017) [16], environmental protection (2012) [17], natural resources (2017), disaster management (2017, 2019, 2023) [16], and gender equality (2019) [11].

In parallel to those legal frameworks, Action programmes and plans have emerged, including the National Adaptation Programmes of Actions (NAPA), approved by the government of Lao PDR in 2009, updated in 2024 under the NAP [18], and the 2013-2020 Climate Change Action Plan.

Adopted in January 2025, the National Adaptation Plan (NAP) provides Lao PDR with a long-term framework to strengthen resilience, sustainability, and inclusiveness in the face of climate change. It builds on the country's international and global commitments and also aligns with national development priorities and the 18 Sustainable Development Goals (SDGs) under the 2030 Agenda [18].



The NAP supports existing national frameworks on sustainable development and resilience such as the National Strategy on Climate Change (2030), NDC (2021), and the 9th Five-Year National Socio-Economic Development Plan (NSEDP) [4]. The NAP outlines short-term (2025–2030) and medium-term (2030–2035) actions, aligned with national development strategies. Lao PDR NAP has two main objectives:

- “To reduce vulnerability to the impact of climate change by building adaptive capacity and resilience”
- “To facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate.” [11]

Institutionally, climate action is coordinated through environmental committees at national, provincial, and district levels, and a forthcoming National Steering Committee for Climate Change, chaired by the Ministry of Agriculture and Environment (MAE) through the Department of Environment (DoE).

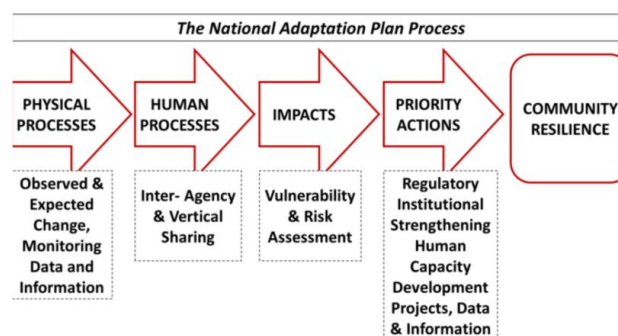


Figure 1. Overview of the Laotian NAP Process (source: Lao PDR NAP, p. 2)

3. The Agriculture and Forestry SAP in the Framework of Lao PDR NAP

The SAP for the Agriculture and Forestry Sectors seeks to overcome the policy, institutional, technical, financial, and social barriers that limit the sector's adoption and scaling up of climate-resilient practices in Lao PDR. Its overarching goal is to strengthen food and nutrition security, rural livelihoods, and the sustainable management of natural resources in a changing climate. The SAP forms part of Lao PDR's wider policy response to climate change, builds on previous efforts and projects and is the product of a participative process which ensured the SAP aligns with national climate change strategies as well as the needs of the most vulnerable

The SAP provides an overview of the key climate-related challenges facing Lao PDR's agriculture and forestry sectors and proposes a set of 15 prioritized adaptation measures to be implemented between 2026 and 2030. These measures aim to promote sustainable land use, enhance forest protection, and build the adaptive capacity of farming and forest-dependent communities. In the SAP, the measures respond to 8 strategic objectives and 4 major outcomes, all aligned with the country's National Adaptation Plan (NAP) and contribute to the implementation of the Nationally Determined Contribution (NDC) and the 9th National Socio-Economic Development Plan (NSEDPP). To facilitate implementation and attract technical and financial support, SAP includes five actionable concept notes directly linked to proposed adaptation actions.

The SAP has been designed as a 5-year framework (2026–2030) and can be considered as a sector-specific extension of Lao PDR's NAP, applying the same guiding principles and planning logic within the context of the agriculture and forestry sectors. It is designed as a living document, should be monitored annually and reviewed periodically to ensure its continued relevance to evolving climate risks, sectoral priorities, and stakeholder needs.

3.1. Target audience

The Agriculture and Forestry SAP is primarily designed for policymakers, technical departments, and development partners and private sectors involved in the agriculture and forestry sectors. However, it emphasizes the importance of cross-sectoral coordination with other sectors to ensure that adaptation measures are coherent, mutually reinforcing, and avoid duplication. Indeed, climate change impacts are interconnected and interdependent across sectors (agriculture, forestry, water resources, livelihoods, infrastructure, ...) as well as across governance levels and actors. Agriculture and forestry sectors heavily depend on water management, biodiversity conservation, land use planning, and rural development. As a result, inter-sectoral synergies are enhanced, and the risk of conflicting policies is reduced and promote efficient use of both natural and financial resources. Cross-sectoral collaboration would improve results by sharing expertise and resources, aligning planning processes, reducing duplication, and ensuring better coordination among stakeholders.

Stakeholder Engagement Approach

The SAP implementation will rely on coordinated engagement of the following stakeholder groups presented in Figure 2.

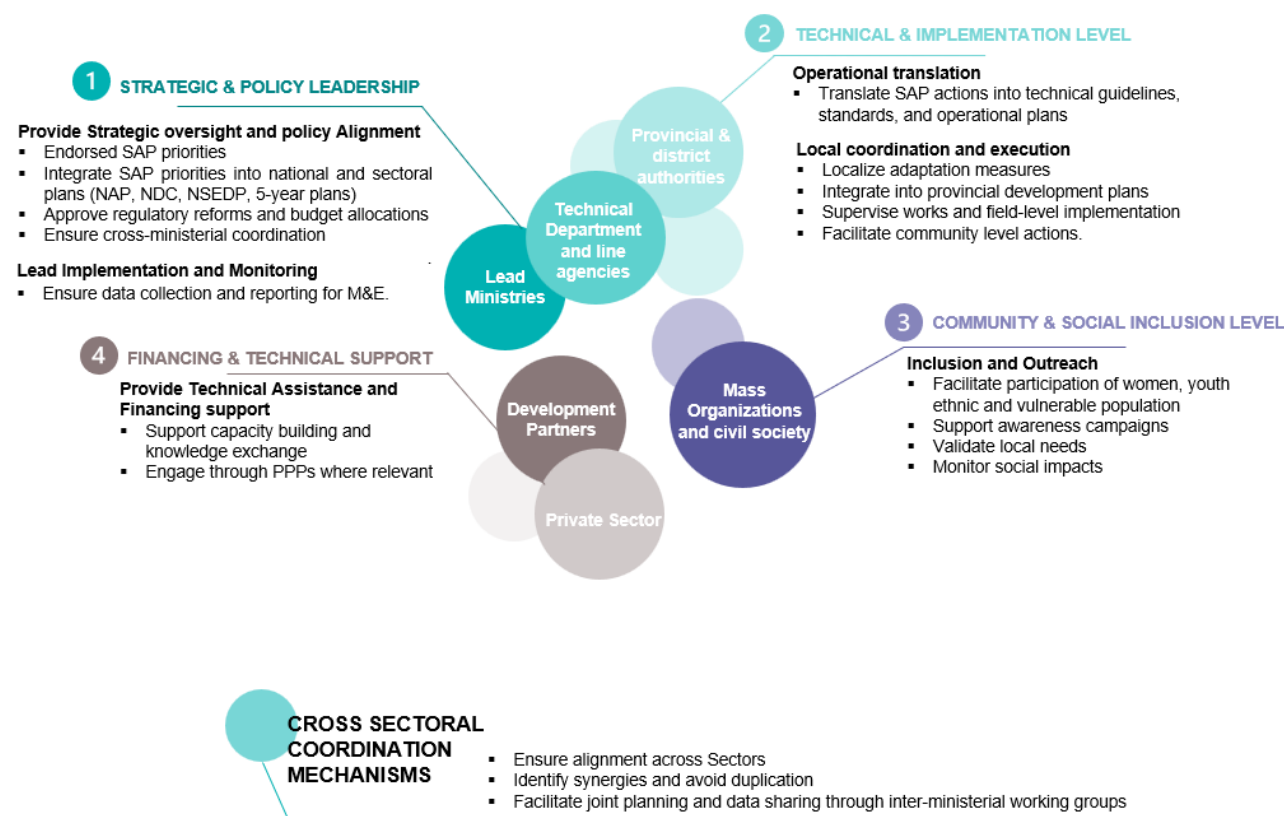


Figure 2: Stakeholder Engagement Approach for SAP implementation

This stakeholder engagement approach is structured across four complementary levels to ensure coherent and inclusive implementation of the SAPs.

1. At the **Strategic and Policy Leadership level**, Lead Ministries provide overall oversight, integrate SAP priorities into national and sectoral frameworks (NAP, NDC, NSEDP, 5-year plans), ensure cross-ministerial coordination, and oversee monitoring and reporting.
2. At the **Technical and Implementation level**, technical departments from lead agencies and provincial and district authorities translate SAP actions into operational guidelines, standards, and investment plans, while coordinating and supervising field implementation.
3. The **Community and Social Inclusion level** ensures that adaptation measures reflect local needs through the active engagement of mass organizations and civil society, promoting participation of women, youth, ethnic groups, and other vulnerable populations.
4. Finally, the **Financing and Technical Support level** mobilizes development partners and private sector actors to provide funding, capacity building, and knowledge exchange.

Together, these levels create a coordinated system that links policy direction, technical execution, social inclusion, and sustainable financing

Cross Sectoral Coordination

The parallel preparation of the SAPs for the Agriculture and Forestry, Water Resources, and Urban Development and Transport sectors has already provided a valuable opportunity for integrated planning and shared learning. Several measures have been identified as common priorities, particularly those related to sustainable watershed management, resilient livelihoods, and ecosystem protection. This coordinated approach will continue to guide the preparation of future SAPs under the first National Adaptation Plan (NAP) cycle (2026–2035), fostering a unified pathway toward a climate-resilient and sustainable development model for Lao PDR

3.2. Principles of elaboration

The present Sectoral Adaptation Strategy and Action Plan (SAP) is designed to complement the National Adaptation Plan (NAP) by providing a roadmap for climate change adaptation in the Agriculture and Forestry sectors. Thus, the SAP can be considered a sector-focused extension of the NAP, elaborated based on six main principles:

- **Investment priorities.** Identified investments must directly support overcoming barriers and scaling up climate-resilient agriculture;
- **Stakeholder participation.** All identified adaptation priorities must stem from transparent consultations with stakeholders from the public sector, private sector, and civil society;
- **Feasibility and operational viability.** Identified adaptation priorities must be designed to be realistic and operational for implementation;
- **GEDSI principles.** All identified adaptation priorities must benefit vulnerable groups and contribute to equitable and fair development;
- **Leadership and responsibility.** Implementation and monitoring will be carried out by identified and committed national institutions.
- **Policy and strategy alignment.** The SAP, through its identified actions must align with and/or complement existing climate change-related national policy and (ongoing or planned) initiatives on to minimize duplication and increase efficiency;
- **Funding approach.** The SAP encourages and catalyzes private-sector investments and promotes non-state participation in adaptation.

4. Methodological Approach and SAP Formulation Process

The formulation of the SAP for the Agriculture and Forestry sectors followed a structured, participatory, and evidence-based process aligned with the guiding principles of the NAP. The approach ensured scientific rigor, inclusiveness, and alignment with national priorities and international climate commitments. The process was carried out in four main phases:

Phase 1 – Situation Analysis and Climate Risk and Vulnerability Assessment

The initial phase of the project focused on establishing the baseline necessary to guide the development of the SAP. Several preparatory activities were conducted, including gap and needs assessments. The two first activities under the ‘Output 3.2.1. Agriculture & Forestry, Urban Development, and Water Sectoral Adaptation Action Plans Develop and Disseminated’ of the GCF Readiness Project were:

- *Activity 3.2.1.1: Review and analysis of available climate information to identify the gaps and needs*
- *Activity 3.2.1.2: Conduct Climate Change Vulnerability and Risk Assessment*

The Situation Analysis Report (SAR) produced included a comprehensive review of regulations, policies, and institutional frameworks related to climate adaptation in the agriculture and forestry sectors, as well as an assessment of the socio-economic contexts. Data were collected to inform the subsequent CRVA, which analyzed climate

hazards, exposure, sensitivity, and adaptive capacity at the sectoral level to identify key climate risks and vulnerabilities. SAR and CRVA provided the analytical foundation for the subsequent formulation of the SAP.

Phase 2 – Stakeholder Validation of CRVA and Identification of Initial Measures

The CRVA process was supported by extensive stakeholder engagement, including focus group discussions, presentations, and validation workshops. During these sessions, stakeholders reviewed and validated the CRVA findings and were introduced to a preliminary list of adaptation measures drawn from the NAP that aligned with the identified vulnerabilities. A national validation workshop held in July 2025 further confirmed the relevance of the proposed measures, identified priority actions for implementation, and secured institutional ownership.

Phase 3 – Prioritization through Multi-Criteria Analysis

Why use a Multi-Criteria Analysis (MCA)?

The prioritization of adaptation measures was conducted using a Multi-Criteria Analysis approach, a widely applied decision-support tool in climate adaptation planning. MCA is particularly suitable in contexts where decisions must balance multiple environmental, social, institutional, and economic objectives under uncertainty. The approach has been extensively used in National Adaptation Plan processes and sectoral adaptation planning to support transparent, evidence-based, and participatory prioritization of adaptation options [54] [55].

An initial long list of adaptation measures was extracted from the NAP-UNEP adaptation catalogue and subsequently classified, discussed with key stakeholders and prioritized in a Multi-Criteria Analysis matrix. Building on the findings of the CRVA and stakeholder feedback, each proposed measure was evaluated against a set of ten criteria:

- Severity of climate change impacts,
- Poverty reduction potential,
- High value,
- Alignment with environmental and climate agreements,
- Contribution to livelihood security,
- Feasibility of implementation,
- Sustainability and long-term benefits,
- Institutional capacity,
- Financial operationalization,
- Urgency of action.

Each criterion was assigned a weight (ranging from 0.4 to 1) to reflect its relative importance, with higher weights given to feasibility, sustainability, institutional capacity, and financial viability, as these are critical for ensuring realistic and lasting implementation. Adaptation measures were then scored on a 1–10 scale for each criterion, and weighted scores were aggregated to produce a total composite score, which determined the sectoral priority ranking.

Evaluation criteria	Severity of CC Impacts			Poverty Reduction			High Value			Alignment with Env. & Climate agreements			Lives & Livelihood security			Feasibility of Implementation & availability of resources			Sustainability & long-term benefits			Institutional capacity to implement			Financial operationalization			Urgency of Action			TOTAL WEIGHTED SCORE
	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	Score (1 to 10)	Weighting	Weighted score	
Proposed adaptation measures from NAP-UNEP																															
Adaptation measure 1	x	0,4	x* 0,4	x	0,6	x* 0,6	x	0,7	x* 0,7	x	0,8	x* 0,8	x	1	x* 1	x	1	x* 1	x	1	x* 1	x	1	x* 1	x	1	x* 1	x	0,4	x* 0,4	Σweighted score
Adaptation measure 2	y	0,4	y* 0,4	y	0,6	y* 0,6	y	0,7	y* 0,7	y	0,8	y* 0,8	y	0,8	y* 0,8	y	1	y* 1	y	1	y* 1	y	1	y* 1	y	1	y* 1	y	0,4	y* 0,4	Σweighted score
Adaptation measure ...	z	0,4	z* 0,4	z	0,6	z* 0,6	z	0,7	z* 0,7	z	0,8	z* 0,8	z	0,8	z* 0,8	z	1	z* 1	z	1	z* 1	z	1	z* 1	z	1	z* 1	z	0,4	z* 0,4	Σweighted score

Figure 3: Multi-Criteria Analysis framework

The weighting of criteria in the MCA reflects a deliberate effort to balance climate urgency, development impact, and implementation realism. Weights and score were first assigned through consultant judgment informed by guidance on adaptation prioritization under the NAP [11], sectoral CRVA findings, national policy priorities and then validated and refined through stakeholder consultations conducted in October 2025.



Multi-Criteria Analysis and Consultation Process

Sector-specific consultations in October 2025 included 8 representatives from the DWR, Department of Meteorology and Hydrology (DMH), Department of Irrigation and Groundwater, and Department of Environment (DOE) under the MAE.

During these consultations, participants were invited to assess and discuss proposed adaptation measures using a scoring approach based on criteria such as feasibility, sustainability, institutional capacity, and financial viability. These discussions supported the refinement and validation of the preliminary assessment initially prepared and shared with stakeholders by the Consultant following the CRVA phase.

The weighting methodology itself was designed by the Consultant as part of the MCA framework, with the objective of prioritizing adaptation actions that are not only climatically relevant, but also institutionally feasible, financially realistic, and capable of delivering sustained resilience benefits within the Lao PDR context.

While the weighting coefficients were not subject to a dedicated validation exercise, the MCA framework and prioritization methodology were presented and shared progressively throughout the assignment, including in the Situation Analysis Report and subsequent CRVA consultations and workshops. The methodology therefore benefited from multiple opportunities for review and comment by the PMU and relevant sector government stakeholders throughout the process.

Table 1: MCA weighting approach

Weight category	Higher weights (Weight = 1.0)	Medium-High Weights (Weight = 0.8)	Medium Weights (Weight = 0.6–0.7)	Lower Weight (Weight = 0.4)
Criteria	- Feasibility of implementation & availability of resources - Sustainability & long-term benefits - Institutional capacity to implement - Financial operationalization	- Alignment with environmental & climate agreements - Lives & livelihood security	- Poverty reduction - High value (economic or ecosystem value)	Urgency of action
Rationale	These criteria were given the highest weighting since based on findings from the SAR and stakeholder consultations the main barrier to adaptation is not the lack of identified measures, but rather limited implementation capacity, financing, and institutional sustainability. Therefore, the aim was to avoid prioritizing actions that were not judged technically feasible, financially realistic, institutionally supported or sustainable over time. This approach reflects lessons learned from NAP implementation globally, where feasibility and institutional readiness are recognized as critical determinants of success [11].	Alignment with national and international frameworks (NAP, NDC, SDGs) is essential to ensure policy coherence, facilitate resource mobilization, and strengthen reporting under UNFCCC mechanisms. Similarly, protecting lives and livelihoods is central to Lao PDR's development priorities, particularly in agriculture-dependent and vulnerable communities. These were weighted slightly below implementation criteria to ensure that strategic alignment is strong, but not prioritized over feasibility and sustainability considerations.	Poverty reduction and economic value are core development objectives. However, not all high-value or poverty-targeting measures are necessarily climate-resilient or implementable at scale. These criteria were weighted moderately to recognize development co-benefits, ensure adaptation contributes to inclusive growth, while avoiding bias toward purely economic returns over resilience impact.	Urgency is important, especially in areas exposed to severe hazards. However, urgency alone does not guarantee feasibility, institutional readiness, or long-term sustainability. Assigning a lower weight prevents short-term reactive measures from displacing structurally transformative adaptation investments. This ensures the MCA balances immediate needs with strategic resilience-building.

Phase 4 – Drafting and Consultation of the Action Plan

From an initial long list of options drawn from the NAP-UNEP adaptation catalogue, and based on the MCA, 15 high-priority actions were identified and consolidated into a draft Sectoral Action Plan. This draft was then presented to sectoral stakeholders for discussion and refinement. Importantly, the refinement process also incorporated inputs from cross-cutting institutions, including the Lao Women’s Union (LWU), Ministry of Labour and Social Welfare (MLSW), Lao Youth Union, and other mass organizations, to ensure gender equality, social inclusion, and community resilience considerations were fully integrated into the prioritization process.

To Strengthen strategic alignment, the MCA results were complemented by an analysis of climate-related projects from the Lao PDR ODA-MIS Portal, allowing comparison between proposed adaptation priorities and existing ODA project portfolios. This helped identify gaps, avoid duplication, and guide sector prioritization. All selected measures were then mapped against Lao PDR’s national frameworks, including the NAP, NDCs, the 9th NSEDP, the Agriculture Development Strategy to 2025 and Vision to 2030, the Forestry Strategy to 2035 and Vision to 2050, and the national REDD+ implementation roadmap. Building on this analysis, the Action Plan was further refined to identify five priority adaptation measures, for which detailed Concept Notes were developed.

In parallel, a Monitoring and Evaluation (M&E) framework was developed to support implementation and track progress toward sectoral adaptation objectives. Each priority action is linked to measurable indicators, baseline, target values, responsible institutions, and reporting frequency. GEDSI-responsive indicators are integrated throughout to ensure inclusive implementation tracking. The framework is structured to support both sector-level monitoring and aggregation into national climate reporting processes. This approach aims to ensure that implementation progress can be realistically assessed against available financial and institutional capacities.

Phase 5 – Finalization and Endorsement of the SAP

The consolidated draft SAP, combining the Action Plan, Concept Notes, and M&E framework, underwent internal and stakeholder review before being presented at a validation workshop on 14 and 15 January 2026 [see Workshop Report in Appendix 06]. The workshop gathered representatives from relevant ministries (MAF, MPWT and MLSW) and their technical departments and cross-cutting institutions to validate sectoral priorities and refine proposed actions. Through presentations, interactive exercises, and sector-based group discussions, participants reviewed draft strategies, prioritized Concept Notes, and provided detailed technical and institutional feedback. The outcomes of the workshop, together with written comments received subsequently, form the basis for final revisions and endorsement of the SAPs. This participatory validation process was designed to ensure national ownership and ensure alignment with sector mandates, existing planning frameworks, and implementation realities.

5. Gender Considerations

The UNFCCC calls for the mainstreaming of gender across all activities involved in the NAP process. In line with these guidelines, Lao PDR’s NAP process was intentionally designed to reduce gender-based vulnerabilities, promote equitable participation in decision-making, and ensure that adaptation implementation does not place additional burdens on women or reinforce existing power imbalances. The SAP process emphasized and practiced inclusiveness, with particular attention to enhancing the adaptive capacity of vulnerable groups during both policy formulation and implementation, ensuring that resilience benefits are shared across all societal levels.

As highlighted in the NAP, gender equality remains a national priority for the Government of Lao PDR. This commitment is supported by robust institutional mechanisms such as the Lao Women’s Union (LWU) and the National Commission for the Advancement of Women, Mothers and Children (NCAWMC), the MLSW, and Lao Youth Union. These institutions play a critical role in ensuring that gender equality, social protection, youth

engagement, and community resilience are integrated into climate adaptation planning. Their contributions include policy advocacy, community outreach, and implementation of gender-related programs aligned with national frameworks such as the Law on Gender Equality (2019), the National Strategy for Gender Equality (2016–2025), the Strategy for Mothers and Children (2016–2025), and the National Plan of Action on Preventing and Eliminating Violence against Women and Children.

These cross-cutting institutions were actively engaged throughout that NAP refinement process, providing inputs to ensure that adaptation priorities reflect the needs of women, elderly people, persons with disabilities, and other vulnerable groups. Their involvement helps ensure that adaptation measures are socially inclusive, culturally appropriate and aligned with national commitments to gender equality and social protection.

Nationally, Lao PDR ranked 117th out of 189 countries in the 2023 UNDP Human Development Index (HDI) [23], reflecting steady progress in human development and gender equality. However, significant gender disparities persist across education, employment, access to services, and representation in decision-making, particularly in rural and ethnic communities. These gaps underscore the importance of continued engagement of LWU, MLSW, the Youth Union, and other mass organizations to ensure that adaptation actions are equitable, accessible, and responsive to the diverse needs of the population.

The NAP emphasized the importance of a gender-responsive approach in order to increase the likelihood that adaptation investments will yield equitable benefits for people of all genders and social groups, including those who are particularly vulnerable. Adopting a gender-responsive approach to adaptation will also help to align climate policies and action with other commitments, including the Sustainable Development Goals (SDGs), the Beijing Declaration and Platform for Action and the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW).

Without deliberate gender integration, climate hazards risk reinforcing existing inequalities in agriculture and forestry sectors, decision-making, and health outcomes. Strengthening the resilience of agriculture and forestry sectors and governance systems must therefore go hand in hand with measures that promote equity, representation, and protection for all. Therefore, GEDSI considerations have been integrated into the SAP-AF to ensure that the latter stages of the project will be inclusive, equitable, and responsive to the differentiated needs of at-risk populations, ultimately contributing to more resilient communities.

Key approaches in the strategy and actions proposed include:

- **Strategy and action that strengthen community resilience:** Actions aim to enhance water and land management through equitable access to irrigation and reforestation initiatives that reduce women’s and marginalized groups’ workload while strengthening community resilience. Inclusive participation is embedded in governance structures such as farmers’ cooperatives, forest user groups, and Water User Associations, ensuring women, youth, ethnic minorities, and persons with disabilities take part in decision-making and leadership roles.
- **Indicators to ensuring inclusive participation and leadership:** Action plan that set concrete targets to actively engage women, ethnic minority representatives, and persons with disabilities in sectoral planning, training, and implementation. The SAP–AF aims to promote women’s leadership in farmers’ groups, cooperatives, and forest user associations, with support from local LWUs and targeted gender-sensitivity training.
- **Embedding GEDSI within the M&E framework:** Incorporating GEDSI-specific indicators to monitor women’s participation in farmer organizations and forest committees, equitable access to training and extension services, and the integration of gender-responsive practices in agriculture and forestry programs.

6. Lao PDR Agriculture Sector

Agriculture remains a foundational pillar of Lao PDR's economy and its rural livelihoods, with evolving dynamics in farm structure, production system, and land use resulting from shifts in international and national agricultural practices and ownership structures. According to the 2019/20 Agriculture Census, agriculture continues to employ a large share of the population, with women representing a substantial proportion of the agricultural labor force. Although the sector's contribution to national GDP has declined over the past decade, it remains significant, reflecting its central role in food security, rural incomes, and poverty reduction. The Census confirms that the sector is still dominated by smallholder households, most of which cultivate less than two hectares and rely on mixed production systems combining crops, livestock, and forest products. These evolving dynamics are shaped by demographic change, rural out-migration, market integration, and land-use policy reforms. As result, traditional subsistence rice-based systems are gradually transitioning toward more diversified and semi-commercial production, while commercial plantations such as rubber, coffee, and maize, continue to expand in specific regions [25] [26]. Rice remains the dominant crop, occupying the majority of cultivated land and serving as the national dietary staple. Other importance crops include maize, cassava, vegetables, and coffee, while livestock, particularly cattle pigs, and poultry provide essential income and nutrition for rural households. The Census also highlights emerging opportunities in aquaculture, organic agriculture, and non-timber forest products, which align with climate-smart and market-oriented development pathways [25] [26]. Despite these opportunities, productivity remains constrained by limited mechanization, low input use, fragmented landholdings, and high exposure to climate shocks such as droughts, floods, and pest outbreaks. Strengthening irrigation, improving access to extension services, and investing in agro-processing and sustainable intensification are therefore critical to enhancing competitiveness, resilience and food security. Census data also underscore persistent regional disparities, with upland and remote areas facing greater vulnerability due to poorer infrastructure, limited market access, and higher dependence on climate-sensitive livelihoods. These findings reinforce the need for targeted, evidence-based adaptation measures that address both structural constraints and emerging risks in Lao PDR's agricultural sector.

Demographically, Lao PDR has a young population, with 60% under age 25, and a predominantly rural workforce. However, urban migration and youth outflow are reshaping labor availability in agriculture. Land use trends show that approximately 22% of national territory is under cultivation, with increasing pressure from infrastructure development, forest conversion, and land tenure complexities [26] [27]. Low productivity among smallholder farmers, coupled with the high cost of imported inputs and limited access to markets and infrastructure, continues to hinder agricultural growth and competitiveness.

