Enhancing Community Resilience and Local Governance Project Phase II (ECRP II)

GENERIC ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

FOR

Disaster Risk Management (DRM) Infrastructure Upgrading and Rehabilitation for Rubkona County, Unity State

JULY 2026

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EXECUTIVE SUMMARY

The Enhancing Community Resilience and Local Governance Project Phase II (ECRP II), financed by the World Bank and implemented by the Ministry of Finance and Planning together with the Local Government Board (LGB), is conducted in partnership with the International Organization for Migration (IOM) across 12 counties. The project aims to expand access to essential services, strengthen resilience to flooding, and improve institutional capacity for local service delivery and disaster risk management. Under this framework, several flood-related sub-projects in Rubkona County were prioritized and assessed through an environmental and social screening process from January – February 2026.

Project Area and Purpose

The Upgraded Disaster Risk Management (DRM) Infrastructure for Rubkona County involve; (a) Bentiu (site-E) dyke upgrading based on detail design, (b) Pakur dyke upgrading based on detail design, (c) Drainage system of Pakur, (d) Upgrading of Road that connects Rubkona to Pakur, (e) Upgrade Bentiu-Kuach (until prison) raised road (site-E feeding road), (f) Road from Animal resource to Kuach road (site-E feeding road) and (g) Pakur Nature Based Solutions (NBS) implementation. This Environmental and Social Management Plan (ESMP) outlines the environmental and social risks associated with these activities and provides mitigation strategies, monitoring requirements, performance indicators, cost estimates, and institutional responsibilities. It also includes a grievance redress mechanism to guide community members on how to raise concerns during subprojects implementation. After construction, County Management Committees will use this ESMP to manage and maintain the flood-mitigation infrastructure.

Stakeholders and Community Interests:

The residents of Rubkona County are the primary stakeholders. Based on the feedback obtained during the stakeholder consultation, the ECRP II team noted that the stakeholders strongly supported the proposed interventions and emphasized the urgency of completing the works before the rainy season. Their main concerns relate to protecting existing infrastructure, enabling the return to reclaimed land, and reducing overcrowding in currently inhabited areas.

Policy Framework and Approach

In line with ECRP II requirements, all sub-projects underwent environmental and social screening before ESMP preparation. This ESMP incorporates DRM 2026 sub-projects within the same operational area. It aligns with the Environmental and Social Management Framework (ESMF), Environmental and Social Commitment Plan (ESCP), Stakeholder Engagement Plan (SEP), and other safeguards instruments developed for ECRP II. The ESMP was prepared through a multi-disciplinary process involving technical experts and extensive stakeholder engagement.

Key Environmental and Social Impacts

The project is expected to generate both positive and adverse impacts. The table below provides a summary of some of the identified impacts:

CATEGORY	IMPACT	PARAPHRASED DESCRIPTION
Positive Impacts	Employment Opportunities	Construction activities will create short-term jobs for local workers, providing income and economic stimulation.
	Reduced Flood Risk	The project will lower the likelihood of flooding, improving safety and security for communities in vulnerable areas.
	Protection of Key Infrastructure	Safeguarding the Rubkona water treatment plant will ensure uninterrupted access to clean drinking water for more than 13,000 residents.
	Better Livestock Health	By reducing exposure to contaminated floodwaters, livestock will face fewer waterborne diseases.
	More Usable Land	Reclaimed and protected areas will increase the amount of land available for settlement and agricultural activities.
	Stronger Community Resilience	Long-term resilience will improve, reducing displacement and enabling more stable living conditions.
Negative Impacts	Occupational Safety Risks	Construction workers may face hazards related to equipment use, site conditions, and physical labor.
	Spread of Diseases	Crowded work environments and population movement may increase the transmission of infectious diseases.
	Public Health Challenges	Higher population density and limited sanitation facilities may worsen hygiene-related health issues.
	Environmental Pollution	Construction activities may contribute to air, water, and soil contamination.
	Waste Management Issues	Handling and disposal of construction and domestic waste may pose challenges.
	Ecological Disturbance	Vegetation, wildlife, and ecosystem functions may be disrupted during construction.

Mitigation Strategy

This ESMP applies the mitigation hierarchy as presented below:

MITIGATION LEVEL	EXAMPLES OF MEASURES
Avoidance	Integrating pollution-prevention features into design; careful material selection; minimizing waste generation; promoting reuse and recycling; awareness-raising on waste management.
Minimization	Using pollution-control technologies; implementing SOPs and work instructions; community education; monitoring systems for environmental and safety risks.
Compensation	Establishing small-scale compensation plantations where necessary.

Occupational Safety Health Risk control and management will follow the hierarchy of controls—prioritizing elimination, then engineering and administrative controls, and finally personal protective equipment where needed though it is the least preferred option.

Ecological Considerations

DRM construction activities will mainly affect flooded grasslands. Once flooding is controlled, natural ecological succession is expected, with grasslands establishing and woody vegetation gradually encroaching. Reclaimed areas will support livestock grazing and other livelihood activities.

Socioeconomic Considerations

Human life: The project will significantly enhance safety by protecting communities and reducing displacement risks. More than 76,000 people are expected to benefit once the subprojects are fully completed.

Human health: Increased population density and poor sanitation may heighten disease risks, requiring targeted mitigation. Through these interventions, Rubkona county is likely going to be decongested as people will be occupying the dry land. This will reduce the population density, and it is anticipated that the prevalence of associated diseases will also be reduced.

Livestock health: Reduced waterlogging will lower disease transmission among cattle.

Water access: Protecting the water treatment plant ensures continued supply of safe drinking water.

Habitation and livelihoods: Reclaimed land will support settlement, farming, and reduced seasonal migration.

Stakeholder Feedback

All consulted stakeholders (Government, PDCs, PDRMCs, Institutions, Traders, Vulnerable groups and other interested parties) expressed strong support for the sub-projects. They emphasized compliance with national laws, the importance of community involvement, and the significant socioeconomic benefits expected. Overall, the benefits outweigh the anticipated negative impacts, and communities are likely to be better off with the proposed upgrading of DRM infrastructure in Rubkona County than without it.

CHAPTER 1

BACKGROUND AND INTRODUCTION

Enhancing Community Resilience and Local Governance Project Phase II (ECRP II)

ECRP II is a World Bank–financed initiative implemented by the Ministry of Finance and Planning together with the Local Government Board (LGB). The International Organization for Migration (IOM) serves as the implementing partner across 12 counties. The project aims to strengthen local governance structures, improve community-level service delivery, and develop infrastructure that supports resilience in vulnerable areas of South Sudan.

Since the project began, IOM has worked with communities through structured participatory planning at the county, payam, and boma levels. These processes help communities articulate their needs, analyze local challenges, and propose solutions that guide development priorities. The project also supports the operationalization of the Local Government Act by empowering Boma Development Committees (BDCs) and Payam Development Committees (PDCs) to lead community-driven development efforts.

The overarching Project Development Objective (PDO) is to expand access to essential services, enhance flood resilience, and strengthen institutional capacity for local service delivery and disaster risk management at national and sub-national levels.

Project Components

Component 1: Infrastructure and Services for Community Resilience

This component finances community-level infrastructure and services, as well as physical investments aimed at reducing flood risks.

- **Subcomponent 1.1: Community Infrastructure and Services** Supports community-identified infrastructure investments in vulnerable areas, including additional support for counties hosting refugees.
- **Subcomponent 1.2: Flood Risk Reduction Investments** Funds flood-control infrastructure and the technical studies required to design them. These investments are based on detailed assessments of flood hazards, exposure, and community vulnerability.
- **Subcomponent 1.3: Operations and Maintenance (O&M)** Introduces tailored O&M approaches depending on the type of infrastructure and the socioeconomic characteristics of each community.

Component 2: Institutional Strengthening

This component enhances the capacity of community institutions and government entities involved in service delivery and disaster risk management.

- **Subcomponent 2.1: Community Institution Strengthening** Builds on lessons from ECRP I to further strengthen community-level governance structures.
- **Subcomponent 2.2: County Government Strengthening** Supports County authorities in fulfilling their responsibilities for service delivery and disaster preparedness.
- **Subcomponent 2.3: National and State Government Strengthening** Enhances the technical capacity of the Project Management Unit (PMU), MoFP, and LGB in areas such as procurement, financial management, monitoring and evaluation, environmental and social standards, and O&M planning.

Component 3: Emergency Flood Response

Providing emergency flood response activities in selected flood-affected vulnerable areas including areas experiencing a large inflow of displaced population in Northern Bahr el Ghazal (NBeG) and Warrap States.

Component 4: Project Management and Learning

This component covers project management functions, including technical oversight, financial management, procurement, environmental and social risk management, and communication. It also supports:

- geo-enabled monitoring systems
- A grievance redress mechanism accessible to refugees, IDPs, and host communities
- impact evaluations
- conflict analysis
- just-in-time studies
- third-party monitoring
- PMU operational costs

Component 5: Contingency Emergency Response

The Contingency Emergency Response Component (CERC) allows rapid reallocation of project funds during emergencies such as natural disasters or major disease outbreaks. Activities under this component will be guided by a dedicated CERC Implementation Manual.

Project Design Principles

ECRP II is guided by several core principles:

1. **Strengthening the humanitarian–development nexus** by supporting early recovery and building resilient service systems.
2. **Coordinating with government and development partners** to maximize the impact of investments.
3. **Applying conflict-sensitive approaches** to promote social cohesion and understanding how interventions interact with local dynamics.
4. **Prioritizing sustainability and community-centered development**, including climate-resilient designs and use of local materials and labor.

5. **Ensuring evidence-based O&M strategies** tailored to demographic and socioeconomic conditions.
6. *(Note: Principle 6 is not listed in the original text.)*
7. **Promoting inclusion of marginalized groups**, ensuring representation of women, youth, persons with disabilities, and displaced populations.
8. **Reducing vulnerability to climate-related disasters** by addressing root causes of flood risk and strengthening government capacity for disaster management.

Immediate Flood Mitigation Measures for Rubkona County

The proposed flood-mitigation sub-projects in Rubkona County underwent environmental and social screening and were classified as having **moderate** environmental and social risks. Although the risks are localized and manageable, they require structured mitigation measures.

This Environmental and Social Management Plan (ESMP) outlines the actions needed to prevent, minimize, or offset negative impacts during construction and operation of the flood-mitigation works. It also identifies monitoring requirements and institutional responsibilities to ensure compliance with the Environmental and Social Management Framework (ESMF) of ECRP II.

This ESMP provides a comprehensive framework for managing environmental and social risks throughout the implementation of the Flood Mitigation Measures, ensuring that the benefits of the project are realized while adverse impacts remain within acceptable limits.

CHAPTER 2

A. SUB-PROJECTS DESCRIPTION- RUBKONA – UNITY STATE

Sub-project's location

Rubkona County is in the centre of Unity State and hosts the state capital at Bentiu. It borders Guit County to the east, Koch County to the south and Mayom County to the south-west. It also borders the Ruweng Administrative Area (Pariang County and Abiemnhom County) to the north. an area bordering Sudan is claimed by both Rubkona County and the Ruweng Administrative Area.

In 2021, Rubkona County was identified as a flood-affected county by the Emergency Response Coordination Center. Flooding continued in parts of Rubkona throughout much of the 2021-22 dry season and the compound effects of multiple years of flooding have driven significant humanitarian needs in the county from 2022 through 2024. Much of the county, including the areas around Rubkona and Bentiu towns, remained submerged by water in early 2023 and has remained the subject of significant attention by politicians and humanitarians seeking longer-term solutions to the resulting interruption to livelihoods and displacement. Flooding has driven persistently high levels of food insecurity in Rubkona County, reducing livelihood activities, limiting income-earning opportunities, disrupting supply chains, and contributing to disease outbreaks.

The Sub-projects are earmarked to be implemented in Unity State, Rubkona County, See Figure 1 below. Rubkona county hosts the state capital, Bentiu. It is a central hub for trade, communication, and programme interventions in Unity state. Rubkona also has the largest internally displaced persons (IDP) camp in the country, accommodating around 120,000 people. The Bahr El Arab River, part of the Nile River system, flows through the county from east to west toward Mayom County and is partially navigable. The county consists of floodplains and becomes inundated or inaccessible during the rainy season.

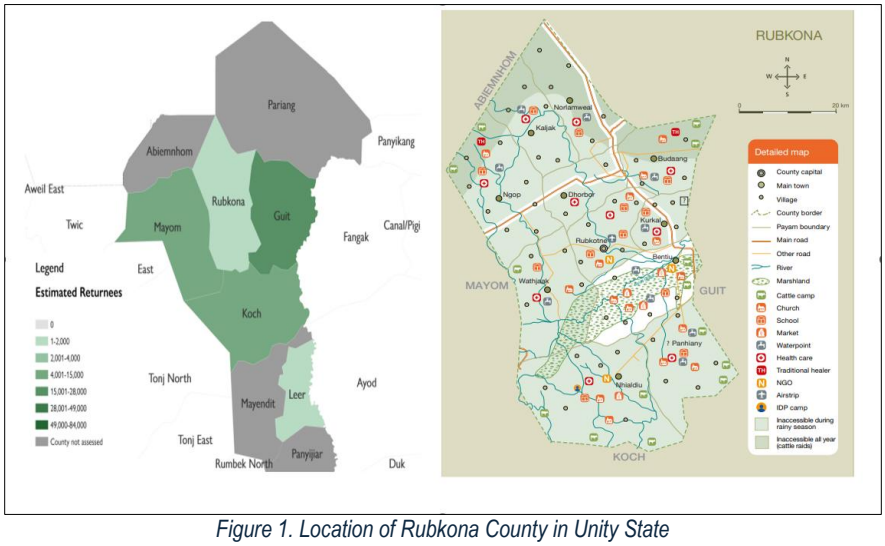


Figure 1. Location of Rubkona County in Unity State

General overview of the sub-projects

The proposed sub-projects focus on the upgrading of Immediate Flood Mitigation Measures for Rubkona County (*Upgrading & Drainage System Works in Rubkona County)*, the rehabilitation of three main roads in Rubkona inside the ECRP II reclaimed area and implementation of natural based solutions. The proposed sub-projects in Rubkona County, Unity State lie at 399m above sea level (9°16'47.1" N and 29°46'41.9"E). Though Rubkona county comprises eight (8) payams, the sub-project will be targeting Rubkona and Panhiany Payams. Both Payams are secured with dikes constructed during previous floods (2022 and 2025) , the dikes were constructed under Enhancing Community resilience and local governance project II (ECRPII) and will be upgraded according to the detailed design (Stage 2 design) that was designed and developed by ground water relief, see table below. The Total dike network of the targeted areas can be mainly categorized as follows:

Table 1, Total dike network of the targeted areas can be mainly categorized.

