

WATER SENSITIVE AREA DEVELOPMENT PLAN

URBAN EXTENSION AREA SAM NEUA VILLAGE AND NALIEW VILLAGE

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Foreword

In an era of rapid urbanization in Laos, the Water Sensitive Area Development Plan for the urban extension areas in Sam Neua Village and Naliew Village of Sam Neua Town represents a crucial step towards sustainable urban development and urban water management. It prioritizes sustainable management of urban water resources, controlled, safe and resilient urban growth, and community involvement. The aim is to progress the town's vision of a "Green, Clean, Beautiful" urban environment.

Sam Neua and Naliew Villages, integral areas of Sam Neua Town, are currently experiencing significant urban expansion. This growth brings complex challenges, especially in terms of water management and urban planning. The plan outlined in this document is a strong attempt to address these issues holistically, ensuring that urban expansion is managed and guided to create a sustainable, healthy, and resilient community environment.

The development strategy employs a Water Sensitive Urban Development approach to integrate water management with urban planning. The plan represents the culmination of extensive collaborative efforts, involving local and national stakeholders and international expertise, strongly corresponding to the existing Manual for Urban Planning for Lao PDR.

The initiatives outlined in the development plan focus on several key areas to support sustainable urban growth and environmental management. These include enhancing stormwater and drainage systems to reduce flood risks and improve public health, implementing a comprehensive wastewater treatment to address environmental and health challenges from untreated sewage, and upgrading the water supply network to ensure consistent, clean water access. Additionally, the plan emphasizes reforestation and controlled land use to protect water catchment areas, and enforces a comprehensive land use plan to avoid unplanned construction in vulnerable zones. Settlement planning will regulate building practices to ensure safety, while initiatives to enhance green and blue infrastructure aim to conserve natural spaces and biodiversity. Lastly, an improved solid waste management program is proposed to enhance waste collection and reduce illegal dumping, minimizing pollution and health hazards.

Moreover, the plan incorporates advanced technological tools and participatory planning processes to ensure that it is both innovative and inclusive. Key projects have been carefully designed to cater to the specific needs of each village, supported by detailed technical analysis and community feedback. Much of the projects focus on infrastructure development, creation of regulatory framework as well as capacity development and awareness raising. The successful implementation of these initiative will help the create foundations for livable and resilient village areas.

As we look to implement these plans from 2024 to 2026, the commitment of local, national and international partners is vital. This plan sets forth a model not just for Sam Neua, but for other regions pursuing sustainable urbanization in Laos and beyond.

This document is a call to action for all stakeholders involved - from government officials to local residents - to engage actively in the town's future development. As we move forward, the principles of sustainability and resilience guide actions, ensuring that the growth of Sam Neua and Naliew Villages serves as a good example of sustainable urban water management and urban development in Laos.

I thank the full project team including members from the Project Management Implementation Committee (MIC), the PolyUrbanWaters Project partners, including Habitat Unit of the Technical University Berlin, BORDA Laos, and ITT TH Cologne for the preparation of this plan. Finally, I wish to thank the German Ministry for Education and Research for their valuable support in funding the collaboration between institutions of Lao PDR and Germany. The overall support has been instrumental in fostering sustainable urban development at the local level of Sam Neua Town, particularly for in Sam Neua and Naliew Villages.

Sam Neua District Governor

Executive Summary

Background

This Action Plan is part the "Vision Building" stage of the PolyUrbanWaters Project, based on the previous Baseline Study stage for Sam Neua Town, Laos.

Sam Neua Village and Naliew Village form much of the urban extension area of Sam Neua Town, Laos. These villages are currently undergoing significant growth, while facing challenges such as inadequate urban water management and systems (stormwater, wastewater, water supply) and poor solid waste management. This is also made worse and more complicated by insufficient urban planning and water catchment management. During this crucial phase of urban expansion, there is a pressing need for a comprehensive, water-sensitive development planning of these areas, which will not only tackle current issues, but also lay a solid foundation for future growth, preventing the adverse effects of unplanned and uncontrolled urban development.

The Plan with its list of projects respond to these urgent needs. It originates from the results of the strategic planning process, starting with an area analysis and focused 4.5-day workshop held in Sam Neua in March 2023, where local partners and key stakeholders came together to formulate medium-term urban development goals and strategies for urban water management and urban planning issues in the urban extension area in Sam Neua Village and Naliew Village. The goals and strategies were further documented, explained in terms of technical details and aims, and finally validated by local stakeholders and communities during a series of technical meetings, a community forum in each village and accompanying explanatory documentation with presentations. Subsequently the strategies were translated further into concrete projects and activities, including priority projects tailored for each village, and are the main focus of this Plan. The plan achieved final stakeholder and community validation during 2 Community Forums in February 2024.

Proposed Projects

Following a Water Sensitive Urban Development approach, to address the various challenges in the urban extension areas of two villages, a series of targeted, integrated projects and goals have been proposed. In summary, these initiatives aim to enhance stormwater and drainage systems to mitigate flood risks and improve public health by managing water runoff more effectively. A comprehensive wastewater treatment project is planned to tackle the environmental and health issues arising from untreated sewage and greywater. Improvements in the water supply network are envisioned to ensure reliable and clean water access for all households. To protect and sustain the water catchment ecosystem, initiatives focusing on reforestation and controlled land use are proposed. The development and enforcement of a comprehensive land use plan are crucial to guide sustainable urban development and prevent unplanned construction in risk-prone areas. In parallel, settlement planning projects aim to regulate construction and promote safe living environments. The enhancement of green and blue infrastructure is prioritized to preserve natural spaces and biodiversity. Finally, a robust solid waste management program is envisioned to improve collection services and reduce illegal waste disposal, thereby minimizing pollution and health risks.

These projects collectively aim to create a more sustainable, healthy, and resilient community environment in Sam Neua Village and Naliew Village, towards achieving a **vision of a** 'Green, Clean, Beautiful' town. The implementation period for these projects is primarily set between 2024 and 2026, aiming to benefit the 2 villages and, ultimately, all other communities within Sam Neua Town.

Additionally, they represent the localization of localize key project related Sustainable Development Goals of Agenda 2030: Water Management (SDG 6), Sustainable Urban Planning (SDG 11) and Environmental Protection (SDG 13), as well as determine stronger inter-relations with other SDGs. They also represent the localization of key principles of the NUA –Integrated Urban (Water) Management, Community Involvement and Inclusivity, Cross-Sectoral Collaboration and Capacity Building, and Climate Resilience and Sustainable Land Use.

Structure of Action Plan

In structure, the Plan contains 8 key topics with corresponding projects: 1. Stormwater Management, 2. Wastewater Management, 3. Water Supply Management, 4. Catchment Area Management, 5. Land Use Planning, 6. Settlement Planning, 7. Green and Blue Infrastructure, and 8. Solid Waste Management, each with specific projects aimed at creating well planned, secure and resilient villages.

For each village, the more specific priority projects and sites as identified by stakeholders during the development planning workshop of March 2023 are visualized in corresponding satellite maps.

Key Issues Identified

Stormwater Management: The main challenge is the inadequate stormwater and drainage system in the urban extension areas of the 2 villages. This inadequacy leads to increased risks of floods, landslides, and waterborne illnesses. A significant factor contributing to this issue is the lack of stormwater infrastructure, which fails to effectively manage and channel the runoff, particularly during heavy rainfall events. The lack of a proper drainage system exacerbates the risk of flooding, causing potential damage to property and infrastructure, and posing health risks to the community.

Wastewater Management: The lack of a comprehensive wastewater treatment system is the main challenge, leading to inadequate management of sewage and grey water. This results in environmental pollution and health risks due to the uncontrolled discharge of untreated wastewater into the environment. The situation is compounded by the lack of sewage and greywater treatment facilities, necessitating the implementation of effective wastewater management systems.