Additionally, climate change poses critical risks to the sector. Increasingly intense floods, droughts, and heatwaves have caused substantial crops and livestock losses, degraded soils, and disrupted livelihoods. Extreme events now occur with greater frequency and severity, damaging irrigation systems, rural roads, storage facilities, and other critical infrastructure. Although agriculture contributes only 1.64% of national GDP in 2024, the sector absorbs a disproportionately high share of climate-related losses, underscoring its vulnerability and the heavy dependence of rural households on climate-sensitive livelihoods. Lao's PDR tropical monsoon climate brings annual rainfall ranging from 1,200-300 mm, but variability has increased due to climate change. Major flood events between 2017 and 2021, exacerbated by tropical storms such as Son-Tinh, Bebinca, and Noul, damaged thousands of hectares of farmland and key rural infrastructure. Agriculture accounted for more than half of total economic losses during these events, despite its relatively small share of GDP. Prolonged droughts, notably in 2003, 2015, and 2019, affected more than 188,000 families, with rice yields falling to less than 40 % of expected levels in the worst-hit areas [28]. The 2024 heatwave, with record temperatures reaching 43.2 °C, further underscored the sector's acute exposure to climate extremes. High temperatures triggered widespread crop failures, increased livestock mortality and stress, and created severe health risks for farmers working in the fields [29]. These compounding shocks highlight the urgent need for climate-resilience agricultural systems, improved early-warning mechanisms, and targeted adaptation investments to safeguard rural livelihoods and national food security.

7. Lao PDR Forestry Sector

The forestry sector in Laos is a critical component of its natural heritage and economy, with extensive forest cover classified into three main categories: Protection, Conservation, and Production Forests [30]. Demographically, Lao PDR's predominantly rural population continues to rely heavily on forest resources for fuelwood, food, and income generation.

However, growing urbanization, infrastructure expansion, and agricultural encroachment are reshaping land use dynamics and putting additional pressure on forest areas. Deforestation and forest degradation remain critical concerns, driven by illegal logging, agricultural expansion (particularly for cash crops such as cassava), and infrastructure development related to hydropower and mining. Although official figures indicate a recovery in forest cover, the quality and biodiversity of forests, especially primary forests, have declined significantly [31]. Weak governance, including gaps in law enforcement, corruption, unclear land tenure, and limited institutional capacity, continues to undermine sustainable forest management and conservation efforts.

Additionally, the forestry sector in Lao PDR is increasingly impacted by extreme climatic events such as floods, droughts, and heatwaves, which accelerate deforestation, increase fire risks, and degrade forest ecosystems. While the country's tropical monsoon climate brings annual rainfall between 1,200–3,000 mm, rainfall variability and prolonged dry spells have intensified under climate change, affecting forest regeneration and ecosystem stability.

The GoL and the MAE aim to increase the country forest cover to 70% of the country's land area by 2035, recognizing the vital role forests play in environmental protection, biodiversity, and the livelihoods of rural communities [32]. Policies emphasize forest management, community participation, and a shift towards timber plantation for commercial purposes [33]. The country has also engaged in international initiatives like the EU Forest Law Enforcement, Governance and Trade (FLEGT sustainable) process and REDD+ to improve governance and secure carbon financing.

PART II: OBSERVED AND FUTURE CLIMATE TRENDS AND VULNERABILITY CONTEXT.

1. Climate Change Context

1.1. Observed and Projected Climate Trends

Located in the heart of the Mekong Basin, Lao PDR experiences a tropical monsoon climate characterized by a distinct wet season (typically May-October) and a dry season (approximately November-April). Mean annual rainfall ranges broadly, often between about 1,300 mm to over 3,000 mm depending on region and elevation. Year-round temperatures in the lowlands are typically warm: monthly daytime highs often reach the low to mid-30 °C range.

Temperature



Over the past decades, Lao PDR has experienced a clear warming trend and growing climate variability. Mean surface air temperatures have increased by 0.2–0.3 °C per decade between 1971 and 2020 and an increase of +1 °C since 1950 [34]. Observations show more frequent and intense heatwaves, particularly in lowland and urban areas, and longer dry spells that strain rain-fed agriculture.

Climate models project that average annual temperatures in Lao PDR could increase by 1.5°C to 2.5°C by mid-century under moderate emissions scenarios and potentially exceed 3°C under high-emissions pathways (RCP8.5 / SSP5-8.5) [3]. These trends are already manifesting through more frequent and intense heatwaves, especially in lowland and urban areas, alongside longer and more severe dry spells that challenge rainfed agriculture. The observed changes already affect agricultural productivity, forest health, and water availability. The persistence of these trends underscores the need for strengthened resource management systems.

Precipitation



Historical records from 1950 to the present reveal a gradual decline in annual rainfall, from about 1,800 mm to 1,600 mm per year, a decrease of roughly 200 mm over the observed period. More importantly, rainfall in Lao PDR shows increasing variability and unpredictability. Analyses indicate fluctuations in the onset and cessation of the rainy season, as well as in rainfall intensity, reflecting a shift toward more erratic precipitation patterns [34].

Climate projections under both scenarios show similar trends. The observed decline in rainfall, combined with more intense rainfall events, indicates that climate variability rather than absolute rainfall shortage is becoming the main challenge. These shifts have direct implications for soil moisture, surface water availability, and crop productivity, heightening vulnerability in the predominantly rain-fed agricultural systems that sustain most rural livelihoods in Lao PDR.

Relative Humidity



Historical records indicate that relative humidity in Lao PDR has remained relatively stable over past decades, with minimal variation across regions and time. This stability has been consistent across both moderate and high emissions scenarios during the historical baseline period.

However, starting around 2025, projections show a gradual decline in relative humidity, with the rate and magnitude of change differing between scenarios. Under the moderate emissions pathway (SSP2-4.5), the decrease is slow and moderate, representing a manageable adaptation challenge. In contrast, the high emissions scenario (SSP5-8.5) projects a steeper decline after 2075, suggesting significantly drier atmospheric conditions by the end of the century. Lower relative humidity levels would intensify evapotranspiration rates, heightening water stress for vegetation and crops and exacerbating the risk of drought, particularly in areas already vulnerable to seasonal water scarcity.

Taken together, the projected decline in relative humidity, rising evapotranspiration, and increasing frequency of droughts point to a future in which water scarcity becomes a more persistent constraint for agriculture and rural livelihoods in Lao PDR. These trends suggest that adaptation efforts must increasingly focus on strengthening water security, improving crop resilience, and modernizing land and farm management practices. Investments in water storage and retention systems—including small-scale reservoirs, community ponds, watershed rehabilitation, and improved irrigation efficiency—will be essential to buffer farmers against longer dry spells and more erratic rainfall.

At the same time, declining humidity and higher temperatures will require a shift toward heat- and drought-tolerant crop varieties, improved seed systems, and climate-smart agronomic practices such as mulching, soil moisture conservation, and diversified cropping systems. Strengthening extension services and farmer training will be critical to support this transition. These climatic shifts also underscore the need for integrated land-use planning, agroforestry expansion, and restoration of degraded landscapes to improve soil moisture retention and reduce exposure to climate extremes.

Overall, the emerging climate patterns highlight the urgency of moving toward a more resilient agricultural model—one that combines improved water management, climate-resilient crop choices, and sustainable land-use practices. These priorities provide a clear direction for future adaptation programming and investment planning under the NAP, NDCs, and sectoral strategies

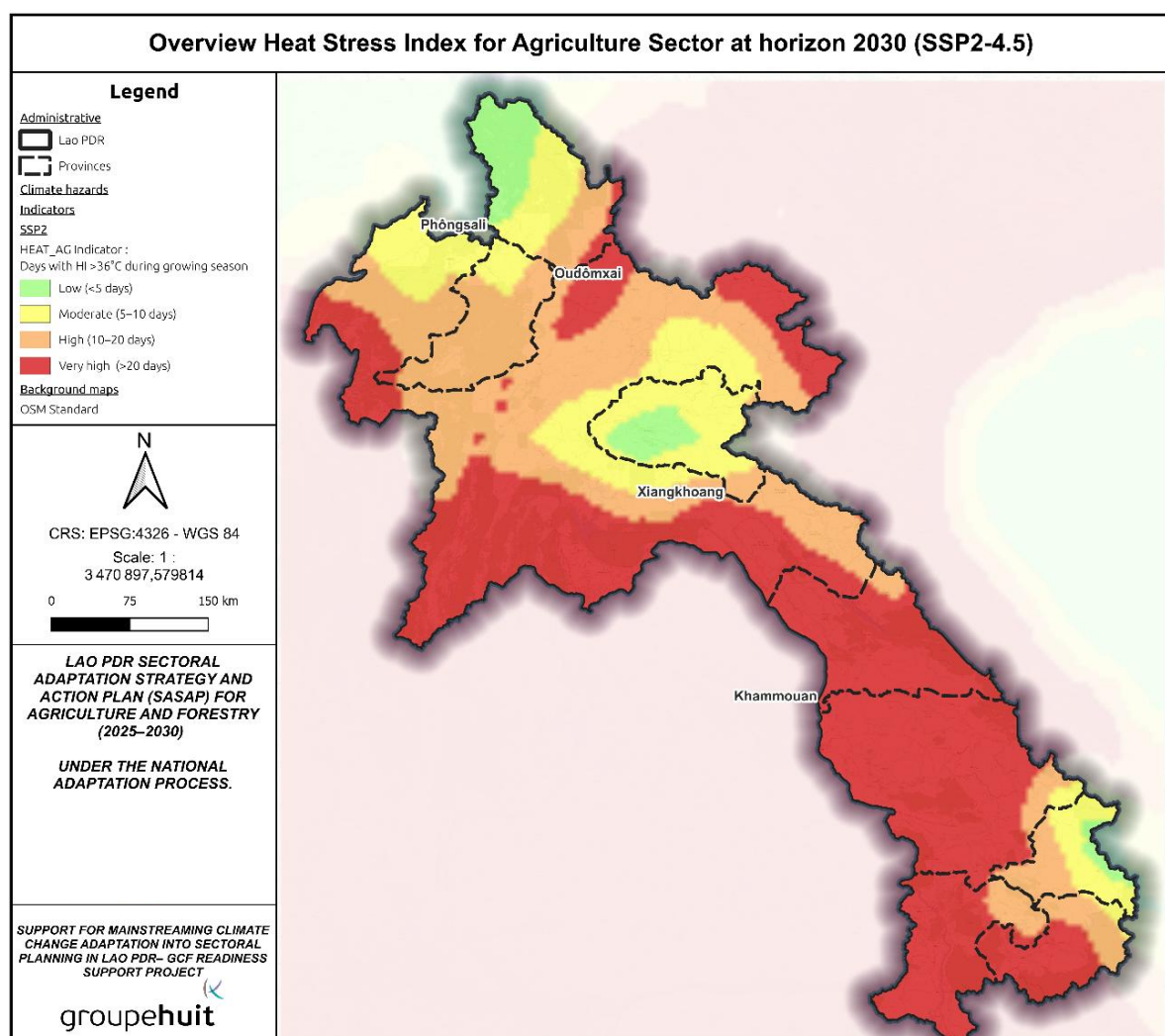
1.2. Climate related hazards impact on the Agriculture and Forestry Sectors

Over the past three decades, Lao PDR has experienced an increasingly diverse range of climate-related hazards. These events have not only caused widespread human and economic losses. This hazard screening synthesizes major historical events and scientific evidence across key hazard categories: droughts, heatwaves, floods and landslides.

Overall, Lao PDR faces a complex climate future shaped by a convergence of slow-onset changes and sudden climate shocks. Over the last decade, annual economic loss and damage from disaster events, especially flood and drought, almost quadrupled from about \$94 million in 2009, to \$200 million in 2011 and \$371.5 million in 2018, which was equivalent to 2.1% of the country's projected 2018 GDP, and 10.2% of its 2018 budget [53]. These risks necessitate transformative adaptation planning, a transition to sustainable land use, and climate-resilient infrastructure investments aligned with both mitigation and adaptation imperatives. Over 70% of the population in Lao PDR rely on agriculture which has a half contribution to Gross domestic product in the country [35], but climate change impacts pose critical risks to agricultural production, forestry, and the livelihoods dependent on these sectors.

1.2.1. Extreme heat events

The Heat Index (HI) -see definition in [terminology](#) (section)- has significantly increased since 1950 in Lao PDR. If \ southern provinces are the most affected currently, especially Champasak and Khammouane province by 2100, the entire country is expected to face very high Heat Index values, indicating more than 20 days per year with a Heat Index exceeding 36°C. This trend is consistent across both scenarios, SSP2-4.5 and SSP5-8.5, with the latter scenario experiencing a more rapid deterioration. Elevated HI values can have severe consequences for agriculture and forestry in Lao PDR.



Map 1: Overview of Heat Stress Index in Lao PDR for Agriculture Sector at horizon 2030 (SSP2-4.5)

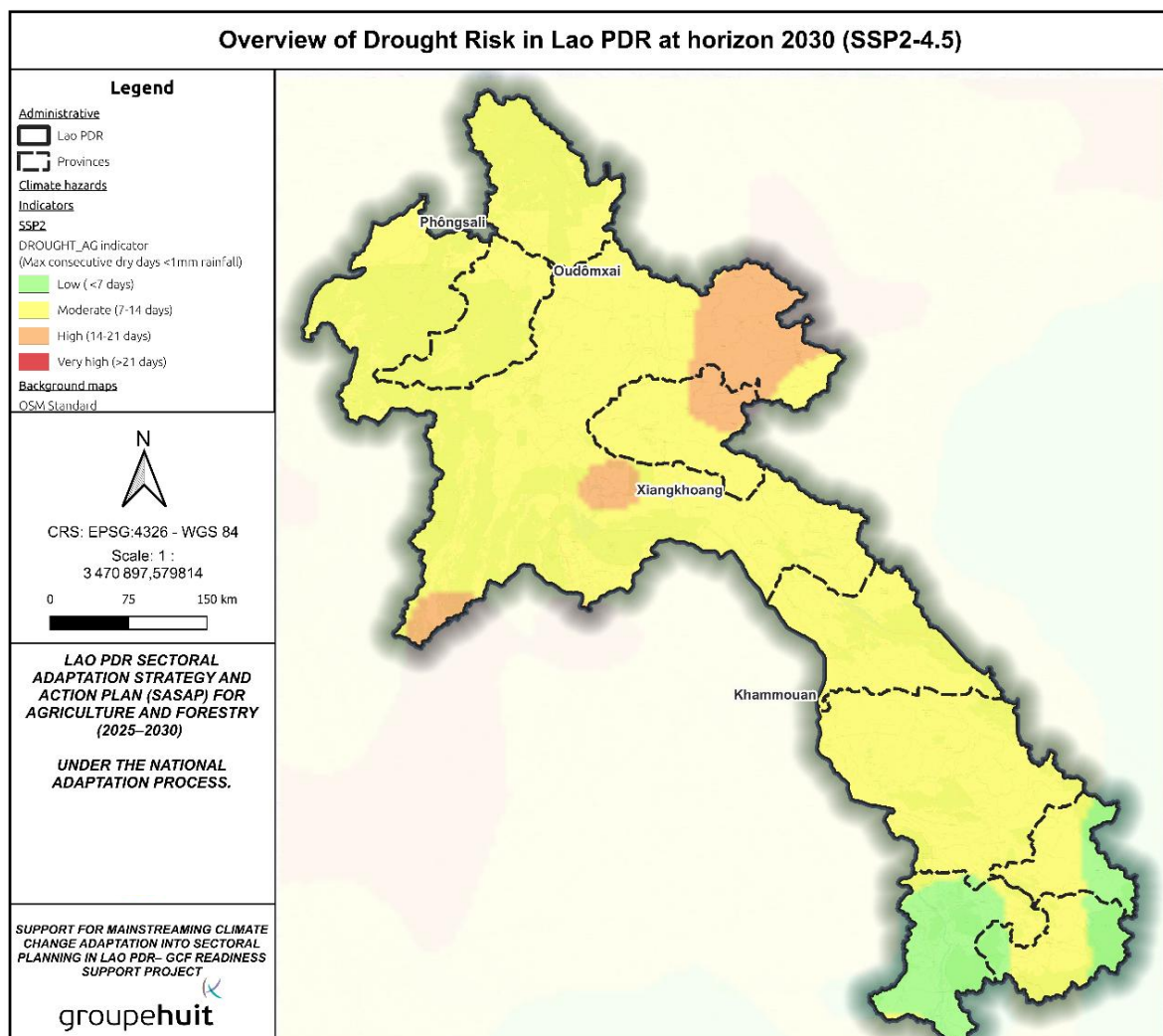
High temperatures and humidity can induce heat stress in crops, leading to reduced photosynthesis, impaired growth, and increased susceptibility to diseases. This stress is particularly detrimental to sensitive crops such as potatoes, tomatoes, and tea, resulting in significantly lower yields and degraded quality. Warm, humid conditions favor the proliferation and the development of diseases, further compromising crop health, and directly impacting yields. Projections indicate that rice yields in Lao PDR could decline by 5–20% by the 2040s due to rising temperatures and rainfall variability, with regional estimates suggesting a potential reduction of 15.2–17.2% across Asia [36].

In forestry zones, increased heat and humidity can stress forest ecosystems, leading to reduced growth rates, increased susceptibility to diseases, and higher mortality rates among tree species. This results in degraded forest health and reduced biodiversity. Elevated temperatures can also increase the risk of wildfires, devastate forest areas and lead to loss of habitat, reduced carbon sequestration, and long-term ecological damage. The degradation of forest health can impair the provision of ecosystem services, such as water regulation, soil stabilization, and habitat for wildlife. It further impacts agricultural productivity and environmental sustainability.

Therefore, the rising Heat Index may necessitate changes in agricultural practices, including the adoption of heat-resistant crop varieties, altered planting schedules, and improved irrigation techniques. Farmers may need to relocate crops to more suitable climates, which could disrupt traditional farming systems and local economies.

1.2.2. Drought

Drought represents one of the most persistent and damaging climate hazards in Lao PDR, with both historical and projected data showing recurrent dry periods that severely impacted the agriculture and forestry sectors. Lao PDR experienced recurring 14-day dry spells each year, a trend projected to continue throughout the century. Under the SSP2-4.5 and SSP5-8.5 scenarios, drought exposure oscillates between moderate and high risk, underscoring the country's chronic vulnerability to prolonged dry conditions.



Map 2: Overview of Drought Risk in Lao PDR at horizon 2030 (SSP2-4.5)

While droughts are not the most critical hazard in Lao PDR, increasing rainfall variability under climate change is creating growing uncertainty for the agriculture sector. The irregular onset and duration of rainy seasons disrupt traditional planting calendars, reduce soil moisture stability, and complicate water management for both rain-fed and irrigated systems. This unpredictability, rather than absolute water scarcity, poses a significant challenge to farmers' resilience and productivity, emphasizing the need for improved climate forecasting, water storage, and adaptive cropping practices.

Prolonged dry periods primarily affect rain-fed agriculture, which accounts for over 70% of rice production, by reducing soil moisture and disrupting planting cycles. Consecutive dry days during critical growth stages lower yields of rice, maize, and vegetables, forcing farmers to replant and increasing the risk of food insecurity. The provinces of Xayaboury, Khammouane, Savannakhet, and Attapeu have experienced the most severe crop losses in recent

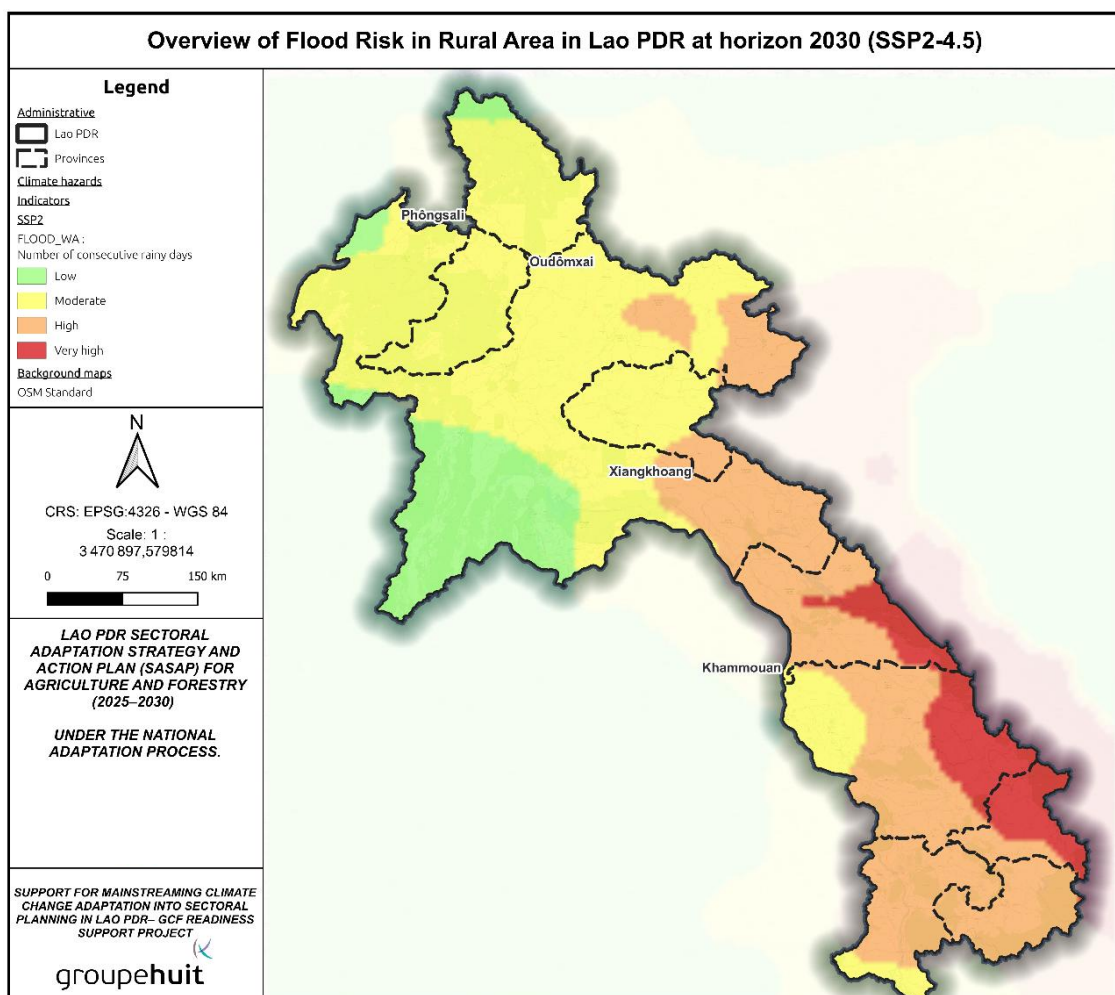
years [37]. For example, the 2019 drought reduced rice yields nationwide to 40% of expected levels, while the 2024 heatwave, with record temperatures above 43°C [29], damaged crops like coffee and vegetables and increased health risks for outdoor workers.

In forestry, recurrent prolonged dry periods weaken tree species, increase fire susceptibility, and heighten the likelihood of pest outbreaks, leading to biodiversity loss and degradation of forest ecosystems. Moisture stress also reduces carbon sequestration and soil stability, exacerbating erosion risks.

The compounding effects of heat stress, drought, and declining soil moisture require integrated adaptation approaches that combine drought-resistant crops, sustainable water management, soil conservation, and the revitalization of traditional farming practices. For forestry, expanding forest cover and applying Ecosystem-based Adaptation (EbA) principles can enhance both climate resilience and mitigation co-benefits, making the sector a cornerstone of long-term adaptation strategies in Lao PDR.

1.2.3. Flood

The spatial distribution of flood risk in Lao PDR remains largely consistent over time, with minimal differences between climate scenarios (SSP2-4.5 and SSP5-8.5). Intense rainfall events and tropical storm are common in Lao PDR and flood risk is mainly shaped by geography rather than changing climate patterns.



Map 3: Overview of Flood Risk in Lao PDR at horizon 2030 (SSP2-4.5)

In northern Lao PDR, flood risks range from low to moderate, depending on local topography and drainage, while the south faces more complex exposure patterns. The western plains bordering Thailand experience moderate to high flood risk, whereas the eastern highlands near Vietnam face very high flood risk, particularly due to steeper terrain and intense rainfall. In Lao PDR, floods usually occur during the rainy season beginning from May to October, particularly between August and September, when tropical storms and typhoons collide. Central eastern and southern provinces are the most affected by floods.

These flood dynamics have significant implications for agriculture and forestry. In farming areas, heavy rainfall can cause waterlogging, erosion, and crop loss, particularly in low-lying or poorly drained zones. In forests, prolonged saturation and flooding can stress trees, trigger disease, and increase the likelihood of landslides, leading to biodiversity loss and reduced ecosystem resilience.

One striking example raised between July and September 2018, when Lao PDR experienced cascading climate shocks mainly the Tropical Storm Son-Tinh, flash floods from a dam collapse, and Cyclone Bebinca, which affected 55 districts across 13 provinces. The *Post-Disaster Needs Assessment (PDNA)* reported extensive flooding that damaged the agriculture sector nationwide, with 2,733 villages and 128,890 households (around 745,000 people) affected [28]. Flash floods devastated mountainous areas, while prolonged inundation along major rivers destroyed paddy rice and other crops. Total damage and losses to the agriculture sector reached over 1.2 trillion LAK, with Savannakhet, Khammouane, and Attapeu among the hardest-hit provinces [28].

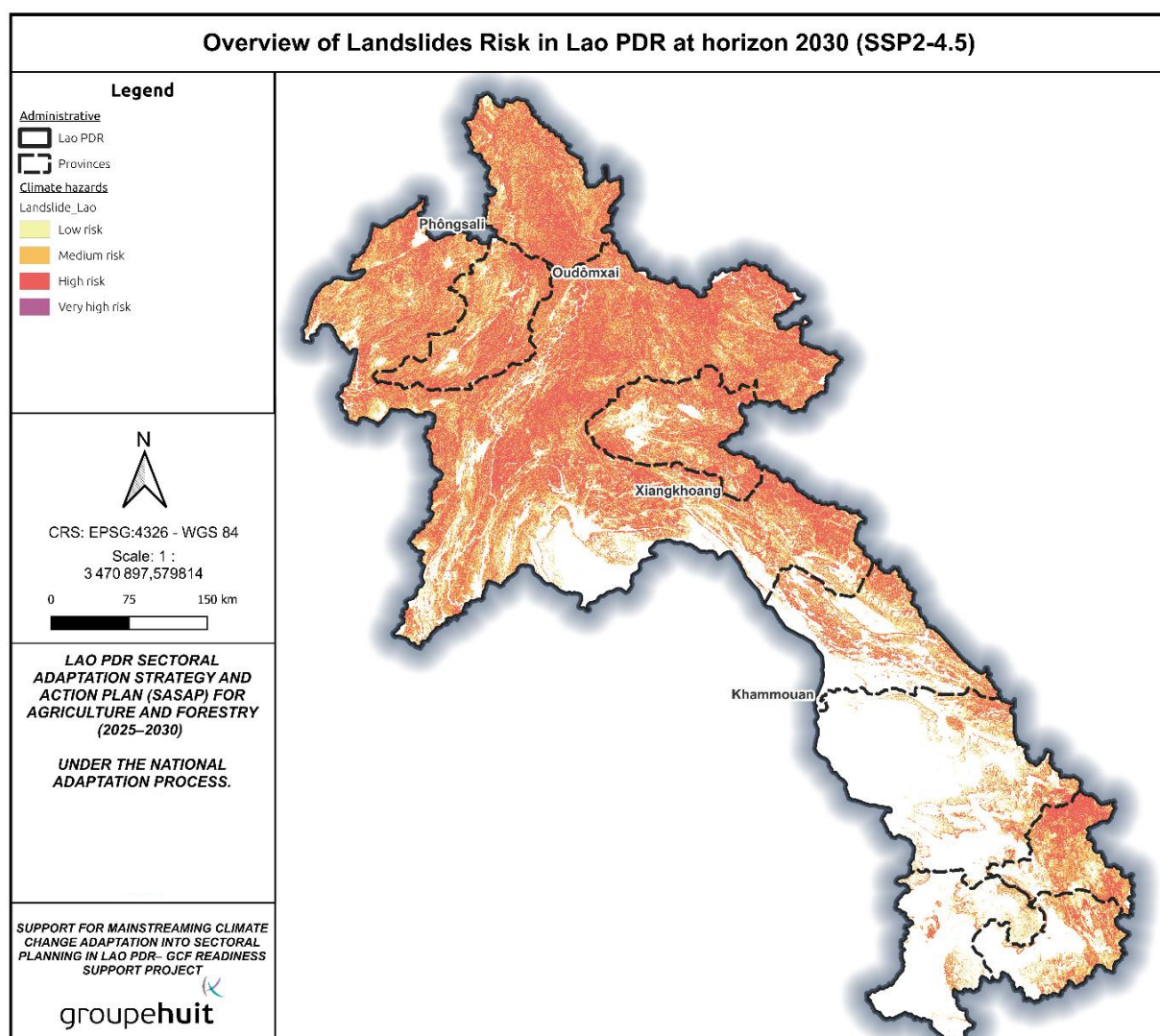
Regarding damages, crop damage was the most significant, with over 102,000 hectares destroyed and 30,000 hectares damaged, primarily paddy rice followed by maize, cassava, and vegetables. Landslides and erosion further degraded farmland, while 363 irrigation schemes sustained major damage, particularly to heads and intakes. Livestock losses were localized but severe in Attapeu Province, which accounted for nearly half of the 28 billion LAK in total livestock damage. Fisheries and aquaculture lost more than 23 million fingerlings, and the forestry sector experienced limited but notable tree and habitat losses, estimated at 10.1 billion LAK [28].