ITEM	DIKE NAME	DIKE LENGTH, ROAD LENGTH	STATUS
1.	Bentiu (site-E) dyke upgrading based on detail design	17.7KM	IFMM dike (Stage I Dike) completed, Dewatering will start soon.
2.	Pakur dyke upgrading based on detail design	13.7 KM	IFMM dike (Stage I Dike) completed, Dewatering completed
3.	Drainage system of Pakur	3KM	The existing drainage channel does not work properly, especially during the rainy season.
4.	Upgrading of the Road that connects Rubkona to Pakur.	3KM	The road was almost destroyed and in need of rehabilitation.
5.	Upgrade Bentiu-Kuach (until prison) raised road (site-E feeding road)	2.5KM	The road was almost destroyed and in need of rehabilitation.
6.	Road from Animal resource to Kuach road (site-E feeding road)	8.1KM	The road was almost destroyed and in need of rehabilitation.
7.	Pakur NBS implementation	N/A	No natural based solution on the ground to provide and support the community members to find solution by using the natural materials

Accordingly, the total length of all the dikes in Rubkona county prioritized during the discussions with community members and local authorities for upgrading is around 31.4 Km. Additionally, the total length of roads to be rehabilitated in the targeted areas in Rubkona and Bentiu county is 13.6 KM. The dikes prioritized under ECRP II will protect key infrastructure and key social services in Rubkona County which include the market, drinking water treatment plant, schools, health facilities and religious centers among others. The Rubkona Market section on the western side of Rubkona town will protect the main market and the main road between Bentiu and Rubkona. The total length of the dike rehabilitation and

construction works under ECRP II will be approximately 57.2km, and a total of about 44,764 people are expected to benefit from the proposed sub-project.

The land surrounding the existing dikes in Rubkona town is partly swampy, dominated by plants such as sedges (papyrus), reeds, and numerous grasses. It is gentle sloping west-east direction with varying altitudes of 398 to 400m above sea level. Other spots only showed an altitude difference of one metre. Rubkona town lies north of the River Bahr el Ghazal which is a significant contributor of flood waters to Rubkona town after it burst its banks. Its water volume is primarily from the tributaries in South Sudan. However, there are observations by State and County officials that some of the River Nile burst its banks south of Bentiu at Panijiar County. Hence the land surrounding Rubkona town is susceptible to siltation from the River Bahr el Ghazal and surface run-offs which culminated in persistent floods. The soils of the town in Rubkona town are largely clay soils, the vertisols and fluviosols commonly known as the Black Cotton Soils (BCS). They have low water holding capacity, impermeable, highly compressible - expand so fast when it's wet and in the dry season contracts with cracks under elevated temperatures. There is no protected ecosystem around Rubkona town. Hence, the dyke does not transverse any sensitive ecosystem nor a settlement. Instead, they will protect the town and its infrastructure from floods. Figure 2 shows the location of dikes in Rubkona county.

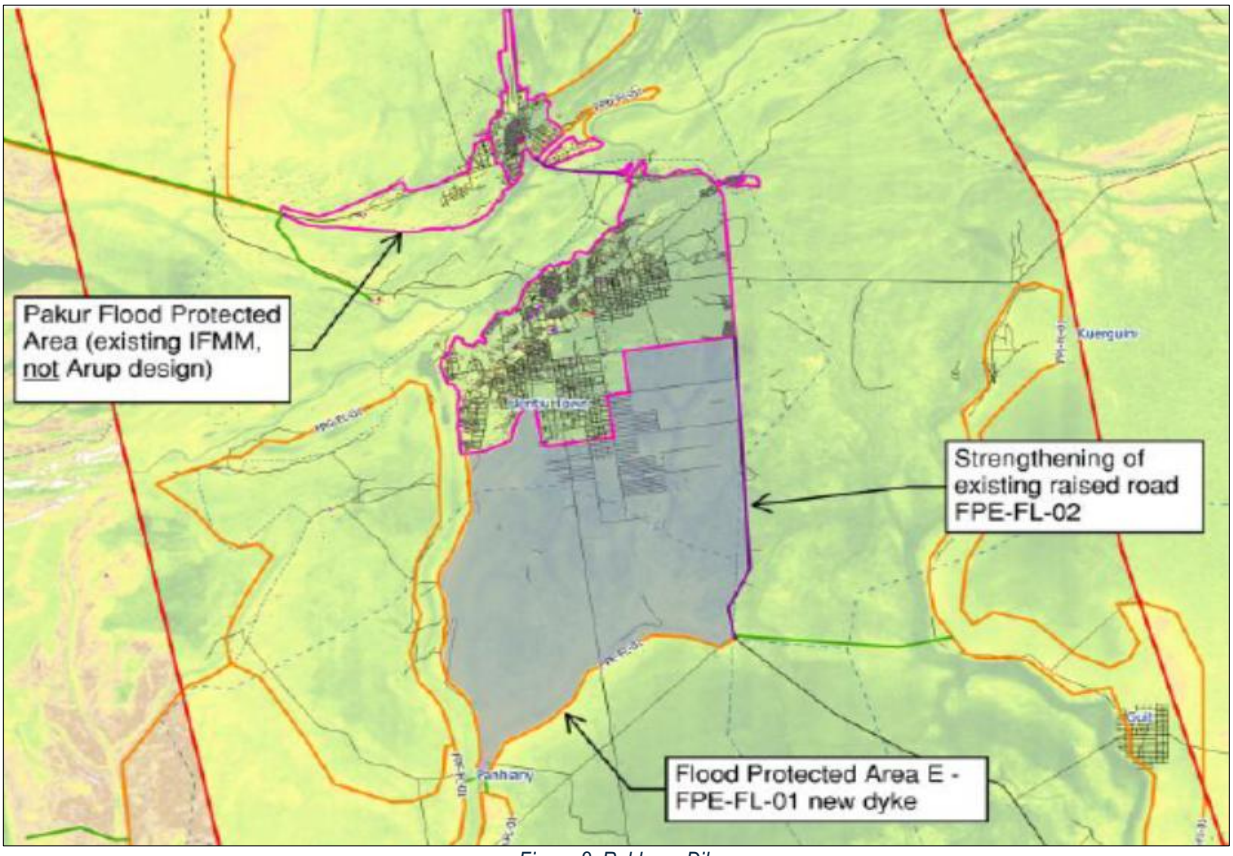
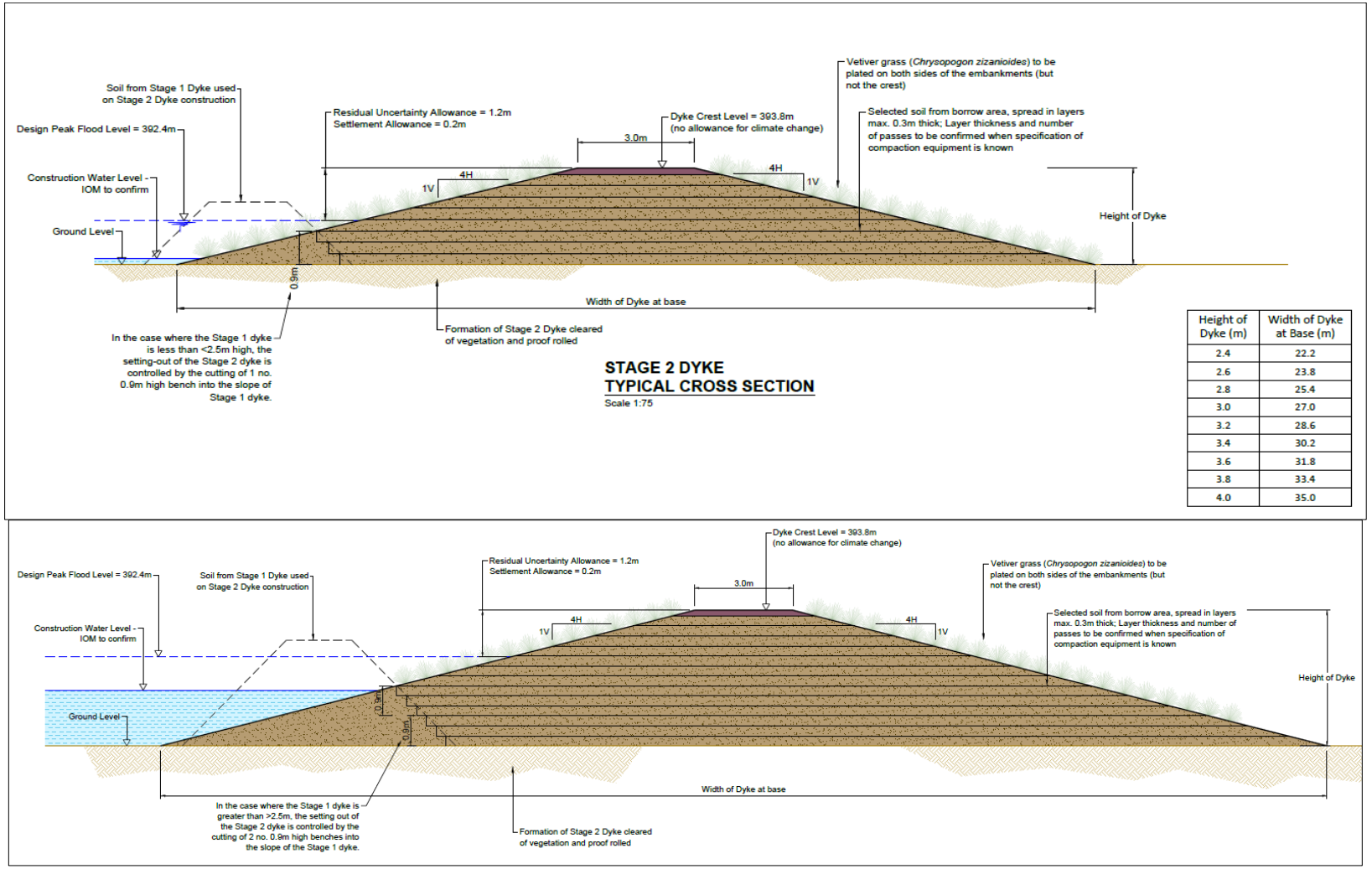


Figure 2. Rubkona Dikes

Dike Design – (Stage 2 Dike)

Under the current projects description, the dikes were constructed under ECRP II will be upgraded based on stage 2 detailed design The proposed dikes will feature a 1:4 slope on the dry side (habitable side) and a 1:4 slope on the wet side (retained water) for filling the high of the dike depend on the ground level and free board is 1.5 m from top water level to crest of the dike, the dike crest is 3 meter in high ground level and low ground level see figure 4 and 5. To prevent damage from human and animal crossings, dike crossing points and dike docking points will be constructed, see figure 7 dike docking station and figure 8 dike crossing point. The design for these key dike sections will plant grasses to reinforce them and make them more resistant to wear and tear see figure 4 typical dike section. The dike construction steps for stage 1 and 2 illustrated in Figure 3-A, 3-B, The Stage 1 and Stage 2 Typical cross section in Low ground level and High ground level illustrated in Figure 4, the Typical dike section (Preliminary subject to design) in figure 5, the long section of Stage 2 Dike illustrated in figure 6. Some typical sections may vary from location to location, and this depends on location, height of existing, and type of material used for the dike structure, considering the highest previous flood level records and the projected/anticipated flood levels.



Height of Dyke (m)	Width of Dyke at Base (m)
2.4	22.2
2.6	23.8
2.8	25.4
3.0	27.0
3.2	28.6
3.4	30.2
3.6	31.8
3.8	33.4
4.0	35.0