Water Supply Management: The primary challenge in this area is the inadequacy of the existing water supply system. Many households in the urban extension area lack access to the water supply network, and those with access face issues of insufficient water quantity and potential contamination risks.

Water Catchment Area Management: Inadequate management of the water catchment area, leading to environmental degradation downstream, is the primary concern. Deforestation and uncontrolled land use changes contribute significantly to this issue, impacting the health and sustainability of the water catchment ecosystem.

Land Use Planning: The absence of comprehensive land use planning results in unplanned and unregulated land utilization, leading to unauthorized land use changes and developments in risk-prone areas. The challenge here is to develop and enforce a comprehensive land use plan that guides future urban development in a sustainable and resilient manner.

Settlement Planning: Inadequate planning of settlements, leading to uncontrolled and unsafe construction, is a major challenge. The lack of layout plans or processes for the development of

settlements in the extension area has led to uncontrolled development and unauthorized construction in risk-prone locations.

Green and Blue Infrastructure: The main challenge is the inadequate management of green and blue infrastructure, leading to the degradation and reduction of green areas. This is exacerbated by changing land uses, such as the conversion of forest areas to agricultural land and then to settlement areas, and the deforestation and damage of riparian zones along rivers.

Solid Waste Management: Inadequate solid waste management, characterized by incomplete collection services and illegal disposal of waste, poses significant challenges. This contributes to pollution and public health risks, highlighting the need for improved solid waste management practices.

Key Projects for Sam Neua Village and Naliew Village – Urban Extension Area

A list of key projects are recorded in the Action Plan for each of the 8 focus topics, which address the urgent needs and development objectives identified by stakeholders during collaborative development planning activities. Importantly, specific priority sites and projects within each village were pinpointed and are detailed in the 2 separate village plans according to topic; these focus mainly on new and/or upgraded infrastructure and are outlined in brief below.

Sam Neua Village Projects

Stormwater Management: includes a number of targeted projects to improve stormwater drainage and mitigate flooding risks. Key initiatives involve constructing on-site stormwater infiltration systems in strategic areas like the public offices complex and various residential areas. These systems will utilize spaces like car parks and gardens to enhance stormwater management. Additionally, new drainage infrastructure is planned along main roads and settlement areas, with upgrades proposed for existing networks in central areas and near the electrical sub-station.

Wastewater Management: The projects focus on developing decentralized wastewater treatment systems (DEWATS) and upgrading septic tanks. This includes constructing a DEWATS near the main road to the airport, featuring greywater recycling and sludge treatment, with additional installations in new residential areas. The plan requires improved septic tanks for all new households to comply with new standards.

Water Supply Management: Projects aim to extend and reinforce the water supply network, catering to both current and future needs. Projects include constructing new infrastructure at the New Airport Junction and implementing on-site rainwater collection systems in key areas. These systems are designed to supplement the main water supply, especially during dry seasons, and reduce reliance on the municipal system.

Solid Waste Management: Projects focus on expanding waste collection services in new commercial and residential areas near the airport junction. This includes improving access roads to facilitate waste collection vehicles, thereby enhancing the efficiency of trash removal services.

Land Use Planning: A key initiative is the comprehensive Land Use Planning which aims to guide sustainable urban development, balancing natural and recreational areas. The plan envisages developing medium density residential areas with a mix of compatible land uses and building heights, ensuring safety, resilience, and the preservation of agricultural and recreational zones. It also emphasizes forest and riverbank protection and the creation of parks and other public spaces.

Green-Blue Infrastructure: The Green-Blue Area Plan, set for implementation between 2024 and 2026, focuses on preserving and enhancing environmental quality through strategic land use and infrastructure planning. The plan aims to protect existing green and blue spaces while expanding green areas at the village and household levels. It includes introducing multi- several key sites have been identified for the implementation of various projects.

A number of key sites were identified for the implementation of the above projects:

- 1. Public Offices Complex
- 2. Reserved Government Land near the Airport
- 3. Various new residential areas
- 4. New Airport Junction
- 5. Old Village Center near Phoxaysanatam Temple
- 6. Areas around the Electrical Sub-station
- 7. Local Public Primary School and the Department of Agriculture and Forestry Office.

Nailiew Village Projects

Stormwater and Drainage Planning: projects include constructing on-site stormwater drainage systems with infiltration capabilities at strategic locations like the SOS Northern School and various central residential areas. Upgrades to existing drainage systems along main and access roads are planned, along with annual erosion prevention and drainage clearing measures. New drainage networks are set to be developed in new residential areas, such as the 40 plots east of Naliew Restaurant. Targeted interventions at landslide-prone sites involve constructing appropriate drainage infrastructure to mitigate risks, while standardized drainage systems are proposed for areas various key areas.

Wastewater Management Plan: projects focus on constructing decentralized wastewater treatment systems (DEWATS) to serve both present and future community needs. A DEWATS near the Naliew Village Administration office will include features such as grease traps, greywater recycling, and sludge treatment. Additional DEWATS installations are planned for the new 40-plot residential area east of Naliew Restaurant and the residential area northeast of the Provincial Hall. These systems aim to provide sustainable wastewater treatment and incorporate potential agricultural reuse and tertiary treatment methods.

Water Supply Network Extension: The extension of the water supply network includes constructing new infrastructure in the new 40-plot residential area to ensure complete water coverage, preparing for future residential growth. The Water Supply Resources Management Plan also involves building on-site rainwater collection systems in strategic areas like the government office zone. These systems are designed to capture and store rainfall, supplementing the water supply during dry seasons and reducing reliance on the municipal supply.

Land Use Planning: The comprehensive Land Use Plan aims to guide sustainable urban development, balancing natural and recreational areas. It envisages developing low to medium density residential areas with a mix of land uses and building heights, ensuring safety, resilience, and the preservation of agricultural and recreational zones. The plan also emphasizes forest and riverbank protection and the creation of parks.

Green-Blue Area Plan: This plan focuses on preserving and enhancing environmental quality through strategic land use and infrastructure planning. It aims to protect existing green and blue spaces while expanding green areas within both villages and individual households. A key

objective is to ensure that at least 20% of each property is maintained as green space. The introduction of multi-functional public parks and sports fields at the community level is a crucial element of this plan.

Solid Waste Management Strategy: The solid waste management strategy in Naliew Village involves expanding and improving waste collection services. This includes enhancing and widening access roads in key residential areas to ensure efficient access for waste collection vehicles. The expansion of waste collection services will cover the central residential area, new residential pockets along dirt access roads, and the newly developed 40-plot area east of Naliew Restaurant.

A number of key sites were identified for the implementation of the above projects. The SOS Northern School (SOS Children's Village) stands out as a particularly strategic location due to its integration of multiple aspects of the plan. Key sites for the projects include:

- 1. SOS Northern School (SOS Children's Village)
- 2. New 40-Plot Residential Area East of Naliew Restaurant
- 3. Central Residential Area near Naliew Village Administration Office
- 4. Residential Area Northeast of Provincial Hall
- 5. Government Office Area Along Main Road to New Airport

Introduction

The urban extension areas of Sam Neua and Naliew Villages are currently experiencing significant growth, which brings a range of challenges, including insufficient stormwater and wastewater systems, inadequate solid waste management, and unreliable water supply, alongside inadequate urban planning. At this crucial period of urban expansion in the 2 villages, there is a strong need to develop a comprehensive and forward-looking development plan, that addresses current issues, while establishing a robust foundation for guiding future development and avoid negative consequences of unplanned, un-controlled urban growth.