Flood-related losses exceeded direct damage, driven by missed harvests and productivity declines. Paddy rice losses reached 722.5 billion LAK, with an additional 140 billion LAK lost due to irrigation failures affecting the dry-season crop. Other crop losses totaled over 1 trillion LAK, while indirect impacts included 16 billion LAK from reduced livestock productivity, 38 billion LAK from aquaculture, and 22.6 billion LAK from irrigation income losses [28].

These trends highlight the need for region-specific adaptation strategies and tailored measures, such as climate-resilient infrastructure, sustainable land and water management, and stronger local preparedness, that can reduce vulnerability and strengthen the resilience of agriculture and forestry communities across the country.

1.2.4. Landslides and erosion

Landslides and erosion pose severe risks to agriculture and forestry in Lao PDR, particularly in mountainous and hilly provinces such as Phongsaly, Oudomxay, Attapeu, Khammouane and Savannakhet, where unstable soils and intense rainfall make landscapes highly vulnerable.



Map 4: Overview of Landslides Risk in Lao PDR at horizon 2030 (SSP2-4.5)

These hazards directly affect agricultural yields, soil quality, and rural livelihoods, with smallholder and subsistence farmers being the most exposed. Landslides destroy croplands, bury fertile topsoil, and damage irrigation systems, reducing productivity and threatening food security. For example, floods and landslides in 2023 and 2024 damaged thousands of hectares of paddy, maize, cassava, and coffee, with over 30,000 hectares affected nationwide in 2023 alone [28].

In the forestry sector, landslides and erosion uproot trees, degrade forest ecosystems, and accelerate soil loss and sedimentation, further undermining forest health, biodiversity, and carbon storage capacity. Deforestation and land degradation increase the likelihood of future landslides, creating a negative feedback loop between forest loss and slope instability. These combined impacts highlight the urgent need for integrated adaptation measures, including reforestation, sustainable land management, and slope stabilization, to protect agricultural productivity, preserve biodiversity, and strengthen ecosystem resilience in the most affected regions.

1.2.5. Exposure assessment synthesis for Lao PDR Agriculture and Forestry Sectors

The exposure levels presented in [Table 2](#) are derived from the Climate Risk and Vulnerability Assessment (CRVA) conducted for Agriculture and Forestry, Water Resources and Urban Development and Transport sector in Lao PDR under the *Readiness Support for Mainstreaming Climate Change Adaptation into Sectoral Planning* project.

In the CRVA Hazard exposure was assessed using climate indicators developed through the consultant's modeling environment (Klim tool), based on historical data (1950–2020) and future projections under SSP2-4.5 and SSP5-8.5 scenarios. For each hazard (heatwaves, droughts, floods, landslides), sector-specific indicators were defined, and thresholds were established to classify exposure into four categories: Low, Moderate, High, and Very High (see details in [Appendix 01](#)).

The synthesis table identifies, for each sector and hazard, (i) the level of hazard exposure -severity of hazard- and (ii) the provinces showing the highest severity, based on spatial analysis of the modeled indicators.

Table 2: Exposure Assessment Synthesis

Hazards	Categories	Severity of hazard	Provinces with the highest severity of hazards
Heatwaves	Agriculture yields	Very High	Southern provinces Champasak Khammouane
	Livestock	High	
	Fish stock	High/Very High	
	Soil Quality	Moderate/High	
	Forest Biodiversity	Very High	
Droughts	Agriculture yields	Moderate/High	Northern provinces Phongsaly Oudomxay
	Livestock	Moderate	
	Fish stock	Moderate	
	Soil Quality	Moderate	
	Forest Biodiversity	Moderate/High	
Flooding	Agriculture yields	Moderate/High	Southern provinces Xekong Khammouane
	Livestock	Moderate	
	Fish stock	Moderate / High	
	Soil Quality	Moderate/High	
	Forest Biodiversity	Moderate	
Landslides	Agriculture yields	Moderate/High	Mountainous provinces Phongsaly Oudomxay
	Livestock	Moderate	
	Fish stock	Moderate	
	Soil Quality	High	
	Forest Biodiversity	Moderate/High	

2. Vulnerability Context

In addition to his exposure to climate variability, Lao PDR's geographical vulnerability is compounded by important socioeconomic fragility, with 80% of its 7.5 million inhabitants reliant on climate-sensitive agriculture [38]. The country ranks 142/181 on the ND-GAIN Index due to intersecting political, geographical, and developmental challenges [39]

Climate risks in the Agriculture and Forestry sector are compounded by a set of structural vulnerability stressors that shape exposure, sensitivity, and adaptive capacity. These stressors interact with climate hazards such as droughts, floods, heat stress, and extreme rainfall events, amplifying their impact on rural livelihoods, ecosystems, and production systems.

Limited Rural Infrastructure

Many rural areas remain constrained by inadequate infrastructure, including irrigation systems, climate-resilient storage facilities, all-weather roads or early warning systems. Limited infrastructure reduces farmers' ability to manage climate variability, access markets, store produce safely and recover from climate shocks. In forestry, limited monitoring infrastructure also constrains sustainable forest management and fire control capacity.

Limited Financial Resources

Smallholder and/or forest dependent farmers often have limited access to credit and climate-adaptive financing, insurance or investment capital for resilient technologies. This financial constraint limits the adoption of climate-smart practices such as drought-resistant varieties, agroforestry systems, improved irrigation, or soil conservation techniques. It also increases vulnerability to repeated climate shocks, which can push households into poverty traps.

Land Tenure and Access Constraints

Unclear or insecure land tenure arrangements in some areas reduce long-term investment incentives in sustainable land management. Short-term or informal land access can lead to unsustainable land use practices, expansion into forested or marginal areas.

Urban Expansion and Land Pressure

Urban expansion, infrastructure development, and concession-based land allocation increase pressure on agricultural and forest land. This results in fragmentation of productive land, competition over water resources, reduced access to common forest resources, and conversion of climate-buffer ecosystems. Land pressure may push agricultural activities into more marginal and climate-sensitive areas, increasing exposure to drought and landslides.

Economic and Market Dependence

Increasing commercialization of agriculture, including reliance on a limited number of export-oriented crops (e.g., rubber, banana, cassava), increases exposure to climate-sensitive commodity price volatility, pest and disease outbreaks intensified by climate change or cross-border market disruptions. Additionally, high dependence on monoculture systems can amplify climate risk, particularly where diversification and value-added processing remain limited.

2.1. Who is most vulnerable and Why?

It is important to remember that vulnerability to climate change is not experienced equally across populations. Gender, disability, ethnicity, age, and socio-economic status all intersect to shape individuals' and groups' capacity to cope with and adapt to climate risks.

Climate-related disasters affect multiple aspects of human well-being, including agricultural production, food security, water management, and public health. The severity of impacts and the capacity to cope depend largely on socio-economic conditions, cultural norms, access to resources, poverty levels, and gender dynamics. Research consistently highlights that climate impacts are not gender-neutral: women are often among the most vulnerable groups. Differences in vulnerability between women and men are shaped by unequal time burdens, limited access to land, assets and credit, institutional barriers, restricted participation in decision-making processes, and the persistent lack of sex-disaggregated data to inform responsive policies.

In Lao PDR, women, persons with disabilities, ethnic minorities, and other marginalized groups often face structural barriers to accessing information, resources, and decision-making processes, which heightens their vulnerability. Limited participation in governance, lower income levels, and reduced mobility can restrict adaptive capacity and increase exposure to hazards. GEDSI considerations have been integrated into sensitive factors during the vulnerability assessment in order to that adaptation strategies that will be developed at the latter stages of the project will be inclusive, equitable, and responsive to the differentiated needs of at-risk populations, ultimately contributing to more resilient communities.

2.2. Key Vulnerability Drivers

Multiple determinants of vulnerability are identified on national trends. Women, persons with disabilities, ethnic minorities, and other marginalized groups often face structural barriers to accessing information, resources, and decision-making processes, which heightens their vulnerability [24]. This is particularly true in poor rural areas, where workers face challenges accessing productive land rights and off-farm employment [21]. Commercialization of agriculture due to the economic transformation undergone in the agriculture sector also contributes to vulnerability [22]. Limited participation in governance, lower income levels, and reduced mobility can restrict adaptive capacity and increase exposure to hazards.

Regarding Climate Change, climate-induced hazards such as tropical storms, heavy rainfall and flooding, heatwaves, droughts, and erosion have disproportionate impacts on marginalized groups in the agriculture and forestry sectors in Lao PDR. Women, people with disabilities, ethnic minorities, and low-income rural households often depend heavily on subsistence agriculture and natural resources for their livelihoods, yet have limited access to climate information, land rights, agricultural inputs, credit, or decision-making spaces that could increase their adaptive capacity.

In addition, limited availability of disaggregated and vulnerability specific data (e.g., income, land ownership, credit access, disaster losses) constrains targeted adaptation planning.

Gender



Lao PDR have witnessed a high feminization of the agriculture sector since the 1980s (about 50% of the economically active population) [20]. However, despite a gradual decline since 2010 (approximately 8 percentage points), vulnerable employment continues to affect women more than men (81.5% versus 72.5% in 2023) [19].



Women also carry a disproportionate share of unpaid care and domestic work, spending about 1.4 times more time on such activities than men [19]. Women's high time allocation in unpaid productive and household work contributes to their non-empowerment [21]. As a reflection of it, in 2011, female-headed farming households showed greater likelihood of using chemical fertilizers (10 percent versus 6 percent) and pesticides (7 percent compared to 6 percent) than their male counterparts. Amongst other explanations, such chemicals reduce agriculture-workload, reducing "time-poverty" faced by women engaging in domestic work as well [22].



Gender gaps persist in education, as only 19.3% of women aged 25 and older have completed secondary education compared to 31% of men, and the gap widens beyond secondary level. Literacy rates are also lower among women in low-income households (66% compared to 81% for men) [22].



Women in governance and leadership remains limited across scales, undergoing a setback since 2020. In 2024, women represented 2% of village chiefs, 17% of director generals in line ministries, and 22% of national parliament seats were held by women, [23] against 27,55% in 2020 [19] As for senior and middle management positions, women represented 25.7% in 2022 [19].



Women often face land tenure insecurity and without formal land titles, many cannot access credit or use land as collateral. Limited access to banking services and agricultural loans further constrain investments in irrigation, improved seeds, or machinery. Weak access to insurance mechanisms also reduces their capacity to recover after climate shocks

Persons with Disabilities (PWDs) and Elderly

On one hand Lao PDR's population is gradually ageing. While Lao PDR is still considered a relatively young country with around 60% of its population under 30 years old, the share of older persons aged over 60 years old is steadily increasing [56]. The country is entering a demographic transition phase where the proportion of elderly is growing faster than institutional systems are adapting. Since Lao PDR does not yet have universal pension coverage -very few workers such as civil servant benefitting from structured pension schemes- many elderly depend on family support or continue to work at advanced aged [57].

On the other hand, persons with disabilities (PWDs) represent a significant but often under-documented segment of the population. According to the Lao Population and Housing Census and WHO estimates, disability prevalence may range between 2–5% depending on measurement definitions, though underreporting remains likely [58]. PWDs face multiple barriers that increase climate vulnerability such as limited mobility during extreme events and reduced access to evacuation infrastructure,



Mobility constraints, limited access to services, and infrastructure that are rarely designed according to universal accessibility standards. During floods, heatwaves, landslides, evacuation and access to emergency shelters can be particularly challenging for individuals with reduced mobility. Additionally, elderly and PWDs may face limited access to climate information formats.



Elderly people are physiologically more vulnerable to extreme heat, dehydration, and respiratory stress and also bear higher health risks from waterborne diseases and poor air quality. Therefore, they are disproportionately affected by disruptions that may limit access to medical care, social protection services, and markets. In rural and mountainous areas, where transport networks are fragile, climate shocks can isolate communities, further increasing health and safety risks for older adults and people requiring assistive devices or regular treatment.



Elderly people and PWDs often face structural socio-economic disadvantages that reduce their adaptive capacity. In rural Lao PDR, limited pension coverage and restricted access to formal employment mean many remain dependent on climate-sensitive agricultural livelihoods [57]. Lower access to credit, extension services, and productive assets further constrain resilience. As a result, climate shocks risk exacerbating existing income insecurity and social exclusion within these groups.

Ethnicity

Lao PDR is a culturally diverse country, comprising of 50 ethnic groups, under 4 ethno-linguistic families, namely: the Lao-Tai, Mon-Khmer, Hmong-Mien, and Sino-Tibetan.

- Lao-Tai (majority group, largely concentrated in lowland areas and along the Mekong River)
- Mon-Khmer (primarily in upland and forested areas)
- Hmong-Mien (mainly in mountainous northern and central regions)
- Sino-Tibetan (smaller populations in remote highland areas)

The Lao-Tai group represents the majority of the population, while non-Lao-Tai ethnic groups are often located in remote, upland, and mountainous areas, where access to infrastructure, markets, education, and health services is more limited. Overall, most of ethnic groups belonging to Mon-Khmer, Hmong-Mien and Sino-Tibetan ethno-linguistic families live in upland, forested, or remote areas and are dependent on forest and natural resources for their livelihoods. Many of them have their own language or dialect and different religious beliefs. Many ethnic communities rely on rain-fed agriculture, shifting cultivation, forest products, and natural resource-based livelihoods, making them particularly sensitive to climate variability, land degradation, and ecosystem changes.

Ethnic diversity is recognized in national development policies; however, disparities remain in terms of income levels, education attainment, land tenure security, access to services, and participation in decision-making processes. Language barriers and geographic isolation can further constrain access to government programs and climate adaptation support.



Geographical remoteness compounds vulnerability. Limited access to climate information, markets, irrigation infrastructure, financial services, and formal land tenure increases sensitivity to climate shocks. In some areas, insecure land tenure or unclear customary land recognition can also limit investment in long-term climate-resilient practices.



Socio-economic barriers further constrain adaptive capacity. Language differences, lower literacy rates, and limited participation in decision-making processes may reduce access to government programs and climate adaptation financing.



At the same time, many ethnic communities possess strong traditional ecological knowledge related to forest management, crop diversification, and water conservation. Effective adaptation strategies should therefore combine targeted support (climate-resilient agriculture, land tenure clarification, access to finance) with recognition and integration of indigenous knowledge systems.

2.3. When Vulnerability meets climate hazards

Vulnerable group concentration in labor-intensive, climate-sensitive activities (transplanting, water-dependent crops, manual harvesting) increases exposure to drought and heat stress. This is coupled with limited access to productive assets with important land tenure insecurity, limited access to irrigation, limited access to extension services and weak access to insurance mechanisms.



Floods and tropical storms disproportionately affect women-headed households and those with limited mobility, particularly in remote areas, as they are less likely to have the means to evacuate or recover from crop and asset loss. Disruption in forest activities, such as non-timber forest product collection, also directly affects ethnic minority groups and rural women engaged in informal forest-based economies.



Heatwaves and droughts increase the burden on women and girls, who are typically responsible for collecting water and ensuring household food availability. During drought periods, access to safe water for irrigation and domestic use becomes limited, increasing workload and reducing time for education or income-generating activities. Additionally, people with disabilities may be more isolated and excluded from early warning systems or emergency support during extreme heat or water shortages.



Soil erosion and land degradation particularly impact communities practicing shifting cultivation or living in highland areas, where loss of arable land threatens food security. As these communities can often include ethnic minorities with limited access to alternative livelihoods, they are especially vulnerable to cascading economic and social effects.

3. Climate Risk Synthesis

Climate risk centers on the interaction between hazard, vulnerability and exposure as per the IPCC risk framework. Risk is typically estimated as the product of the probability of hazard occurring and the impact it would have on the system if it did occur.



Figure 4: Interrelations between components of climate risk [Source: Fourth Assessment Report (AR4), IPCC]

Climate Risks Synthesis for the Agriculture and Forestry Sectors is presented in Figure 5.

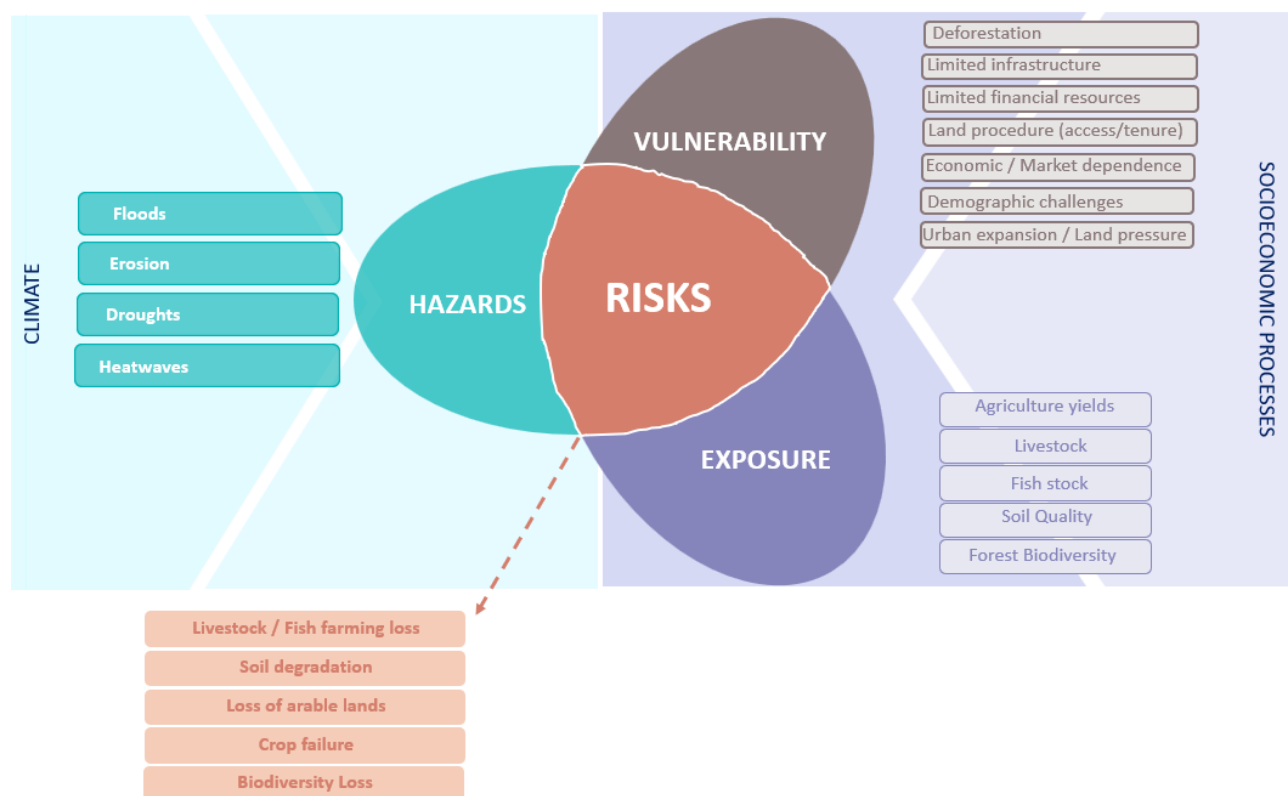


Figure 5: Climate Risk Synthesis for the Agriculture and Forestry sectors

PART III: POLICY AND INSTITUTIONAL FRAMEWORK

1. Current institutional arrangements

The Ministry of Agriculture and Environment (MAE) formerly the Ministry of Agriculture and Forestry (MAF) and Ministry of Natural Resource and Environment (MONRE) serve as the lead institution responsible for policy development, strategic planning, and implementation across Lao PDR's agriculture and Forestry sectors. MAE now oversees a broader mandate that includes climate change coordination, natural resource management, and sustainable land use. Within MAE, the Department of Planning and Cooperation (DPOC) plays a central role in coordinating sectoral strategies, donor engagement, and cross-ministerial alignment. It ensures that agriculture and forestry policies are harmonized with national development priorities and international commitments. The Department of Forestry (DOF) retains its core responsibilities for forest governance, including the management of Protection, Conservation, and Production Forests, enforcement of Sustainable Forest Management (SFM) principles, and oversight of community forestry and reforestation programs [40].

Following the institutional merger with the former Ministry of Natural Resources and Environment (MONRE), national climate change coordination has been consolidated under MAE. The Department of Environment (DOE) now leads technical oversight and chairs the National Steering Committee on Climate Change, a high-level body tasked with facilitating inter-ministerial coordination, policy coherence, and strategic oversight of Lao PDR's climate commitments. This includes implementation of NAP, and Nationally Determined Contributions (NDCs) under the Paris Agreement [41], and alignment with the National Strategy on Climate Change to 2030.

To operationalize climate change integration across sectors, Lao PDR has established Sector Working Groups (SWGs) under the Round Table Process, a multi-stakeholder platform that brings together government agencies, development partners, civil society organizations, and technical experts. The Agriculture and Forestry SWGs play a pivotal role in mainstreaming climate adaptation, promoting safeguard compliance, and ensuring inclusive planning. These groups also facilitate donor coordination, technical validation, and policy dialogue, contributing to the transparency and inclusiveness of the adaptation process.

2. Climate change policy framework and legislation

Lao PDR has made significant strides in establishing a comprehensive climate change policy framework that integrates resilience, mitigation, and inclusive development across sectors. The cornerstone of this framework is the National Strategy on Climate Change toward 2030 (NSCC 2030), endorsed in January 2023 [42]. This strategy outlines strategic priorities across eight sectors, including agriculture, forestry, water resources, energy, health, education, urban development, and tourism, and is built on three foundational pillars: resilience building, emissions reduction, and green growth. It updates the earlier 2010 strategy and aligns with Lao PDR's international commitments under the Paris Agreement, including its NDCs and NAP [11].

To support implementation, Lao PDR has adopted a suite of sectoral laws and decrees that embed climate change considerations into environmental governance and resources management. The Environmental Protection Law (2012, revised) provides the legal basis for environmental safeguards, mandating Environmental Impact Assessments (EIAs), pollution control, and climate-sensitive project screening [43]. The Forestry Law (2019) incorporates climate resilience and sustainable forest management principles, while the Water and Water Resources Law (1996) support watershed protection and equitable water allocation [44]. The Decree on Climate Change No.

09/PM (2019) formally mandates climate integration across ministries and establishes the DCC [now DoE] as the national coordinating body [45].

Institutionally, climate coordination is now housed within the MAE, following the merger of the former MAF and MONRE. MAE chairs the National Steering Committee on Climate Change, which oversees policy alignment, climate finance, and international reporting obligations under the UNFCCC [46]. The ministry also leads the development of sector-specific climate action plans, including for agriculture and forestry, and promotes community-based adaptation (CBA) and ecosystem-based approaches (EbA) to strengthen local resilience [12].

To operationalize these frameworks, Lao PDR has adopted the Green Growth Strategy (2019), which promotes low-carbon development, resources efficiency, and inclusive growth [47]. Climate indicators have been integrated into the 9th NSEDP, ensuring that adaptation and mitigation are tracked across national planning cycles. Additionally, SWGs under the Round Table Process facilitate stakeholder engagement, donor coordination, and technical alignment across climate-sensitive sectors [48]. These platforms enable inclusive dialogue between government agencies, development partners, civil society, and research institutions.

Table 3: International and National Frameworks for Climate Adaptation in Lao PDR

Framework	Key focus /contribution
Paris Agreement on Climate Change (2015)	Set global goals on mitigation and adaptation to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change.
The first Biennial Update Report of the Lao PDR - 2020	Focuses primarily on greenhouse gas inventory and mitigation actions.
Green Growth Strategy (2019)	Promotes low-carbon development, resource efficiency, and inclusive growth.
9th National Socio-Economic Development Plan (NSEDP) 2021-2025	Integrates climate indicators into national planning and monitoring frameworks.
National Strategy on Climate Change toward 2030 (NSCC 2030)	Sets strategic direction across 8 sectors; built on resilience, mitigation, and green growth pillars.
National Adaptation Plan (2025)	Framework for sectoral adaptation strategies aligns with Paris Agreement commitments.
Nationally Determined Contributions (NDCs) 2020-2025	Emissions reduction and adaptation targets under the UNFCCC
Sectoral Adaptation Strategies and Action Plans (SAPs) 2021-2030	Operationalize NAP across agriculture, forestry, water, health, and infrastructure.

Table 4: Legislation Framework for Climate Adaptation in Lao PDR

Legislation frameworks	Key focus /contribution
Environmental Protection Law (Revised, 2024)	Mandates EIAs, pollution control, and climate-sensitive project screening.
Decree on Climate Change No. 09/PM, 2019	Mandates climate integration across ministries; establishes Department of Climate Change (DCC) [now Department of Environment DoE]
Law on Disaster Risk management (2019)	Establishment of Disaster Management Committees, Disaster Risk Reduction (DRR) Measures, and Emergency Response and Relief protocols

3. Agriculture policy framework and legislation

The cornerstone of national agriculture planning is the Agriculture Development Strategy to 2025 and Vision to 2030, endorsed by the Government of Lao PDR in 2015. This strategy outlines four key objectives: (i) ensuring food security, (ii) producing competitive agricultural commodities, (iii) developing clean and sustainable agriculture, and (iv) gradually modernizing the sector to support rural development and economic growth [49]. The strategy emphasizes inclusive growth, value chain development, and the integration of climate-smart practices. It also promotes public-private partnerships, regional market integration, and improved access to finance and technology for smallholder farmers.

Complementing this is the Green and Sustainable Agriculture Framework to 2030, which promotes “green agriculture for a healthy society.” This framework aligns agricultural development with environmental protection, biodiversity conservation, and climate adaptation. It encourages agroecological approaches, organic farming, and reduced chemical inputs, while supporting smallholder participation and gender equity and youth engagement [6] [50]. This framework contributes to Lao PDR’s commitments under the SDGs, particularly SDG 2 (Zero Hunger), SDG 13 (Climate Action), and SDG 15 (Life on Land).