Figure 3. Typical dike section

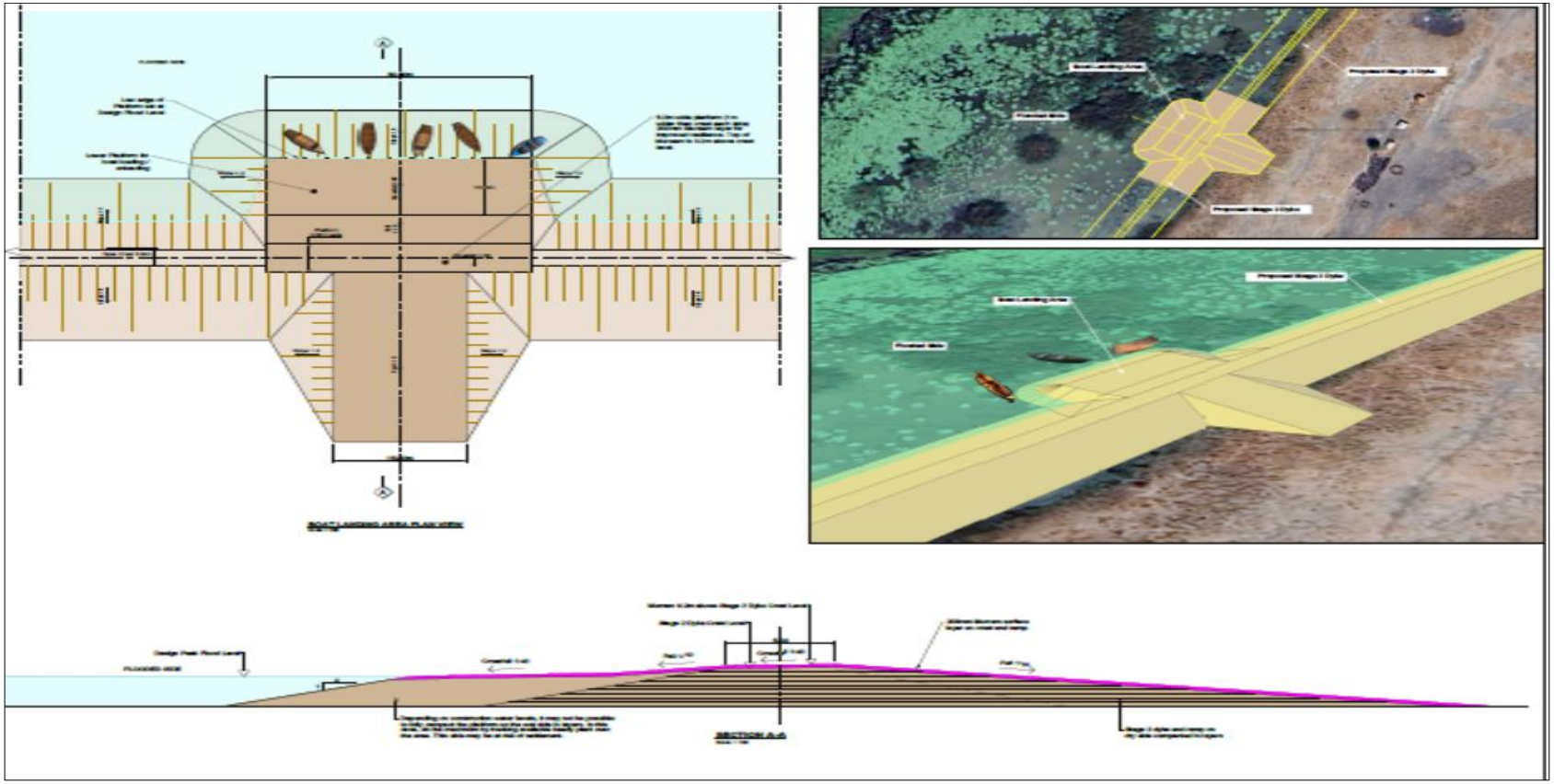


Figure 4. Docking station stage 2 dike

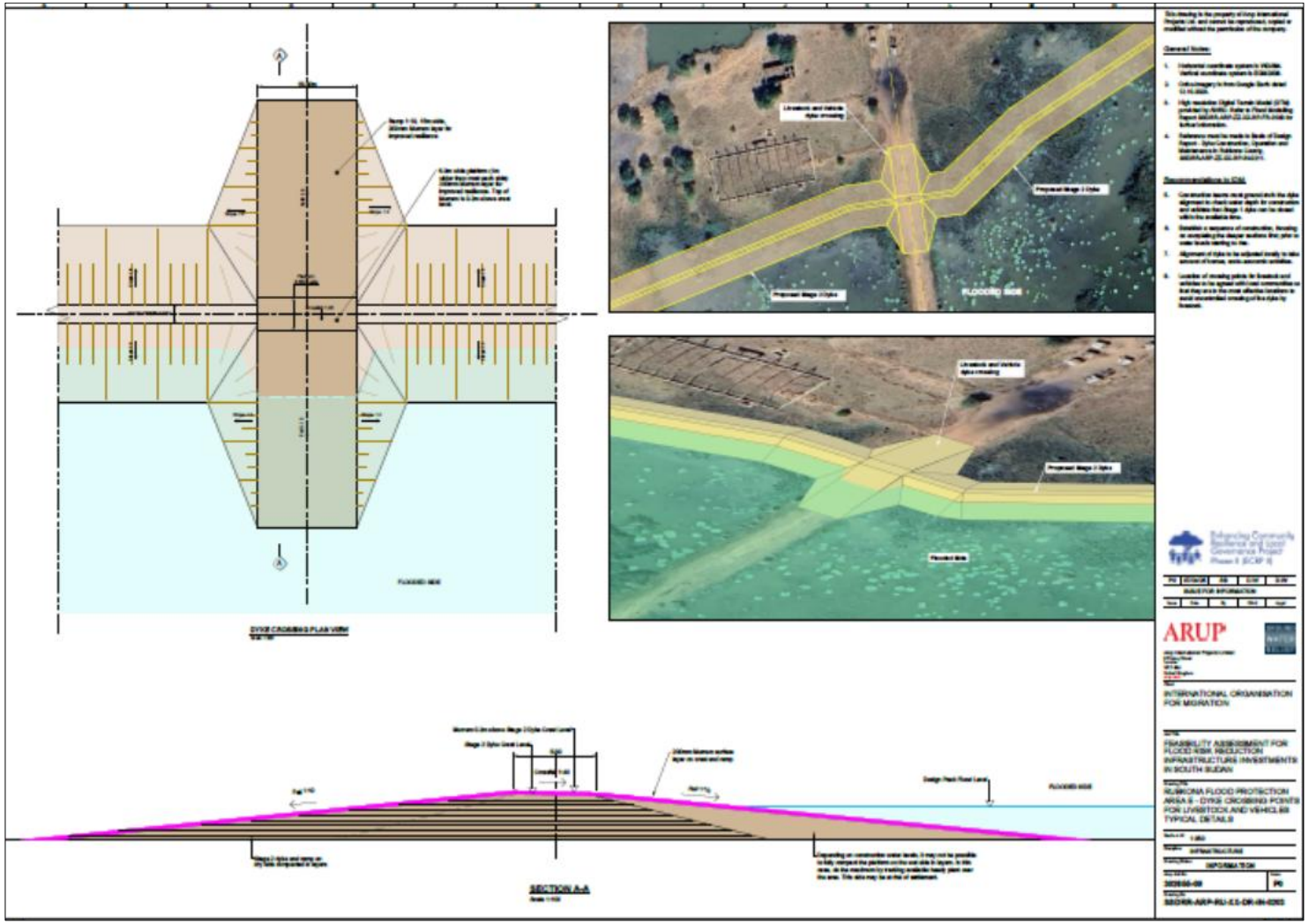


Figure 5. Crossing Point stage 2 dike

Minor rehabilitation of existing gravel roads

The condition of the gravel roads in Rubkona County is currently extremely poor, as most of the road network sections were submerged and damaged during the 2021 floods. The priority of this project is to rehabilitate the existing roads to consolidate the effectiveness of the newly constructed dikes and to ensure their sustainability. For the rehabilitation works, the following activities will be carried out; Sub-grade course: The top 150 mm of the existing road embankment will be ripped and re-compacted to 90% Modified AASHTO (Density G10).Sub-base/Base course: Two layers of suitable borrow-pit materials, each 200 mm thick, will be placed, spread, and compacted to 93% Modified AASHTO (Density G7).Final wearing course: A 200 mm layer of murram/gravel will be applied as the final surface course and compacted to 95% Modified AASHTO (Density 5).Road geometry: The finished road width at the top will be 8 metres, with a 2.5% slope from the centerline toward both sides or road embankments.

Drainage channel: Along with the road alignment, existing storm-water channels will be rehabilitated. The channels will have a trapezoidal shape, with a top width of 2500 mm and a bottom width of 1500 mm, as illustrated in Figure 9.

Second Road Design: Rubkona to Pakur.

The second part of the rehabilitation will cover the road section from Rubkona to Pakur. The proposed design includes the following: Top Road width: The formation width at the top will be 10 metres. Sub-grade course: The existing embankment's top 150 mm layer will be re-compacted to 90% Modified AASHTO (Density G10). Sub-base/Base course: Two layers of suitable borrow-pit materials, each 200 mm thick, will be, spread, and compacted to 93% Modified AASHTO (Density G7). Final wearing course: A 200 mm layer of murram/gravel will be compacted to 95% Modified AASHTO (Density 5). Road geometry: The top road width will remain 8 metres, with a 2.5% slope from the center to both sides.

Culverts: Three culvert structures will be constructed along the Rubkona–Pakur section to facilitate storm-water drainage.

Details of the road design are provided in Figure 10, and culvert designs are shown in Figure 11.

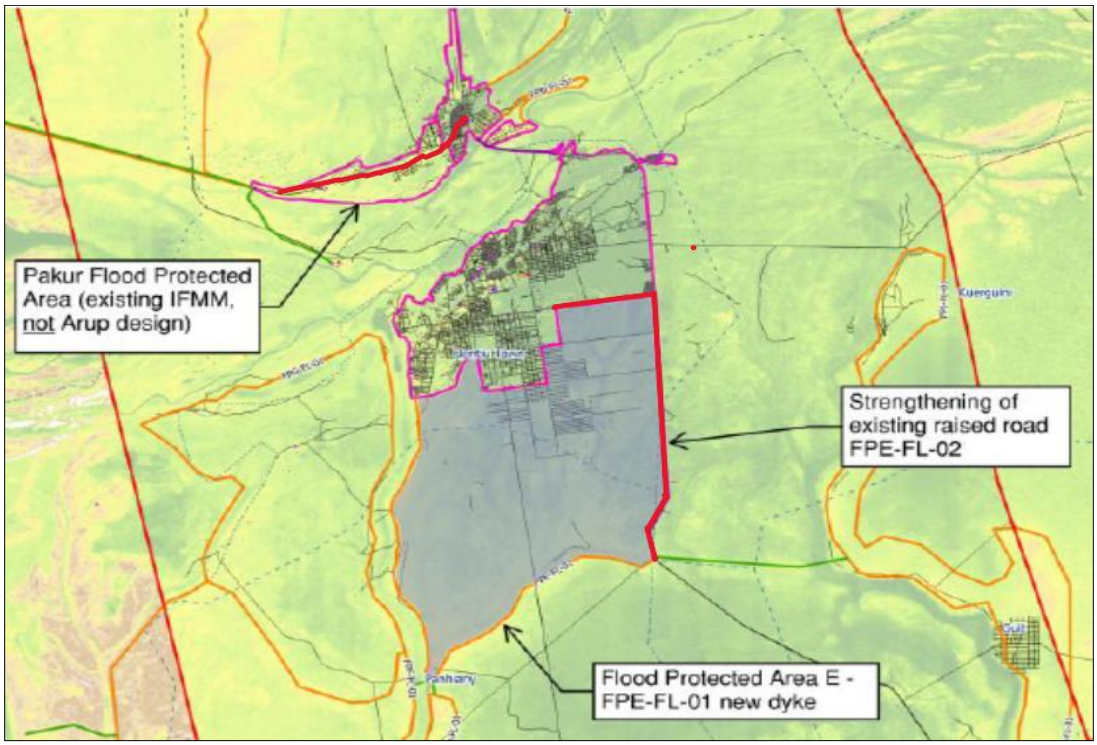


Figure 6. Roads paths in Rubkona in Red line

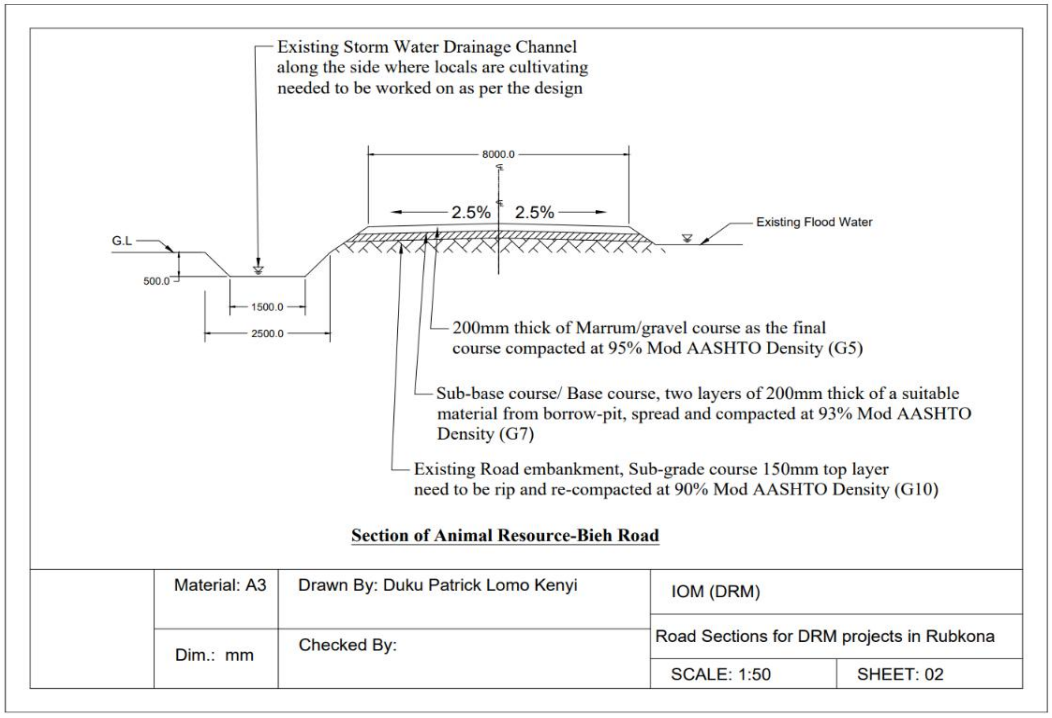


Figure 7. Section of Animal Resource – Bieh Road

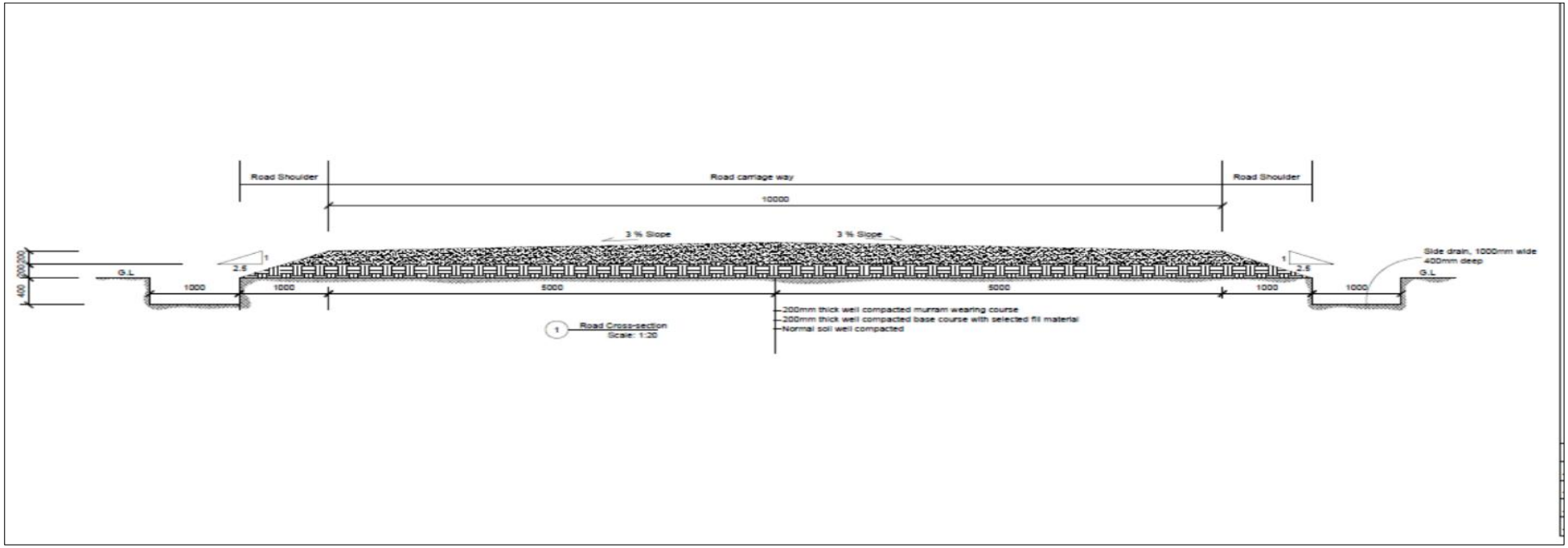


Figure 8. Section of Rubkona- Pakur Road

Scope of Work

The proposed scope of work will include:

1- Upgrade of IFMM Bentiu (site-E) dike 17.7 KM according to detailed dike design stage 2 dike.
2- Upgrade of Pakur dike 13.7 KM according to detailed dike design stage 2 dike.
3- Construction of Pakur drainage channel 3 KM.
4- Upgrade of 3 KM Road that connects Rubkona to Pakur.
5- Upgrade 2.5 Bentiu-Kuach (until prison) raised road (site-E feeding road).
6- Upgrade 8.1 KM of Road from Animal resource to Kuach road (site-E feeding road).
7- Establish natural bases solution mechanisms to have natural solutions.