This Action Plan responds to this need. It contains a list of key development projects and activities for the 2 villages, based on development goals and strategies that were previously formulated with local stakeholders during development planning activities of the PolyUrbanWaters Project. Based on Water Sensitive Urban Development approach, the projects aim to enhance stormwater management for flood risk reduction, upgrade wastewater treatment facilities for environmental and public health protection and expand solid waste management services to meet the demands of urban growth. A major focus is also placed on improving water supply networks to ensure their reliability and sustainability. Additionally, the plan adopts a comprehensive approach to urban planning. It aims to create greater amount of residential area with a mixture of compatible land uses, in medium density housing, and preserving natural and recreational spaces, particularly in flood-prone regions. Integral to this plan is the incorporation of green and blue infrastructure, aimed at sustaining ecological balance.

Summary of Key Issues Identified

Stormwater Management: The main challenge is the inadequate stormwater and drainage system in the urban extension areas of the 2 villages. Stormwater drainage systems are present only along main and paved roads, however their construction is poor. Community access roads lack any form of drainage. This inadequacy leads to increased risks of floods, landslides, and waterborne illnesses. A significant factor contributing to this issue is the lack of stormwater infrastructure, which fails to effectively manage and channel the runoff, particularly during heavy rainfall events. For On-site infiltration on-site is very limited, often ground spaces of properties are excessively sealed with concrete and natural drainage corridors have not been well integrated with drainage infrastructure.



Figure 1 Left: Hotspot area at key road junction outside SOS School identified in Naliew village as susceptible to flooding due to inadequate drainage systems (BORDA LAOS, 2023): Right Excessive, 100% concrete sealing of property surface (TU Berlin 2023)

Wastewater Management: All households in the pilot area have access to toilets, with black water channeled into septic tanks or pit latrines, while grey water is often discharged onto open ground, into drains, roadside drainage systems, or rivers and streams. Although the town offers a fecal sludge truck service, it is underutilized as households tend to empty their septic tanks only when toilets stop functioning. A primary challenge lies in the absence of a comprehensive wastewater treatment system, leading to the inefficient handling of both sewage and grey water. This inefficiency results in significant environmental pollution and health hazards due to the uncontrolled release of untreated wastewater. The situation is exacerbated by the lack of dedicated treatment facilities for sewage and grey water.



Figure 2 .(Left: Accumulated wastewater in stormwater drainage: A mix of food waste, greywater, and effluent from septic tanks; Right: Water Body Contamination: Pollution from nearby toilet/pit latrine and septic tank effluent discharged into a stream (BORDA Laos, 2023).

Water Supply Management: Overall, the primary challenge in the pilot area is the inadequacy of the existing water supply system. Many households in the urban extension area lack access to the water supply network; those with access face issues of insufficient water quantity and potential contamination risks due to inadequate infrastructure. In addition, technical water losses for the area are 30%. For Sam Neua Village, approximately 80% have water supply coverage, while the remaining households rely on wells and springs. For Naliew Village, only 50% of the total households have water supply coverage; the rest depend on wells and springs.



Figure 3 Contaminated well used for local water supply of surrounding plots in Naliew Village; (BORDA Laos, 2023)

Water Catchment Area Management: Inadequate management of the water catchment area, primarily due to uncontrolled land-use changes, deforestation for farming and inappropriate agricultural practices, is causing significant environmental degradation downstream. A significant issue is the uncontrolled transformation of agricultural lands within the catchment into settlement areas, with greater sealing of surfaces. Local village communities are not aware of the negative effects of land use changes, deforestation, and polluted water discharges on downstream waterbodies and communities. There is an observed decline in water levels within the catchment during the dry season, compared to the past.



Figure 4 Deforestation and Land cover changes in water catchment of Sam Neua Town (Google Earth Pro 7.3.4.8573 (2/14/2020). Sam Neua, Laos. Coordinates 20°25'34.21"N,104° 01'17.55"E, Eye alt 1.03km).

Land Use Planning: A primary issue is the lack of a detailed Land use Zoning Plan, leading to disorganized and unregulated urban growth and land utilization in the expansion areas of the 2 focus villages. Currently low-density residential areas are the dominant and quickly expanding

land use, and there are no adequate areas officially zoned for future development of commercial/office areas, green/sport and recreation areas, and protected conservation/water retention areas. Additionally, there are insufficient land use controls to restrict new development in potentially hazardous locations, such as flood prone areas.

Other key related challenges include:

- Illegal land use changes whereby landowners modify land use without official permission
- Villagers are unaware of official land use planning process and regulations.
- Weak enforcement of planning regulations due to limited financial and human resources
- Unauthorized constructions in environmentally sensitive and protected zones such as riparian strips along riverbanks.



Figure 5 Left: Google earth Pro 7.3.4.8573 (3/1/2013). Sam Neua, Laos. Coordinates 20°25'53.57"N 104° 2'0.27"E Eye alt 1.59 km) (Right: Google earth Pro 7.3.4.8573 (2/14/2020). Sam Neua, Laos. Coordinates 20°25'53.57"N 104° 2'0.27"E, Eye alt 1.59 km)

Settlement Planning: The two villages in the urban extension area face a significant challenge with uncontrolled and unsafe construction practices and locations. Buildings are often constructed in locations prone to floods and landslides. New settlements are developed without proper permits and disregard official construction regulations. Additionally, the scarcity of secure, construction-ready land is made worse by the absence of detailed planning processes with structured layout plans these new areas, resulting in disorganized development. Furthermore, there is an unregulated practice of cutting mountainsides and filling in rice paddy fields with excavation sand for the creation of new construction areas, which has created many unsafe building sites with high-risk conditions - numerous buildings having already experienced structural damage due to the instability of the filled soil. The filling of paddy fields changes the hydrology of the area, which disrupts natural water drainage patterns, reduces natural flood mitigation. Additionally, the excessive concrete sealing of plots limits effective water infiltration/ drainage on site and further contributes to the risk of flooding.



Figure 6 Unsafe construction practices in Sam Neua Village. Left: shows damaged building where constructed was stopped due to landslide at excavation. Right shows filling of rice paddy to create new construction land (TU Berlin, 2023)

Green and Blue Infrastructure: Inadequate management of green infrastructure is leading to the degradation and reduction of healthy green and blue areas in both villages. A key issue is the deforestation of forest areas to convert into agricultural land or built-up land. This is made worse by the cut-and-burn method used to convert forests, as it destabilizes soil and creates increased erosion and sedimentation in water bodies. Additionally, construction directly on the banks of rivers and streams narrow the width of the water bodies and damage/reduce the riparian zones that are essential for maintaining water quality and mitigating flood.



Figure 7 Residential construction in riparian zones: Left Sam Neua Village, Right Naliew Village (BORDA Laos, 2023)

Solid Waste Management: Inadequate solid waste management, marked by insufficient collection services and illegal waste disposal methods, presents significant challenges. This inadequacy leads to environmental pollution and public health risks. Challenges include waste collection services not covering entire villages, particularly new built-up areas and communities with narrow access roads. Additionally, there is a prevalent practice of waste disposal through burning, and the throwing of solid waste into water bodies and drainage systems, leading to blockages of effective water drainage, and increased flood risks in local areas.



Figure 8 Typical blockage of stormwater drainage in Naliew Village (BORDA Laos, 2023)

Structure and Key Elements

The plan is organized into eight focus topics, each encompassing a range of key projects identified within the two villages:

- 1. **Stormwater Management**: Implementing projects to improve stormwater and drainage systems for safety against water-related hazards.
- 2. **Wastewater Management**: Projects aimed at improving the wastewater management system to ensure all wastewater is safely managed and treated.
- 3. Water Supply Management: Initiatives to ensure every household has access to a reliable and safe water supply network.
- 4. **Catchment Area Management**: Managing the water catchment area with projects to maintain a sustainable ecosystem for a safe and reliable water supply.
- 5. Land Use Planning: Developing projects to establish a well-planned urban extension with a mix of land uses, public parks, protected forests, and waterways.
- 6. **Settlement Planning**: Creating sustainable and secure urban settlements through projects ensuring safety and compliance with urban planning laws and construction standards.
- 7. **Green and Blue Infrastructure**: Projects to manage green and blue infrastructure, preventing degradation and loss of green areas.
- 8. **Solid Waste Management**: Enhancing solid waste management through projects aimed at preventing pollution and health risks, ensuring clean and secure urban environments.