Legally, the sector is governed by several key instruments. The Law on Agriculture (1998, revised) provides the foundation for land use, crop production, livestock management, and agricultural extension. The Land Law (2019) and Forestry Law (2019) intersect with agriculture by regulating land tenure, agroforestry, and conservation zones. The Environmental Protection Law (2012, revised) mandates environmental safeguards in agricultural projects, including impact assessments and pollution control. These laws intersect to regulate land access, promote sustainable resource use, and ensure environmental compliance across agricultural investments.

Table 5: Legislation Framework for Agriculture Sector in Lao PDR

Legislation frameworks	Key focus /contribution
Law on Agriculture (1998)	Defines and categorizes agricultural lands, outlines management structures for small, medium, and large-scale irrigation based on user/state involvement and establishes rules regarding water flow and access rights between land plots.
Water and Water Resources Law (1996)	Supports watershed protection, equitable water allocation, and basin-level planning.

Law on Livestock and Veterinary (2016)	Defines and regulates the registration, identification, conservation, improvement, and expansion of animal breed and set disease surveillance, outbreak controls, and zoonotic coordination.
Decree on Agriculture land (2025)	Defines specific target uses for agricultural land and mandates agricultural land use planning at village, district, and provincial levels. Mandates protection of specific priority areas and establishes reserve zones, including buffer zones along waterways.

Institutionally, the MAE, formed through the merger of the former MAF and MONRE, leads agricultural policy development, implementation, and coordination. To support policy integration and stakeholder engagement, Lao PDR has established SWGs under the Round Table Process, a multi-stakeholder platform that facilitates collaboration between MAE, development partners, civil society, and technical experts [48]. These structures promote transparency, inclusive planning, and alignment with national and international frameworks such as NAP, NDCs, and the National Strategy on Climate Change to 2030.

4. Forest policy framework and legislation

The guiding document is the Forestry Strategy to 2035 and Vision to 2050, which sets the national goal of increasing forest cover to 70% of total land area by 2035. It outlines three forest categories, protection, conservation, and production forests, and emphasizes forest restoration, biodiversity conservation, and community-based management. The strategy also supports forest-based livelihoods and ecosystem services, including watershed protection, carbon sequestration, and climate regulation [41].

The legal foundation is provided by the Forestry Law (2019), which governs forest classification, management, utilization, and inspection. It promotes regeneration, reforestation, and sustainable harvesting while safeguarding soil, water, biodiversity, and climate systems. The Law also recognizes forests as sources of livelihood, tourism, and national development, aligning with Lao PDR's green growth vision [51].

Table 6: Legislation Framework for Forestry Sector in Lao PDR

Legislation frameworks	Key focus /contribution
Forestry Law (2019)	Sustainable forest management (SFM) goals and climate resilience principles and classify forests into Protection, Conservation, Production.
Law on Wildlife Management (amended, 2023)	Classifies species into Prohibited (I), Managed (II), General (III) and regulate hunting, trade, and use based on conservation status. Designates conservation areas, rehab centers for Species conservation and mandates surveys, research, and public awareness.
Decree on Protected Areas, (2023)	Designate 4 levels & 6 categories of Protected Areas and mandate surveys and management plans

To operationalize these policies, Lao PDR has committed to Sustainable Forest Management (SFM) and the EU FLEGT-VPA process, which aim to improve legality, traceability, and governance in timber production. As of 2024, forest cover has increased from 41.5% in 2002 to 62%, with over 592,556 hectares of degraded land reforested using species such as rubber, eucalyptus, teak, and agarwood [52].

Institutionally, the MAE leads forest policy development and implementation. The Department of Forestry (DOF) oversees forest classification, monitoring, and enforcement, while the Department of Environment supports

integration of climate resilience into forest planning. Coordination is facilitated through the National Steering Committee on Climate Change and SWGs under the Round Table Process.

PART IV: LAO PDR SECTORAL ADAPTATION STRATEGY AND ACTION PLAN FOR THE AGRICULTURE AND FORESTRY SECTORS 2026-2030

1. Introduction and Strategic Goal

The SAP-AF constitute sector-specific guidance necessary to operationalize commitments made under the NAP and NDC frameworks, thus complementing both policies. Grounded in comprehensive climate risk and vulnerability assessments, the SAP-AF identifies and prioritizes adaptation actions aligned with national development goals and tailored to the specific needs of vulnerable geographic areas. It proposes investment options and promotes community resilience, with a strong emphasis on gender equality and social inclusion to ensure equitable benefits for all population groups.

The overarching goal of the SAP-AF is to build climate-resilient agriculture and forestry systems that safeguard ecosystems, reduce climate-related risks, and support sustainable communities through inclusive, adaptive, and evidence-based planning and implementation.

As a strategic tool for resource mobilization, the SAP-AF provides an evidence-based framework to attract domestic funding, international climate finance (including from the Green Climate Fund), and private sector investment in climate-resilient infrastructure, technologies, and practices. The policy supports the Government efforts to facilitate the integration of climate change considerations into development policy and practice, reinforcing national resilience objectives.

2. Action Plans for the Agriculture and forestry sectors

2.1. Agriculture Sector Action Plan: Building Resilience from the Ground Up

Agriculture remains the backbone of Lao PDR's rural economy, yet it is increasingly vulnerable to climate-induced shocks such as droughts, floods, and erratic rainfall. The SAP-AF outlines a transformative pathway to strengthen climate-resilient agriculture through integrated water management, diversified farming systems, and inclusive governance.

Outcome 1: Strengthen Climate-Resilient Water Management for Agriculture.

Strategic Objective 1.1: Improve irrigation and water storage capacity

To reduce agriculture losses from drought and seasonal variability, the plan prioritizes the expansion and modernization of irrigation infrastructure. Twenty reservoirs will be constructed and fifteen irrigation systems upgraded to improve water availability and distribution. Innovative technologies such as solar pumps and gravity-

fed systems will be piloted in fifteen districts, tailored to local agroecological conditions. Farmer training programs will ensure that at least 40% of water user group members are women and youth, promoting inclusive water governance.

Strategic Objective 1.2: Upgrade drainage and regulate land use

Waterlogging and soil degradation threaten crop productivity, especially in lowland areas. The action plan calls for rehabilitating ten drainages schemes and establishing 50 km of vegetative buffer zones to protect farmland. Concurrently, land-use regulations will be strengthened through climate-risk mapping and zoning audits in ten provinces. Women and youth will be actively engaged in zoning committees to ensure equitable land governance.

Outcome 2: Enhance Resilience of Farming Systems and Food Security.

Strategic Objective 2.1: Strengthen diversified and climate-smart farming systems

To reduce dependence on monoculture and enhance food security, the plan promotes intercropping, agroforestry, and aquaculture integration. Twenty demonstration sites will be established, with 30% managed by women, and farmer exchanges will be organized to facilitate peer learning. Infrastructure design standards for reservoirs and hydropower will be updated to withstand climate extremes, with 200 operators trained in resilient water management.

Strategic Objective 2.2: Risk Assessment and monitoring

Robust data is essential for adaptive decision-making. The plan includes pilot studies in three provinces to develop standardized methodologies for estimating crop loss and damage, informing compensation and insurance schemes. A national vulnerability assessment will be conducted across ten provinces, with consultations ensuring the inclusion of women, ethnic groups, and persons with disabilities. Findings will guide funding allocations and policy adjustments.

2.2. Forestry Sector Action Plan: Safeguarding Ecosystems and Livelihoods.

Forests in Lao PDR provide critical ecosystem services and support rural livelihoods, yet they face mounting pressures from deforestation, shifting cultivation, and climate change. The SAP-AF promotes climate-resilience forest management through improved planning, sustainable practices, and ecosystem restoration.

Outcome 1: Strengthen Climate-Resilient Forest and Land-Use Management

Strategic Objective 1.1: Improve forest and land-use planning

Climate risks will be integrated into forestry planning through GIS-based vulnerability mapping and zoning. One hundred staff will be trained, and maps updated every 3-5 years. Ten provincial forestry plans will be revised to include adaptation targets and indicators. At least 30% of participants in these processes will be women and ethnic groups, ensuring inclusive planning.

Strategic Objective 1.2: Promote sustainable forestry practices

Agroforestry, natural regeneration, and co-management models will be piloted and scaled to ten provinces. Adaptation codes will be embedded in agricultural development planning, with gender-responsive screening tools applied nationally. These efforts will reduce forest degradation while improving livelihoods for vulnerable groups.

Outcome 2: Enhance Forest Protection and Ecosystem Resilience

Strategic Objective 2.1: Restore forests and ecosystems

Reforestation in high-risk zones will be prioritized, with 5,000 hectares restored using resilient species. Nurseries will be established, employing at least 40% women and youth. Slope stabilization measures, including bamboo planting, vetiver grass, and terracing, will be piloted in three upland provinces and scaled nationally. Women and ethnic groups will be trained in these techniques, fostering community ownership.

Strategic Objective 2.2: Control forest fire and seasonal burning

Slash-and-burn practices will be addressed through awareness campaigns, enforcement of bans, and promotion of conservation farming. Ten campaigns will be conducted, engaging women and youth as key actors. Enforcement will be strengthened in five provinces, supported by MAE, provincial police, and farmer associations.

2.3. Agriculture & Forestry Sector Action Plan

About the Sector Action Plan

The identification of priority actions under the Agriculture and Forestry SAP followed a structured and evidence-based process combining technical analysis, benchmarking, and stakeholder validation. An initial long list of adaptation measures was extracted from the NAP–UNEP adaptation catalogue and selected based on the MCA and findings from the CRVA and further refined through stakeholders consultation.

The cost estimates presented in the SAP are indicative and intended to support strategic planning and prioritization. They are not detailed engineering budgets but they provide realistic order-of-magnitude estimates to guide decision-making and resource mobilization. Costing was developed based on three main sources:

- Consultant experience: Cost estimates were informed by lessons learned and indicative budget ranges from similar climate adaptation, infrastructure, capacity-building, and institutional strengthening projects implemented in Lao PDR and comparable Southeast Asian contexts, including projects supported by ADB, World Bank, GCF and bilateral cooperation partners.
- Benchmarking and literature review: Review of cost data from comparable national and donor-funded projects (ADB, World Bank, GCF, UN agencies, bilateral cooperation), including infrastructure rehabilitation, ecosystem restoration, policy reform, and capacity development initiatives.
- Market-based assumptions: Use of standard unit costs where available (e.g., km of drainage, number of monitoring stations, training workshops, technical studies), adjusted to reflect the Lao context, logistical constraints, and inflation trends.



These estimates are to be further refined during detailed project preparation, feasibility studies, and engineering design phases.

Table 7: Agriculture Sectorial Action Plan

Actions	Description	List of activities	GEDSI Integration	Stakeholders to support the implementation	Example of existing or under funding Projects	Cost	Schedule
OVERARCHING GOAL: BUILD A CLIMATE-RESILIENT AGRICULTURE SECTOR THAT SECURES FOOD, LIVELIHOODS, AND SUSTAINABILITY UNDER A CHANGING CLIMATE.							
Outcome 1: Strengthen climate-resilient water management for agriculture							
Rationale: Agriculture in Lao PDR is highly vulnerable to droughts, floods, and waterlogging due to reliance on rainfed systems and outdated infrastructure. Improving irrigation, storage, and drainage is critical to secure yields, protect soils, and reduce losses under climate variability.							
Coherence with NAP & national strategies: This outcome supports NAP priorities on integrated water and land management and aligns with the MAF 5-Year Plan and draft NSERP targets for irrigation expansion and climate-resilient agriculture. It also reflects NDC commitments to climate-proof food production systems.							
Strategic objective 1.1: Improve irrigation and water storage capacity							
Description: Strengthen irrigation and storage systems to ensure reliable water access during drought and dry seasons, while promoting efficiency and sustainability.							
1. Improve irrigation and storage of excess rainfall to reduce agricultural losses from drought. (Concept note 1)	Expand and modernize irrigation networks, build reservoirs to capture rainfall, and promote efficient distribution systems. Includes farmer training on water-efficient practices.	Assess and prioritize areas for irrigation and water storage improvement Build 20 lined reservoirs of 3.75ML – 3,750m ³ (50x30x2.5m), Modernize/Rehabilitate 15 irrigation systems Establish or strengthen Water User Associations (WUAs) and provide training.	At least 40% of water user group members are women and youth.	MAE, PAE, DAE, WUAs.	<i>ADB Northern Rural Infrastructure Project (2017-2026) [61]</i>	\$9.1M	2026–2028
2. Identify and design location-specific irrigation schemes and technologies.	Pilot innovative irrigation solutions (solar pumps, gravity-fed systems, recharge wells) adapted to local agro-ecological conditions.	Feasibility studies and technical designs for 5 pilot irrigation solutions for selected sites Pilot projects in selected sites Establish/strengthen WUAs	At least 40% women/youth participation in planning and design	MAE, NAFRI, NGOs.	<i>FAO Climate-Smart Agriculture Project (2022-2026) [62].</i>	\$4.5M	2026–2029

		Provide training to farmers, local technicians, local authorities and WUAs, Evaluation of pilot results and development of guidelines	consultations for the pilot projects At least 30% of trainees are women				
Strategic objective 1.2: Upgrade drainage and regulate land use							
Description: Rehabilitate drainage systems to reduce waterlogging and integrate land-use planning that prevents expansion into fragile or degraded areas.							
3. Improve drainage systems to mitigate plant damage from waterlogging.	Rehabilitate drainage canals, introduce vegetative buffers, and promote low-cost ecosystem-based solutions to protect crops.	Identify and map flood-prone agricultural zones to prioritize areas for drainage improvement and ecosystem-based interventions. Rehabilitate 4 drainage schemes (excavation, dredging, stabilization, pumping, electrics/control), Establish 20 km of vegetative buffer zones. Provide training for farmers and local authorities on maintenance of drainage systems.	At least 30% of training on maintenance of drainage systems participants are women / youth	MAE, PAE, farmer cooperatives.	<i>IFAD Upland Agriculture Project (2019-2026) [63]</i>	\$8M	2026–2029
4. Strengthen land-use regulations and agricultural zoning to prevent degradation	Review concession rules, map climate-risk zones, and enforce agricultural zoning.	Conduct land audits, Update zoning maps in 10 provinces Conduct capacity-building workshop for local authorities Establish participatory monitoring systems involving communities.	At least 40% of women participating in land use planning consultation GEDSI module in capacity in	MAE, local authorities.	<i>Participatory Land Use Planning and Participatory Agricultural Land Management (PLUP/PALM) (since 2017)[64]</i>	\$1M	2026–2030

			100% of the workshops				
Outcome 2: Enhance resilience of farming systems and food security							
Rationale: Erratic rainfall, heat stress, and pests undermine food security, especially for smallholders. Diversification, resilient crops, and better risk monitoring are key to building adaptive capacity and reducing vulnerability.							
Coherence with NAP & national strategies: This outcome reflects NAP and NDC priorities on resilient farming systems and food security and supports the MAF 5-Year Plan focus on diversification and research. It is also consistent with NSEDP objectives on poverty reduction and nutrition.							
Strategic objective 2.1: Strengthen diversified and climate-smart farming systems							
Description: Encourage diversification, climate-smart practices, and aquaculture integration to reduce risks, improve soil fertility, and strengthen food security.							
5. Promote the use of climate-resilient designed infrastructure including reservoirs, hydropower facilities.	Improve design and management of reservoirs and hydropower for resilience to droughts and floods, ensuring steady irrigation.	Introduce climate resilient design standards, Provided training for 200 operators.	100% of design standards integrate gender sensitive consideration	MAE, MEM, River Basin Committees.	<i>WB Mekong IWRM Program (2010-2019) [65]</i>	\$2M	2026–2030
6. Diversify farming systems to strengthen food security (Concept note 2)	Promote intercropping, rotation, and agroforestry to spread risks and sustain yields.	Establish 20 medium scale demonstration sites Deliver inclusive training and farmers exchanges. Evaluation of pilot results and development of guidelines	At least 30% of demonstration plots are managed by women.	MAE, NAFRI, farmer groups.	<i>IFAD Agroecology Transition Project (2022-2027) [66].</i>	\$3-5M	2026–2028
Strategic objective 2.2: Risk assessment and monitoring							
Description: Develop monitoring tools to estimate agricultural losses and vulnerabilities, guiding adaptation measures and policymaking.							
7. Conduct pilot study in selected districts to develop standardized estimation of agricultural losses and damages. (Concept note 5)	Pilot standardized approaches for assessing agricultural loss and damage to strengthen agricultural insurance and compensation mechanisms.	Develop pilot methodology and tools in selected districts Recruit and train enumerators Conduct field data collection Data analysis and share of the findings	At least 30% of enumerators are women. 100% of the reporting template integrate gender	MAE, MPI, National Statistics Bureau.	<i>IFAD Upland Agriculture Project (2019-2026) [63].</i>	\$2M	2026–2030

		Evaluation of pilot results and development of guidelines for national rollout	and social disaggregated data.				
8. Review and assess vulnerabilities, risks, and impacts of climate change in agriculture.	Conduct provincial-level assessments to evaluate climate-related vulnerabilities, risks, and impacts on agriculture, using standardized tools to inform investment priorities and resource allocation.	Develop standardized assessment tools and indicators for evaluating agricultural vulnerabilities to climate hazards. Conduct provincial level assessment in 10 provinces, Map climate risk hotspots and publish national report.	Ensure women/ethnic groups included in consultations.	MAE, NAFRI.	<i>IRAS - Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts (2011-2015)[67].</i>	\$1M	2026–2029

Table 8: Forestry Sectorial Action Plan

Actions	Description	List of activities	GEDSI Integration	Stakeholders to support the implementation	Example of existing or under funding Projects	Cost	Schedule
OVERARCHING GOAL: STRENGTHEN CLIMATE-RESILIENT FOREST MANAGEMENT THAT SAFEGUARDS ECOSYSTEMS, REDUCES RISKS, AND SUPPORTS SUSTAINABLE LIVELIHOODS.							
Outcome 1: Strengthen climate-resilient forest and land-use management							
Rationale: Forests provide vital ecosystem services but face growing pressures from deforestation, shifting cultivation, and weak planning. Climate change exacerbates these pressures, increasing risks of degradation. Stronger governance and land-use planning are essential.							
Coherence with NAP & national strategies: Supports NAP objectives on integrating climate risks in forestry, Forestry Strategy 2035 priorities on sustainable management, and NDC commitments to reduce emissions from deforestation and degradation.							
Strategic objective 1.1: Improve Forest and land-use planning							
Description: Integrate climate risks into forestry and land planning, with updated maps, zoning, and climate indicators.							
1. Develop and update climate risk and vulnerability maps for forestry and land use (Concept note 4)	Use GIS-based tools and spatial data to map climate hazards, exposure, and vulnerabilities affecting forestry and land use, identifying priority zones for targeted adaptation and ecosystem restoration interventions.	Compile and harmonize existing spatial datasets on forest cover, land use, and climate hazards. Provide GIS training at multi-level (national, provincial, district) Develop vulnerability maps that identify priority areas Implement monitoring system that ensure that maps are updated maps every 3–5 years.	At least 30% of GIS training participants are women 100% of the maps include gender and social disaggregated data layers	MAE, universities.	<i>GCF FP200 Sustainable Forest Landscape Management Project (2024–2027)</i> [68]	\$2-3M	2026–2029

2. Mainstream climate change adaptation in forestry and land-use planning	Integrate climate adaptation objectives, targets, and measurable indicators into provincial forestry and land-use plans.	Revise 10 provincial forestry plans with adaptation targets and indicators. Conduct training and provide technical support at provincial level.	100% of provincial forestry plans integrate gender and inclusion sensitive adaptation objectives At least 30% of training participants are women	MAE, PAE, GGGI.	<i>Participatory Land Use Planning and Participatory Agricultural Land Management (PLUP/PALM) (since 2017)[64]</i>	\$1.5M	2026–2030
Strategic objective 1.2: Promote sustainable forestry practices							
Description: Encourage agroforestry, community forestry, and policy reforms to reduce degradation and improve livelihoods.							
3. Apply sustainable forest and land management practices	Promote agroforestry, assisted natural regeneration, and participatory co-management models to enhance ecosystem services, improve livelihoods, and increase resilience to climate change.	Pilot agroforestry programs and projects in 3 provinces; Provide training and technical support; Evaluation of pilot results and development of guidelines.	At least 1 program or project per province is women-led.	MAE, farmer groups, NGOs.	<i>FAO Climate-Smart Agriculture Project (2022-2026) [62].</i>	\$1.5M	2026–2030
4. Integrate climate adaptation into agricultural development planning	Incorporate climate adaptation principles, screening tools, and adaptation codes into agricultural policies, strategies, and investment plans to ensure climate-resilient sectoral development.	Revise existing policies and plans based on identified gaps in climate adaptation integration. Develop adaptation indicators Develop adaptation standard for agriculture related projects and programs. Provide training on climate adaptation and climate risk management at multi-level (national, provincial, district)	100% of plans integrated GEDSI responsive adaptation targets At least 40% of trained staff are women	MAE, MPI, MoF.	<i>FAO Climate-Smart Agriculture Project (2022-2026) [62].</i>	\$0.5M	2026–2030

Outcome 2: Enhance forest protection and ecosystem resilience							
Rationale: Degraded forests and biodiversity loss heighten risks of landslides, erosion, and disaster. Restoration and protection are necessary for resilience.							
Coherence with NAP & national strategies: Aligned with NAP goals on forest resilience and biodiversity, Forestry Strategy 2035 targets on reforestation, and NDC commitments under LULUCF.							
Strategic objective 2.1: Restore forests and ecosystems							
Description: Promote reforestation and slope stabilization to protect watersheds and prevent disasters.							
5. Promote reforestation in areas exposed to high risks (Concept note 3)	Restore degraded and high-risk forest areas using climate-resilient and native species to stabilize soils, reduce erosion, and enhance ecosystem resilience to climate hazards.	Climate risk mapping, site selection, and FPIC engagement Establish nurseries with engagement of local communities Reforest 5,000 ha and designate conservation zones Evaluation and documentation of results and development of guidelines	At least 50% of the nurseries are under community management or co-management models	MAE, PAE, NGOs.	<i>World Bank - GEF Lao Landscapes and Livelihoods Project (LLL) (2021–2027)</i> [69]	\$6M	2026–2030
6. Address landslide resilience in land management plans.	Integrate slope stabilization measures, such as bamboo and vetiver planting, contour terracing, and sustainable land-use practices, into land management plans to reduce erosion and landslide risks in vulnerable areas.	Pilot slope stabilization programs in 3 upland provinces. Engage and train local communities and farmers. Evaluation and documentation of results and development of guidelines for national scale up	At least 40% of trainees are women At least one project is community women-led implemented	MAE, PAE, NGOs.	<i>ADB Sustainable Rural Infrastructure and Watershed Management Sector Project (2019-2028)</i> [70].	\$1.375 M	2026–2030
Strategic objective 2.2: Control Forest fire and seasonal burning							
Description: Reduce slash-and-burn practices through fire prevention, awareness, and enforcement.							
7. Policing and provincial-level control of seasonal burning	Strengthen provincial enforcement and awareness to reduce open burning through awareness campaigns, monitoring, and promotion of sustainable alternatives	Conduct awareness campaigns across the countries, Establish community early-warning mechanisms Enforce bans in 5 provinces.	At least 40% of awareness campaigns participants are women	MAE, Provincial Police, farmer associations.	<i>SUFORD-SU Forest Law Enforcement and Governance</i>	\$0.5M	2026–2028

					<i>Program (2003-2021) [71]</i>		
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2. Concept notes for climate change adaptation projects

To complement the Sectoral Action Plan and support resource mobilization for implementation, five concept notes have been developed under the Agriculture and Forestry SAP. Each concept note translates a priority adaptation action into a potential investment-ready project proposal.

The concept notes were formulated based on the results of the MCA, sectoral consultations, and in alignment with Lao PDR's climate-related ODA projects (see [Appendix 03](#)). The concept notes provide a practical framework for future project development, capacity building, and funding engagement with national and international partners, including the Green Climate Fund (GCF).

1	Action 1 (Agriculture): Improve Irrigation and Storage of Excess Rainfall
2	Action 6 (Agriculture): Diversify Farming Systems to Strengthen Food Security
3	Action 5 (Forestry): Promote Reforestation in Areas Exposed to High Risks
4	Action 1 (Forestry): Develop and Update Climate Risk and Vulnerability Maps
5	Action 7 (Agriculture): Conduct Pilot Study to Estimate Agricultural Loss and Damage

CONCEPT NOTE 1

Improve irrigation and storage of excess rainfall

Rationale

Agriculture in Lao PDR remains highly vulnerable to climate-induced water stress, particularly in flood-prone and drought-affected areas such as the Sedone and Sebangfai river basins. With over 70% of the population reliant on rain-fed farming systems, recurring droughts, erratic rainfall, and waterlogging have led to significant crop losses, soil degradation, and reduced productivity, especially among smallholder farmers in upland and riverbank zones.

Existing irrigation infrastructure is limited, outdated, and unevenly distributed, leaving many communities without reliable access to water during critical growing periods. The lack of water storage capacity further compounds vulnerability, as excess rainfall during the wet season cannot be captured or redistributed during dry spells. These challenges are exacerbated by rising temperatures, declining rainfall trends, and increasing frequency of extreme weather events.

This action responds directly to these risks by expanding and modernizing irrigation networks, constructing reservoirs to harvest excess rainfall, and piloting location-specific technologies such as solar pumps and recharge wells. It integrates climate data from the Department of Meteorology and Hydrology (DMH) and the Department of Water Resources (DWR) to inform design and optimize water allocation.

The action also embeds GEDSI principles by ensuring that women, youth, and persons with disabilities (PWDs) are not only included in water user groups but also empowered through leadership roles, co-design of irrigation protocols, and culturally accessible training. By improving water access, efficiency, and governance, this intervention strengthens agricultural resilience, safeguards soil health, and supports inclusive livelihoods under a changing climate.

Locations of potential implementation

The five pilot districts

- Khongsedone,
- Pathoumphone,
- Mahaxay,
- Songkhone,
- Champhone,
- Xaibouly

These districts could be selected for their diverse agroecological conditions and institutional readiness to pilot climate-resilient irrigation and water storage systems. Their exposure to flooding, drought, and rainfall variability makes them ideal sites for testing context-specific solutions such as reservoirs, solar pumps, and recharge wells. The presence of active farmer networks and Water User Associations (WUAs) provides a solid foundation for local implementation and maintenance.

Objectives

The project aims to strengthen agricultural resilience by improving irrigation, water storage, and distribution systems in climate-vulnerable areas along the Sedone and Sebangfai river basins. Through climate-informed design, inclusive governance, and adaptive infrastructure, it supports sustainable water access and productivity for smallholder farmers.

Specific Objectives:

- Conduct socio-hydrological assessments to map water use and vulnerability.
- Build 20 lined reservoirs of minimum 5,000m³ and upgrade 15 irrigation systems to improve drought preparedness.

Schedule / Duration

3 years: 2026 - 2028

- Year 1: Feasibility studies, community consultations, and design finalization
- Year 2: Construction of 20 small-scale reservoirs and modernization of 15 irrigation schemes.
- Year 3: Pilot groundwater recharge, expand to additional sites, and conduct GEDSI-inclusive monitoring.