Drainage System Works

The construction of a drainage network will result in the establishment of a 1km drainage system which drains into a sump that is approximately 3m deep, figure 7 refers. 9 shows the cross-sectional drawing of the proposed drainage canals that will be constructed.

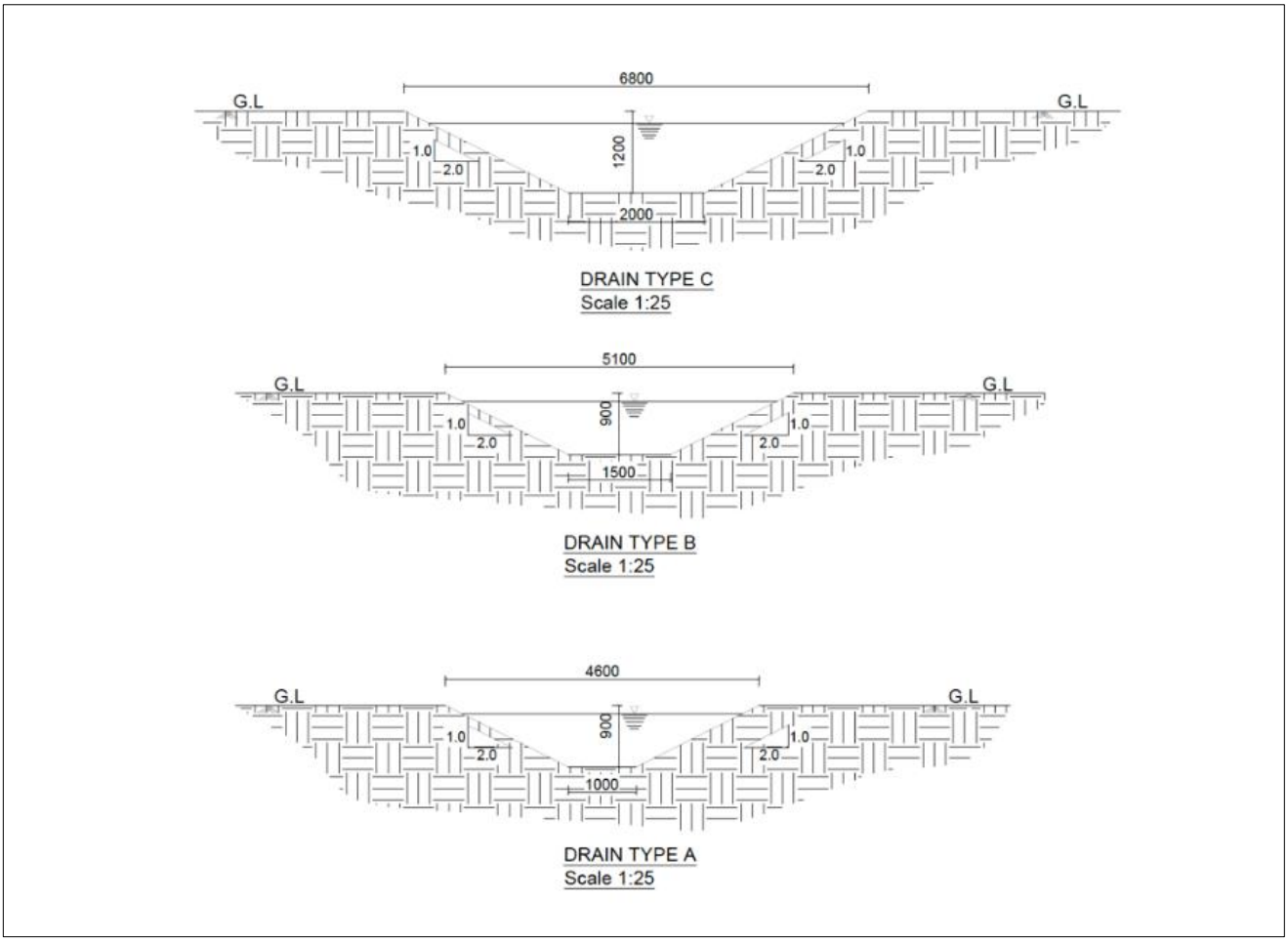


Figure 9. Cross sectional drawings for the three-drainage system

Laboratory Analysis of Materials

Geotechnical Investigation

The soil characteristics of available material from the designated borrow pit will be checked for permeability, stability, the potential for seepage, settlement, and compressibility. The material utilized will be the locally available clay soils commonly known as the Black Cotton Soil (BCS), whose high clay content makes it an excellent structural material for construction. The BCS's characteristics and fine soil particles inhibit water permeation. The clay covering the bank, though, is exposed to air and sun, which changes its moisture content making it drier and prone to erosion from human activities and moving water.

Site Description: Bentiu Town lies in a low-lying flood plain and is characterized by predominantly flat terrain, making it highly susceptible to seasonal flooding. The town is surrounded by swampy areas and tributaries, contributing to its frequent flooding during the rainy season. The soil in Bentiu is primarily clay black cotton soil, which is known for its high plasticity and shrink-swell behavior. The investigation targeted multiple locations, including a borrow pit, existing dikes (particularly in South Bentiu), and sections of existing roads.

Work Schedule

Proposed workplan

PROPOSED WORK PLAN																								
Upgrading of Immediate Flood Mitigation Measures for Rubkona County [Upgrading of existing dikes, and drainage network construction in Pakur/Rubkona, Unity State]																								
	Month 1				Month 2				Month 3				Month 4				Month 5				Month 6			
	WK 1	WK 2	WK 3	WK 4	WK 1	WK 2	WK 3	WK 4	WK 1	WK 2	WK 3	WK 4	WK 1	WK 2	WK 3	WK 4	WK 1	WK 2	WK 3	WK 4	WK 1	WK 2	WK 3	WK4
Projects advertisement and Procurement																								
Environmental and Social Screening																								
Development of the ESMP &Approval of ESMP																								
Community Engagement activities																								
Mobilization Excavators, Dump Trucks																								
Upgrading of Community rehabilitated dikes and construction of a drainage network																								
Handover of assets																								

PROPOSED WORK PLAN																															
Rehabilitation of the Roads in Rubkona																															
Item	Operation	W1		W2		W3		W4		W5		W6		W7		W8		W9		W10		W 11		W 12							
Site preparation	Site Cleaning and Safety measures																														
	Excavation																														
Roads	Culvert foundation work																														
	Culvert Installation																														
	Paving Murram and compaction work																														
Handover	Backfilling and Compaction																														
	Testing																														
	Demobilization and site cleaning																														

CHAPTER 3

STUDY METHODOLOGY

Overview of the Approach

The development of this ESMP followed a structured, multi-step methodology designed to ensure that environmental and social risks were accurately identified, assessed, and addressed. The approach combined technical analysis, field observations, stakeholder engagement, and spatial assessments to build a comprehensive understanding of the project area and its sensitivity.

The process began with a review of existing information on Rubkona County, including previous assessments, engineering designs, and environmental and social instruments prepared under ECRP II. This was followed by field visits to verify conditions on the ground, collect additional data, and engage directly with affected communities and local authorities.

Environmental and social impacts were then identified using a combination of expert judgment, field evidence, and stakeholder input. Each impact was evaluated based on its magnitude, duration, likelihood, and the sensitivity of the receiving environment. Mitigation measures were developed in line with the mitigation hierarchy—avoidance, minimization, restoration, and compensation.

Spatial and temporal analysis techniques, including remote sensing and GIS mapping, were used to understand land cover, hydrology, settlement patterns, and flood dynamics. These tools helped validate field findings and provided a clearer picture of how the proposed works may interact with the natural and human environment.

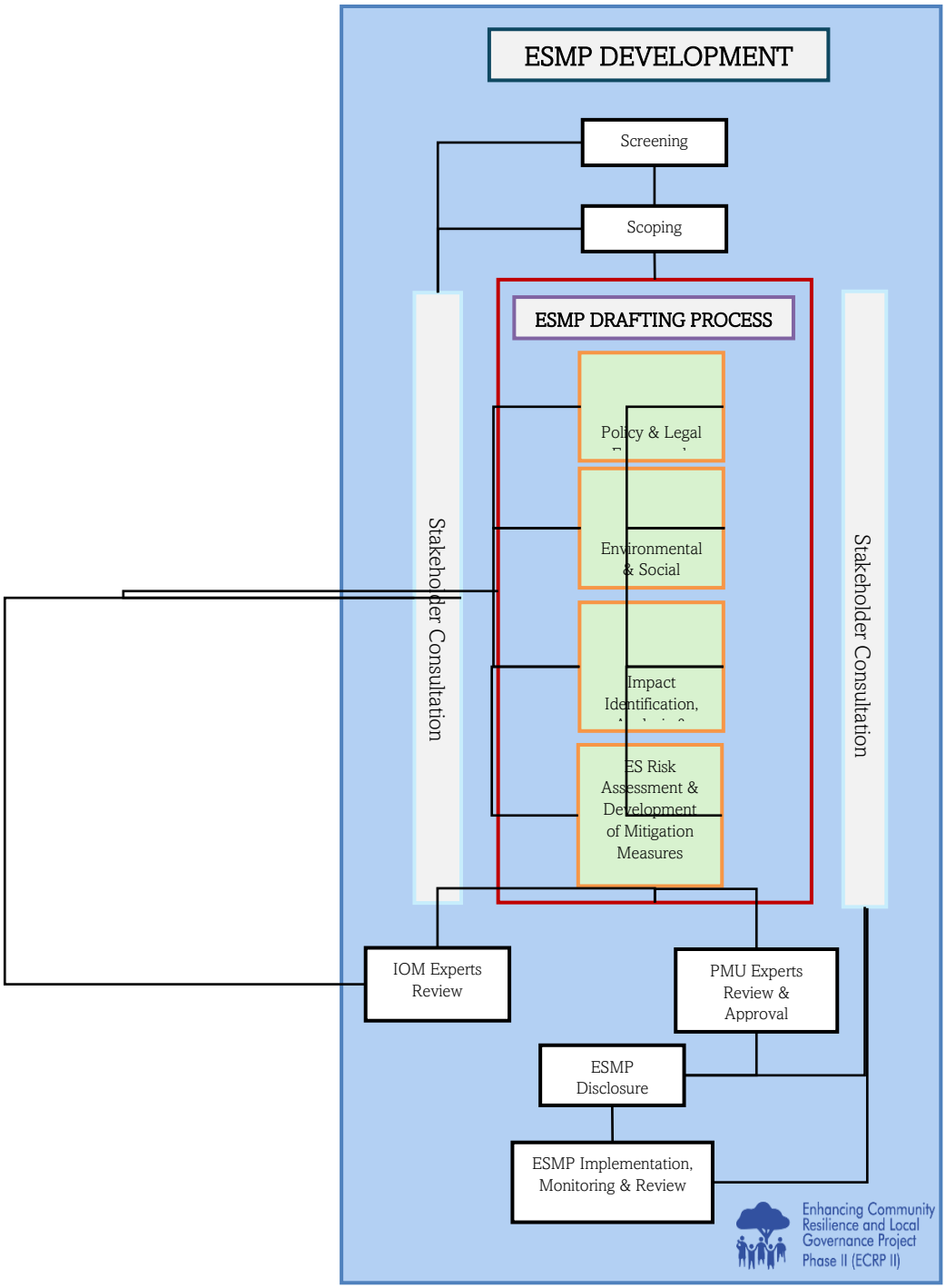


Figure 10. Overview of the ESMP Development process

Document Review

A detailed review of relevant documents was conducted to establish the baseline context and ensure alignment with project requirements. Key documents included:

- The ECRP II Environmental and Social Management Framework (ESMF)
- The Environmental and Social Commitment Plan (ESCP)

- The Stakeholder Engagement Plan (SEP)
- Previous ESMPs and screening reports for related dike works.
- Engineering designs and technical assessments
- National environmental and social legislation

This review helped identify existing gaps, confirm compliance requirements, and guided the development of appropriate mitigation measures.

Field Visit

Field missions were carried out in Rubkona County to observe existing conditions, verify the status of dikes, assess environmental sensitivities, and understand community dynamics. During these visits, the team:

- Inspected damaged and intact sections of the dike network.
- Identified areas requiring rehabilitation or new construction.
- Assessed drainage patterns and flood-prone zones.
- Documented vegetation, soil conditions, and water bodies
- Met with community members, local leaders, and county officials.

The field observations provided essential ground-truthing for the ESMP and helped refine the scope of environmental and social mitigation measures.

Impact Identification, Assessment, and Mitigation

Potential environmental and social impacts were identified through a combination of field observations, stakeholder consultations, and expert analysis. Each impact was evaluated based on:

- Nature of the impact (positive or negative)
- Extent (local or broader area)
- Duration (short-term, long-term, or permanent)
- Reversibility
- Likelihood of occurrence
- Sensitivity of affected receptors

Mitigation measures were then developed to address each identified risk. These measures follow the mitigation hierarchy and include design modifications, construction best practices, environmental monitoring, community engagement, and operational controls.

Socio-Economic and Stakeholder Engagement

Understanding the social context was a key part of the methodology. Engagement activities included:

- Meetings with community leaders, women's groups, youth representatives, and local authorities
- Discussions with residents living near the dike alignments.
- Consultations with county-level technical departments
- Feedback sessions to validate community concerns and expectations.

These engagements helped identify social risks such as land use conflicts, public health concerns, and community safety issues. They also ensured that local knowledge and priorities were incorporated into the ESMP.

Geo-Spatial and Temporal Analysis and Remote Sensing Techniques

GIS and remote sensing tools were used to analyze:

- Land cover and vegetation patterns.
- Flood-affected areas and water flow paths.
- Settlement distribution and population density
- Soil types and topography
- Historical flood trends

Satellite imagery and spatial datasets helped confirm field findings and provided a broader understanding of environmental dynamics in Rubkona County. This analysis was crucial for identifying vulnerable areas, planning drainage improvements, and designing dike alignments that minimize environmental disturbance.