Implementation and Scope

Each focus area includes specific projects and programs, led by various agencies, targeting both Sam Neua Village and Naliew Village. The implementation period is set from 2024 to 2026.

WATER SENSITIVE AREA DEVELOPMENT PLAN

URBAN EXTENSION AREA SAM NEUA VILLAGE AND NALIEW VILLAGE

TOPIC 1: STORMWATER MANAGMEMENT

TOPIC 1 STORMWATER MANAGMEMENT

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES
Inadequate Stormwater and Drainage System	1.1 Lack of adequate stormwater infrastructure in extension area and town.	To improve stormwater and drainage system in urban extension area and make it safe from water-related hazards (floods, landslides, waterborne illnesses). To ensure waterways and water bodies are kept clean and safe.	1.1 To provide an effective stormwater system with adequate drainage infrastructure and capacities in the new urban expansion area.	1.1 Develop a new Integrated Stormwater Management and Drainage Plan
	of current drainage infrastructure in the extension area to manage the volume of stormwater.		1.2 As Above	1.2 Reserve and protect adequate amount of green area and blue- green corridors for infiltration and drainage
	1.3 Blocked drainage due to accumulation of solid waste and sand from erosion in surrounding area.		1.3 To increase understanding of residents on importance of stormwater management and maintaining clean waterways.	1.3 Conduct awareness raising for local communities on Stormwater Management and risks.

TOPIC 1 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD AGENCIES	LOCATION	MAIN BEFEFICIERIES	IMPLEMEN- TATION PERIOD
1.1	Stormwater and Drainage Planning	 Planning and design of Integrated Stormwater Management and Drainage System for the extension area Implementing appropriate SOPs, standards and regulations (household, village scales). Incorporating site-specific drainage interventions at 22 identified priority sites. 	DPWT, DoNRE, UDAA	 Sam Neua Village Naliew Village 	All communities of Sam Neua Town	2024-2026
1.2	Green Areas Planning: Public Green Areas and Protected Corridors	 Identifying, mapping: green areas: public spaces, recreation areas, forest, riverbanks, ponds, agricultural fields natural drainage corridors Reserving these areas and prohibiting development 	DPWT, DoNRE UDAA	 Sam Neua Village Naliew Village 	Communities of the 2 villages	
1.3	Awareness Raising Campaign	 Educating the community on safe, efficient stormwater management. Highlighting associated risks. Promoting effective household practices. 	DPWT, DoNRE, DoH	 Sam Neua Village Naliew Village 	Communities of the 2 villages	

SAM NEUA VILLAGE						
NO.	ACTIVITY TITLE	Site #	Proposed Project Site / location	Proposed Project	Implemen- tation	
1.1	Stormwater and Drainage Planning	1	Public offices complex Main road, south of Nam Sam River	Construction of on-site stormwater infiltration systems, in strategic locations of the office area, using car parking spaces, gardens and other vacant areas.	2024-2026	
		2	Reserved government land. Main road to airport, north of Nam Sam River and public office complex.	Construction of an on-site storm water infiltration system using available green space and car park area.		
		3	New Airport Junction commercial and residential area. Main road to new airport	Construct new stormwater drainage infrastructure along the main roads at the junction to serve the surrounding settlement area. New infiltration systems required/promoted at the household level for this area.		
		4	New roadside residential area. Along main road south of Nam Sam River	Construct new stormwater drainage infrastructure along the main road next to the settlement area.		
		5	New residential area. south of electrical sub-station (EDL), off main road, south of Nam Sam River	Upgrade stormwater drainage infrastructure along access roads to serve local settlement.		
		6	Local public primary school. Opposite public offices of Department of Agriculture.	Construction of an on-site storm water infiltration system using available green space on school grounds.		
		7	Office of Department of Agriculture and Forestry.	Construction of an on-site storm water infiltration system using car park area.		
		8	Central village residential area Extending south of Pha Road	Construct new drainage network and upgrade existing infrastructure along access roads, to serve local community; Integrated stormwater infiltration area with infiltration well or chambers		
		9	Old village centre West of Phoxaysanatam Temple	Construct new drainage network and upgrade existing infrastructure along main road and access roads, and to		

		serve local settlement; Integrated stormwater infiltration area with infiltration well or chambers.
10.	Residential area. Along main road heading, north from Sam Neua Village Office	Construct new drainage network along access roads, to serve local community.
19.	Residential area. Along main road heading, north from Sam Neua Village Office	Upgrade drainage infrastructure to avoid blockage due to construction issue with water supply network
20.	Residential area. Along main road heading, north from Sam Neua Village Office	Construct new stormwater drainage infrastructure to manage stormwater runoff
21.	Central village residential area Extending south of Pha Road	Construct new stormwater drainage infrastructure manage stormwater runoff
22.	New residential area. south of electrical sub-station (EDL), off main road, south of Nam Sam River	Construct new stormwater drainage infrastructure manage stormwater runoff

NALIEW VILLAGE						
NO.	ACTIVITY TITLE	Site #	Proposed Project Site / location	Proposed Project	Implemen- tation	
1.1	Stormwater and Drainage Planning	11	SOS Northern School (SOS Children´s Village) Main northern road to airport.	Construction of on-site stormwater drainage system with infiltration system (wells or chambers) on school grounds; upgrading existing drainage system along main road school, as well as access road along the school's western border; annual erosion prevention and annual drainage clearing measures.	2024-2026	
		12	Access roads in central residential	Construct new drainage network that can handle greater		

	area of village Main central village area, extending northeast of village.	stormwater volumes to serve the entire community area; upgrade existing drainage infrastructure along access roads; Integrated stormwater infiltration system / area with well or chambers.	
13	New residential area 40 plots East of Naliew Restaurant	Construct new drainage network along main area access road, to serve local community.	
14	Central village area Access road to village, stemming from main northern road to airport.	Construct new drainage network to serve the residential block; Integrated stormwater infiltration area with well or chambers.	
15	Landslide Site Main village access road	Construct appropriate on-site drainage system / infrastructure at site to reduce water in soil contributing to landslide risk (e.g. diversion channels, subsurface drainage, retention systems).	
16	Landslide site Main village access road	As above	
17	Adjacent Naliew Village Administration Office	Construct new standardized drainage system on properties between existing fishpond and stream.	
18	Residential area northeast of Provincial Hall On southern border of village, along main road to airport	Construct new drainage network to serve the surrounding community; upgrade existing drainage infrastructure along main road.	



TOPIC 2: WASTEWATER MANAGMEMENT

TOPIC 2 WASTEWATER MANAGMEMENT

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES
Inadequate Wastewater System	2.1 No sewage and grey water treatment system.	To improve wastewater management system in urban extension area: 100% of wastewater is safely managed and treated.	2.1 To provide an effective wastewater system for the urban extension area.	2.1 Develop a comprehensive Wastewater Management Plan for the urban extension area.
	2.2 No fecal sludge management.	To ensure waterways and water bodies are clean and safe for human health and the natural environment from dangers associated with wastewater disposal.	2.2 To provide a system for safe and efficient removal, treatment, and disposal of fecal sludge generated in the urban extension area.	2.2 Develop a Fecal Sludge Management system with treatment facilities at town level.
	2.3 Poor construction of septic tanks.		2.3 To ensure existing and new septic tanks are safely designed and constructed in the area.	2.3 Develop and enforce new design and construction standards for new septic tanks, and improvement requirements for existing septic tanks.
	2.4 Poor understanding of local communities of risks of inadequate wastewater disposal.		2.4 To increase understanding of residents on importance of wastewater management and health risks.	2.4 Conduct awareness raising for local communities on safe wastewater management and risks.