- Promote water-efficient practices through inclusive training for women, youth, and persons with disabilities.
- Pilot groundwater recharge and surface water optimization suited to local agroecology.
- Improve soil health and crop yields through reliable, equitable water access.
- Use DMH and DWR climate data to guide irrigation design and seasonal water allocation.

Climate Risks Addressed

The project *“Improve Irrigation and Storage of Excess Rainfall”* directly addresses escalating climate risks (droughts, floods, and erratic rainfall) that threaten agriculture and livelihoods in Lao PDR, particularly in the Sedone and Sebangfai river basins. It offers a targeted, evidence-based response to hydrological vulnerabilities by:

- **Reducing drought impacts** through the construction of reservoirs and piloting groundwater recharge systems to ensure reliable water access during dry seasons.
- **Mitigating flood damage** by modernizing irrigation infrastructure and improving drainage to protect farmland from waterlogging and erosion.
- **Integrating climate data** from DMH and DWR into irrigation planning for adaptive, forecast-based water allocation.
- **Safeguarding soil and ecosystems** by stabilizing water flows and promoting sustainable irrigation practices that reduce erosion and nutrient loss.
- **Promoting GEDSI inclusion** by empowering women, youth, and persons with disabilities through inclusive water governance, bilingual training, and disaggregated monitoring.

Gender equity, Disabilities and Social Inclusion (GEDSI)

Water User Associations and farmer groups should include at least 40% women and youth in leadership roles, with the Lao Women’s Union co-leading engagement and training. All capacity-building will be delivered in bilingual formats with visual tools to support ethnic minority and low-literacy participants.

Infrastructure upgrades will prioritize high-risk villages with limited irrigation access and vulnerable populations. Gender-disaggregated data will guide equitable resource distribution and track outcomes.

Safeguards and community feedback mechanisms will be accessible to all groups, supported by local authorities and CSOs. Partnerships with LWU, SNV, CARE, and World Vision Laos could ensure inclusive facilitation and measurable equity outcomes.

Adaptation Finance and Innovation

Potential financing opportunities include blended finance mechanisms combining public investment and climate finance with private-sector participation for solar-powered irrigation systems. Community-scale reservoir investments could also explore micro-water bonds or performance-based financing linked to water efficiency and drought resilience outcomes. Nature-based solutions (NbS), such as infiltration ponds, vegetated drainage systems, watershed restoration, and groundwater recharge approaches, may complement grey infrastructure and reduce long-term maintenance costs while strengthening ecosystem resilience.

Source of financing

- Development partners and donors such as FAO, IFAD, ADB, JICA, and GCF co-financing.
- Public-private collaboration opportunities.

Actions	Main activities	Timeline			Responsibility	Budget (USD)
		2026	2027	2028		
Action 1: Improve irrigation and storage of excess rainfall	1.1. Conduct feasibility studies (including due diligence on land acquisition, ES screening, scope definition and budget) and socio-hydrological assessments in selected districts	X			Consulting firms PAE/DAE, DWR	300,000
	1.2. Design irrigation and reservoir systems using climate data from DMH and DWR	X			DoI, DMH, DWR	250,000
	1.3. Land acquisition for reservoirs (48,000m ²)	X			DoL, MAE	500,000
	1.4. Construct 20 small-scale reservoirs and modernize 15 irrigation systems		X		DoI, PAE/DAE, local contractors	7,500,000
	1.5. Pilot groundwater recharge and surface water optimization technologies (rainwater channeling systems, seasonal creek diversions riprap-lined “V” channels, infiltration ponds and percolation trenches, etc.)		X	X	DoI, River Basin Committees, Consulting firms	500,000
	1.6. Deliver GEDSI-inclusive training and public awareness campaigns	X	X	X	LWU, SNV, CARE, World Vision Laos	300,000
	1.7. Conduct baseline and final evaluation	X (baseline)		X (final)	PAE/DAE, Consulting firms	250,000
	Required Budget for Action 1					9,100,000

Recommendations for implementation – Next Steps / Additional information

Effective delivery of this action will depend on strong collaboration across government agencies, civil society, and development partners. The five selected pilot districts (Khongsedone, Pathoumphone, Mahaxay, Phalanxay, and Lamam) have demonstrated institutional readiness, with active provincial structures and farmer networks capable of supporting participatory planning and GEDSI-inclusive monitoring.

The MAF, through the DoI, should lead technical design, while the DWR and DMH will provide climate and hydrological data. Local implementation should be carried out by Provincial and District Agriculture and Environment Offices (PAE/DAE), with the LWU ensuring GEDSI engagement throughout the process.

Civil society organizations and development partners could play key roles in mobilization, capacity building, and technical support:

- LuxDev could support community engagement,
- UN-Habitat could contribute expertise in inclusive water governance,
- SNV, CARE, and World Vision Laos could provide capacity strengthening at the local level,
- FAO and IFAD could offer technical and financial assistance.

This multi-stakeholder model ensures that the intervention is technically sound, socially inclusive, and aligned with national priorities under the SAP-AF and NAP frameworks.

Next steps include hosting an inception workshop in Q2 2026 to finalize roles and validate pilot sites, establishing district coordination units under PAFO/DAE, formalizing MoUs with contractors and CSOs, embedding GEDSI indicators into monitoring tools, and aligning reporting systems with national adaptation frameworks to support donor engagement and future scale-up.

CONCEPT NOTE 2

Modernizing and diversifying Farming Systems to Strengthening Food Security

Rationale

Agriculture in Lao PDR is increasingly threatened by climate-induced stressors such as erratic rainfall, heatwaves, prolonged droughts, and pest outbreaks. These hazards undermine crop yields, livestock health, and soil fertility, particularly in upland and rain-fed farming systems dominated by smallholders. Fragmented value chains, limited access to inputs, and weak extension services further compound vulnerability, especially among women and ethnic minority farmers.

This concept note responds to these challenges by promoting diversified and climate-smart farming systems that reduce risk, enhance productivity, and improve food security. By integrating agroecological practices, such as intercropping, crop rotation, agroforestry, and aquaculture, the initiative supports soil regeneration, pest control, and income diversification. These approaches are tailored to local agroecological zones and informed by provincial climate risk assessments.

The action also addresses livestock losses and soil degradation through improved land management, resilient crop varieties, and farmer-led innovation. It builds on existing efforts under the SAP and aligns with national strategies including the Agriculture Development Strategy 2025–2030 and the 9th NSEDP.

Importantly, the project embeds GEDSI principles, ensuring that women, youth, and persons with disabilities are actively engaged in demonstration plots, farmer exchanges, and decision-making platforms. By strengthening adaptive capacity and promoting inclusive, sustainable farming models, this action contributes directly to Outcome 2 of the Agriculture and Forestry SAP: *Enhance resilience of farming systems and food security*.

Locations of potential implementation

This action could be piloted in five climate-vulnerable districts such as:

- Xaybouathong,
- Lamam,
- Pathoumphone,
- Khongsedone,
- Mahaxay

These districts could be selected for their agroecological diversity, climate risk exposure, and active farmer networks. Sites range from upland mixed farming and shifting cultivation to lowland rice and groundwater-dependent systems.

Each district could host demonstration plots, farmer exchanges, and inclusive training, with lessons scaled nationally.

Objectives

To strengthen the resilience of farming systems and improve food security by promoting diversified, climate-smart agricultural practices that reduce vulnerability to seasonal climate impacts.

Specific Objectives:

- Mitigate the effects of erratic rainfall, soil degradation, and livestock losses through adaptive land and water management.
- Promote agroecological approaches, such as intercropping, agroforestry, and integrated farming, to enhance productivity, restore soil health, and reduce climate-related risks.

Schedule / Duration

2 years (2026-2028)

- **Year 1 (2026):** Conduct feasibility studies, climate risk assessments, and site selection. Establish partnerships with local authorities and farmer groups. Design training modules and demonstration plot layouts.
- **Year 2 (2027):** Implement 20 diversified demonstration plots across selected districts. Deliver inclusive training programs on agroecological practices. Facilitate farmer exchanges and pilot integrated farming systems.

- Empower smallholder farmers, especially women, youth, and ethnic minorities, to adopt resilient practices through inclusive training and demonstration plots.
- Support sustainable livelihoods by diversifying income sources and improving access to climate-resilient technologies and knowledge.

- **Year 3 (2028):** Monitor and document results using GEDSI-sensitive tools. Conduct midline and final evaluations. Scale successful models to additional districts and integrate findings into national adaptation planning.

Climate Risks Addressed

This project would tackle key climate risks (erratic rainfall, droughts, heatwaves, and pest outbreaks) that threaten smallholder farming in Lao PDR. By promoting diversified farming systems like intercropping, agroforestry, and aquaculture, it reduces dependence on single crops, restores soil health, and spreads climate risk.

Agroecological practices improve water retention, reduce erosion, and support year-round food production. Inclusive training and climate-informed planning strengthen farmers' adaptive capacity, especially for women, youth, and ethnic groups. The project turns vulnerability into resilience, building sustainable, climate-smart livelihoods.

Adaptation Finance and Innovation

CSA interventions could be supported through blended climate finance, results-based financing, and public-private partnerships focused on resilient value chains and sustainable inputs. Pilot demonstration plots may also provide opportunities for partnerships with agribusinesses, cooperatives, and microfinance institutions supporting climate-resilient livelihoods. Agroecological and nature-based approaches, including agroforestry, soil restoration, and integrated farming systems, could help unlock adaptation and biodiversity co-financing opportunities.

GEDSI

The project should promote gender equality and social inclusion by ensuring meaningful participation of women, youth, ethnic minorities, and persons with disabilities.

Key consideration:

Activities should be delivered in bilingual formats with visual aids to support low-literacy and ethnic communities.

Partnering with LWU and local CSOs would allow the project to ensure equitable access to resources, decision-making, and climate-resilient practices, turning adaptation into empowerment.

Key targets/indicators:

- At least 30% of demonstration plots should be managed by women.
- At least 40% of trainees and participants of farmers exchanges should be women.
- 100% of the guidelines should include gender sensitive considerations

Source of financing

This project could be financed through a mix of public and development partners:

- **Climate Funds:** GCF and GEF for adaptation and agroecology
- **Donors:** IFAD, FAO, ADB, JICA, LuxDev, and UNDP for technical and financial support
- **Government:** MAE budget under SAP-AF and NSED
- **Private Sector:** Public-private partnerships for training, inputs, and market access
- Alignment with NAP, NDC, and SAP priorities will support donor engagement and investment mobilization.

Actions	Main activities	Timeline			Responsibility	Budget (USD)
		2026	2027	2028		
Action 6 (Agriculture): Diversity Farming Systems to Strengthening Food Security	6.1. Conduct feasibility studies (including ES screening) and site selection	X			MAE, PAE/DAE, NAFRI	100,000
	6.2. Establish 20 diversified demonstration plots with consultation to establish FPIC from communities	X	X		PAE/DAE, farmer groups	3,000,000
	6.3. Deliver inclusive training and farmers exchanges	X	X	X	LWU, SNV, CARE, World Vision Laos	200,000
	6.4. Pilot agroecological practices (intercropping, agroforestry, aquaculture)		X	X	NAFRI, farmer groups, NGOs	500,000
	6.5. Monitor results and document GEDSI-sensitive outcomes		X	X	MAE, LWU, UNDP	200,000
	Required Budget for Action 6					4,000,000

Recommendations for implementation – Next Steps / Additional information

This project builds on the previous irrigation initiative by linking improved water access with climate-smart agricultural practices. It will be implemented across five districts selected for their active farmer networks and institutional readiness to adopt adaptive farming approaches.

Institutional arrangement:

- The MAE through the Department of Agricultural Extension and Cooperatives (DAEC), should lead coordination, with technical support from NAFRI and local delivery by PAE/DAE.
- The LWU and organized farmer groups could play key roles in GEDSI engagement and community mobilization.
- Development partners, including GGGI, IFAD, FAO, SNV, CARE, World Vision Laos, LuxDev, and UNDP, could contribute technical assistance, training, and monitoring support.

Next steps include hosting an inception workshop in Q2 2026, establishing district coordination units, and formalizing partnerships through MoUs with CSOs and development actors. GEDSI indicators will be integrated into the monitoring framework, and reporting will align with SAP-AF and NAP commitments to support future scale-up and donor engagement.

CONCEPT NOTE 3

Promote Reforestation in Areas Exposed to High Risks

Rationale

Lao PDR's upland forests face mounting threats from wildfires, landslides, and unsustainable land use, exacerbated by climate change and shifting cultivation. These pressures degrade ecosystems, reduce biodiversity, and increase disaster risks for vulnerable communities. Reforestation offers a critical solution, restoring ecological balance, stabilizing slopes, and enhancing watershed protection.

This action targets 5,000 hectares of degraded land in high-risk zones, prioritizing resilient native species and community-led restoration. It integrates slope stabilization using bamboo and vetiver and designates conservation buffers to prevent further degradation. Activities are aligned with REDD+ goals and the Forest Strategy 2035, ensuring policy coherence and long-term sustainability.

The project embeds GEDSI principles by engaging women, youth, and ethnic groups in nursery operations, species selection, and slope management. FPIC protocols will guide all reforestation efforts, ensuring documented consent and inclusive feedback. Contracts will prioritize local women's cooperatives and youth brigades, while monitoring will track livelihood benefits and tenure security for marginalized households.

Locations of potential implementation

Xaychamphone District (Bolikhamxay province) is a vital watershed area facing forest degradation and tenure insecurity.

Viengthong District (Houaphanh province) is a biodiversity hotspot with active ethnic group engagement in forest restoration.

These two districts could be selected based on climate risk profiles, ecological significance, and readiness for community-led restoration.

Activities should be coordinated with provincial PAEs, LWU, and local CSOs to ensure inclusive participation and alignment with Forest Strategy 2035 and REDD+ targets.

Objectives

To restore degraded forests and ecosystems in high-risk upland areas, enhancing biodiversity, reducing disaster vulnerability, and supporting sustainable community livelihoods.

Specific Objectives

- Establish community-managed nurseries and reforest 5,000 hectares using climate-resilient native species.
- Mobilize local communities to stabilize slopes with bamboo, vetiver, and other erosion-control vegetation.
- Designate conservation zones and buffer areas to protect biodiversity and prevent further forest loss.
- Align reforestation efforts with REDD+ commitments and Forest Strategy 2035 targets for long-term sustainability.

Schedule / Duration

5 years project (2026-2030)

Climate Risks Addressed

This project would directly mitigate climate risks by restoring degraded forest landscapes that buffer communities from wildfires, landslides, and erratic rainfall. Upland areas in Lao PDR are increasingly vulnerable to these hazards due to deforestation, shifting cultivation, and prolonged dry seasons.

Adaptation Finance and Innovation

This intervention could leverage REDD+ financing, carbon finance mechanisms, and ecosystem-based adaptation funding to support long-term forest restoration and slope stabilization activities. Community forestry and agroforestry initiatives may also create opportunities for performance-based

By reforesting 5,000 hectares with resilient native species and stabilizing slopes using bamboo and vetiver, the project would reduce erosion, improve water retention, and lower the risk of flash floods and sediment loss. Designating conservation zones and buffer areas would further protect biodiversity and prevent encroachment into fragile ecosystems.

Community-led restoration would enhance adaptive capacity, especially for ethnic minorities and women, through inclusive training, FPIC protocols, and livelihood contracts.

These efforts would align with REDD+ and Forest Strategy 2035, ensuring long-term resilience and climate co-benefits.

payments linked to forest protection and ecosystem restoration outcomes. Nature-based solutions, including bamboo and vetiver stabilization systems, provide low-cost and locally adaptable alternatives to engineered slope protection infrastructure.

GEDSI

This project embeds GEDSI principles by ensuring that women, youth, ethnic minorities, and persons with disabilities are actively involved in all stages of reforestation. At least 40% of nursery staff and restoration teams will be drawn from these groups, with shared leadership in site selection and species choice. FPIC protocols will be applied in all reforestation zones to ensure informed consent and inclusive feedback.

Slope stabilization contracts will prioritize local women's cooperatives and youth brigades, create livelihood opportunities while enhance ecological resilience. Monitoring tools will track not only environmental outcomes but also improvements in land tenure security and income for GEDSI households. Through inclusive planning, capacity building, and benefit-sharing, the project transforms forest restoration into a pathway for empowerment and equity.

Source of financing

- **Climate Funds:** GCF, GEF, and Adaptation Fund for restoration and resilience
- **Donors:** UNDP, FAO, IFAD, ADB, JICA, LuxDev for technical and financial support
- **Government:** MAE budget aligned with SAP-AF and Forest Strategy 2035
- **REDD+:** Performance-based payments for forest protection
- **Private Sector:** PPPs with eco-enterprises and agroforestry cooperatives

Actions	Main activities	Timeline					Responsibility	Budget (USD)
		2026	2027	2028	2029	2030		
Action 5 (Forestry): Promote Reforestation in Areas Exposed to High Risks	5.1 Climate risk mapping, site selection, and FPIC engagement	X					MAE, PAE/DAE, LWU	400,000
	5.2 Establish nurseries and train GEDSI-inclusive restoration teams		X				PAE/DAE, LWU, NAFRI, CSOs	600,000
	5.3 Launch slope stabilization pilots (bamboo, vetiver)		X	X			DAE, LWU, youth brigades, women's cooperatives	300,000
	5.4 Reforest 5,000 hectares and designate conservation zones			X	X		NAFRI, PAE, farmer groups, village authorities	4,000,000
	5.5 Link to REDD+ and Forest Strategy 2035; monitor GEDSI and ecological outcomes			X	X	X	MAE, UNDP, LWU, CSOs	500,000
	5.6 Final evaluation, documentation, and integration into national frameworks					X	MAE, NAFRI, UNDP	200,000
	Required Budget for Action 5							6,000,000

Recommendations for implementation – Next Steps / Additional information

To ensure successful implementation, the project should begin with an inception workshop in early 2026 to validate target sites, confirm species selection, and clarify roles among provincial and district stakeholders. Formal partnerships should be established through MoU with local CSOs, women's cooperatives, and youth brigades to lead nursery operations and slope stabilization activities.

District coordination units under PAE and DAE will oversee day-to-day implementation, community engagement, and GEDSI monitoring. Integrating REDD+ and Forest Strategy 2035 indicators into planning and reporting will ensure alignment with national priorities and open pathways for co-financing. Inclusive monitoring tools will be developed to track ecological outcomes, livelihood benefits, and land tenure improvements for GEDSI households.

The Ministry of Agriculture and Environment (MAE) will lead coordination, with technical support from NAFRI and field delivery by PAE/DAE. The Lao Women's Union (LWU) will guide GEDSI integration and FPIC processes. Key development partners may include UNDP, FAO, IFAD, ADB, JICA, LuxDev, and GEF, while local CSOs, youth brigades, ethnic minority groups, and village authorities will play central roles in implementation and community mobilization.

CONCEPT NOTE 4

Develop and Update Climate Risk and Vulnerability Maps

Rationale

Forests and upland landscapes in Lao PDR are increasingly exposed to climate hazards such as wildfires, landslides, droughts, and erratic rainfall. Yet current land-use planning tools lack the spatial precision and climate sensitivity needed to guide effective interventions. This action addresses that gap by generating and regularly updating GIS-based climate risk and vulnerability maps for forest and land-use zones.

These maps will enable targeted reforestation, slope stabilization, and fire prevention in high-risk areas. They will also support land audits, zoning enforcement, and the integration of climate indicators into provincial forestry plans. By visualizing hazard exposure and social vulnerability, especially for ethnic minorities and women in remote areas, this action strengthens disaster preparedness and safeguards ecosystem services.

Ultimately, it provides the evidence base for climate-resilient land-use decisions, ensuring that adaptation measures are spatially accurate, inclusive, and aligned with national strategies such as the NAP, REDD+, and Forestry Strategy 2035.

Locations of potential implementation

- **Houaphanh, Luang Prabang, Xayaboury, Oudomxay, Phongsaly:** High Forest cover, ethnic diversity, vulnerability to landslides, shifting cultivation, and wildfires. These are also part of REDD+ and FCPF Carbon Fund programs.
- **Bolikhamxay, Khammouane, Savannakhet:** Central provinces with critical watershed functions, degraded slopes, and expanding agricultural concessions. Suitable for zoning enforcement and slope stabilization.
- **Sekong, Attapeu:** Southern provinces with flood-prone lowlands and upland erosion risks. Strategic for forest protection and land-use audits.

These provinces reflect a mix of northern uplands, central watersheds, and southern frontier zones, all facing distinct climate risks and land-use pressures:

These locations align with the Forestry Strategy 2035, REDD+ jurisdictional priorities, and ongoing climate adaptation programs supported by UNDP, ADB, and GCF. Mapping in these areas will enable targeted interventions, strengthen land-use governance, and support inclusive disaster preparedness.

Objectives

To strengthen forest and land-use planning through climate-informed decision-making by enhancing the targeting of adaptation measures and disaster preparedness. This will be achieved through the development and regular updating of climate risk and vulnerability maps that support zoning, land audits, and enforcement of land-use policies.

Specific Objectives

- Train 100 provincial and district staff in GIS-based mapping and climate risk analysis
- Update forest and land-use vulnerability maps every 3–5 years across 10 priority provinces

Schedule / Duration

5 years: 2026-2030

- **Year 2026:** Launch inception workshop, finalize target provinces, begin staff training
- **Year 2027:** Complete training, integrate data from DMH, DWR, and NAFRI, start mapping in 5 provinces
- **Year 2028:** Complete mapping in remaining provinces, validate maps, begin application in zoning and concessions
- **Year 2029:** Institutionalize map updates, develop monitoring tools, prepare for next update cycle

- Integrate multi-source data from DMH (hazard profiles), DWR (watershed systems), and NAFRI (land-use patterns)
- Apply maps to guide land-use concessions, agricultural zoning, and forest protection planning

- **Year 2030:** Final evaluation, national synthesis, integrate findings into REDD+, NAP, and Forestry Strategy 2035

Climate Risks Addressed

This project would directly respond to Lao PDR's growing exposure to climate hazards (such as floods, droughts, landslides, and wildfires) by equipping forest and land-use planners with spatial tools to anticipate and manage risks. By generating and regularly updating GIS-based climate risk and vulnerability maps, the project enables targeted interventions in high-risk zones, including reforestation, slope stabilization, and fire prevention.

Integrating data from DMH, DWR, and NAFRI ensures that hazard profiles, watershed dynamics, and land-use patterns are accurately reflected. These maps guide land-use concessions, agricultural zoning, and forest protection, helping prevent expansion into fragile areas and reduce disaster losses. The project also builds institutional capacity by training 100 staff in climate risk analysis, embedding adaptation into provincial planning cycles.

Ultimately, the project strengthens climate resilience by transforming fragmented data into actionable insights, ensuring that forest and land-use decisions are proactive, inclusive, and grounded in risk-informed planning.

Adaptation Finance and Innovation

The project could benefit from digital climate finance initiatives and partnerships supporting geospatial innovation, climate services, and disaster risk reduction systems. Open-source GIS platforms, satellite-based monitoring tools, and regional climate data partnerships may help reduce operational costs while strengthening long-term sustainability. The integration of social and climate-risk layers also creates opportunities for future adaptation investment targeting and climate-informed land-use planning.

GEDSI

The project should promote gender equality and social inclusion by ensuring meaningful participation of women, youth, ethnic minorities, and persons with disabilities.

Key consideration:

Vulnerability maps should include social data/indicators to reflect risks faced by ethnic minorities, persons with disabilities, and youth.

Inclusive consultations should be led to ensure that land-use decisions are equitable and locally informed.

Capacity building workshops/ Trainings should integrate GEDSI-sensitive risk assessment approaches

Key targets/indicators:

- At least 30% of GIS training participants are women
- 100% of the maps include gender and social disaggregated data layers

Source of financing

This project can be financed through the Green Climate Fund (GCF), UNDP's Climate Finance Hub, and bilateral donors like JICA and AFD. It aligns with Lao PDR's NAP and NDC, making it eligible for national climate finance. Provincial co-financing and in-kind support may also contribute.

Actions	Main activities	Timeline					Responsibility	Budget (USD)
		2026	2027	2028	2029	2030		
Action 1(Forestry): Develop and Update Climate Risk and Vulnerability Maps	1.1 Inception workshop and finalization of 10 target provinces	X					MAE, Department of Forestry (DOF), UNDP	100,000
	1.2 Develop training modules and GIS protocols	X					NAFRI, universities, GIS consultants	200,000
	1.3 Train 100 provincial and district staff in GIS and climate risk analysis	X	X				MAE, PAE, academic institutions	400,000
	1.4 Integrate data from DMH, DWR, and NAFRI into mapping framework		X	X			MAE, DMH, DWR, NAFRI	400,000
	1.5 Conduct mapping in first 5 provinces			X			MAE, GIS teams, provincial offices	300,000
	1.6 Conduct mapping in remaining 5 provinces			X			MAE, GIS teams, provincial offices	300,000
	1.7 Validate maps with provincial authorities and communities			X			MAE, PAE, CSOs	100,000
	1.8 Apply maps to guide land-use concessions and zoning				X		MAE, MOF, local authorities	100,000
	1.9 Institutionalize map updates into provincial planning cycles				X		MAE, GGGI	50,000
	1.10 Final evaluation and national synthesis report					X	MAE, UNDP, REDD+ Secretariat	50,000
	Require Budget for Action 1							

Recommendations for implementation – Next Steps / Additional information

The project should align with Lao PDR's NAP, NDC, and Forestry Strategy 2035, with a mid-term review in 2028 to assess progress.

Institutional arrangement:

- MAE, through the Department of Forestry and NAFRI, should lead implementation,
- PAEs should be responsible for managing provincial rollout.
- DMH, DWR, and NAFRI should be responsible for providing data inputs.
- Development partners such as UNDP, FAO, JICA, and AFD can support technical expertise and co-financing.
- CSOs and community groups should ensure inclusive validation, especially for ethnic minorities and women.
- Academic institutions could assist with GIS activities and climate analysis.

Immediate steps include finalizing target provinces, forming a technical working group, and launching GIS training.

CONCEPT NOTE 5

Conduct Pilot Studies to Estimate Agricultural Losses and Damages

Rationale

Lao PDR faces increasing agricultural losses due to climate-related hazards such as floods, droughts, and pest outbreaks. Yet, there is no standardized system to estimate these losses, making it difficult to plan compensation, insurance, or targeted disaster response. Current assessments are ad hoc, inconsistent across provinces, and often exclude smallholder farmers, especially in remote ethnic communities.

This pilot study fills a critical gap by testing practical methodologies in three climate-vulnerable provinces. It will generate reliable data, build local capacity through enumerator training, and produce national guidelines for crop loss estimation. These tools will support more equitable and evidence-based planning for disaster risk management and agricultural resilience.

By coordinating with the Department of Planning and the National Statistics Bureau under MOF, the study ensures consistency with national data systems and strengthens Lao PDR's ability to monitor, respond to, and reduce agricultural loss, advancing key goals under the NAP, NDC, and food security strategies.

Locations of potential implementation

- Khammouane,
- Savannakhet,
- Sekong.

These provinces could be selected for their exposure to floods, droughts, and crop loss across diverse farming systems.

Khammouane represents central lowlands, Savannakhet is a major producer with frequent climate shocks, and Sekong includes upland ethnic communities vulnerable to erosion and shifting cultivation. These provinces offer varied contexts for testing loss estimation tools and scaling national guidelines.

Objectives

To enhance the resilience of farming systems and food security by strengthening risk assessment and monitoring. The action supports compensation, insurance, and disaster response planning, while addressing critical gaps in standardized crop loss estimation.