CHAPTER 4

STAKEHOLDER CONSULTATION

4.1 General overview

As required under the World Bank Environmental and Social Standard 10 (ESS10), a comprehensive stakeholder engagement process was conducted for the dyke rehabilitation and road upgrading sub-project in Rubkona County, Unity State. The consultations were designed to ensure meaningful participation, inclusion of vulnerable groups, and transparent disclosure of project information to all affected and interested parties. A total of 26 stakeholder engagements were held, involving government entities, local communities, vulnerable groups, NGOs, and UN agencies.

The engagement process aimed at:

- Identify stakeholder interests, expectations, and concerns.
- Gather site-specific environmental and social information.
- Assess social acceptability of project interventions.
- Co-develop mitigation and enhancement measures.
- Strengthen ownership, transparency, and accountability.

4.2 Consultation Methods and Participation

Three complementary consultation approaches were employed:

- Formal meetings (10 sessions) with government and institutional stakeholders.
- Community meetings (3 sessions) with affected households and community leadership.
- Focus group discussions (13 sessions) targeting women, youth, elders, PWDs, farmers, market traders, teachers, and health workers.

4. 3 Demographic Composition of Participants

A total of 155 participants (Male: 74; Female: 42) took part in the consultations across age and gender categories. These figures demonstrate reasonable gender inclusion, particularly through FGDs with teachers, health workers, women's groups, and PWD representatives.

4.4 Stakeholder Categories and Interests

Stakeholders were grouped into six primary categories as presented below:

4.4.1 Government Stakeholders

Government consultations were conducted at State, County, Payam, and Boma levels.

State-Level Ministries and Offices

Stakeholders included the State Governor, State Ministries (Education, Health, Agriculture, Infrastructure, Gender, Finance, Local Government, Public Service), and the Secretary General.

Key Interests and Observations:

- Strong affirmation that the sub-project aligns with state development priorities and flood resilience strategies.
- Emphasis on protection of communities such as Pakur, Bilnyang, and Bieh through enhanced dike systems.
- Anticipated improvement in mobility, e.g., Rubkona–Pakur and Bieh–Dhorbor road networks.
- Expected increase in available farmland and job creation, especially in reclaimed areas like Tirbar and Bieh.
- Highlighted need to protect public infrastructure, including the water treatment plant, ministry buildings, and the national assembly in Ariap.
- Additional recommendation to include a girls' boarding school in future activities.

County-Level Government Stakeholders

Representatives included the County Commissioner, Department of Health (CHD), Education, WASH, Labour, Finance, Animal Resources, Accounts, and RRC officials.

Key Interests and Observations:

- Strong support for the sub-project as it aligns with county development plans.
- Recognition that the upgraded roads and dikes will protect homes, shops, farmlands, and market areas in Panhiany, Bieh, and Pakur.
- Expectation of improved market access, benefiting places such as Deng Jaak Primary, Rubkona Primary, and Pakur Secondary schools.
- Anticipation of increased economic activities (farming, trade, fishing) due to better connectivity.
- Reinforced the importance of securing the water treatment plant and administrative assets.

Payam-Level Committees (PDC & PDRMC)

Payam-level authorities perceived the sub-project as central to Payam Development Plans.
Key Interests and Observations:

- Improved inter-payam mobility (e.g., Bentiu to Panhiany).
- Flood protection for health facilities, schools, and residential clusters.
- Protection of ecological systems, including trees in Bieh, Thowmangor, and Dhorbor.
- Suggested renovation of the Rubkona bus station for future phases.

Boma-Level Authorities (BDC & Traditional Chiefs)

Boma chiefs and BDCs highlighted community-level priorities.
Key Interests and Observations:

- Strong need for dike rehabilitation to protect agricultural lands in Bieh, Bilnyang, and Thowmangor.
- Recognition that dikes would create safe settlement spaces outside congested PoC areas.
- Support for expanded settlement in reclaimed areas like Pakur, Bentiu, Rubkona, reducing overcrowding.
- Emphasized dike role in protecting homesteads from seasonal flooding.

4.4.2 Sub-project Affected Parties

These included farmers, traders, and directly impacted households.
Key Interests and Observations:

- High enthusiasm for dike upgrading to protect farmlands, especially in Bilnyang, Bieh, and Pakur.
- Recognition that road upgrades will improve market access, raise income and reduce transport time.
- Expectation of increased security, as dike lines function as controlled-access barriers.
- Identified risks such as dust, noise, and land degradation from borrow pits.

4.4.3 Vulnerable Groups (PWDs, Children, Elderly)

Consultations specifically targeted vulnerable groups in line with ESS1 and ESS10.
Key Interests and Observations:

- Identified improved accessibility for PWDs due to better road conditions.
- Affirmed the project's inclusivity and representation, particularly for those traditionally marginalized.
- Expected increased access to schools and health services.
- Highlighted safety concerns about borrow pits, potential falls, dust, and noise exposure.

4.4.4 Other Interested Parties (NGOs and UN Agencies)

Representatives from humanitarian and development organizations expressed:
Key Interests and Observations:

- Full support for the project as it enhances operational access to beneficiaries.
- Recognition of environmental benefits, particularly reducing flood-related ecosystem loss.
- Interest in protection of NGO-supported farmlands (e.g., those by WHH).
- Raised concerns regarding construction-related dust, noise, and safety hazards in work zones.

4.5 Issues Raised, Impacts Identified & Mitigation Measures

A detailed summary follows the major safeguard themes.

4.5.1 Positive Impacts Identified

Stakeholders consistently highlighted the following:

4.5.1.1 Flood Protection Benefits

- Protection of homes, trades, schools, and farmlands across Bieh, Thowmangor, Bentiu, and Rubkona.
- Reduced flood-related displacement and livelihood disruption.
- Enhanced resilience of key government infrastructure and community assets.

4.5.1.2 Improved Access & Mobility

- Easier movement between Rubkona–Pakur, Bieh–Dhorbor, and other payams.
- Increased school attendance and health access.
- Enhanced movement of community members, NGOs & UN agencies to remote communities.
- Protection of the community as the roads will also act as dikes.

4.5.1.3 Socio-Economic Benefits

- Increased agricultural productivity due to safer farmland.
- Expansion of economic activities: trade, fishing, and transport.
- Job creation during the construction and post-construction phases.

4.5.2 Negative Impacts Identified

4.5.2.1 Environmental Impacts

- Dust pollution from machinery and truck movement.
- Soil erosion and land degradation due to borrow pit excavation.
- Noise pollution during construction works.
- Potential destruction of vegetation and disruption of ecosystems if uncontrolled.

4.5.2.2 Social Impacts

- Child safety risks near open borrow pits.
- Risk of community members or animals falling into excavated areas.
- Temporary access restrictions during construction.
- Safety hazards around machinery and active work sites.

4.6. Proposed Mitigation & Enhancement Measures

Stakeholders proposed the following, aligned with ESS1, ESS2, ESS4, and ESS10:

4.6.1 Environmental Mitigation Measures

- Water sprinkling to reduce dust emissions.
- Drainage channels to minimize soil erosion.
- Minimizing borrow pit footprints and restoring pits post-construction.
- Vegetation protection wherever feasible during excavation.

4.6.2 Health & Safety Measures

- Personal Protective Equipment (PPE) for workers (earmuffs, masks, helmets).
- Barricades, safety signage, and warning tape around active sites.
- Fencing of borrow pits to prevent child and livestock accidents.
- Community sensitization on avoiding construction zones.

4.6.3 Social Measures

- Ensure inclusive participation of PWDs, women, and elders throughout implementation.
- Ensure fair distribution of project benefits, with consideration for remote and marginalized settlements.
- Maintain transparent communication with local leaders, NGOs, and sub-project affected people.
- Integrate grievance redress mechanisms (GRM) according to World Bank standards (ESS10).

4.7 Overview of the Stakeholder engagement in photos

Figure 11. Stakeholder consultation meeting in Rubkotna with the County Authorities, photo taken on 10 February 2026.

Figure 12. Stakeholder consultation with teachers at Deng Jaaj Primary School, photo taken on 9 February 2026.

Figure 13. State level with stakeholder consultation with State authorities at Local Government Offices in Bentiu, photo taken on 12 February 2026.

Figure 14. Stakeholder consultation with the traders in Rubkotna market, photo taken on 10 February 2026.

Figure 15. Stakeholder consultation with health workers at Rubkotna PHCC, photo taken on 10 February 2026.

Figure 16. Stakeholder consultation with teachers at Nyuel Primary School, photo taken on 9 February 2026.

Figure 17. Stakeholder consultation at Deng Jaak Primary School, photo taken on 9 February 2026.

Figure 18. Stakeholder consultation with health workers at Rubkotna PHCC, photo taken on 10 February 2026.

Figure 19. PDRMC stakeholder engagement in Rubkotna, photo taken on 20 February 2026.

Figure 20. Group photo with PDRMC during stakeholder consultation meeting, photo taken on 20 February 2026

Figure 21. PDC stakeholder consultation in Rubkotna, photo taken on 20 February 2026.

Figure 22. Group photo with the PDC during stakeholder consultation in Rubkotna, photo taken on 20 February 2026

Figure 23. Stakeholder consultation with the church members in Rubkotna, photo taken on 6 February 2026.

Figure 24. Meeting with the church members in Rubkotna, photo taken on 6 February 2026.

Figure 25. Stakeholder engagement with PWDs in Rubkona, photo taken on 6 February 2026.

Figure 26. PWDs in Rubkotna during stakeholder engagement, photo taken on 6 February 2026.

Figure 27. Stakeholder consultation with teachers at Bilnyang Primary School, photo taken on 9 February 2026.

Figure 28. County authorities for the stakeholder consultation at the county headquarters in Rubkotna, photo taken on 10 February 2026.

4.8 Overall Conclusion

The stakeholder engagement process confirms broad community and institutional support for the sub-project. The consultations reveal a shared understanding of the project's importance for flood resilience, livelihood restoration, economic growth, and improved accessibility. Stakeholders also demonstrated awareness of potential risks and collaborated in identifying viable mitigation measures.

The engagement process adhered fully to ESS10 through:

- Inclusive participation of all stakeholder groups.
- Accessibility of information.
- Special attention to vulnerable groups.
- Documentation of feedback and integration into ESMP planning.

The findings demonstrate that the project is socially acceptable, locally owned, and aligned with both community priorities and government development priorities.

CHAPTER 5

ENVIRONMENTAL AND SOCIAL BASELINE

5.1 Land Cover

Rubkona County is primarily dominated by flood-tolerant herbaceous vegetation, including sedges, papyrus, reeds, and seasonal grasses, as documented in the project's ESMP baseline (IOM, 2025). Regional land-cover analyses from the British Geological Survey indicate that the area forms part of a wider wetland system shaped by long-term alluvial processes and Nile floodplain hydrodynamics, resulting in mosaics of swamp vegetation and periodically inundated grasslands (BGS, 2023). UNDP's national flood assessment further notes that since 2017, persistent flooding has expanded wetland zones across South South Sudan, contributing to shifts in vegetation patterns and reinforcing the prevalence of water-dependent species (UNDP, 2023). The ESMP confirms that no protected or sensitive ecosystems fall within the immediate footprint of the sub-projects (IOM, 2025).

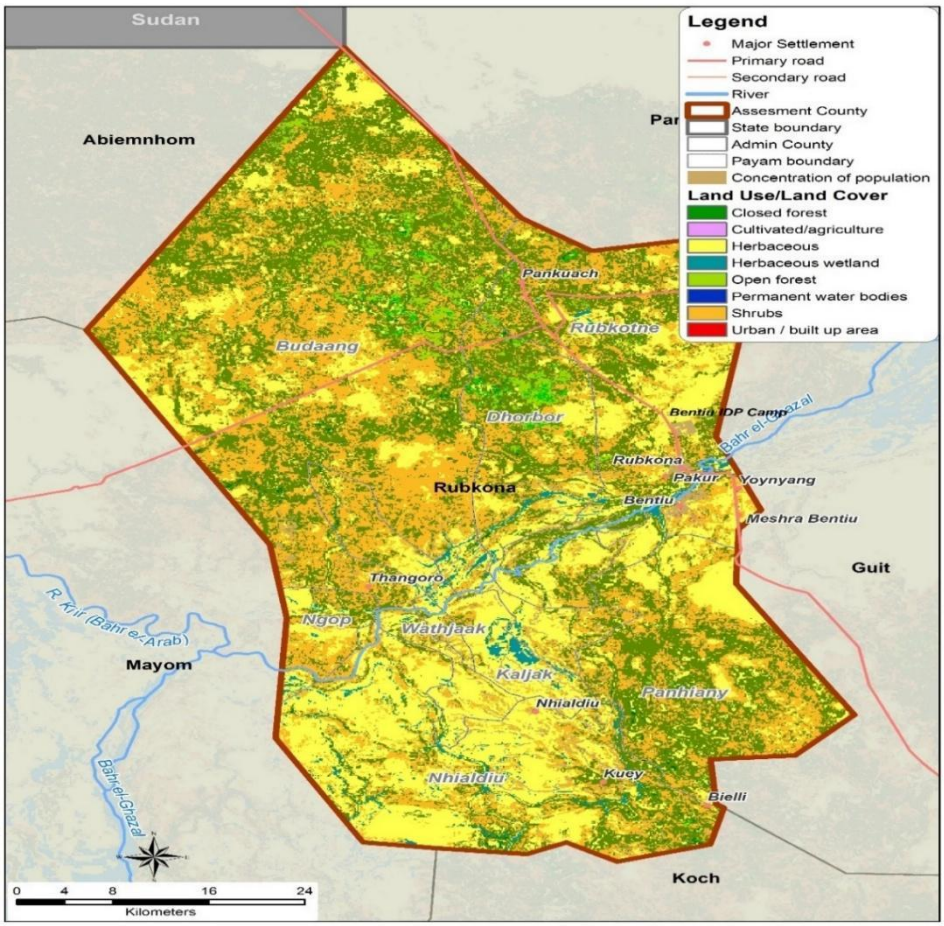


Figure 29. Land Cover Map

5.2 Geology

Project documentation identifies Rubkona's subsurface as primarily composed of sedimentary formations such as the Umm Ruwaba, Geziria, Butana, and Nawa units (IOM, 2025). Hydrogeological mapping by the British Geological Survey shows that these formations consist mainly of unconsolidated alluvial sediments and deep clay sequences, with possible occurrences of Nubian Sandstone at depth (BGS, 2023).