TOPIC 2 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD AGENCIES	LOCATION	MAIN BEFEFICIERIES	IMPLEMEN- TATION PERIOD
2.1	Wastewater Management Plan for Urban Extension Area	 Develop a comprehensive Wastewater Management Plan for the urban extension area incorporating DEWATS and improved septic tanks as infrastructure solutions. 	DPWT, DoNRE, DoH, DHUP, UDAA	 Sam Neua Village Naliew Village Town-wide 	All communities of Sam Neua Town	2024-2026
2.2	Sam Neua Town Fecal Sludge Management System at town level	 Development of a fecal sludge management system for the Town with regular fecal sludge collection and a treatment facility for proper processing. 	DPWT, DoNRE, DoH, DHUP, UDAA	 Sam Neua Village Naliew Village Town-wide 	All communities of Sam Neua Town	
2.3	Septic Tank improvement Programme	 Introduction of appropriate septic tank design and construction standards (i.e. improved septic tanks). Mandate for all new septic tanks in extension area to comply. Mandate for pre-existing tanks to be inspected and upgraded where necessary. 	DPWT, DoNRE, DoH, DHUP, UDAA	 Sam Neua Village Naliew Village 	Communities of the 2 villages	
2.4	Awareness Raising Campaign	 Comprehensive campaign to educate the community on safe, efficient wastewater management. Highlighting risks Promoting effective household practices. 	DPWT, DoNRE, DoH	 Sam Neua Village Naliew Village 	Communities of the 2 villages	

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SAM NEUA VILLAGE						
NO.	ACTIVITY TITLE	Site #	Proposed Project Site / location	Proposed Project	Implemen- tation	
2.1	Wastewater Management Plan	1	Reserved government land. Main road to airport, north of Nam Sam River and public office complex.	Construction of a decentralised wastewater treatment plant (DEWATS) with adequate capacities to serve the surrounding existing communities as well as future urban growth in the area, primarily the adjacent government offices, residential area along main roads and airport junction. Includes systems for safe greywater recycling and safe sludge treatment and disposal and/or reuse in local agriculture. Potential integration of the DEWATS system with existing pond next to the site, for tertiary treatment. Requirement for improved septic tanks for all new households within the area, that comply with new regulatory standards.	2024-2026	
		2	New residential area. South of electrical sub-station, off main road, south of Nam Heng River	Construction of a DEWATS with adequate capacities to serve surrounding community, for existing households and future demands as the area grows; integrated with systems for grease trap, safe greywater recycling and safe sludge treatment and disposal and/or reuse in local agriculture.		
		3	Established Residential area. off Pha Road (main road), opposite public primary school	Construction of a DEWATS as above		
		4	Old village centre West of Phoxaysanatam Temple and village administration office	Construction of a DEWATS as above		

5	New residential area. South of electrical sub-station (EDL), off Pha Road, south of Nam Heng River	Building regulation to be enforced for improved septic tanks for all new households within the area that comply with new regulatory standards.	
6	Residential area around public primary school, and office of Department of Agriculture and Forestry off Pha Road, south of Nam Heng River	Upgrading of existing household septic tanks in the area to meet new standards. Building regulation to be enforced for all new septic tanks constructed within the defined residential block, to comply with new regulatory standards for design and construction.	

NALIEW VILLAGE						
NO.	ACTIVITY TITLE	Site #	Proposed Project Site / location	Proposed Project	Implemen- tation	
2.1 Wastewater Management Plan	Wastewater Management Plan	er 7 Central residential area ent Adjacent to Naliew Village Administration office, opposite pond		Construction of a DEWATS with adequate capacities to serve surrounding community, for existing and future demands; integrated with systems for grease trap, safe greywater recycling and safe sludge treatment and disposal and/or reuse in local agriculture. Potential integration of the DEWATS system with existing pond next to the site, for tertiary treatment.	2024-2026	
		8	New residential area, 40 plots East of Naliew Restaurant	Construction of a DEWATS as above; Building regulation to be enforced for all new septic tanks constructed within the 40 plots residential area, to comply with new regulatory standards for design and construction.		
		9	Residential area northeast of Provincial Hall On southern border of village, along main road to airport	Construction of a DEWATS as above		



TOPIC 3: WATER SUPPLY MANAGMEMENT

TOPIC 3 WATER SUPPLY MANAGMEMENT

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES
Inadequate water supply system	3.1 Not all households in the urban extension area have access to the water supply network.	To ensure that every household in the area is connected to the official water supply network. To provide safe and consistently sufficient	3.1 To complete extension of existing network infrastructure to serve built-up areas that are currently not served.	3.1 Implementation of water supply network extension project of ADB.
	3.2 Insufficient water quantity available for residents with network connection; presence of contamination risks.	water supply to the area. To achieve water conservation as a common practice in households.	3.2 To provide safe and reliable network water supply in terms of quality and quantity to meet demands throughout the year.	3.2 Develop Management Plan for Water Resources Quality and Quantity - including the activation of the existing Water Safety Plan for the town.
	3.3 30% technical loss of water in the network.		3.3 To minimize technical losses in the network.	3.3 Develop a Water Loss Monitoring and Maintenance Plan to reduce technical losses.
	3.4 Lack of awareness of local communities on efficient use of network water (water conservation).		3.4 To increase understanding of residents on importance and benefits of water conservation, and associated options and methods.	3.5 Conduct annual awareness raising on water services for local communities on water conservation and resources such as rainwater harvesting.

TOPIC 3 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD AGENCIES	LOCATION	MAIN BEFEFICIERIES	IMPLEMEN- TATION PERIOD
3.1	Water Supply Network Extension	 Finalisation and implementation of the proposed ADB project to extend existing piped water supply network to the currently un-served locations, such as new built-up areas 	DWS, DPWT, DHUP, PNP, (ADB)	 Sam Neua Village Naliew Village 	Communities in new built-up areas	2024-2026
3.2	Water Supply Resources Management Plan / Activate WSP	 Development of a comprehensive plan to manage water supply in terms of adequate quantity and quality: to meet demands of the growing population, and be resilient to potential water shortages, safe for consumption, and secure. Activate the existing Water Safety Plan (WSP) that will ensure clean and safe water by identifying hazards, setting up controls, monitoring, response protocols, to reduce the risk of waterborne diseases. 	DPWT, DoH, DWS, DoNRE	• Town-wide	All communities of Sam Neua Town	
3.3	Water Loss Monitoring and Maintenance Plan	 The installation of water meters in at strategic points in the water supply network to detect leaks and reduce the amount of water lost. 	DPWT, DWS, DHUP	 Sam Neua Village Naliew Village 	Communities of the 2 villages	

3.4	Awareness Raising Campaign on Water Conservation	 Development and implementation of campaigns, community involvement on water conservation practices and water- efficient appliances. Education and promotion on water saving and recycling initiatives like rainwater harvesting, greywater recycling. 	Sam Neua Nam Papa, DoNRE	 Sam Neua Village Naliew Village 	Communities of the 2 villages	
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			SAM NEU	A VILLAGE	
NO.	ACTIVITY TITLE	Site #	Proposed Project Site / location	Proposed Project	Implemen- tation
3.1 Water supply network extension		1	New Airport Junction commercial and residential area. Main roads to new airport (north to south and east to west)	Construction of new water supply network infrastructure extending along the main roads to achieve 100% water supply coverage in this area, and prepare for additional future settlement growth. (according to ADB water network extension project).	2024-2026
		2	New residential area and new police training area Pha Road and access road west of joining with police office and training area	As above	
3.2	Water Supply Resources	3	New police training area North, of electrical substation	Construction of an on-site rainwater collection tank/ system, designed to capture and store rainfall from roofs and surface run-off, satisfying the users' demands	
	Management Plan	4	Restaurant and events centre Off Pha Road, next to electrical substation	throughout the year (supplementing for dry season); reducing the reliance on municipal water supply and reducing stormwater impact on local infrastructure.	
		5	Public primary school Pha Road	Rain water tanks also integrate with on-site drainage	
		6	Building complex opposite Kethsada School Pha Road	systems, to ensure that tank overflow is effectively managed.	