Specific Objectives:

- Pilot agricultural loss estimation methodologies in three climate-vulnerable provinces
- Develop and publish national guidelines for crop loss assessment
- Train enumerators and integrate findings into the Disaster Risk Management (DRM) Action Plan
- Coordinate with the Department of Planning and the National Statistics Bureau under the Ministry of Finance to ensure data consistency and policy alignment

Schedule / Duration

2 years: 2026-2027

Year 1: 2026

- Select 3 pilot provinces and form technical team
- Develop tools and train enumerators (≥30% women/youth)
- Conduct field data collection and GEDSI consultations
- Draft national crop loss guidelines and share interim findings

Year 2: 2027

- Finalize and publish guidelines
- Integrate results into DRM Action Plan and insurance schemes
- Host national workshop and align with NAP/NDC
- Submit final report and prepare for scale-up

Climate Risks Addressed

This pilot would directly strengthen Lao PDR's ability to respond to climate-induced agricultural losses, such as floods, droughts, and pest outbreaks, by introducing standardized tools to measure damage across diverse farming systems. By generating reliable data from three climate-vulnerable provinces, the project would enable more accurate planning for compensation, insurance, and disaster response.

It would also build institutional capacity to monitor climate risks in agriculture, trains local enumerators, and integrate findings into the national DRM Action Plan. GEDSI-inclusive consultations ensure that the impacts on women, ethnic minorities, and youth are captured, especially non-economic losses like unpaid labor and food insecurity.

By embedding loss estimation into national systems and aligning with NAP and NDC targets, the project transforms reactive responses into proactive, risk-informed planning, making farming systems more resilient to future climate shocks.

Adaptation Finance and Innovation

The pilot study could support the future development of climate risk insurance schemes, disaster risk financing mechanisms, and parametric insurance products adapted to Lao PDR's agricultural sector. Standardized loss and damage assessment systems may also strengthen access to international climate finance and support evidence-based compensation and recovery mechanisms. Digital data collection tools and community-based reporting systems could further improve scalability and long-term integration into national DRM systems.

GEDSI

The project should promote gender equality and social inclusion by ensuring meaningful participation of women, youth, ethnic minorities, and persons with disabilities.

Key consideration:

Loss estimation tools should include gender-disaggregated indicators, such as unpaid labor, food access, and caregiving burdens.

Community consultations should feature GEDSI-led storytelling sessions to capture non-economic impacts often overlooked in traditional assessments.

Findings should inform compensation and insurance schemes with GEDSI-sensitive eligibility criteria, ensuring that support reaches those most affected by climate-related agricultural losses.

Key targets/indicators:

- At least 30% of enumerators are women with lead roles in data collection and community interviews
- 100% of the reporting templates integrate gender and social disaggregated data.

Source of financing

This project can be funded through the Green Climate Fund, UNDP, FAO, and the IFAD Upland Agriculture Project. It aligns with Lao PDR's NAP and NDC, making it eligible for climate finance.

Bilateral donors like JICA and AFD may support GEDSI and data system components.

Provincial co-financing and in-kind contributions can reduce costs and boost local ownership.

Actions	Main activities	Timeline		Responsibility	Budget (USD)
		2026	2027		
Action 7 (Agriculture):	7.1 Finalize selection of 3 pilot provinces	X		Department of Planning, MAF, IFAD Upland Project	50,000

Actions	Main activities	Timeline		Responsibility	Budget (USD)
		2026	2027		
Conduct Pilot Study to Estimate Agricultural Loss and Damage	7.2 Establish technical working group and coordination mechanism	X		Department of Planning, MOF Statistics Bureau	100,000
	7.3 Develop pilot methodology and GEDSI-integrated tools	X		NAFRI, UNDP, academic institutions	100,000
	7.4 Recruit and train enumerators (≥30% women/youth)	X		PAEs, CSOs, local training centers	150,000
	7.5 Conduct field data collection in 3 provinces	X	X	PAEs, enumerators, CSO facilitators	400,000
	7.6 Facilitate GEDSI-led consultations and storytelling sessions		X	CSOs, women's unions, youth networks	200,000
	7.7 Analyze data and draft national guidelines		X	Department of Planning, NAFRI, MOF Statistics Bureau	200,000
	7.8 Validate findings and host national workshop		X	MAF, UNDP, IFAD, MOF	50,000
	7.9 Integrate results into DRM Action Plan and insurance frameworks		X	Department of Planning, MOF, MAF	100,000
	7.10 Final report and proposal for national rollout		X	Department of Planning, UNDP, IFAD	100,000
	Required Budget for Action 7(Agriculture)				1,450,000

Recommendations for implementation – Next Steps / Additional information

Key recommendations:

The ongoing IFAD Upland Agriculture Project offers a ready platform for field coordination and community engagement. Coordination with the DOE, MAE and alignment with Lao PDR's NAP and NDC commitments is necessary ensure policy relevance and long-term sustainability.

Institutional arrangement:

- The Department of Planning (formerly MPI) should lead coordination and oversight, working closely with the National Statistics Bureau under MOF to ensure data consistency and integration into national systems.
- Technical design and field implementation should be supported by MAE, particularly through NAFRI and provincial agriculture offices (PAEs) in the selected pilot provinces.
- Development partners such as IFAD, UNDP, and FAO are well-positioned to provide financial and technical support, especially given their ongoing work in climate resilience, inclusive agriculture, and DRM.
- Civil society organizations, including LWUs, should be engaged to lead GEDSI-sensitive consultations, support enumerator recruitment, and ensure that non-economic impacts are captured through storytelling and participatory methods.
- Academic institutions and regional training centers can assist in developing loss estimation tools, training modules, and validation processes.

Next steps:

A national technical working group should be established in early 2026 to guide methodology development, oversee pilot activities, and prepare for scale-up. Results from the pilot will inform inclusive compensation and insurance schemes, contributing to more equitable and climate-resilient agricultural systems.

PART V: MEASURE FOR IMPLEMENTATION, MONITORING AND EVALUATION, AND REPORTING

1. Implementation

1.1. Institutional arrangements

The Ministry of Agriculture and Environment (MAE) of Lao PDR is the lead agency for leading and overseeing the SAP-AF implementation process. The MAE will also the framework to inform and guide its activities. As a leader, the MAE will support, collaborate and cooperate with other institutions responsible for the implementation of actions (in)directly tied to climate adaptation in agriculture

The MAE should be supported by provincial and district offices (PAE and DAE) for the annual monitoring and mid-term reviews to ensure responsiveness to evolving climate risks and stakeholder needs.

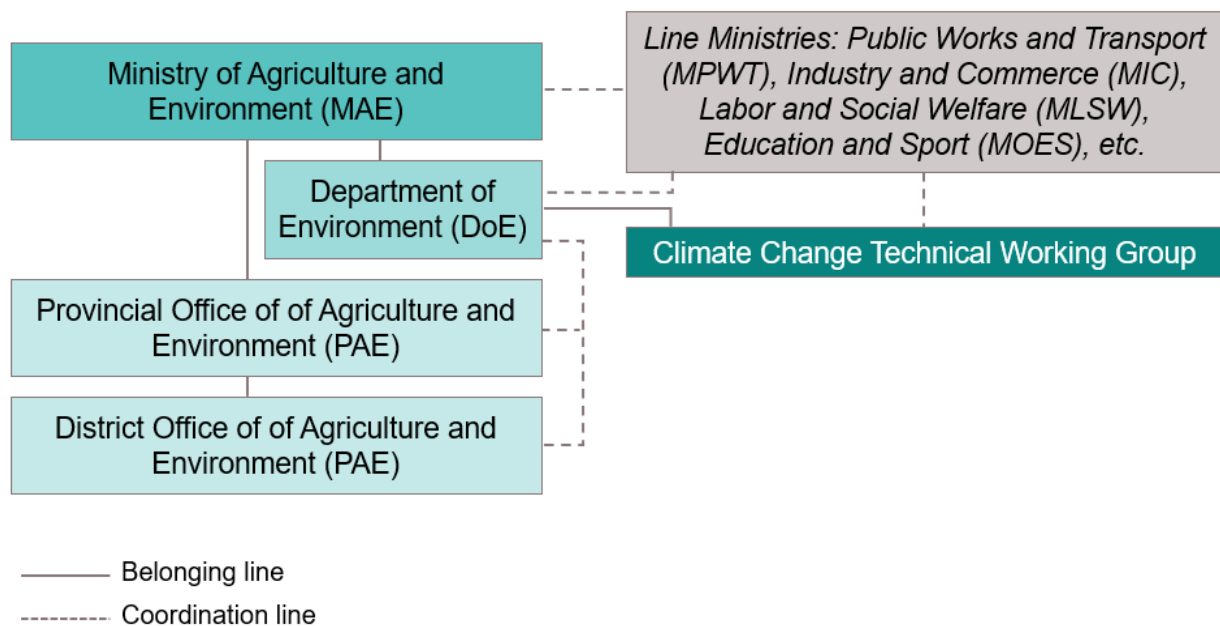


Figure 6: Institutional arrangement for the implementation of the SAP-AF

It will be important to ensure close and strong collaboration and communication between the MAE and the Environmental Committees, overseeing the NAP implementation, to ensure alignment in the SAP-AF implementation. The latter document must be shared and discussed with partner stakeholders while raising awareness regarding its objectives and actions to facilitate appropriation and inclusion of its priorities at both national and sectoral levels in policy making.

National Coordination Mechanism of the Agriculture & Forestry Sector

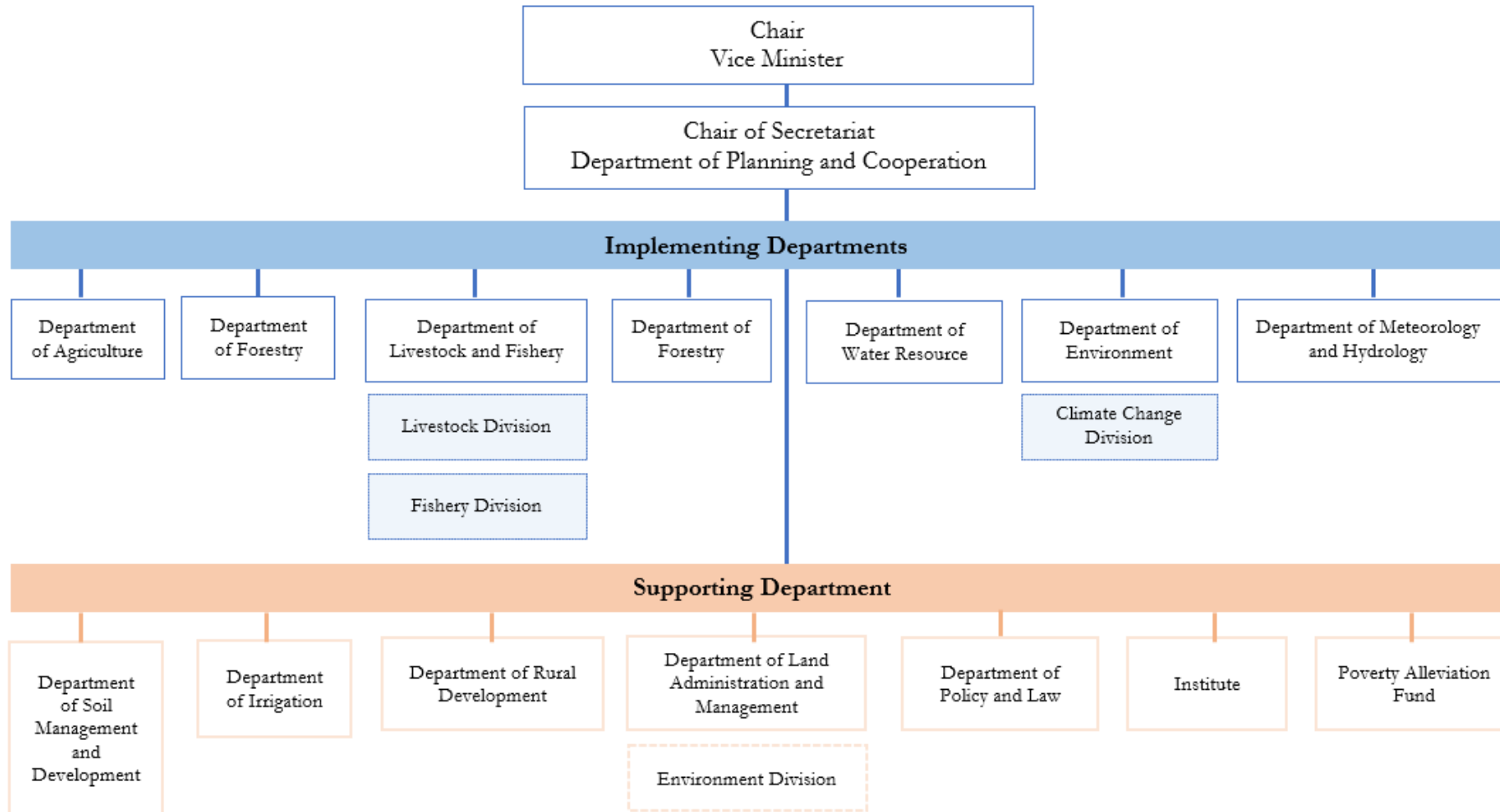


Figure 7: Coordination Mechanism of Agriculture and Forestry Sector

Table 9: Roles and Responsibilities of participating institutions

Entity	Mandate	Roles in SAP-AF Implementation
Prime Minister Office (PMO)	- Centrally and uniformly screens and provides no objections for all development projects financing from the private and ODA including climate change projects accepted by GOL (Ministry of Finance and line ministries) throughout the country. - Review and approve a Prime Minister's Decree which assign MAE the authority on behalf of the Lao government of direct responsibility on climate change and coordination with line ministries, organizations, and local authorities accordingly.	- Oversee the implementation of the SAP-AF in close coordination with MAE, National Committee on Environment and line ministries. - Consider and adopt sectoral policies, strategic plans, regulations which contribute to the achievement of SAP-AF targets.
MAE	- Develop policies, strategic plans, laws and regulations related to climate change and submit to GOL for approval. - Develop and maintain data and information systems on climate change in a reliable, accurate and timely manner.	- Act as focal ministry to provide oversight and advisory support to stakeholders including Technical Working Group for Climate Change (TWGCC) on the SAP-AF implementation, including maintenance of data and information. - Develop policies, guidelines and regulations to support relevant ministries in setting sectoral priorities in line with SAP-AF implementation. - Disseminate the SAP-AF targets and priority actions to relevant sectors in central and local levels.
DOE	Coordinate SAP-AF activities on behalf of MAE with other relevant ministries and local authorities.	- Coordinate SAP-AF activities including MRV. - Act as Secretariat of the TWGCC. - Take minutes of the TWGCC, endorsed SAP-AF and priority action information to relevant sectors in central and local levels. - Lead in tracking progress of the SAP-AF implementation plan and inform and advise the TWGCC and MAE.
Line Ministries	Mainstream climate change into sectoral activities.	Mainstream priorities for SAP-AF implementation into its sectoral strategic and development plans.

Entity	Mandate	Roles in SAP-AF Implementation
	- Conduct studies, research and promoting the use of environmentally friendly technologies that mitigate GHG emissions and/or increase resilience to climate change. - Coordinate and provide data and information on climate change from their sectors to the MAE.	- Identify and execute sectoral climate actions that support the SAP-AF implementation to MAE - Support MRV of the SAP sector-related activities.
LWU	Representing Lao women in their development, protection of their rights and benefits including children's, promoting gender equality and involvement of women in the national development	- Ensure engagement of women in the project design and implementation, evaluation. - Provide perspectives on how the proposed projects may impact different gender of various ethnic groups.
Lao Front for National Development	- Responsible for conducting studies and researches as well as making records on each ethnic group profile; - Developing and monitoring policies related to all 52 ethnic groups in Lao PDR	- Participating in the project design, implementation and monitoring/reporting to ensure the inclusion of vulnerable and ethnic groups who may be impacted by the proposed project. - Support the ethnic language translation or communication with the elders according to the participating ethnic group's unique cultures.
PAE	- Implement and disseminate strategic plans, decrees and regulations related to climate change. - Monitor and inspect the implementation of climate change activities, and report to MAE. - Direct the district office for implementation of climate change adaptation activities.	- Disseminate the importance of SAP and its implementation plan at the provincial, district, and sub-district level. - Support the monitoring and reporting to MAE on activities related to SAP implementation.
DAE	- Implement and disseminate strategic plans, decrees and regulations related to climate change. - Advise and coordinate with sub-district for implementation and assessment of climate change activities, and report to MAE. - Report to the PAE and district governors on climate change adaptation activities.	- Disseminate and advise the sub-district for awareness raising on SAP implementation. - Participate in activities related to climate change adaptation. - Monitoring and reporting to PAE on activities related to climate change adaptation and progress of SAP implementation.

Entity	Mandate	Roles in SAP-AF Implementation
Sub-district	▪ Implement and disseminate strategic plans, decrees and regulations related to climate change. ▪ Advise and coordinate with sub-district for implementation and assessment of climate change activities, and report to DAE. ▪ Report to the DAE and district governors on climate change adaptation activities.	▪ Disseminate and advise the sub-district for awareness raising on SAP implementation. ▪ Participate in activities related to climate change adaptation. ▪ Monitoring and reporting to DAE on activities related to climate change adaptation and progress of SAP implementation.
Village Authority	▪ Implement and disseminate strategic plans, decrees and regulations related to climate change. ▪ Monitor and inspect the implementation of climate change activities. ▪ Coordinate and report to the sub-district on climate change adaptation activities.	▪ Monitor and inspect climate change adaptation activities in its own area at the village level. ▪ Implement community level activities that contribute the SAP implementation. ▪ Coordinate with sub-district for updates and reporting. ▪ Beneficiaries of community level activities.
Technical Working Group for Climate Change (TWGCC)	▪ Support MAE through the DoE on reviewing and providing technical inputs to policies, strategic plans and regulations related to climate change adaptation. ▪ Coordinate with relevant sectors at central and local levels on the execution and dissemination of related policies and regulations. ▪ Identify and propose effective actions to the government on climate mitigation and adaptation.	▪ Provide technical review of sectoral policies, development projects and activities related to climate change and ensure the alignment with contribution to SAP implementation and report to PMO for consideration. ▪ Invite and assign ad-hoc technical focal points to review particular reports for reporting to TWGCC. ▪ Provide technical inputs and advice to DOE on the progress and results of SAP implementation. ▪ Coordinate with line Ministries and development partners for information and knowledge sharing. ▪ Propose priority actions for the achievement of SAP implementation. ▪ Submit recommendations of approval or on SAP reports and updates.

The National Environment Committee (NEC) may play a critical role in ensuring cross-sector coordination and high-level policy alignment in Lao PDR. Mobilizing the NEC for the implementation of the SAPs would help provide an institutional platform to integrate sectoral adaptation priorities into national planning frameworks and facilitate inter-ministerial dialogue, reduce duplication, and support coherent budgeting and regulatory reforms. Its oversight function also strengthens accountability and helps elevate adaptation from sector-specific initiatives to a coordinated national priority.

What is the National Environment Committee?

The National Environment Committee (NEC) in Lao PDR is a high-level inter-ministerial body responsible for coordinating and overseeing national environmental policy and management. It was established under the Environmental Protection Law, 2009 (revised 2012 and 2019). The NEC functions as the central policy coordination platform for environmental protection and sustainable natural resource management across sectors. It ensures that environmental considerations are integrated into national development planning. The NEC typically:

- Provides strategic direction on environmental and climate-related policies
- Oversees implementation of the Environmental Protection Law
- Coordinates across ministries on environmental matters
- Reviews and approves key environmental strategies and regulations
- Supports implementation of international environmental agreements
- Guides environmental impact assessment (EIA) frameworks and compliance

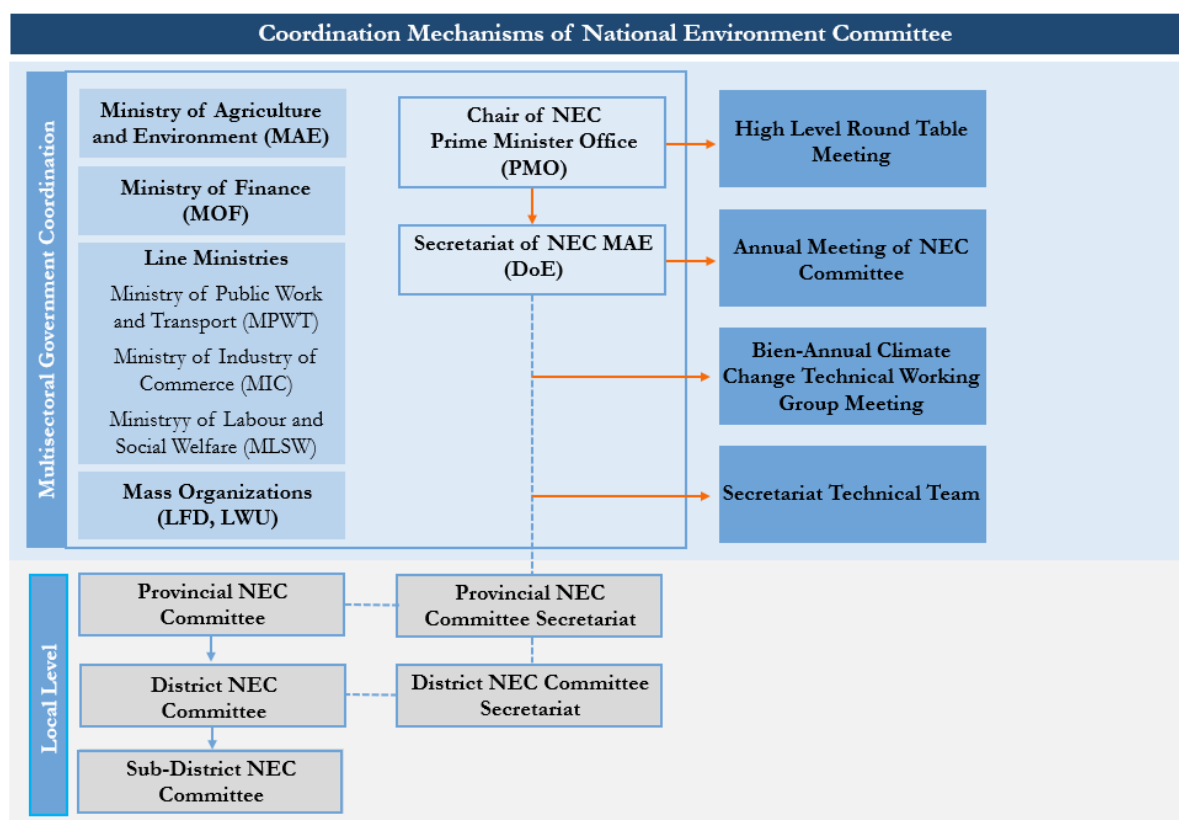


Figure 8: National and sub-national coordination mechanisms for National Environment Committee

Source: Adapted Lao National Determined Contribution Implementation (2009)

Implementation is expected to go over 5 years, based on each action's urgency degree, funding, policy and opportunities available at the relevant time. Due to the wide-ranging nature of the SAP, many of its specific measures are likely to be implemented through projects and programmes supported by both national and international funding. To support this process, the SAP outlines indicative outputs that can help guide the development and planning of these initiatives.

Despite these institutional advances, further strengthening is required to ensure effective implementation of the SAP-AF [49] [41]. Key recommendations include:

- Establishment of a climate resilience unit within MAE to provide dedicated technical support, coordinate adaptation measures, and monitor progress across agriculture and forestry programs.
- Enhanced data-sharing protocols between departments and with external partners to improve climate risk assessments, early warning systems, and evidence-based planning.
- Capacity building at subnational levels, particularly among provincial and district offices of Agriculture and Environment (PAE and DAE), to ensure localized implementation, community engagement, and GEDSI-sensitive delivery of adaptation measures.
- Integration of customary governance structures and ethnic representation into planning and monitoring frameworks to uphold inclusive decision-making and safeguard traditional land and forest rights.

Together, these institutional mechanisms form the backbone of Lao PDR's climate-resilient agriculture and forestry strategy, enabling coordinated, inclusive, and adaptive responses to the growing challenges posed by climate change

1.2. Funding

Effective implementation will depend on mobilizing a diversified mix of domestic public resources, international development finance, private sector investment, and blended financing mechanisms.

Action Type	Likely Main source of Funding	Complementary sources
Policy Reform	Government Budget	Technical assistance from ODA
Infrastructure	Public Investment	Complementary Funds from PPPs Technical assistance from ODA
Capacity Building	Government Budget	Technical assistance from ODA
Data Systems	Government Budget	PPPs

1.2.1. Domestic Public Financing

The GoL remains the primary financier of sectoral investments through:

- Annual national budget allocations
- Provincial budget envelopes
- Sector ministry capital expenditure programs

Mainstreaming SAP priorities into these instruments is critical for long-term sustainability.

Additionally, adaptation measures can be embedded into:

- Public investment pipelines
- Agricultural extension budgets
- Forestry management and conservation programs
- Irrigation and rural infrastructure investments

1.2.2. International Development Finance

International climate funding

1. The Green Climate Fund is a new global fund within the UNFCCC mechanisms, created to support the efforts of developing countries to respond to the challenge of climate change with both mitigation and adaptation actions. The GCF has funded 22 projects, completed 8 projects, being implemented 13 projects and in the pipeline 1 projects. As specific Lao PDR has 17 financial projects for 262.6 million USD and 10 readiness projects around 9.1 million USD ([Lao People's Democratic Republic \(the\) | Green Climate Fund](#))

2. The Adaptation Fund was established by the parties to the Kyoto Protocol of the UNFCCC to finance concrete adaptation projects and programmes in 45 developing countries that are parties to the Kyoto Protocol. Lao PDR has received fund from the adaptation fund for three grant projects with total cost 17,561,131 USD. ([Country – Adaptation Fund](#))

3. The Global Environment Facility is an international partnership of 183 countries, international institutions, civil society organizations, and the private sector that aims to address global environmental issues. The active portfolio has 5 national project for GET and 27 for regional and global projects including Laos ([Lao PDR | GEF](#)).

4. Two funds under the Global Environment Facility are the Least Developed Country Fund and the Special Climate Change Fund.

4.1. The Least Developed Country Fund was established to assist least developed countries to take quick actions including implementing projects identified under the National Adaptation Programme of Action to Climate Change [11].

4.2. The Special Climate Change Fund supports adaptation and technology transfer in all developing countries party to the UNFCCC. The Fund supports both long- and short-term adaptation activities in water resources management, land management, agriculture, health, infrastructure development, fragile ecosystems (including mountainous ecosystems), and integrated coastal zone management.

These funds are particularly relevant for large-scale transformational projects, readiness and institutional strengthening and innovation pilots. However, they typically require co-financing and cannot be the sole funding source.

Multilateral Development Banks and Bilateral Development Coordination (Beyond Climate Funding)



Figure 9: Key international funding institutions active in Lao PDR agriculture and forestry sector

1.2.3. Non-ODA Regional Investment and Private Sector

Non-ODA and Regional Investment Flows

While ODA remains an important source of adaptation finance, a significant share of capital shaping Lao PDR's Agriculture and Forestry sector originates from non-ODA sources, particularly regional public and private investment.

Given Lao PDR's strategic location within regional economic corridors, large-scale infrastructure, energy, and agricultural investments are key determinants of long-term climate resilience outcomes. Integrating adaptation considerations into these investment flows is therefore essential for the effective implementation of the SAP-AF.