Deep geological studies describe the Umm Ruwaba Formation as one of the thickest Cenozoic sedimentary basins in East Africa—with depths reported up to 4,500 m in parts of the Muglad Basin (Burrows & Mannix, 2016). Such deep clay-rich sediments contribute significantly to Rubkona's poor drainage, high water retention, and chronic susceptibility to flooding.

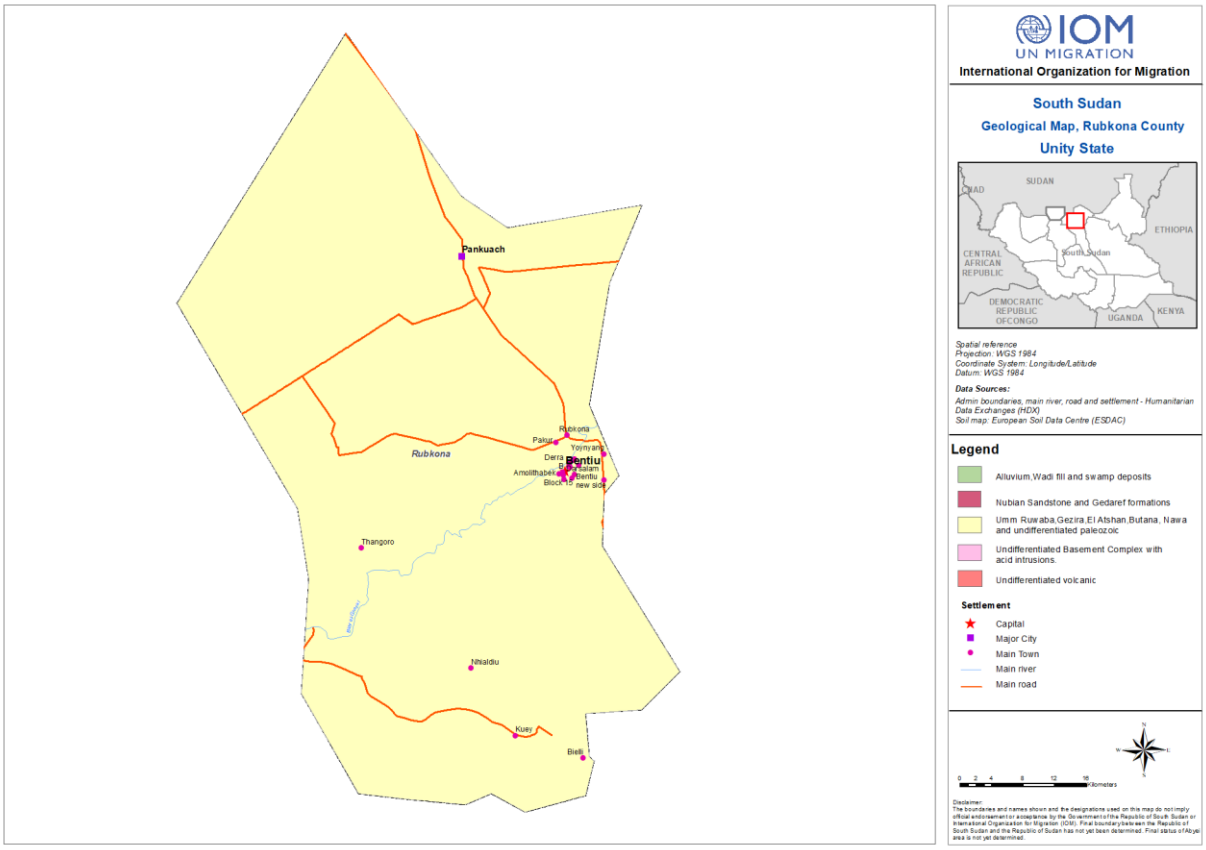


Figure 30. Geological Map of Rubkona County

5.3 Topography and Soils

The ESMP describes the county as a nearly flat alluvial plain with minimal elevation gradients, typical of Upper Nile floodplains (IOM, 2025). Soils in the region are dominated by Vertisols and Fluviosols, known colloquially as Black Cotton Soils (BCS). These clays exhibit extreme shrink–swell behavior, driven by

their high smectite content—properties widely acknowledged in soil science literature across East African floodplains (Hiscock & Bense, 2014).

The ESMP notes that these soils crack deeply in dry seasons, expand when saturated, and have low permeation rates, complicating construction, drainage, and foundation integrity (IOM, 2025). These conditions are consistent with BGS Earthwise documentation, which highlights severe engineering challenges in regions dominated by swelling clay soils (BGS, 2023).

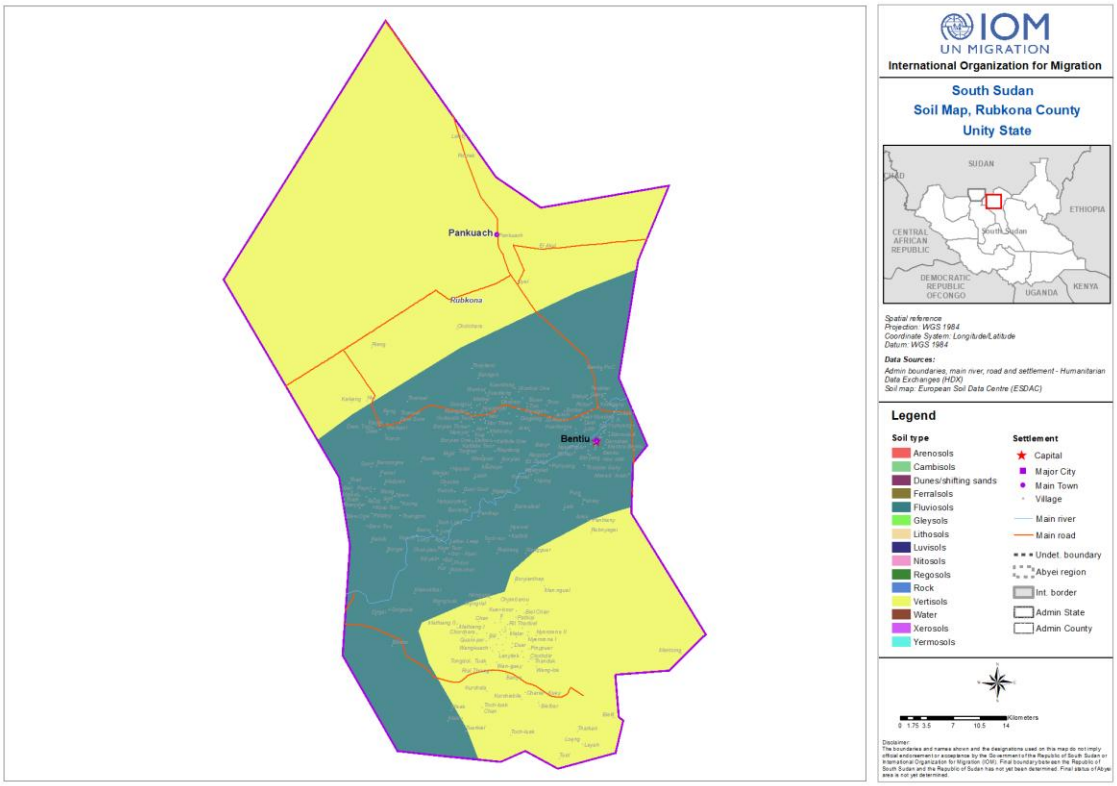


Figure 31. Soil Map

5.4 Hydrology

Rubkona's hydrology is strongly influenced by the Bahr el Arab/Bahr el Ghazal River, which contributes extensive seasonal flooding, as established in the ESMP (IOM, 2025). Hydrological datasets from the British Geological Survey place Rubkona within the greater Sudd Wetland system—the largest freshwater wetland in Africa—with slow water movement and widespread back-flooding (BGS, 2023).

Aquifer systems in the county are largely unconfined or semi-confined, comprising unconsolidated sediments with hydraulic conductivity ranging from 8.64×10^{-8} to 8.64×10^{3} m/day, illustrating significant heterogeneity (Hiscock & Bense, 2014). Recharge occurs primarily from rainfall and seasonal floodwater (Burrow & Mannix, 2016). UNDP's national flood report highlights that flood disasters since 2021 have affected more than 2 million people, reinforcing documented ESMP findings that Rubkona experiences increasingly severe and prolonged inundation (UNDP, 2023)

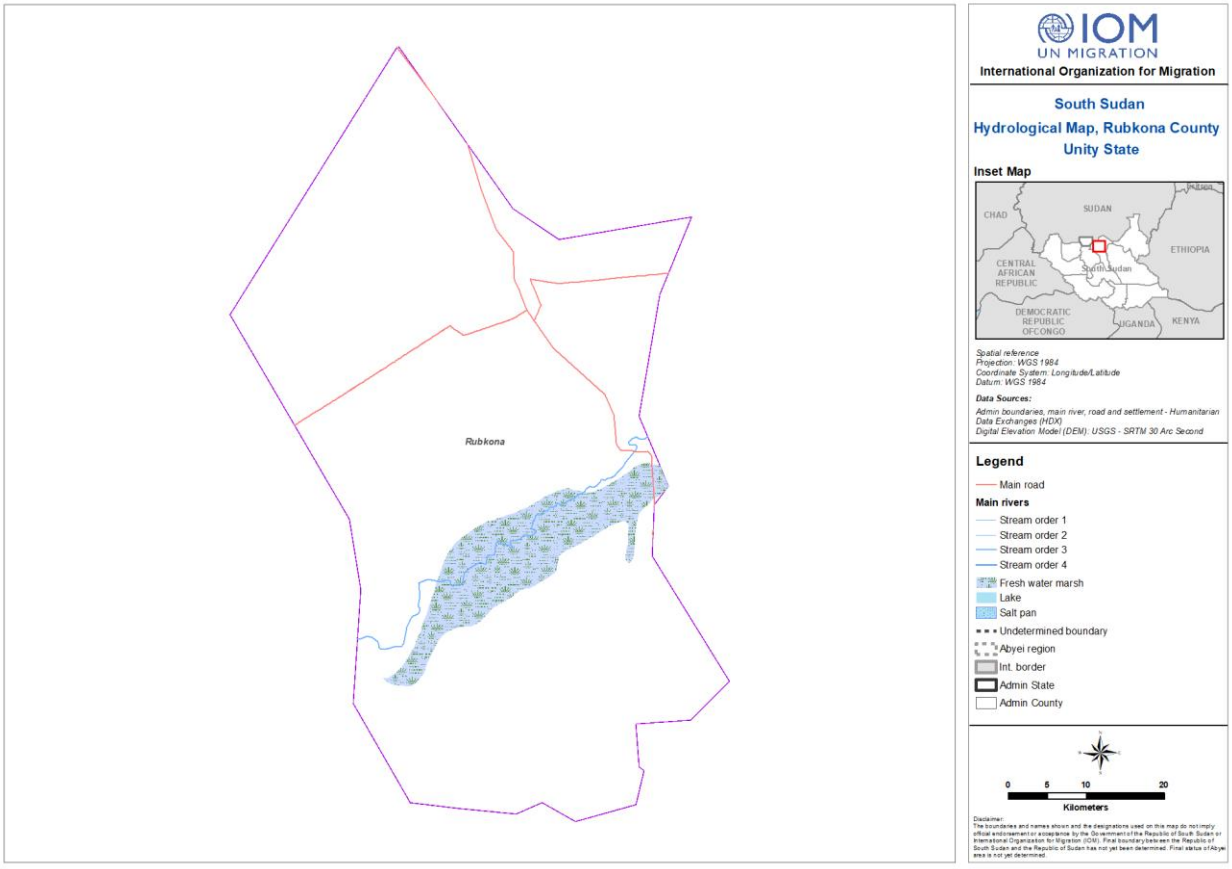


Figure 32. The riverine system in Rubkona, South Sudan

5.5 Socio-Economic Environment

The ESMP notes that Rubkona's socio-economic conditions are shaped by recurrent flooding, conflict, and limited-service delivery (IOM, 2025).

Livelihoods

Livelihoods revolve around agro-pastoralism, small-scale farming, and fishing, with roughly 20% of households engaging in rainfed agriculture at low productivity levels (~0.5 tonnes/ha) (IOM, 2025). UNDP assessments show that repeated multi-year flooding has caused persistent crop loss, inundation of grazing land, and widespread food insecurity (UNDP, 2023)

Conflict Context

The ESMP identifies the northern border with Pariang as a high-risk zone due to cattle raiding, further compounded by long-standing tensions over fertile land and oil-rich areas in the Panakuach corridor (IOM, 2025).

Displacement

Rubkona hosts South Sudan's largest IDP settlement (Bentiu), and more than 20,321 returnees were recorded in 2023 following conflict in Sudan (UNHCR/IOM data referenced in ESMP).

Nationally, over 856,000 people were affected by flooding in 2021 alone, deepening displacement trends (UNDP, 2023)

5.6 Infrastructure and Social Services

Education

The ESMP reports 48 primary schools (only 12 functional) and 9 secondary schools, mostly private and concentrated around Bentiu (IOM, 2025). These figures align with broader educational assessments indicating frequent school closures due to displacement and flood damage.

Health Facilities

Rubkona has 23 health facilities, with 19 functionals including 6 PHCUs, 10 PHCCs, and 3 hospitals (IOM, 2025).
Humanitarian health analyses note chronic shortages of skilled staff and medical supplies across Unity State.

Protection & WASH Needs

The ESMP highlights extremely high WASH and GBV needs, with over half the population requiring protection services (IOM, 2025). UNDP's flood report similarly identifies widespread latrine collapse, water contamination, and elevated disease risks due to prolonged standing water (UNDP, 2023)

5.7 Land Use

According to the ESMP, the project site is located on government-reserved public land, voluntarily allocated for the works, and does not fall within contested border zones (IOM, 2025).
The 2009 Land Act recognizes public, community, and private land categories; however, UNDP reports show that repeated flooding has shifted settlement patterns, increasing informal occupation of elevated terrain (UNDP, 2023)

5.8 Demographic Profile

Unity State's population is estimated at over 600,000 (2024 projections), predominantly Nuer (IOM, 2025). Population density increases seasonally, as displaced families relocate to higher ground or into the Bentiu IDP camp.

5.9 Cultural Heritage

The ESMP reports no archaeological or cultural heritage sites within the project footprint; however, Nuer cultural systems place significant social and symbolic value on cattle, shaping settlement and migration patterns (IOM, 2025). All works remain subject to the project's Chance Find Procedure to ensure compliance with ESS8.

CHAPTER 6

IMPACT IDENTIFICATION, ANALYSIS AND MITIGATION MEASURES

Impact Analysis and Management/Mitigation Measures

6.1 Positive impact of the sub-projects

6.1.1 Positive impact during the construction/ phase of the project

Employment Creation

Likely, Positive, Short-term, localized, moderate significance.
The dike construction and phase will result in workers being needed for casual labour and semi-skilled labor. It is expected that the Contractor and project workers will buy local materials, and services which represent indirect employment opportunities to others during the dike construction period.