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			NALIEW	VILLAGE	
NO.	ACTIVITY TITLE	Site #	Proposed Project Site / location	Proposed Project	Implemen- tation
3.1	Water supply network extension	7	New residential area, 40 plots East of Naliew Restaurant	Construction of new water supply network infrastructure extending to achieve 100% water supply coverage in this area and prepare for additional future settlement growth. (according to ADB water network extension project).	2024-2026
3.2	Water Supply Resources Management	8	Government office area Along main road to new airport, southern border of village	Construction of an on-site rainwater collection tank/ system, designed to capture and store rainfall from roofs and surface run-off, satisfying the users' demands throughout the year (supplementing for dry season);	
	Plan	9	SOS Northern School (SOS Children´s Village) Main northern road to airport.	reducing the reliance on municipal water supply and reducing stormwater impact on local infrastructure. Rainwater tank integrates with on-site drainage systems,	
		10	Naliew Restaurant 2 North of village centre	to ensure that tank overflow is effectively managed.	
		11	New residential area 40 plots East of Naliew Restaurant		
		12	Roadside Property Northern village access road, approx. 150m north of 40 plots		



TOPIC 4: WATER CATCHMENT AREA MANAGMEMENT

TOPIC 4 WATER CATCHMENT AREA MANAGMEMENT

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES
Inadequate management of the water catchment area Downstream	4.1 Deforestation occurring upstream of the extension area/ town.	To ensure the water catchment area and urban settlements within it are adequately managed and kept healthy and resilient with a sustainable ecosystem that provides	4.1 To protect and preserve natural assets in the entire catchment area with strict control and limitation of deforestation.	 4.1a Development of a comprehensive Water Catchment Area Management Plan 4.1b. Training on QGIS and Drone Mapping
environmental degradation	4.2 Uncontrolled changing of land uses from agriculture to urban settlement, and from natural forest area to agriculture.	sate, reliable water supply.	4.2 To strongly regulate and limit land use conversion of existing forests and agricultural land.	4.2 Development of appropriate land use regulations, specifically for conversion of forest and agricultural land, accompanied by strong enforcement capacities.
	4.3 Local village communities are not aware of the negative effects of land use changes, deforestation, polluted water discharges on downstream waterbodies, and communities.		4.3 To raise awareness among catchment area residents and stakeholders on communal benefits for compliance with catchment area management initiatives.	4.3 Conduct annual awareness raising in strategic locations / villages throughout the water catchment area.

TOPIC 4 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD AGENCIES	LOCATION	MAIN BEFEFICIERIES	IMPLEMEN- TATION PERIOD
4.1a	Water Catchment Area Management Plan	 A comprehensive Water Catchment Area Management Plan that includes priority measures/plans for: flood and drought risk mitigation; sustainable land use practices; preservation and protection of natural assets (forests, other green areas, rivers, and other waterways); water use monitoring and storage; and pollution reduction. 	DoNRE, DPWT, DHUP, DWS, Dol, DoIH, PNP	 Sam Neua Village Naliew Village 	All communities in water catchment area	2024-2026
4.1b	Training on GIS and Drone Mapping	 Training of local departmental staff on QGIS and Drone Mapping: map-making, spatial analysis, drone missions, image capture, data integration in QGIS. 	DoNRE, DPWT, DHUP	Not Applicable	All communities in water catchment area	
4.2	New Land Conversion Regulations	 Elaboration of specific land conversion policy and regulations which better protect and preserve existing natural forests and agricultural land and limit excessive urban expansion: Involves the development of adequate regulation, policies, enforcement capacities. Includes training enforcement officials, revising regulations. 	DoNRE, DPWT, DHUP	Catchment	All communities in water catchment area	

		investing in monitoring technology, forming inter- departmental collaborations, and awareness programs for developers.			
4.3	Awareness Raising Campaign	 Community awareness raising events on negative impacts of uncontrolled land use changes, deforestation, pollution, and benefits for and increasing stakeholders' responsibilities and collaboration according to the Catchment Plan initiatives. 	DoNRE, PNP	 Sam Neua Village Naliew Village 	All communities in water catchment area

TOPIC 5: LAND USE PLANNING

TOPIC 5 LAND USE PLANNING

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES
Inadequate land use planning	5.1 Absence of a comprehensive land use zone plan and adequate development controls	To establish a well-planned livable, resilient urban extension area in the 2 focus villages:	5.1 To effectively plan and guide land uses for the future urban development of the	5.1a Capacity development for appropriate staff on land use planning and use of QGIS.
Unplanned, unregulated utilization of land	for the area.	 with a compatible mix of land uses, public parks, protected 	area.	5.1b Preparation of a detailed Land Use Plan for the designated urban extension area.
	5.2 Unplanned, unauthorized changes of land uses (forest to agricultural land; and agricultural land to settlement land). (As 4.2)	 forests, and waterways with development only in safe, hazard-free locations which can withstand 	5.2 To effectively regulate and limit conversion of agricultural and forest land to urban area land use. (As 4.2)	5.2 Strengthening local regulations, enforcement powers and capacities to guide all new development according to the Land Use Plan (As 4.2)
	5.3 Unplanned, unauthorised land uses/ development in risk prone locations	flood, landslides, drought, and other environmental challenges.	5.3 To effectively prevent development of any unplanned, unauthorised land use / development in risk prone locations.	5.3 Risk Area Mapping; integration of identified risk areas into the Land Use Plan (5.1b); elaboration of strict development controls and stronger enforcement capacities regarding land use in risk areas.
	5.4 Unclear organisational structures and weak collaboration between key local government departments involved in		5.4 To greatly strengthen orgnanisational structures and collaboration between DPWT, DoNRE and	5.4 Elaboration of an appropriate organisational development plan to improve interdepartmental collaboration.

POLYURBAN

Land Use Planning and Management.	UDAA and District Government.	

TOPIC 5 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD LOCATION		MAIN BEFEFICIERIES PE	IMPLEMEN- TATION PERIOD
5.1a	Training for Land Use Planning and GIS / Drone Mapping• Sufficient training of key local staff on key contemporary principles of land use planning and the Lao system; practical mapping of new compatible land use zones, risk prone areas (flood and landslide-prone locations), and protected areas (forests, riverbanks).• Training of key local departmental staff on QGIS and Drone Mapping: map-making, spatial analysis, drone missions, 		DPWT, DHUP, PTI	Not Applicable	All communities of Sam Neua Town	2024-2026
5.1b	Elaboration of a Comprehensive Land Use Plan	 Comprehensive Land Use Plan for urban extension areas in Sam Neua & Naliew Village: compatible land use zones, with ample public green spaces and water retention sites; "No building permitted" and "high control zones"; protected areas including forests, riverbanks, natural drainage paths. Elaboration of the Plan follows a participatory, multi-stakeholder, cross- sectoral process, in line with Lao Urban Planning processes, with involvement of 	DPWT, DHUP, PTI, DoNRE, UDAA	 Sam Neua Village Naliew Village 	All communities of Sam Neua Town	

		key stakeholders (community members, local government officials, and property owners, developers, investors).			
5.2	Strategic Plan for Improving Control and Enforcement related to Land Conversion and High-Risk Zones	 Aimed at increasing local enforcement capabilities to better regulate and control: conversion of forested and agricultural lands for urban development purposes (As 4.2) development at locations identified in the Risk Area Mapping (5.3) 	DPWT, DHUP, DoNRE	• Town-wide	All communities of Sam Neua Town
5.3	Risk Area Mapping	 Conduct a risk mapping exercise to identify areas that are prone to flooding, landslides, and other natural hazards. Information will be used to guide the development of the Land Use Plan and identify areas that should be designated as no-build zones, high control or protected areas. 	DPWT, DoNRE, DHUP, UDAA	• Town-wide	All communities of Sam Neua Town
5.4	Organisational Development Plan	 Elaboration of a transparent decision-making protocol for land management; routine stakeholder meetings; development of a shared land use planning database. 	DPWT, DoNRE and UDAA and District Government.	Not Applicable	All communities of Sam Neua Town