ASEAN and Chinese investments in infrastructure, hydropower, commercial agriculture, and logistics significantly shape Lao PDR's development trajectory. Given the magnitude of these investments, there are key strategic entry points for integrating adaptation. Including:

- Climate risk screening within Environmental and Social Impact Assessments (ESIAs);
- ESG-linked investment criteria tied to soil conservation, water management, and biodiversity protection;
- Alignment of concession frameworks with national climate adaptation priorities;
- Incorporation of resilience and CSA standards;
- Leveraging green finance mechanisms and regional sustainability frameworks.

By engaging proactively with regional investors and aligning regulatory frameworks with the SAP-AF, Lao PDR can mobilize substantial non-ODA capital toward climate-resilient growth pathways.

Private Sector

A critical gap in the current financing landscape is the limited integration of private sector investment into climate adaptation planning. In Lao PDR, key private actors in the agriculture and forestry sectors include agribusiness companies, agro-processing firms, plantation and timber operators, as well as commercial banks and microfinance institutions. These actors play a significant role in shaping production systems, value chains, and investment flows.

Private financing mechanisms may include:

- Commercial lending
- Equity investments
- Value chain financing
- Blended finance structures
- Public-Private Partnerships (PPPs)

In the following stage of implementation, in order to strengthen private engagement, significant effort should be made to improve policy clarity, reduce investment risks, enhance the bankability of climate-resilient investments, encouraging green credit lines, and promoting climate-resilient agribusiness models.

1.2.4. Community Level and Decentralized Financing

At the local level, financing mechanisms may extend beyond formal banking systems and may include microfinance institutions. These decentralized mechanisms are particularly important in rural and remote areas where formal financial services remain limited.

Village Development Funds (VDFs)

Village Development Funds microfinance institution that has been established across Lao PDR since 1997 with used community-managed revolving funds that provide small loans to households for livelihood activities [59]. They typically support livestock rearing, small-scale crop production and input purchases. While not always explicitly climate-focused, VDFs could represent a potential entry point for financing drought-resilient crop varieties, small irrigation pumps or agroforestry seedlings. Moreover, with targeted support, VDFs could integrate climate-resilience criteria into lending guidelines.

Microfinance Institutions (MFIs)

Microfinance Institutions regulated by the Bank of Lao PDR operate in both urban and rural areas. Licensed microfinance institutions under the Lao Microfinance Association for example provide small working capital loans, group lending schemes and savings products [60]. These institutions could be central for supporting smallholder adaptation but face constraints including high perceived agricultural risk and limited collateral. Mechanisms such as climate risk-sharing or blended finance could help de-risk adaptation lending.

However, it is to be noted that despite the existence of decentralized financing mechanisms, significant barriers remain such as:

- Limited collateral due to insecure land tenure;
- Limited formal land titles restricting loan eligibility;
- Higher interest rates in microfinance compared to formal banks;
- Gender disparities in asset ownership and financial access;

- Language barriers affecting ethnic communities;
- Limited adaptation-specific financial products.

1.2.5. Strengthening financing pathways: the next steps

In the following stage of implementation of SAP, an important focus should be made on the strengthening of financing pathways. This includes embedding priorities into public investment planning processes, improving project bankability, promoting blended finance approaches, strengthening domestic resource mobilization, and facilitating structured engagement with the private sector.

1.3. Leveraging existing initiatives and projects for implementation

Beyond its role as a planning document, the SAP aims to serve as a strategic instrument for mobilizing and coordinating investments. It aims to function as a project pipeline development tool, a coordination framework for development partners, a prioritization reference for budget negotiations, and a foundation for climate finance proposals.

To ensure effective implementation of the SAP-AF, it is essential to build on and coordinate with existing and pipeline projects that share complementary objectives. Some ODA initiatives (presented in [Appendix 03](#)) represent significant ongoing investments by development partners in climate-resilient agriculture, sustainable forest management, watershed protection, and community-based livelihood programs.

Aligning SAP-AF actions with these projects will help avoid duplication of efforts, leverage existing institutional and financial mechanisms, and create operational synergies for scaling up adaptation outcomes. Coordination with ODA-funded programs provides opportunities to integrate climate adaptation priorities into already funded interventions, ensuring continuity beyond the SAP's implementation period.

The SAP therefore encourages line ministries, provincial authorities, and development partners to establish structured coordination channels, through joint steering committees, shared monitoring frameworks, or harmonized work plans, to strengthen alignment between national adaptation priorities and donor-funded activities. This collaborative approach will maximize resource efficiency, enhance institutional learning, and accelerate the achievement of Lao PDR's climate-resilient development objectives.

2. Monitoring, Evaluation and Learning framework

A robust Monitoring, Evaluation and Learning (MEL) framework is essential to ensure effective implementation of the SAP-AF, support evidence-based decision-making, and enable adaptive management over the 2026–2030 implementation period. Transparent reporting, monitoring and review is necessary to ensure adequate progress of the SAP-AF and potentially propose corrective action if deemed necessary.

The SAP-AF MEL framework is designed in alignment with the Lao PDR National Adaptation Plan (NAP) Monitoring, Evaluation and Learning system, which adopts a sectoral approach and establishes institutional coordination mechanisms led by the Ministry of Agriculture and Environment (MAE). The SAP-AF monitoring system therefore complements and operationalizes the national NAP MEL system within the Agriculture and Forestry sector.

Objectives of the SAP-AF MEL Framework

The MEL framework aims to:

- Monitor implementation progress of priority adaptation actions at national and provincial levels;
- Assess effectiveness and resilience outcomes in reducing climate risks identified in the CRVA;
- Ensure alignment with NAP objectives, NDC commitments and sectoral development plans;
- Track the integration of gender equality, disability and social inclusion (GEDSI) considerations;
- Support continuous learning and adaptive management across implementing institutions.

Institutional Arrangements and Coordination

In line with the NAP MEL system, the overall coordination of SAP-AF monitoring will fall under MAE, with the Department of Environment serving as the national focal point for adaptation reporting.

Within the Agriculture and Forestry sector:

- The Department of Agriculture (DoA) and Department of Forestry (DoF) will be responsible for sector-specific data collection and technical reporting;
- The Department of Planning and Cooperation (DPC) will consolidate sectoral data and ensure alignment with national planning and budgeting systems;
- Provincial Agriculture and Environment Offices (PAEs) will collect disaggregated implementation data using harmonized templates;
- Sectoral focal points will coordinate with MAE for integration into national NAP reporting.

This structure ensures vertical integration (provincial–national) and horizontal coordination (across ministries), consistent with the national MEL institutional framework.

Measurement Approach and Indicator Structure

The SAP-AF MEL indicators are presented with baselines and targets. Data should be collected through:

- Administrative reporting systems within MAE;
- Provincial implementation reports;
- Project-level M&E systems of externally financed adaptation programs;
- National statistics (where applicable);
- Periodic surveys and vulnerability assessments.

Annual progress reviews should be conducted in coordination with MAE and sectoral focal points. A mid-term review (2028) and final evaluation (2031) should assess effectiveness, efficiency, coherence, and sustainability of SAP-AF implementation, consistent with national NAP review timelines.

Linkages to National and International Reporting

The monitoring framework integrates sector-specific indicators and aims to align them with the UNFCCC and NAP adaptation monitoring framework. Link with related NAP (listed in details [Appendix 04](#)) and UNFCCC indicators (listed in detail in [Appendix 05](#)) have been added in order for the SAP-AF MEL framework to contribute to National NAP annual progress reporting and National Communications under the UNFCCC. By structuring sectoral data according to nationally harmonized formats, the SAP-AF strengthens Lao PDR's capacity to provide robust adaptation evidence for the Global Stocktake and future GGA assessment processes.

Learning and Adaptive Management

Beyond compliance reporting, the SAP-AF MEL framework emphasizes learning. Lessons learned, good practices, and implementation bottlenecks will be systematically documented and fed back into sectoral planning, budgeting cycles, and future revisions of the SAP and NAP.

Particular attention should be paid to:

- Effectiveness of climate-resilient agriculture technologies;
- Community-based forest management approaches;
- Gender-responsive adaptation interventions;
- Institutional coordination mechanisms.

The M&E framework presented in this SAP is proposed as a structured and practical foundation to guide implementation and reporting. It is intended to support clarity on indicators, responsibilities, and tracking mechanisms at this stage. However, final validation, refinement of baselines and targets, and confirmation of reporting arrangements should be led by the ministries responsible during detailed implementation planning. This will ensure that the framework remains realistic, aligned with sector capacities and national systems, and fully owned by the lead agencies, while retaining the flexibility needed to adapt over time.

Table 10: Monitoring Framework for the Agriculture Sectorial Plan

Objectives & actions		Responsibility	Indicators		Progress			GEDSI	
Adaptation actions	Activities	Department Responsible	Indicators	Data Collection Tools	Base-line	Mid-term review	End of program review	GEDSI indicator	GEDSI target (Mid-term and end of program review)
Strategic objective 1.1: Improve irrigation and water storage capacity									
1. Improve irrigation and storage of excess rainfall to reduce agricultural losses from drought	Assess and prioritize areas for irrigation and water storage improvement	DoA (Lead) -DOI, DPC, PAE / DAE-	No. of districts assessed	Provincial assessment reports	0	10	10	% of consultations including women	At least 40% of participants in assessment consultations are women or youth; materials available in local languages
			No. of sites identified	Official approval records from MAE	0	20	20		
	Build 20 lined reservoirs of 3.75Ml (50x30x2.5m)	DoA (Lead) - PAE / DAE-	No. of reservoirs built	Construction progress reports	0	10	20	% of laborers and site workers from local communities and vulnerable groups	At least 30% of construction workforce are local community members, with 20% women employed in non-manual roles
	Modernize/Rehabilitate 15 irrigation systems	DoA (Lead) - PAE / DAE-	No. of irrigation systems modernized	Rehabilitation completion reports	0	10	15	% of beneficiary farmers who are women	At least 40% of farmers benefitting from upgraded systems are women.
	Establish or strengthen WUAs and provide training.	DoA (Lead) - PAE / DAE-	No. of functional WUAs with trained members	Training attendance sheets /WUA registration documents	0	10	20	% of women representatives in WUA leadership	100% of training include gender sensitive modules. At least 40% of WUA members and 30% of leadership positions held by women.
Related NAP Indictors: 1.6 / 1.9 / 1.10									
Related UNFCCC Indictors: 9a02 / 10c11									

2. Identify and design location-specific irrigation schemes and technologies	FS and technical designs for 5 pilots irrigation solutions for selected sites	DoA (Lead) -DPC, PAE / DAE -	No. of pilot sites identified with FS	Feasibility Study Report / Technical design documents	0	5	5	% of assessment teams and community participants who are women	At least 40% of participants in assessment consultations are women or youth; materials available in local languages
	Pilots project on selected sites	DoA (Lead) - PAE / DAE-	Nb of pilot sites implemented	Implementation progress reports/ Site inspection certificates	0	3	5	% of pilot beneficiaries who are women	At least 40% of pilot beneficiaries are women.
	Establish/strengthen WUAs	DoA (Lead) - PAE / DAE-	No. of functional WUAs with trained members	Training attendance sheets/ WUA registration documents	0	2	5	% of women representatives in WUA leadership	At least 40% of WUA members and 30% of leadership positions held by women.
	Provide training	DoA (Lead) - PAE / DAE-	No. of technicians and farmers trained in new irrigation technologies	Training attendance sheets	0	20	50	% of women among trained participants	100% of training include gender sensitive modules and at least 40% of trainees are women
	Evaluation results and development of guidelines	DoA (Lead) - PAE / DAE-	No. of pilot evaluations with performance and impact assessment	Pilot performance assessment reports/ Guideline validation workshop records	0	0	5	% of evaluations incorporating gender-disaggregated data	100% of evaluations include gender-disaggregated data and document gender-specific outcomes and constraints

Related NAP Indictors: 1.6 / 1.9 / 1.10

Related UNFCCC Indictors: 9a02 / 10c11

Strategic objective 1.2: Upgrade drainage and regulate land use

3. Improve drainage systems to mitigate plant damage from waterlogging	Identify and map flood-prone agricultural zones to prioritize areas for drainage improvement and ecosystem-based interventions.	DoA (Lead) -DoE, DPC, DLAM, PAE / DAE -	No. of districts mapped and prioritized for drainage improvement	GIS flood-risk mapping Official approval records from MAE	0	10	10	% of consultations including women	At least 40% of participants in assessment consultations are women or youth; materials available in local languages
	Rehabilitate 4 drainage schemes (excavation, dredging, stabilization, pumping, electrics/control),	DoA (Lead) - PAE / DAE-	Nb of drainage schemes rehabilitated	Rehabilitation completion (contractors) reports	0	2	4	% of laborers and site workers from local communities and vulnerable groups	At least 30% of construction workforce are local community members, with 20% women employed in non-manual roles
	Establish 20 km of vegetative buffer zones.	DOF (Lead) -DoA, DPC, DLAM, PAE / DAE -	Km of vegetative buffers planted, and functional ecosystem drainage structures installed	Field verification reports	0	10	20	% of site workers from local communities and vulnerable groups	At least 30% of construction workforce are local community members, with 20% women employed in non-manual roles
	Provide training for farmers and local authorities	DoA (Lead) - PAE / DAE-	No. of participants trained on drainage management practices	Training attendance sheets	0	100	300	% of women among trained participants	100% of training include gender sensitive modules and at least 40% of trainees are women

Related NAP Indicators: 1.5 / 1.11

Related UNFCCC Indicators: 9a03 / 10c11

4. Strengthen land-use regulations and agricultural zoning to	Conduct land audits	DLAM (Lead) DOA, DOF PAE / DAE-	No. of land audits conducted	Land audit reports	0	5	10	% of audit teams including women	At least 40% of audit team members are women
	Update zoning maps in 10 provinces	DLAM (Lead)	No. of zoning maps updated	Official zoning approval documents	0	5	10	% of validation participants are women	At least 30% representation of women in validation process

prevent degradation		-DoA, DoE, DPC, PAE / DAE -							
	Conduct capacity-building workshop for local authorities	DoA (Lead) - PAE / DAE-	No. of participants trained	Workshop report (including attendance)	0	50	100	% of women among trained officers	100% of training include gender sensitive modules and at least 30% of trainees are women
	Establish participatory monitoring systems	DoA (Lead) - PAE / DAE-	No. of community-based monitoring mechanisms operational	Periodic monitoring reports	0	2	10	% of community monitors who are women	At least 40% of monitors are women; 100% of monitoring reports integrate women's perspective
Related NAP Indicators: 4.7									
Related UNFCCC Indicators: 10c01									
Strategic objective 2.1: Strengthen diversified and climate-smart farming systems									
5. Utilize climate-resilient designed infrastructure	Introduce climate resilient design standards	DoA (Lead) - DPC, DOE-	No. of revised national or provincial technical standards integrating climate resilience	Record of Official ministerial decisions	0	1	3	% of design standards and technical guidelines integrating gender and social inclusion criteria	100 % of new or revised design standards incorporate GEDSI principles
	Provided training for 200 operators.	DoA (Lead) - PAE / DAE-	No. of operators trained	Training attendance sheets	0	100	200	% of women among trained operators	At least 30% of trained operators are women
Related NAP Indicators: 1.14 / 2.1 / 2.4 / 2.5									
Related UNFCCC Indicators: 9b03 /10c11									
6. Diversify farming systems to	Conduct FS and site selection with FPIC established from local communities	DoA (Lead) - PAE / DAE-	No. of demonstration sites identified with FS	Feasibility Study reports / FPIC record	0	20	20	% of projects developed with participation of women farmers	At least 40% of pilot models co-developed or validated with women farmers

strengthen food security	Lead and supervise inclusive training and farmers exchanges	DoA (Lead) - PAE / DAE-	No. of farmers exchange participants trained	Training attendance sheets / Exchange visit reports	0	100	200	% of women participants	100% of training include gender sensitive modules At least 40% of trained participants are women
	Pilot agroecological practices projects	DoA (Lead) - PAE / DAE-	No. of demonstration plots established	Field monitoring reports	0	10	20	% of plots managed or co-managed by women	At least 30% of pilot sites led or co-managed by women
	Monitor and document results	DoA (Lead) - PAE / DAE-	No. of pilot evaluations with performance and impact assessment	Performance monitoring reports / Impact evaluation studies with official publication records	0	0	20	% of published evaluation featuring gendered perspective	100% of published evaluation and case studies include gendered perspective
Related NAP Indicators: : 2.1 / 2.4 / 2.5 / 2.7									
Related UNFCCC Indicators: 9b01 / 9b02 / 9b03 / 9b05									
Strategic objective 2.2: Risk assessment and monitoring									
7. Conduct pilot study in selected districts to develop standardized estimation of agricultural loss and damage	Develop pilot methodology and tools in selected districts	DoA (Lead) - DOE, DAE / PAE-	Pilot methodology and tools validated by national stakeholders	Validation workshop reports or minutes	0	1	1	% of data-collection tools integrating gender- and vulnerability-disaggregated variable	100 % of pilot tools collect data disaggregated by sex, age, and socio-economic vulnerability to ensure inclusive loss-and-damage estimation
	Recruit and train enumerators	DoA (Lead) - PAE / DAE-	No. of trained enumerators	Enumerator training attendance sheets	0	60	60	% of women enumerators	At least 50% of enumerators are women
	Conduct field data collection	DoA (Lead) - PAE / DAE-	No. of farms or households surveyed	Household survey	0	300	600	% of women-headed households surveyed	At least 30% of sample includes women headed households

				completion report					
	Data analysis and share of the findings	DoA (Lead)	Report completed	Agricultural loss and damage assessment report	0	0	1	Feature of gendered considerations	The report and all the workshops present gendered considerations and perspectives
			Dissemination workshops	Workshop report	0	0	3		
	Evaluation of results and development of guidelines for national rollout	DoA (Lead)	National guidelines endorsed by MAE and published	Official endorsement documents	0	0	1	Feature of gendered considerations	Guidelines are gender sensitive
Related NAP Indictors: N/A									
Related UNFCCC Indictors: 10c03									
8. Review and assess vulnerabilities , risks, and impacts of climate change in agriculture	Develop standardized assessment tools and indicators for evaluating agricultural vulnerabilities to climate hazards.	DoE (Lead) - DOA-	Provincial assessment toolkit validated	vulnerability assessment toolkit / Methodological guidance notes	0	10	10	% of vulnerability assessment tools and indicators integrating gender, ethnicity, age, and disability dimensions	100 % of tools and indicators incorporate disaggregation by sex, age, ethnicity, and disability to reflect differentiated vulnerability patterns
	Conduct provincial level assessment in 10 provinces	DOE (Lead) - DOA, PAE / DAE-	No. of provincial assessment	Provincial assessment reports	0	5	10	% of assessments including gender-disaggregated vulnerability data	100 % of plans include gender disaggregated data
	Map climate risk hotspots and publish national report.	DOE (Lead)	Published national report	National synthesis report / GIS climate hotspot maps	0	0	1	Presentation of gendered perspective	The national report includes gendered disaggregated data and gender perspective
Related NAP Indictors: 1.2 / 1.3									
Related UNFCCC Indictors: 10a02									

Table 11: Monitoring Framework for the Forestry Sectorial Plan

Objectives & actions		Responsibility	Indicators		Progress			GEDSI	
Adaptation actions	Activities	Department Responsible	Indicators	Data Collection Tools	Base-line	Mid-term review	End of program review	GEDSI indicator	GEDSI target (Mid-term and end of program review)
Strategic objective 1.1: Improve Forest and land-use planning									
1. Develop and update climate risk and vulnerability maps for forestry and land use	Inception workshop and finalization of 10 target provinces	DOE (Lead) - DOF, DPC, DAE / PAE -	No. of targeted provinces identified	Workshop reports and minutes / Official endorsement letters	0	10	10	% of participants who are women	At least 50% of workshop participants are women and 40% of provincial committee team leading the project are women
	Develop training modules on GIS protocols	DOE (Lead) - DOF -	No. of training modules on GIS protocols completed	Training module documents	0	1	1	% of technical experts engaged are women	100% of training modules include gender sensitive component
	Train 100 provincial and district staff on GIS and climate risk	DOE (Lead) - DOF, DAE / PAE -	No. of trained staff	Training attendance sheets	0	70	100	% of women among trained staff	At least 30% of technical experts trained are women
	Conduct mapping in 10 provinces	DOE (Lead) - DOF, DAE / PAE -	No. of provinces with validated maps	Validation workshop reports	0	5	10	% of maps including gender-disaggregated data	100 % of maps include gender disaggregated data
	Institutionalize map updates into provincial planning cycles	DOE (Lead) - DOF, DPC, DAE / PAE -	No. of provincial land use plan updated with the maps	Endorsement letters and Provincial land use plans	0	5	10	% of women among provincial planning teams	At least 30% provincial planning teams members are women
Related NAP Indictors: 1.2 / 1.3 / 1.4									
Related UNFCCC Indictors: 10a02 / 10c11									

2. Mainstream climate change adaptation in forestry and land-use planning	Revise 10 provincial forestry plans with adaptation targets and indicators.	DOE (Lead) - DOF, DAE / PAE -	No. of plans revised to include adaptation	Official approval and endorsement letter of new forestry plans	0	5	10	% of plans including GEDSI objectives	100% of provincial forestry plans integrate gender and inclusion sensitive adaptation objectives
	Conduct training and provide technical support at provincial level	DOE (Lead) - DOF, DAE / PAE -	No. of trainings organized	Training attendance sheets	0	5	10	% of female participants in trainings	At least 30% of training participants are women
Related NAP Indicators: 1.1									
Related UNFCCC Indicators: 10a09/ 10c11									
Strategic objective 1.2. Promote sustainable forestry practices									
3. Apply sustainable forest and land management practices	Pilot agroforestry programs and projects in 3 provinces	DOF (Lead) - DOE, DAE / PAE -	No. of pilot projects implemented	Project implementation reports	0	1	3	% of women-led initiatives	At least 1 program or project per province is women-led.
	Provide training and technical support	DOF (Lead) - DOE, DAE / PAE -	No. of participants trained	Training attendance sheets	0	200	270	% of female participants	At least 40% of training participants are women
	Evaluation of pilot results and development of guidelines	DOF (Lead) - DOE, DAE / PAE -	No. of Guidelines developed and validated	Guideline drafts and validation workshop records / Official publication records	0	0	1	Feature of gendered considerations	Guidelines are gender sensitive
Related NAP Indicators: 2.4 / 2.6									
Related UNFCCC Indicators: 9b03									

4. Integrate climate adaptation into agricultural development planning	Revise existing policies and plans based on identified gaps in climate adaptation integration.	DOE (Lead) - DOF, DPC -	No. of sector plans revised	Endorsement letter and publication records	0	0	1	Integration of GEDSI-responsive targets	100% of plans integrated GEDSI responsive adaptation targets
	Develop adaptation indicators and adaptation standards for agriculture related projects and programs	DOE (Lead) - DOF -	No. of indicators set validated and endorsed	Validation workshop report and endorsement letters	0	1	1	% of indicators with gender-disaggregated data	100 % indicators track gender-disaggregated data
	Provide training on climate adaptation and climate risk management at multi-level (national, provincial, district)	DOE (Lead) - DOF, DAE / PAE -	No. of staff trained	Training attendance sheets	0	100	150	% of female participants	At least 40% of training participants are women

Related NAP Indictors: 1.1

Related UNFCCC Indictors: 10a09/ 10c11

Strategic objective 2.1: Restore forests and ecosystems

5. Promote reforestation in areas exposed to high risks	Climate risk mapping, site selection, and FPIC engagement	DOE (Lead) - DOF, DAE / PAE -	No. of high-risk sites identified and approved	Site selection reports with FPIC documentation records	0	10	10	% of consultation participants who are women	At least 50% of consultation participants are women
	Establish nurseries with slope stabilization pilot's projects	DOF (Lead) - DOE, DAE / PAE -	No. of nurseries established and operational	Project progress report	0	5	10	% of female staff	At least 50% of female employment in nursery operations
	Provide training to restoration teams	DOF (Lead) - DOE, DAE / PAE -	No. trained staff	Training attendance sheets	0	200	100	% of female staff trained	At least 50% of female employment in restoration operations

	Reforest 5,000 hectares and designate conservation zones	DOF (Lead) - DOE, DAE / PAE -	No. of hectares reforested and designated as conservation zones	Satellite imagery monitoring and conservation designation records	0	3,000	5,000	% of women, involved in reforestation planning, implementation, and monitoring	At least 40% of women participants are involved in community-based reforestation and monitoring activities
	Final evaluation, documentation, and integration into national frameworks	DOF (Lead) - DOE, DAE / PAE -	No. of pilot evaluations with performance and impact assessment	Evaluation reports with impact assessment	0	3	10	Presentation of gendered perspective	The evaluation report and case studies includes gendered disaggregated data and gender perspective
Related NAP Indictors: N/A									
Related UNFCCC Indictors: 9d02 / 9d04									
6. Address landslide resilience in land management plans	Pilot slope stabilization programs in 3 upland provinces	DOF (Lead) - DOE, DAE / PAE -	No. of pilot programs implemented	Project implementation reports	0	3	3	% of women-led initiatives	At least one project is community women-led implemented
	Engage and train local communities and farmers.	DOF (Lead) - DOE, DAE / PAE -	No. of participants trained	Training attendance sheets	0	200	270	% of female participants	At least 40% of trainees are women
	Evaluation and documentation of results and development of guidelines for national scale up	DOF (Lead) - DOE, DAE / PAE -	No. evaluation report Guideline produced and endorsed	Evaluation reports Guidelines Official endorsement	0 0	0 0	3 1	Presentation of gendered perspective	The evaluation report and case studies includes gendered disaggregated data and gender perspective
Related NAP Indictors: 1.1 / 4.1 / 4.7									
Related UNFCCC Indictors: 9d05 / 10c11									
Strategic objective 2.2: Control Forest fire and seasonal burning									
7. Policing and provincial-level control of	Conduct awareness campaigns across the countries	DOF (Lead) - DOE, DAE / PAE -	No. of campaigns conducted	Awareness materials distribution logs	0	10	15	% of female participants	At least 40% of awareness campaigns participants are women

seasonal burning	Establish community early-warning mechanisms	DOF (Lead) - DOE, DAE / PAE -	No. of villages with active fire-alert systems	Early warning system registry	0	50	100	% of village committees including women	At least one-woman member in each village committee
	Enforce bans in 5 provinces.	DOF (Lead) - DOE, DAE / PAE -	No. of provinces with enforcement measures	Inspection records and Enforcement reports	0	5	5	% of monitoring teams with female members	At least 30 % of female inspectors or monitors
Related NAP Indictors: 4.7 / 5.5									
Related UNFCCC Indictors: 10a01 / 10a04									

Appendix

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Identified indicators and derived variables

Sectors	Sub-categories	Indicators	Definition	Variable
Agriculture & Forestry	Agriculture yields	Heat Stress Index	Annual number of days when HeatIndex exceeds a critical threshold the crop during the growing season	HeatIndex (derived from maximum daily temperature and mean daily relative humidity)
		Drought Stress Index	Annual maximum number of consecutive dry days (precipitation < 1mm)	Daily precipitation
	Livestock	Heat Stress Index	Annual number of days THI exceeds critical limits for animal	Temperature Humidity Index (derived from max daily t° and mean daily relative humidity)
	Fish stock	Heat Stress Index	Annual number of days with Tmax > 30°C (proxy for hot water)	Maximum daily temperature
	Soil Quality	Soil Quality Index	Annual number of days with climatic water deficit (PET – Precipitation > 0)	Potential Evapotranspiration (derived from max daily t°) and daily precipitation
	Forest & Biodiversity	Heat Stress	Events/Years where Tmax > threshold for ≥ 3 consecutive days	Maximum daily temperature
Water resources management	Water Quality	Heat stress index	Annual max temperature	Maximum daily temperature
	River & Reservoir flows	Flood stress Index	Maximum 5-day cumulated precipitation	Daily precipitation
	Groundwater management	Precipitation groundwater index	Cumulated precipitation	Daily precipitation
Urban Development & Transport	Infrastructures Urban ecosystems Urban clean up Water infrastructure Hydraulic infra	Flood stress Index	Maximum 5-day cumulated precipitation	Daily precipitation
		Run off stress Index	Maximum daily precipitation	Daily precipitation
		Urban clean up stress	Number of days with precipitation >25mm	Daily precipitation
		Night heat stress	Number of nights with Tmin > 25°C	Minimum daily temperature