Enhancement and Management Measures

- Preference for casual labor should be given to locals irrespective of gender, or physical characteristics such as disability as guided by the Labor Management Plan (LMP).
- Gender equity to be accepted in all communities.
- Applicants must provide identification as proof of origin and avoid child labour.
- Where possible employ the disadvantaged and disabled.

6.1.2. Positive impact during the operation phase of the sub-projects

Human life

The proposed sub-projects are earmarked for the protection of current existing infrastructures that will protect the communities and save lives. The existing dykes will have a net positive impact on Rubkona . Protecting the population in Rubkona county will reduce the likely incidents of displacement which will further worsen protection issues that are already in a bad state compared to other locations. Over 76,000 people are expected to benefit from the proposed sub-projects in the county.

Mitigation/enhancement Measures

- Ensure the community structures are organized to foster orderly allocation of the reclaimed land.

Domestic livestock health

It is likely that the dykes will reduce disease transmission/incidence in cattle causing a moderate positive effect.

Mitigation/enhancement Measures

- Ensure structures are in place to maintain the integrity of the dikes.

Economic Welfare and Food Security

The anticipated implementation of the proposed sub-projects is expected to improve the food security and nutritional status of households. This improvement is likely to stem from greater availability of animal protein and the opportunity to grow food crops. Additionally, the land recovered through the efforts is projected to offer new areas for farming and livestock grazing.

Mitigation/enhancement Measures

- Communities should ensure continued maintenance of the dikes.

Access to safe drinking water

The access to safe drinking water within the county has been flagged as a critical aspect that needs attention. The proposed sub-projects are expected to protect the only existing water treatment plant in Rubkona County, and this will ensure that more than 13,000 people will continue to have access to safe drinking water.

Mitigation/enhancement Measures

- Ensure structures are in place to maintain the integrity of the dikes.

Human habitation and flood disaster reduction

The proposed sub-projects will bring many benefits to the communities returning to the reclaimed areas, most of high significance, through making more habitable land available for settlement and cultivation of crops, providing protection against the adversities of floods, reducing the need for maintaining two areas of residence and associated socioeconomic disruptions caused by the need to migrate for some members of family, among other benefits.

Mitigation/enhancement Measures

- Ensure structures are in place to maintain the integrity of the dikes.
- Training PDRMCs to respond to disasters/crises.
- Formation of O&M committees.

6.2 Adverse Impact of the sub-projects

6.2.1 Pre-construction/ phase

Planning/ Designing Ensure compliance with the dike construction legislation of South Sudan.

Likely, Negative, Short-term, reversible, localized, insignificant.
Mitigation measures

- Acquire construction/ permit. Provide Water management guidelines if sub-projects are executed near surface watercourses.

Planning/ Designing Potential damage to the existing infrastructure and facilities.

Likely, Negative, Short-term, reversible, localized, insignificant.
Mitigation measures

- Preserving existing local infrastructure and working in cooperation with relevant institutions at all levels of authority.

Poor drainage system and dike /dike construction planning.

Likely, Negative, Short-term, reversible, localized, insignificant.
Mitigation measures

- Careful selection of engineering options at the planning stage.
- Limitation of degree of channel modification on maintenance.

6.2.2. Construction/ Phase

Possible impacts associated with the construction/ phase are presented in the sections that follow.

6.2.2.2 Environmental impact and risk of the sub-projects

Air Pollution –Dust and emissions

Likely, Negative, Short to medium term, localised, insignificant to moderately significant (within the project context) dike construction and material extraction, and machinery movement will result in air pollution from emissions and dust particulates which can be harmful to human health or become a nascence during the dike construction and phase.

Mitigation Measures

- Machinery must be serviced regularly to reduce emissions.
- Engines must be turned off when vehicles are not in use or when waiting for loading or off-loading. Idling must be prohibited.
- Workers must have dust masks and goggles where necessary.
- Use human labor in favour of machinery to reduce carbon emissions that result from the use of machinery.

- Dike construction vehicles to travel at low speeds and caution to be taken during windy periods.
- Water can be sprinkled to reduce dust emission and wind erosion during windy periods.
- Different air analysis methods must be employed daily to keep track of ambient air quality.
- Minimizing dust from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression, bag house, or cyclone).
- Minimizing dust from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content.
- Dust suppression techniques should be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements.

Air Quality - Greenhouse gases

Likely, Negative, Short to medium term, localised, moderately significant

Emissions from dike construction vehicles carrying dike construction material contribute to the emissions of carbon dioxide, methane, nitrous oxide and greenhouse gas precursors such as non-methane volatile organic compounds and oxides of nitrogen.

Mitigation Measures

- As much as is reasonably practical, use local manual labour and well serviced vehicles.
- Re-vegetation of disturbed areas should be with indigenous species.

Accelerated Soil Erosion and Siltation/ sedimentation.

Likely, Negative, Short to medium term, localized, reversible, and significant.

Soil disturbance, particularly during the rainy season, results in accelerated soil erosion. slopes and shoulders are prone to soil erosion. These areas have a steep gradient that can cause significant soil loss and siltation of the rivers.

Mitigation Measures

- Implement soil conservation measures.
- Scheduling to avoid heavy rainfall periods (i.e., during the dry season) to the extent practical.
- Contouring and minimizing length and steepness of slopes
- Mulching to stabilize exposed areas.
- Re-vegetating areas by replanting grass and or reforestation promptly.
- Reducing or preventing off-site sediment transport through use of settlement ponds, silt fences, and modifying or suspending activities during extreme rainfall and high winds to the extent practical.

Impact on Vegetation distribution (flora) and fauna

The vegetation type that will be most affected in some sections is the flooded grassland that will be in areas that dike construction and will take place. The prevention of flooding will change the previously river-flooded land behind the rain-flooded grassland systems with expected natural succession and encroachment of woody components. Post sub-projects implementation, grass lands will appear in sections of the reclaimed land, and this will support livestock keeping in the area.

Mitigation/enhancement Measures

- A detailed layout plan to be developed which focuses on avoiding vegetation loss.
- Dike construction and works should only be confined to planned areas to avoid disturbance of vegetation in other areas.
- Designate selected areas as grazing land and ensure controlled grazing.
- Flora -Land clearance should be restricted to that which is required for the project components to minimize the loss of vegetation.
- -Restrict vehicle movements to and from the project site(s) to the project access road – offroad driving should be prohibited.
- -Site restoration should be undertaken for areas where temporary project infrastructure will be established during the dike construction phase. The affected areas should be restored, and only indigenous vegetation replant or re-seed vegetation e.g. grasses, trees -Intentional restoration using exotic plant species should be avoided.
- -Sensitize workers against unnecessary destruction, trampling and clearance of flora/crops and fauna.
- -In an event that the project activities may have potential adverse impacts on biodiversity, a biodiversity management plan should be developed, if the potential risk of project activities is insignificant, the appropriate mitigation measures should be implemented.

Fisheries potential

The project would have adverse effects on fisheries and other aquatic resources by disruption of migratory routes, deterioration of habitat and changes water quality (e-g sediment load) leading to reduce to productivity of riverine. however, consideration of the impacts of the proposed s on local fish the negative impacts of the proposed dyke on local fish harvesting are assessed to be of low significance.

Mitigation/enhancement Measures

- Ensure the footprint of the sub-projects is maintained in the targeted area only.

Aquatic biodiversity

Several fish species within South Sudan waters, are known to migrate into the river-flooded grasslands in response to the seasonal flood cycles mainly for breeding and feeding purposes. The free movement of the fish will be restricted by the constructed dike. This will result in a reduction in the population of floodplain fish mainly to local communities.

Mitigation/enhancement Measures

- Minimize working outside the targeted areas to ensure the impact is localised.

Noise pollution

- Limited temporary impact of noise pollution expected during excavation and embankments work and drainage system.

Mitigation measures

- Prior notice/community awareness will be undertaken for the local community members to keep them informed of what will take place/schedules of the project activities so that they are able to plan accordingly.
- Dike construction activities will be limited to only daytime hours.
- Noise monitoring will be undertaken within the area and at nearby sensitive receptor sites during construction.
- Using noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities, exhaust muffling devices for combustion engines.
- Avoiding or minimizing project transportation through community areas.
- Use of well-maintained and serviced equipment that generates low noise levels will be emphasized.
- Workers involved in dike construction activities will be provided with requisite Personal Protective Equipment; and
- Idling machinery, including vehicles, will be prohibited unless necessary.

Solid waste

Solid waste, like wood, stones, plastic materials, and fuels spill might be generated during project implementation activities.

Mitigation measures

- Implement waste management hierarchy.
- Non-hazardous wastes can be managed by reusing, recycling, or can be sold to authorized collectors and recyclers and should be disposed using the South Sudan solid waste disposal facilities.
- As there are no known facilities to dispose of hazardous waste in the country.
- The Contractor should consider designing a temporary hazardous waste storage facility in consideration of the generated amounts and timing before final disposal by licensed hazardous waste handlers in accordance with the national legislative requirements and world Bank ESF requirements and GIIP practices.
- Maximize the re-use of all excavated materials in the dike construction works.
- Disposal of surplus material (spoil) is only at designated sites approved by the local authority responsible and only by approved methods.
- No spoil should be disposed of in wetlands, near watercourses and other important habits.
- No spoil should be disposed of in wetlands, near watercourses and other important habits.
- Contract a licensed hazardous waste handler to safely transport and dispose of hazardous waste.
- Capacitate and support licensed personnel who are involved in hazardous waste disposal and management in all aspects including financial and technical supports.
- Identify the potential waste streams to be generated by the project activities, and how best they can be managed.
- All waste shall be properly disposed of in accordance with the national legislative requirements and in accordance with ESF requirements and GIIP practices.

Risk of vibration

- Increased levels of vibration from moving of dike construction vehicles and machinery.

Mitigation measures

- Restrict vehicle movement to defined routes.
- Notification communities through awareness exercises.
- Avoiding or minimizing project transportation through community areas.

Potential surface and ground water impacts

- Surface and ground water sources can be polluted because of soil erosion and sedimentation.

Mitigation measures

- Establish appropriate erosion and sediment control measures (e.g. silt fences) to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.
- Drainage depth will be less than 2m. Properly organized waste disposal is a mandatory requirement for the Project.

Potential water and soil pollution

- Water and soil can be polluted due to improper material storage, management, and usage, waste disposal, and drainage of wastewater from dike construction sites.
- All waste generated during dike construction activities should be collected and disposed of appropriately at designated sites.
- Undertake monitoring of the soil and water quality and devise corrective action when changes attributed to project implementation have been observed.
- The waste management hierarchy should be followed during the dike construction phase. According to this hierarchy, source reduction of waste will be the first option and disposal of unavoidable waste as the option of the last resort.
- Dispose waste material at authorized locations protected from washing out, should be marked in the site plan.
- Undertake routine preventive maintenance of motorized equipment to avoid any fuel leakage and spills.
- Storage of fuels and oils should be undertaken in a manner that does not allow leakage to the soil as the fuel can readily infiltrate the soils polluting the soil, ground and surface water.
- Preparing plans and procedures to respond to the discovery of contaminated media to minimize or reduce the risk to health, safety, and the environment.
- Managing contaminated media with the objective of protecting the safety and health of occupants of the site, the surrounding community, and the environment.
- Organize and cover material storage areas.
- Select areas for washing that are not free draining directly into watercourse; and
- Installation of ecological toilettes for workers to avoid direct discharge of wastewater to the water body.

Land degradation.

Likely, Negative, Short-term, reversible, localized.

The extraction of materials, e.g. soil form embarkments, excavation works may result in land degradation.

Mitigation Measures

- The extraction of natural resources shall be done sustainably only in legally allowed designated areas.
- Rehabilitation of all areas disturbed during dike construction shall be done by the Contractor.
- Excavation shall be controlled and only restricted to areas that will be worked on only.

Disturbance to the cultural, religious, and archaeological sites

Possibility of encountering an archaeological site, archaeological materials, cultural significance, shrines

Mitigation measures

-Avoid any cultural or religious sites. If cultural or archaeological items are found during soil excavation and dike embankment works or drainage system, the contractor shall immediately suspend the Works. and barricade the area and follow the chance finds procedure.

Environmental Liabilities

The excavation of materials and the backfilling of borrow pits should be done according to the national laws and the requirements of the World Bank ESF, project ESCP as read together with the project ESF.

Water born disease (vector)

Likely, Negative, Short-term, reversible, localised, insignificant

Related to Pools of water act as breeding grounds for disease and illness(mosquitoes)

Mitigation measures

- Prevention of larval and adult propagation through sanitary improvements and elimination of breeding habitats close to human settlements
- Elimination of unusable impounded water.
- Increase in water velocity in natural and artificial channels.
- Considering the application of residual insecticide to dormitory walls.
- Implementation of integrated vector control programs.
- Promoting use of repellents, clothing, netting, and other barriers to prevent insect bites.
- Use of chemoprophylaxis drugs by non-immune workers and collaborating with public health officials to help eradicate disease reservoirs.
- Monitoring and treatment of circulating and migrating populations to prevent disease reservoir spread.
- Collaboration and exchange of in-kind services with other control programs in the project area to maximize beneficial effects.

- Educating project personnel and area residents on risks, prevention, and available treatment.
- Monitoring communities during high-risk seasons to detect and treat cases.
- De-vegetation in the area of the burrow pit, work ways along the dike section.

Equipment and personnel drowning

Likely Negative, Short to Medium-term, localised, significant

The operation of equipment in potentially swampy areas may lead to equipment and personnel drowning.

Mitigation Measures

- Proper planning before execution of tasks
- Route assessment to be done to assess the risks prior to the full deployment of equipment.
- In most difficult areas, equipment to work in pairs.

6.2.2.3 Occupational Safety/Health and employment of dike construction workers

Likely Negative, Short to Medium-term, localised, significant

Dike construction, drainage system and docking point construction activities involve working with tools, machinery and materials that pose significant risk of injury and fatalities if not managed well.

Mitigation Measures

- The Contractor must make sure that there is a site Safety, Health & Environmental Officer or appointed focal person.
- A Safety, Health and Environment awareness induction training should be conducted for both contractual and casual employees before dike construction commences.
- Dike and docking point construction should be carried out in accordance with relevant occupational health and safety (OHS) standards of the World Bank and the national OHS requirement if any.
- Integrity testing must be done before work begins on heights.
- Workers must be trained in climbing techniques and fall protection measures.
- Adequate PPE and tool bags must be used by workers.
- Minimum standards of provision of segregated lockable sanitary facilities for males and females where necessary.