		5	SAM NEUA VILLAGE & NALIEW VILLAGE	
NO.	ACTIVITY TITLE	Proposed Project Site	Proposed Project	Implemen- tation
5.1b	Elaboration of Comprehensive Land Use Plan Potential Risk Area Mapping	Map shows initial indication of new land use zone locations	 Elaboration of a Land Use Planning based on initial indications of new land use zones shown on map below for extension area in Sam Neua Village and Nailew Village. Concept to elaborate is for: a low to medium density residential area with a mix of land uses and building heights, while preserving agricultural and recreational zones. safety and resilience, with flood-safe built-up areas and strict controls in high-risk zones. maintaining green and blue areas, including forest and riverbank protection, the creation of parks, maintenance of green river corridors, preservation of natural drainage, and promotion of fishponds along the Sam River, as well as the upkeep of agricultural fields. The planning approach follows a participatory, cross- sectoral process, in line with Lao 	2024-2026
5.3	Potential Risk Area Mapping	Entire focus area	Urban Planning processes. This project entails a detailed risk mapping exercise to identify areas vulnerable to natural hazards such as flooding and landslides. Key steps include collecting geographical and historical data, using GIS technology for accurate risk area identification, and assessing these areas' vulnerability. The findings will guide the development of a Land Use Plan, categorizing regions into no-build zones, high control areas, or protected regions.	





TOPIC 6: SETTLEMENT PLANNING

TOPIC 6 SETTLEMENT PLANNING

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES	
Inadequate planning of settlements Un-controlled, unsafe construction	6.1 Lack of a layout plans or process for development of settlements (built-up land) in the extension area; tendency for uncontrolled development of large, lower-density plots, while secure land suitable for safe construction is limited.	To establish a sustainable and resilient, secure urban settlement in the area, which can cope with the impacts of climate change and urbanisation in the future. To guarantee the safety of all construction in the area by ensuring it complies with urban planning laws, construction regulations and standards.	6.1 To effectively plan the area layout, to be environmentally sustainable, water sensitive, with higher population density.	 6.1a Capacity development for appropriate staff 6.1b Strategically plan the subdivision layout for the extension area following Water Sensitive Urban Design principles, and as a compact area, for a higher population density. 	
	6.2 Unplanned, unauthorised construction in risk prone locations (flood, landslide)		construction regulations and standards.	6.2 To effectively prevent development of any unplanned, unauthorised development in risk prone locations.	6.2 Risk Area Mapping (as 5.3); elaboration of strict development controls and enforcement capacities regarding risk areas.
	6.3 Property owners/ builders are not familiar with or ignore official construction processes and standards.				
	6.4 Landslide risk prone locations are created via unregulated excavation of mountainsides along		6.4 To safely regulate and control mountain side excavation activities.	6.4 Improve management of excavation activities with strict permit processes and enforcement of existing regulations and	

roads.		standards.
6.5 Unauthorised, uncontrolled filling-in of agricultural fields creates unsafe foundations for buildings.	6.5 To safely regulate and control filling activities.	Carry out sufficient landslide protection measures for existing excavation sites that do not yet meet standards. 6.5 Improve management of filling activities with strict permit processes and enforcement of existing construction regulations and standards and the water resources law.
6.6 High amount of concrete sealing on private plots.	6.6 To regulate and control sealing of surfaces on private plots.	6.6 Create building regulation to control sealing of surfaces (permeability) for new development.

TOPIC 6 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD AGENCIES	LOCATION	MAIN BEFEFICIERIES	IMPLEMEN- TATION PERIOD
6.1a	Training for planning sustainable urban development and WSUD	 Sufficient training of key local operational staff on incorporating key contemporary principles of planning and design for sustainable urban development/ urbanisation (focused on Water Sensitive Urban Design and population density measures). 	DPWT, DHUP, PTI, DoNRE	Not Applicable	All communities of Sam Neua Town	2024-2026
6.1b	Elaboration of Area Layout Plans: compact area, water sensitive urban design.	 Preparation of subdivision layout plans for un-developed land following completion of Land Use Plan; key appropriate WSUD principles Compact Urban Area principles. Elaboration of new official building regulations for the planning and construction of new development in accordance with urban planning and design principles for WSUD and Compact Urban Area. Elaboration of the Plan and associated regulations follow a participatory, multi-stakeholder, cross- sectoral process, in line with Lao Urban Planning processes, with involvement of key stakeholders (community members, local government officials, property owners, 	DPWT, DHUP, PTI, DONRE, UDAA	 Sam Neua Village Naliew Village 	Communities of the 2 villages	

		developers, investors).			
6.2	Risk Area Mapping	Addressed by Project 5.3			
6.3	New official building regulations	Addressed by Project 6.1b			
6.4	Strategic Plan for Improving Control and Enforcement related to "Cut and Fill" Activities and Sites.	 Plan to improve compliance and enforcement processes to better control all activities related to "cut and fill" as well as the long-term security of the excavation sites and filled-in sites. Involves the development of procedures and policies aimed at strengthening regulation and management of cut and fill operations, as well as ensuring the ongoing security and safety of sites affected by such activities. Includes training enforcement officials, revising regulations, investing in monitoring technology, forming inter- departmental collaborations, and awareness programs for developers. 	DPWT, DoNRE, DHUP, UDAA	• Town-wide	All communities of Sam Neua Town
6.5	Development Regulation for Surface Permeability (under 6.1b)	 Create specific building regulation for surface permeability for new developments whereby a minimum of amount of the plot must remain permeable and free from sealed surfaces. 	DPWT, DoNRE, DHUP, UDAA	 Sam Neua Village Naliew Village 	Communities of the 2 villages

TOPIC 7: GREEN and BLUE INFRASTRUCTURE

TOPIC 7 GREEN AND BLUE INFRASTRUCTURE

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES
Inadequate management of green and blue infrastructure. Degradation and reduction of green areas.	7.1 Changing of land uses: from forest areas to agriculture land; and agricultural land to settlement area. (same as 4.2)	 To enhance and maintain a high level of environmental quality by: preserving existing green and blue infrastructure (forests, parks, streams, rivers, marshland, and ponds); and providing sufficient green space at village and household levels, in accordance with the <i>Vision Agreement for a Green, Clean, Beautiful Town.</i> 	7.1 To effectively limit further loss and degradation of green / blue spaces and to provide additional green spaces according to requirements of the <i>Vision Agreement.</i>	 7.1a Green area planning for preservation of existing green and blue areas and creation of future additional green spaces, at village and household levels. 7.1 b Same as 4.2 (Development of appropriate land use conversion regulations, specifically for forest and agricultural land, and enforcement powers/ capacities.
	7.2 Deforestation and damage of riparian zones along rivers.		7.2 To effectively restore damaged areas and keep in a healthy condition (particularly deforested land and riverbank riparian zones).	7.2 Rehabilitation of damaged green areas via re-forestation and restoration of riparian zones.
	7.3 Inadequate staff capacities concerning applicable regulations and obligations.		7.3 To effectively increase staff capacities on relevant policies, regulations, obligations, and enforcement powers and processes.	7.3 Capacity building for effective green area planning of the urban extension area, including NbS options, regulatory environment, and enforcement processes.