Table: Indicators context specific daily thresholds

		Daily threshold	Low	Moderate	High	Very high
Heat Stress Index for agriculture crops	Annual number of days when HeatIndex exceeds a critical threshold the crop during the growing season	HI > 36°C	< 5 days	5-10 days	10-20 days	>20 days
Drought Stress Index	Annual maximum number of consecutive dry days (precipitation < 1mm)	Precipitation <1mm	< 7 days	7-14 days	14-21 days	>21 days
Heat Stress Index for Livestock	Annual number of days THI exceeds critical limits for animal	THI >28°C	<10 days	10-20 days	20-30 days	>30 days
Heat Stress for fish stock	Annual number of days with Tmax >30°C (proxy for hot water)	Max T° >32°C	<10 days	10-20 days	20-30 days	>30 days
Soil Quality Index	Annual number of days with climatic water deficit (PET – Precipitation >0)	CWD > 0	<20%	20-30%	30-40%	>40%
Heat Stress Index (forest biodiversity)	Events/Years where Tmax > threshold for ≥ 3 consecutive days	Max T° > 35°C	0-1 events	2-3 events	4-5 events	>5 events
Run off stress Index	Maximum daily precipitation		<25mm	25-50mm	50-75mm	>75 mm
River Flooding stress Index	Maximum 5-day cumulated precipitation		<100mm	100-150 mm	150-200 mm	>200mm
Precipitation groundwater index	Cumulated precipitation		>1500mm	1250-1500 mm	1000-1250mm	<1000mm
Heat Stress Index (Water quality)	Annual max temperature		<35°C	35-40°C	40-45°C	>45°C
Urban clean up stress	Number of days with precipitation >25mm		<2days	2-5days	5-10 days	>10 days
Night heat stress	Number of nights with Tmin > 25°C	Min T°>25°C	<5 nights	5-10 nights	10-20 nights	>20 nights

Appendix 02: Multi-Criteria Analysis Matrix for the Agriculture & Forestry Sectors

Evaluation criteria:	Severity of CC Impacts			Poverty Reduction			High Value			Alignment with Environmental & Climate			Lives & Livelihood security			Feasibility of Implementation & availability of resources			Sustainability & long term benefits			Institutional capacity to implement			Financial operationalization			Urgency of Action			
Source of data	NAP-UNEP			NAP-UNEP			NAP-UNEP			NAP-UNEP			NAP-UNEP			NAP-UNEP			NAP-UNEP			NAP-UNEP			Consultant			NAP-UNEP			
Proposed adaption measures from NAP-UNEP	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	Score	Weighting	Weighted score	TOTAL WEIGHT
Improve irrigation and storage of excess rainfall to reduce impacts from drought	6	0,4	2,4	8	0,6	4,8	8	0,7	5,6	8	0,8	6,4	8	0,8	6,4	8	1	8	6	1	6	6	0,6	3,6	9	1	9	7	0,4	2,8	55
Improve drainage systems to mitigate the damage to plants from waterlogging	6	0,4	2,4	8	0,6	4,8	8	0,7	5,6	8	0,8	6,4	8	0,8	6,4	8	1	8	6	1	6	6	0,6	3,6	9	1	9	7	0,4	2,8	55
Regarding land use and planning, strengthen regulations on land leases and concessions to prevent deforestation and land degradation, and increase	10	0,4	4	6	0,6	3,6	9	0,7	6,3	10	0,8	8	7	0,8	5,6	4	1	4	9	1	9	3	0,6	1,8	6	1	6	8	0,4	3,2	51,5
Promote reforestation in areas exposed to high-risks of floods, storms, land	9	0,4	3,6	6	0,6	3,6	7	0,7	4,9	8	0,8	6,4	8	0,8	6,4	5	1	5	9	1	9	4	0,6	2,4	7	1	7	8	0,4	3,2	51,5
Policing and Provincial level control of seasonal burning	8	0,4	3,2	3	0,6	1,8	3	0,7	2,1	8	0,8	6,4	8	0,8	6,4	8	1	8	8	1	8	8	0,6	4,8	6	1	6	8	0,4	3,2	49,9
Apply sustainable forest and land management in the planning process to ensure local adaptation as well as national mitigation.	8	0,4	3,2	7	0,6	4,2	7	0,7	4,9	8	0,8	6,4	7	0,8	5,6	6	1	6	8	1	8	5	0,6	3	5	1	5	7	0,4	2,8	49,1
Identify and design location specific irrigation schemes and technologies to reduce risks such as using solar energy, self flowing water using surface water and underground water.	5	0,4	2	6	0,6	3,6	6	0,7	4,2	5	0,8	4	7	0,8	5,6	8	1	8	8	1	8	8	0,6	4,8	6	1	6	5	0,4	2	48,2
Utilize climate resilient designed infrastructure such as irrigation reservoirs and hydropower reservoirs by controlling and determining appropriate and safe water level in the reservoirs ahead of flooding season starts (rainy season), particularly Nam Ngum Dam 1, Nam Mang 3, Nam Theun 2, Theun Hinboun, Xe Pien Xe Namnoi, Xe Kaman and others.	5	0,4	2	2	0,6	1,2	2	0,7	1,4	5	0,8	4	8	0,8	6,4	9	1	9	9	1	9	9	0,6	5,4	8	1	8	4	0,4	1,6	48
Address landslide resilience in land management plans, ensuring that construction, mining, and agriculture do not destabilise slopes. To this end, EbA actions are crucial, such as maintaining a dense and biodiverse tree	9	0,4	3,6	6	0,6	3,6	7	0,7	4,9	7	0,8	5,6	8	0,8	6,4	5	1	5	8	1	8	4	0,6	2,4	5	1	5	8	0,4	3,2	47,7
Conduct a pilot study in selected districts to develop a standardized estimation of the value of loss and damage in agriculture.	2	0,4	0,8	5	0,6	3	3	0,7	2,1	8	0,8	6,4	8	0,8	6,4	8	1	8	6	1	6	8	0,6	4,8	8	1	8	5	0,4	2	47,5
Mainstream climate change adaptation in forestry and land-using planning strategy and action plan including through results-based management	8	0,4	3,2	6	0,6	3,6	7	0,7	4,9	9	0,8	7,2	7	0,8	5,6	5	1	5	8	1	8	4	0,6	2,4	5	1	5	6	0,4	2,4	47,3
Diversifying farming systems can enhance food security during climate shocks affecting specific crops.	5	0,4	2	5	0,6	3	5	0,7	3,5	5	0,8	4	8	0,8	6,4	8	1	8	8	1	8	8	0,6	4,8	4	1	4	8	0,4	3,2	46,9
Integrate management, prevention and control of climate change adaptation plan into the agriculture development plan at all levels within the agricultural sector. The integration includes revising agricultural laws, decrees and other policies related to agricultural sector and other relevant stakeholders.	3	0,4	1,2	3	0,6	1,8	3	0,7	2,1	9	0,8	7,2	7	0,8	5,6	8	1	8	8	1	8	8	0,6	4,8	5	1	5	8	0,4	3,2	46,9
Develop and update climate risk and vulnerability maps for the forestry and land-use planning sector to support the integration of climate change adaptation into the Participatory Land Use Planning and Forestry	8	0,4	3,2	5	0,6	3	7	0,7	4,9	8	0,8	6,4	7	0,8	5,6	6	1	6	7	1	7	4	0,6	2,4	6	1	6	6	0,4	2,4	46,9
Review and assess vulnerabilities, risks, impacts of previous floods, droughts, extreme climate events, and changing rainfall patterns on the agriculture sector as well as plan-options for climate change adaptation in agriculture and food security in general and in detail, focusing on production systems and other value-added chains that are at risk and affected.	6	0,4	2,4	3	0,6	1,8	3	0,7	2,1	7	0,8	5,6	6	0,8	4,8	8	1	8	8	1	8	8	0,6	4,8	6	1	6	8	0,4	3,2	46,7

Appendix 03: List of ODA- Climate-related Projects planned and ongoing in the Agriculture & Forestry Sectors

#	Project Title	Sector	Implementing Agency	Total Budget (USD)	Status	Funding Source	Funding Type
1	Northern Rural Infrastructure Development Project	Agriculture	Dept. of Irrigation	\$27.0 million	Ongoing	ADB	Loan
2	Climate-Smart Agriculture Project	Agriculture	NAFRI / FAO	\$9.78 million	Ongoing	GEF / FAO / UNDP	Grant
3	Upland Agriculture Development Project	Agriculture	DAE / MAE	\$3.5 million	Ongoing	FAO / World Vision	Grant
4	Agroecology Transition Project	Agriculture	DALAM / NAFRI	\$4.3 million	Active – Policy Guidelines Adopted	JICA / ASEAN	Grant
5	Mekong IWRM Program	Agriculture / Water	MAE / MEM	\$26.0 million	Ongoing	World Bank	Loan (IDA credit)
6	Land Use Planning Program	Agriculture / Land	DALAM / GIZ	\$5.2 million	Operational via LUIS platform	GIZ / EU	Grant
7	Climate Risk Mapping Project	Forestry	Dept. of Forestry / UNDP	\$9.78 million	Ongoing	UNDP / GEF	Grant
8	Building Long-Term Climate Resilient Agriculture and Landscapes Through Enhanced Tools, Governance,	Forestry	MAE / PAE	\$1.1 million	Active – Strategy to 2030	AFD / GGGI	Grant

#	Project Title	Sector	Implementing Agency	Total Budget (USD)	Status	Funding Source	Funding Type
	Investment and Implementation in Lao PDR Project						
9	Agroforestry Promotion Project	Forestry	MAE / NGOs	\$9.09 million	Approved – Implementation underway	USDA / Winrock	Grant
10	Climate-Smart Agriculture Policy Reform	Agriculture	MAE / MPI	\$9.78 million	Ongoing – Investment plan initiated	FAO / GCF Readiness	Grant
11	Forest Restoration and Reforestation Project	Forestry	MAE / AFoCO	\$1.87 million	Ongoing (2016–2025)	Korea Forest Service / AFoCO	Grant
12	Upland Resilience Project	Forestry	MAE / FAO	\$3.5 million	Ongoing – Targeting vulnerable upland communities	FAO / Foundation Ensemble	
13	Forest Fire Prevention and Control	Forestry	MAE / JICA	\$2.0 million	Ongoing – AFFIRM coordination launched	JICA / FAO	Grant
14	Drought and Flood Risk Monitoring	Cross-sector	DMH / DWR / MAE	\$35.0 million	Ongoing – MRC & UNDRR supported	ADB / MRC / WB	Loan
15	Agricultural Loss and Damage Estimation Pilot	Agriculture	MAE / MPI	\$2.5 million	Planned – Linked to DRM Action Plan 2022–2025	IFAD / FAO	Grant

Source: Lao PDR ODA-MIS Portal. Accessed October 22, 2025. <https://oda-mis.gov.la/#/dashboard/report>

Appendix 04: List and description of M&E related NAP indicators

ID	Indicators
STRATEGY 1: PREVENT AGRICULTURAL FOOD CROP PRODUCTION IMPACTS	
<i>Planning & Risk Mapping</i>	
1.1	Mid-year plan and five-year ministerial development plan integrated with revised strategies and regulatory documents (incl. Agriculture Strategy 2035 and Vision 2050).
1.2	Number of flood and drought risk areas identified.
1.3	Number of risk maps developed across 18 provinces.
1.4	CRVA re-assessed or updated at least once every 5 years (risk & vulnerability maps updated).
<i>Water Infrastructure & Irrigation</i>	
1.5	At least 10 projects constructing/improving water gates and weirs.
1.6	At least 6 reservoirs developed with climate-resilient management.
1.7	At least 5 related EbA-based water diversion projects in main river basins.
1.8	At least 10 flood protection canal projects implemented nationwide.
1.9	50% of farmers in vulnerable areas promoted on water stocking OR at least 30 small-scale water projects established.
1.10	Number of improved irrigation or rainfall harvesting systems.
1.11	Number of improved drainage systems.
1.12	At least 20 locations identified and designed for irrigation schemes ensuring 2 seasons/year production.
1.13	At least 10 agricultural production areas established with seasonal planning calendars
<i>Storage and Infrastructure</i>	
1.14	Number of agricultural infrastructure facilities developed in 7 large plains and 14 small plains.
STRATEGY 2: RESEARCH & CLIMATE-RESILIENT AGRICULTURAL PRODUCTION	
<i>Crop productivities and varieties</i>	
2.1	Increase rice productivity to 4.5–5 tons/ha (rainy season) and 5.5–6 tons/ha (dry season)
2.2	Develop 3 flood-resistant plant varieties, 5 drought-resistant plant varieties, 2 climate-resilient animal varieties, 2 water-resistant aquatic animal varieties
2.3	At least 10 new crop varieties identified for future hotter rainfall patterns.
<i>Sustainable Agriculture and Land Use</i>	

ID	Indicators
2.4	Number of hectares under sustainable agricultural production techniques (target example: 720 ha using 80 techniques).
2.5	Number of hectares using agro-ecological methods and modern agricultural technology.
2.6	Number of hectares under agroforestry practices.
2.7	Number of studies/projects demonstrating intercropping benefits in monoculture areas.
Research and Knowledge	
2.8	Climate analysis reports used in 18 provinces or at national/regional level.
2.9	At least 5 technology transfer projects implemented per year.
2.10	At least 10 research papers on soil, water and fertilizer management.
2.11	Number of research articles / contract farming agreements / MoUs for cooperation.
Livestock productivity	
2.12	Increase cattle body weight: Crossbred cattle: 300 kg (2 years) // Traditional cattle: 220–250 kg
2.13	Increase livestock growth rate 3–4% annually.
2.14	Increase fish farming growth rate 3–4% annually.
2.15	Increase consumption of meat, fish and eggs to 73 kg/person/year.
Research and Disease Management	
2.16	Number of research papers on native species.
2.17	At least 3 research studies on livestock disease genetics.
2.18	At least 2 breeding centers/stations built.
2.19	At least 1 low-emissions livestock model project initiated.
2.20	At least 5 approaches identified to mitigate heat stress on livestock.
2.21	Number of hydropower projects with coordination mechanisms for fisheries impact management.
2.22	Number of food processing/storage infrastructure upgraded or built.
STRATEGY 3: CAPACITY BUILDING	
3.1	Increase cattle body weight: Crossbred cattle: 300 kg (2 years) // Traditional cattle: 220–250 kg
3.2	Increase livestock growth rate 3–4% annually.
3.3	Increase fish farming growth rate 3–4% annually.
3.4	Increase consumption of meat, fish and eggs to 73 kg/person/year.

ID	Indicators
3.5	Number of research papers on native species.
3.6	At least 3 research studies on livestock disease genetics.
3.7	At least 2 breeding centers/stations built.
3.8	At least 1 low-emissions livestock model project initiated.
3.9	At least 5 approaches identified to mitigate heat stress on livestock.
3.10	Number of hydropower projects with coordination mechanisms for fisheries impact management.
3.11	Number of food processing/storage infrastructure upgraded or built.
STRATEGY 4: COMMUNICATION & AWARENESS	
4.1	1 national communication plan + 18 provincial plans.
4.2	1 national ICT system + 5 local systems created.
4.3	At least 1 national mobile communication tool developed.
4.4	At least 10 dissemination events/year nationwide (disaster response & disease prevention).
4.5	At least 5 communication-material development projects.
4.6	At least 100 staff trained on climate risk planning.
4.7	Number of awareness-raising activities conducted per year.
STRATEGY 5: INFORMATION MANAGEMENT & EARLY WARNING SYSTEMS	
5.1	At least 6 agricultural meteorological systems expanded annually (2 per region).
5.2	At least 5 provincial climate database systems developed.
5.3	At least 1 national agriculture disease monitoring database.
5.4	1 national + 18 provincial early warning plans developed.
5.5	At least 6 provinces piloting early warning plans.
5.6	Number of emergency warning equipment/devices distributed in 18 provinces.

Source: Lao People's Democratic Republic. (2025). *National Adaptation Plan of the Lao PDR* [PDF]. Ministry of Agriculture and Environment (MAE). Retrieved from: <https://naplaos.com/nap>

Appendix 05: List and description of M&E related UNFCC indicators

ID	Indicator Name	Description
9(a) Significantly reducing climate-induced water scarcity and enhancing climate resilience to water-related hazards towards a climate-resilient water supply, climate-resilient sanitation and access to safe and affordable potable water for all		
9a02	Change in water-use efficiency over time	The indicator tracks the value added in monetary value (e.g. US dollars) per volume of water used in cubic meters, by a given economic activity over time. It considers water use by all economic activities, with a focus on agriculture, industry and the service sector. Data on water use are commonly available from the records of national line ministries and institutions (e.g. for Water, Agriculture and Environment), and data on value generation in different sectors are commonly available from the National Statistical Office and can be used to assess current status and trends over time.
9a03	Proportion of critical water and sanitation infrastructure systems that are built or retrofitted to withstand climate-related hazards	This indicator measures proportion of critical water and sanitation infrastructure systems that are built or retrofitted to conform with national regulations and standards for climate resilience. Critical water infrastructure refers to essential water-related systems and facilities that have the ability to prevent, protect against, or recover from disasters. This ensures that services essential for the maintenance of vital societal functions, economic activities, public health and safety, or the environment (essential services) are constantly available. Critical water related infrastructure could include among others (and it is not limited to) drinking water suppliers and distributor networks, reservoirs, dams, wastewater collection and treatment plants, electricity production like hydropower, transport on water and flood protection systems, irrigation systems and supporting assets like pumps and control centers. Water and sanitation infrastructure may be considered critical for health, education, agriculture, industry or other purposes. Data on the number and proportion of critical water and sanitation infrastructure systems that are designed, built or retrofitted to withstand climate-related hazards is typically available from National Adaptation Plans, or equivalent policy instruments, and from relevant national line ministries and institutions (e.g. for Water, Agriculture and Environment).
9(b) Attaining climate-resilient food and agricultural production and supply and distribution of food, as well as increasing sustainable and regenerative production and equitable access to adequate food and nutrition for all		
9b01	Proportion of area under management for food and agricultural production utilising practices and technologies relevant to climate change adaptation	This indicator measures the extent to which area under management for food and agricultural production is managed using practices and technologies that enhance resilience and effective response to climate shocks. It tracks the implementation of contextually relevant adaptation measures across different geographies and scales. Qualitative information for this indicator should capture the value chains/ food and agriculture sub sector to which a specific practice is relevant and the climate-related driver or event it responds to.

ID	Indicator Name	Description
9b02	Proportion of food and agricultural value chain actors that have adopted practices and technologies relevant to climate change adaptation	This indicator measures the rate at which agriculture and food system actors such as producers, processors, and distributors—are adopting practices and technologies relevant for adapting to experienced or anticipated climate shocks. It tracks the implementation of context-specific adaptation measures that are essential for building the climate resilience of food and agricultural production and food supply and distribution systems, including adjusting planting and harvesting dates, using climate-resilient crops and livestock varieties, implementing sustainable water and pest management, shifting toward more adaptive fisheries and aquaculture practices, adopting improved post-harvest technologies and climate-proofing food storage and infrastructure. This indicator complements the information reported under indicator 9b01 ("Proportion of area under management for food and agricultural production under practices and technologies relevant to climate change adaptation") by expanding the coverage of agricultural sub-sectors and stages of the value chain from production to consumption, while focusing on actors as opposed to production area.
9b03	Number of institutional frameworks for knowledge transfer, research and development, and extension services supporting climate change adaptation in food and agriculture	The indicator assesses the extent of knowledge development and capacity building efforts made to support climate change adaptation. A strong framework involves effective collaboration between public and private entities, including universities, research centers, government agencies, extension services, technology demonstration projects and farmer groups.
9b05	Amount of climate adaptation finance disbursed to food and agriculture per year	This indicator tracks the finance from various sources disbursed to actors in food and agriculture for the implementation of projects and actions related to climate adaptation.
9(d) Reducing climate impacts on ecosystems and biodiversity, and accelerating the use of ecosystem-based adaptation and nature-based solutions, including through their management, enhancement, restoration and conservation and the protection of terrestrial, inland water, mountain, marine and coastal ecosystems;		
9d02	Extent and capacity of regulating ecosystem services that reduce exposure and vulnerability to climate risks/impacts	This indicator measures (a) the extent (area, distribution) of ecosystems that provide regulating services critical for climate risk reduction, and (b) their capacity (biophysical ability) to sustain those services under current conditions and climate change scenarios. It reflects both the spatial coverage of regulating ecosystems and their functional ability to reduce climate risks and impacts.
9d04	Area under restoration for enhancing ecosystem resilience and services	This indicator measures the area of degraded terrestrial, inland water, mountain, marine and coastal ecosystems restored to enhance resilience and the availability of ecosystem services. Restoration is defined to include: (a) restoring converted areas back to natural states; (b) improving the ecological integrity of degraded natural areas;

ID	Indicator Name	Description
		and (c) rehabilitating converted and degraded areas (e.g. degraded agricultural lands) to improve both productivity and integrity.
9d05	Extent of ecosystems that contribute to climate resilience covered by protected areas and other effective area-based conservation measures	This indicator measures the extent of terrestrial, inland water, mountain, marine, and coastal ecosystems that contribute to climate resilience and that are under formal protection, conservation, and sustainable management, including protected areas (PAs) and other effective area-based conservation measures (OECMs). It is defined to measure the percentage area of these ecosystems covered by protected areas or OECMs
10(a) Impact, vulnerability and risk assessment: by 2030 all Parties have conducted up-to-date assessments of climate hazards, climate change impacts and exposure to risks and vulnerabilities and have used the outcomes of these assessments to inform their formulation of national adaptation plans, policy instruments, and planning processes and/or strategies, and by 2027 all Parties have established multi-hazard early warning systems, climate information services for risk reduction and systematic observation to support improved climate-related data, information and services		
10a01	Number of Parties that have established multi-hazard early warning systems	Total count of Parties that have reported to have established multi-hazard, end-to-end, and people-centered early warning systems disaggregated by sector and GGA targets. The indicator will be informed by other indicators in this target, based on the standard four pillars of early warning systems (1) disaster risk knowledge based on the systematic collection of data and disaster risk assessments; (2) detection, monitoring, analysis and forecasting of the hazards and possible consequences; (3) dissemination and communication, by an official source, of authoritative, timely, accurate and actionable warnings and associated information on likelihood and impact; and (4) preparedness at all levels to respond to the warnings received.
10a02	Number of Parties that have accessible, understandable, usable, relevant and up to date climate risk information and comprehensive risk assessment	Total count of Parties that have reported to have climate risk information and comprehensive risk assessments that are accessible, understandable, usable, relevant, and up-to-date. Such risk information generated from comprehensive assessments that address all dimensions of climate-related disaster risk, including hazards, exposure, vulnerability, and capacity, and are based on qualitative and/or quantitative analysis to determine the nature and extent of risk. include the identification of hazards, review of their technical characteristics (such as location, intensity, frequency, and probability), analysis of physical, social, health, environmental, and economic vulnerabilities, evaluation of coping capacities with respect to likely risk scenarios, and analysis of risk drivers and underlying risk factors. [Adapted from SFM Technical Guidance]

ID	Indicator Name	Description
10a04	Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms	Total number of people per 100,000 population that are covered by multi-hazard early warning systems. This indicates the degree of progress being made in communication, dissemination, and outreach to populations. At the minimum, this is determined by the reporting of the primary media/mode for early warning information through local governments or through national dissemination mechanisms, such as recognized authorities, mass media (radio, TV, internet, website, email, SMS, social media, app) and local communication systems (siren, public board, phone). If any of these information modes are available, the population is considered covered. [Adapted from SFM Technical Guidance]
10a09	Number of Parties that have used up-to-date climate risk information and comprehensive risk assessment to inform their formulation of national adaptation plans, policy instruments, and planning processes and/or strategies	Total count of Parties that have established and maintain operational climate information services for adaptation and risk reduction, supported by systematic observation networks and processes that generate improved climate-related data, information, and services. Such services provide reliable, accessible, and usable climate information tailored to support different productive sectors and various segments of society to inform adaptation planning.
10(c) Implementation: by 2030 all Parties have progressed in implementing their national adaptation plans, policies and strategies and, as a result, have reduced the social and economic impacts of the key climate hazards identified in the assessments referred to in paragraph 10(a) above		
10c01	Degree of implementation of national adaptation plans, policies and strategies	This indicator measures the degree to which national adaptation plans, including the measurable targets/goals and adaptation measures/actions listed in the national adaptation plans, policies and strategies are implemented. It is proposed to measure two parts: a) the share of measurable targets/goals on track of being achieved; b) proportion of adaptation actions at different levels of implementation (e.g. not started, under implementation, completed)
10c03	Number of people who experienced direct social and economic impacts associated with climate-related hazards per 100,000 people	The first part of the indicator is modified from Sendai Framework Target B, and SDG targets 1.5, 11.5 and 13.1. The specific elements of disaggregation provide information on other targets, e.g. (a) Number of injured or ill people - provides information for Target 9c on health, (b) Number of people with damaged dwellings and (c) Number of people with destroyed dwellings - provide information for Target 9e on IHS, (d) Number of people whose livelihoods were disrupted or destroyed - provides information for Target 9f on poverty and livelihoods. The second part of the indicator is a Gender-Environment Indicator managed by UN Women and components of it are part of the Global Set of Climate Change Statistics and Indicators managed by UNSD. All sub-categories (from A to L) can be disaggregated by climate-related hazard.

ID	Indicator Name	Description
		This indicator also contributes to Target 9c (climate-related injured and ill people), 9e (damaged and destroyed dwellings), and 9f (livelihoods lost due to climate-related hazards). While the indicator captures the absolute number, the analysis is recommended to be done over years to capture change over time to understand and track adaptation effectiveness.
10c11	Extent of capacity-building interventions enhancing adaptive capacity of vulnerable communities/people	This indicator measures the extent to which capacity building interventions have increased the adaptive capacity of vulnerable people/communities to climate change impacts and hazards. Measured through: (a) Qualitative information on (i) nature of strategies employed for capacity building of the vulnerable people, (ii) existence of a national and subnational policy(ies) that promote the integration of climate change adaptation in school curriculum, including professional training institutes and colleges, (iii) level of engagement of vulnerable people in capacity building interventions and (iv) level of the measures implemented to address the capacity building needs, priorities, and gaps identified in CNAs; and (b) Quantitative data on (i) proportion of vulnerable people reached by capacity building interventions, (ii) proportion of vulnerable people with improved skills to adapt including diversifying livelihoods away from climate sensitive sectors, (iii) number of adaptation-related research and development programs integrating indigenous and traditional knowledge in various levels of education (from primary, secondary, high school and post-school such as vocational training colleges and universities).

Source: United Nation Climate Change. Accessed October 22, 2025. [Final list of potential indicators, UAE–Belém work programme on indicators | UNFCCC](#)

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