TOPIC 7 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD AGENCIES	LOCATION	MAIN BEFEFICIERIES	IMPLEMEN- TATION PERIOD
7.1	Elaboration of a Green-Blue Area Plan	 Preparation and implementation of a plan to preserve and protect existing green and blue areas, as well as conduct green area planning to create additional green areas- at village and household levels - that effectively integrate with Land Use Planning 5.1b (Elaboration of a Land Use Plan). Additional green areas at the village level, include multi- functional public parks, sports fields, etc.; at the household level, the plan will attempt to ensure 20% of household green space is preserved and maintained. 	DPWT, DoNRE, DHUP	 Sam Neua Village Naliew Village 	Communities of the 2 villages	2024-2026
7.2	Land Restoration Programme	 Strategic activities to effectively rehabilitate vital green areas that have been degraded. This will primarily involve replanting trees on heavily deforested land and restoring damaged riverbanks. 	DPWT, DoNRE, DHUP	 Sam Neua Village Naliew Village 	Communities of the 2 villages	
7.3	Capacity Building for Green Area Planning	 Training sessions to improve the expertise and abilities of local authorities in planning and managing green and blue areas, along with hybrid systems (grey- green/blue), and understanding 	DPWT, DoNRE, DHUP	Not Applicable	All communities of Sam Neua Town	

	and capacities for enforcement of		
	related regulations.		

SAM NEUA VILLAGE & NALIEW VILLAGE							
NO.	ACTIVITY TITLE	Proposed Project Site	Proposed Project	Implemen- tation			
7.1	Elaboration of Green-Blue Area Plan	Map shows initial indication of relevant locations	 Elaboration of a Land Use Planning based on initial indications of new land use zones shown on map below for extension area in Sam Neua Village and Nailew Village The proposed project involves developing and implementing a plan to safeguard current green and blue spaces while also expanding green areas at both village and household levels. At the household level, the goal is to ensure that at least 20% of each property remains as green space, contributing to a more sustainable and environmentally friendly village areas, enhancing the overall quality of life in the area. This plan will complement the Land Use Plan 5.1b by introducing multi-functional public parks and sports fields at the village level. 	2024-2026			



TOPIC 8: SOLID WASTE MANAGEMENT

TOPIC 8 SOLID WASTE MANAGEMENT

STRATEGIC FRAMEWORK

ISSUE	KEY CONTRIBUTING FACTORS	MEDIUM TERM DEVELOPMENT GOALS	IMMEDIATE TARGETS	STRATEGIES
Inadequate solid waste management Pollution and public health risks	8.1 Incomplete solid waste collection services in the urban extension area.	To provide a clean and secure urban extension area, free of pollution and health risks from inadequate solid waste management, and consistent with "Green, Clean, Beautiful"	8.1 To provide adequate solid waste collection and disposal services throughout the focus area and villages upstream.	 8.1a Development of SoP for decentralized solid waste management (DESWAM). 8.1b Extend current service network and ensure affordable fees.
	8.2 Illegal disposal of solid waste in water bodies, open areas, and drainage systems; Illegal burning of solid waste.	Agreement. To ensure all urban water service infrastructure in the area are kept adequately clean, free from solid waste and related issues.	8.2 To reduce illegal disposal of solid waste.	8.2a Update regulations and strengthen enforcement capacities to ensure adherence.8.2b Introduce a programme for 3R model (reduce, reuse, recycle waste).
	8.3 Lack of awareness in communities of negative impacts of illegal disposal of solid waste.		8.3 To effectively raise awareness of downstream negative effects of unlawful disposal, and benefits of using services.	8.3 Awareness raising and promotion of 3R model

TOPIC 8 PROJECTS AND PROGRAMMES

NO.	ACTIVITY TITLE	BRIEF DESCRIPTION	LEAD AGENCIES	LOCATION	MAIN BEFEFICIERIES	IMPLEMEN- TATION PERIOD
8.1	Elaboration of SoP for Decentralised Solid Waste Management (DESWAM)	 Creating a Standard Operating Procedure (SOP) involves outlining specific protocols, roles, and processes for local-level waste collection and disposal, tailored to the specific local needs and conditions and incorporates the principles of DESWAM, which focuses on sustainable, efficient, and community-centric waste management practices. 	DPWT, DoNRE,	 Sam Neua Village Naliew Village 	Communities of the 2 villages	2024-2026
8.2a	Planning for Solid Waste Collection Service Extension	 Identifying new areas requiring solid waste management services in the extension area and upstream villages. Expanding and upgrading facilities for waste collection, sorting, recycling, and disposal. Enhancing roads to facilitate enable access for waste collection vehicles. 	DPWT, DoNRE	 Sam Neua Village Naliew Village 	Communities of the 2 villages	
8.2b	Plan to improve local solid waste disposal practices	 Elaboration of a "3R Program" focused on promoting waste reduction, reuse, and recycling practices within the area to enhance sustainable waste management. Revising regulations and 	DPWT, DoNRE	Sam Neua VillageNaliew Village	Communities of the 2 villages	

		strengthening enforcement mechanisms for solid waste disposal, (with fines for illegal disposal) for effective and environmentally responsible waste handling practices.				
8.3	Awareness Raising Campaign	 Campaign with local and upstream communities to educate local communities on the benefits of the "3R Program" (reduce, reuse, recycle); highlight the negative consequences of illegal disposal; and emphasize revised regulations and enforcement strategies for responsible waste handling. 	DPWT, DoNRE and UDAA and District Government.	 Sam Neua Village Naliew Village 	Communities of the 2 villages	

SAM NEUA VILLAGE **ACTIVITY** Site Implemen-NO. **Proposed Project Site / location Proposed Project** TITLE # tation Expansion of solid waste collection services to include 8.2 Solid Waste New commercial and residential 2024-2026 1 Collection neighbourhoods surrounding the airport junction and area at airport junction Service Main road to new airport areas to the north, ensuring comprehensive waste Extension management, and enhancing local area cleanliness. 2 New pocket of residential area, Access road improvement: enhancement and widening south of junction of current narrow access roads to ensure that waste Off main road south of airport junction, collection vehicles can safely and dependably reach all at opposite Hai Chi Am Restaurant areas throughout the year, thereby improving the 3 New pocket of residential area efficiency of trash removal services. Along dirt access road, southwest of Expansion of solid waste collection services to include government office complex. **Residential area** the surrounding area once road improvement completed. 4 Old village centre, along access road to Nam Heng River north of Pha Road New residential area 5 Southwest of SOS school 6 New residential area South of main road to airport, west of SOS school

NO.	ACTIVITY TITLE	Site #	Proposed Project Site / location	Proposed Project	Implemen- tation
8.2	Solid Waste Collection Service Extension	7 8 9 10	Residential areaMain road to new airport, oppositeSOS SchoolCentral residential area of villageCore established residential area ofvillageNew pocket of residential areaAlong dirt access road, northeastresidential core areaNew Residential area, 40 plotsEast of Naliew Restaurant	Access road improvement: enhancement and widening of current narrow access roads to ensure that waste collection vehicles can safely and dependably reach all areas throughout the year, thereby improving the efficiency of trash removal services. Expansion of solid waste collection services to include the surrounding area once road improvement completed.	2024-2026



POLYURBAN