6.2.2.4 Social impact and risks

Increased Pressure on existing social infrastructure

Negative, Likely, short term, localised, moderately significant

The proposed subproject will result in project workers relying on existing social infrastructure particularly for water and sanitation. This may exert pressure on existing communities and may be a source of conflict

and may affect the health of workers. Since the work will be mechanized, the number of employees onsite will be few and are likely not to have a significant impact in the county.

Mitigation measures

- Contractor to use mobile ablution facilities for their teams.
- Stakeholder engagement and dialogue to ensure harmonious relations and access to available resources.

Conflicts, fights

Negative, Short term, localised, moderately significant
Interaction of the contractor workers with the community may result in misunderstandings and conflicts.

Mitigation measures

- Induction and training of contractor staff
- Stakeholder engagement and dialogue to ensure constant updates and harmonious relations with communities.
- Enforcement of the employee Code of Conduct

Grievances

Likely, Negative, Short to medium term, localized, reversible, and significant.
The implementation of sub-projects may result in grievances emanating from the interaction of the project Contractor, employees, communities, and other stakeholders. These grievances can occur at any stage of project implementation and have the potential to affect and cause delays in project implementation.

Mitigation Measures
- Establishment of a platform to receive and manage grievances as provided for under the ECRP II.
- Education and awareness raising on the GRM will be extended to all relevant stakeholders.
- Disclosure of the GRM includes information on cases received and how they managed within the project area.
- Multiple channels will be made available for aggrieved parties to file their complaint, grievance, or feedback which include the suggestion boxes, BDC community volunteer, social mobilisers and the help desk as means upon which the aggrieved party may approach to lodge a complaint.

Chance Finds

Likely, Negative, Short to medium term, localized.
The implementation of the sub-projects may result in the exposure of archaeological remains. Such happenings may not be predicted but once observed the relevant necessary procedures and protocols should be followed.

Mitigation Measures

- If there are any chance finds during the implementation of the sub projects, IOM and the Contractor s are obliged to comply with the requirements of the Bank, national laws, and guidance from the traditional leaders. The provisions of the ECRP II ESMF and the Chance Finds procedure should guide such cases.
- Discrimination in employment and occupation with respect to gender and disability may also occur as well as possible child labor.

Gender Based Violence (GBV)

Likely, Negative

Floods and food insecurity are affecting several parts of Rubkona which increases women's/girls' vulnerability to GBV. The population is concentrated in an area increasing more risks for GBV. Increased cases of child/forced marriage and teenage pregnancies due to prolonged school closure and Hunger. Schools have been submerged by water; Farms are carried off by floods forcing families to send girls for marriages to get living. Cultural and Social norms which perpetuate and reinforce multiple forms of violence against women and girls. Girls are seen as bride price and liabilities . Worst with the ongoing floods and the 2021 conflict and crisis. Gender discrimination and social stigma prevent GBV survivors from seeking help and accessing services. Both men and women fear reporting GBV cases. Men are seen as superior , not allowing them to report. Women face even more violence when they attempt to report. The assessment noted that there are limited reporting opportunities and support services to child survivors of GBV.

Mitigation Measures

- Training and creating more awareness on GBV/SEA
- Continues GBV safety Audits of every sub-projects. Safety Audits sessions also act as a space for creating more awareness and educating the communities on General protection and GBV in specific.
- Service mapping of protection and GBV related services. This helps to identify the updated referral pathways to the communities.
- Women Leadership Trainings and confidence Building to empower women to speak and raise concerns related to them.
- Promotion of reporting systems that are anonymous and that protect the victim

Risks and impact of road safety and poor traffic management for worker and communities

Mitigation measures

- Implementation of a traffic management system i.e. speed limits, traffic controllers, installation of signage.
- Ensure adequate warning signs, protective fencing etc.
- Observe and respect traffic rules.

- Clean dike construction waste from the dike construction site when closing the dike construction site.
- Journey-specific risk assessments which will include the identification of potentially sensitive receptors along the traffic routes should be conducted. For significant traffic movements, including transport of dike construction materials to site, any affected communities/residents along the route should be sensitized, and wherever possible, attempts made to undertake the traffic movements at the least busy times of day;
- Only approved drivers should be allowed to operate vehicles; and
- Dike construction materials should, wherever possible, be preferentially sourced locally in a manner that reduces environmental and social impacts (e.g., transport distances) and maximizes local economic development opportunities.
- All roads should have clear and visible signage especially in community areas, around schools and hospitals to minimize the risk of-All staff should undergo an Environment, Health and Safety induction process which includes rules for safe driving, including speed limits in community areas; and
- Dike construction equipment should be maintained on site until the dike construction is complete to reduce on vehicle movement (Taking into consideration, their security

Risk to community health and safety e.g. accidents at burrow pits, UXOs, and mines

The implementation of the sub-projects will result in the establishment of borrow pits that will present a risk to the community.

Mitigation measures

- Fence the quarry site to prevent people and livestock trespass.
- Installation of hazard warning signs.
- Awareness raising initiatives.
- Rehabilitate the burrow pit to the extent possible.

Public Health and Safety Risk

Likely, Negative, Short-term, reversible, localised, insignificant

This assessment identifies potential impacts of the Project on Community, Health, and Safety. Impacts will primarily occur in the dike construction and phase and result in increased safety risks for communities in the Project area. These include increase in ambient noise levels, elevated dust levels and risk of accidents or injuries if equipment is left lying around and accidents.

Mitigation Measures

- Dissemination of project information must be done to make the public aware of project and associated risks.
- Implementation of the recommended public safety actions (refer to the Environmental Management & Monitoring Plan)
- Warning signs must be erected in places where pits have been dug and in dike construction sites to keep the public out.

- A concerns/complaints register must be made and follow ups done on each complaint . Workers must take tools to proper storage or leave it safely stored after work.

Communicable diseases

Likely, Negative, Short-term, reversible, localised, insignificant

The interaction of contractor workers and the communities may lead to the spread of communicable diseases

Mitigation measures

- Providing surveillance and active screening and treatment of workers.
- Preventing illness among workers in local communities by:
- Undertaking health awareness and education initiatives, for example, by implementing an information strategy to reinforce person-to-person counseling addressing systemic factors that can influence individual behavior as well as promoting individual protection, and protecting others from infection, by encouraging condom use.
- Training health workers in disease treatment.
- Conducting immunization programs for workers in local communities to improve health and guard against infection.
- Providing health services.
- Providing treatment through standard case management in on-site or community health care facilities.
- Ensuring ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers.
- Promoting collaboration with local authorities to enhance access of workers' families and the community to public health services and promote immunization.

6.2.3. Operation Phase

The sub-projects assessed include brown field and greenfield sub-projects. The magnitude of the proposed sub-projects is small to medium, and their environmental and social footprint is not big. Thus, it is anticipated that the implementation of the sub-projects will pose moderate environmental and social risk. Possible impacts associated with the operation phase are presented in the sections that follow.

6.2.3.1 Environmental impacts and risks

Air Quality – Short-lived pollutants and greenhouse gases

Likely, Negative, Short to medium term, localized, significant.

With poor combustion associated with machinery used for the dikes, drainage, and road works can cause considerable emissions of Fumes CO, SO_x, CO_2, NO_x, non-methane-VOCs, particulate matter, as well as greenhouse gases, and cancer-causing dioxins and furans.

Mitigation measures

- *Consider adoption of designs that avoid the release of air pollutants.*
- *Development and implementation of Traffic Management Plan (TMP) to guide the operation of the works for dikes, drainage and*
- *Education, training, and Capacity building of relevant staff*
- Ensure that machinery used for the dike, drainage and road will be optimized and adequately serviced to reduce high deposition.
- Maintain the recommended fuel to oxygen ratios to ensure complete combustion of waste.
- All vehicles and construction machinery comply with relevant emission standards.

Adverse effects on fisheries and other aquatic resources

Likely, Negative, long term, localized, reversible, significant.

Adverse effects on fisheries and other aquatic resources by disruption of migratory routes, deterioration of habitat and changes in water quality (e-g sediment load) leading to reduction to productivity of riverine.

Mitigation measures

-Incorporation of fishery management
- all works (including dike, drainage, and road construction) will be scheduled outside key fish spawning and migration periods, as determined through consultation with local fisheries and community knowledge.

Reduction of floodplain grazing, both through ecological changes on the floodplain and intensified development (Irrigated agriculture).
Likely, Negative, long term, localized, reversible, significant.

Mitigation measures

-Production of fodder crops and usage of byproducts of irrigated food crops and development of alternative water sources.
-Integration of existing rangeland use (e.g., si-nomadic herding) with planned developments, to ensure substantial ground watering possibilities in the valley during the dry season.

Flooding problems created downstream should be incorporated.

Likely, Negative, Short term, localized, reversible, significant.

Mitigation measures

-Protection of natural overflow areas downstream.
-Creation of overflow basins.

-Implement emergency preparedness measures (see section 8).

Potential for structural failure and floodwaters higher than capacity of control structures /measures

Likely, Negative, Short term, localized, reversible, significant.

Potential for structural failure and floodwaters higher than capacity of control structures /measures, leading to increased risk to life and property because local project adaptations are relaxed or abandoned or increased development on the floodplain has occurred post-project.

Mitigation measures

-Implementation of non-structural measures, such as watershed management activities (e.g., increasing vegetative cover, particularly on slopes, improving agricultural practices, implementing gully erosion control measures, etc.), planting of vegetation along riverbanks to help contain and reduce flooding, and protection of, or restriction of, use of wetlands which have a natural flood control effect to prevent increased flood risk, and

-Implement flood warning system using the emergency preparedness measures (See Chapter 8).

6.2.3.2 Social impact and risks

Conflicts, fights

Negative, Short term, localised, moderately significant
Interaction of the community groups relating to the use and management of the sub-projects

Mitigation measures

- Encourage community dialogue and peaceful engagement.
- Clear communication from the community PDRMCs on activities
- Enforcement of laws by local community leadership

Grievances

Likely, Negative, Short to medium term, localized, reversible, and significant.

The use and maintenance of sub-projects may result in grievances emanating from the interaction of the community groups.

Mitigation Measures

- Maintain the platform to receive and manage grievances as established under ECRP II.

Gender Based Violence (GBV)

Likely, Negative

Floods and food insecurity are affecting several parts of Rubkona which increases women's/girls' vulnerability to GBV. The population is concentrated in an area increasing more risks for GBV. Increased cases of child/forced marriage and teenage pregnancies due to prolonged school closure and Hunger. Schools have been submerged by water; Farms are carried off by floods forcing families to send girls for marriages to get living. Cultural and Social norms which perpetuate and reinforce multiple forms of violence against women and girls. Girls are seen as bride price and liabilities. Worst with the ongoing floods and the 2021 conflict and crisis. Gender discrimination and social stigma prevent GBV survivors from seeking help and accessing services. Both men and women fear reporting GBV cases. Men are seen as superior , not allowing them to report. Women face even more violence when they attempt to report. The assessment noted that there are limited reporting opportunities and support services to child survivors of GBV.

Mitigation Measures

- Training and creating more awareness on GBV/SEA
- Continue GBV safety Audits of every sub-project. Safety Audits sessions also function as a space for creating more awareness and educating the communities on General protection and GBV in specific.
- Service mapping of protection and GBV related services. This helps to identify the updated referral pathways to the communities.
- Women Leadership Trainings and confidence Building to empower women to speak and raise concerns related to them.
- Promotion of reporting systems that are anonymous and that protect the victim

Public Health and Safety Risk

Likely, Negative, Short-term, reversible, localised, insignificant

This assessment identifies potential impacts of the Project on Community, Health, and Safety. Impacts will primarily occur in the operation and maintenance phase and result in increased safety risks for communities and their livestock. These include elevated dust levels and risk of accidents or injuries if equipment is lying around and accidents.

Mitigation Measures

- Dissemination of ES risks will include O&M committees and the public.
- Implementation of the recommended public safety actions (refer to the Environmental Management & Monitoring Plan)
- Warning signs erected in places where pits and in dike construction sites to keep the public out.
- A complaint register to follow-ups on each complaint.
- Workers must take tools to proper storage or leave them safely stored after work.

Access issues

Due to limited road transport and accessibility issues during the rainy season, most transportation is conducted via waterways and air.

Mitigation Measures

- Proper planning and route assessments
- Use of barges and riverine vessels navigate the White Nile through the county, linking Malakal and Renk.

6.2.4. Decommission Phase

6.2.4.1 Environmental impact and risk

Environmental pollution

Likely, Negative, Short to Medium-term, localized, significant.

The key environmental pollution anticipated from the decommissioning phase includes the following:

(a) Deposition of emitted particulate matter and dust on land affects the soil quality and the effect could compromise the integrity of nearby water sources.

Mitigation measures

- Environmental monitoring of the ambient air and water quality of the surrounding environment
- Adherence to the pollution management guidelines stipulated in the decommissioning plan.
- Education, Training and Capacity building of operators.

Waste generation.

Negative, Medium to long term, localised, reversible moderately significant

During the decommissioning phase, dike construction materials and waste oil can be discarded, forgotten, or left on site.

Mitigation measures

- Soil waste materials can be used in the backfilling of waste disposal cells.
- Hazardous waste like oils should be disposed of in an environmentally sound manner at designated sites under the authority of the Ministry of Environment and Forestry.

6.2.4.2 Occupational, Health and Safety

Likely, Negative, Short to Medium-term, localised, significant

Construction and upgrading activities for the dike, drainage, and road works involve working with tools, machinery and materials that pose significant risk of injury and fatalities if not managed well. Work will also be conducted on heights on dike and road embankments and thus increasing risk of injury or death by falling. Discrimination in employment and occupation with respect to gender and disability may also occur as well as child labour.

Mitigation Measures

- The Contractor must make sure that there is a site Safety, Health & Environmental Officer.
- Safety, Health, and Environment awareness training should be conducted for both contractual and casual employees before dike decommissioning.
- Dike decommissioning should be conducted in accordance with relevant occupational health and safety standards.
- Integrity testing must be done before work begins on heights.
- Workers must be trained on climbing techniques and fall protection measures.
- Workers must use adequate PPE and tool bags.
- Minimum standards of provision of segregated lockable sanitary facilities for males and females where necessary?

Noise Pollution

Construction and upgrading operations for the dike, drainage and road works are likely to generate noise from machinery, equipment, and vehicles movements. This situation is likely to have occupational health and safety implications as well as effects to the workers. Those within the site and in the neighborhoods of the project site may be affected.

Mitigation measures

- Avoiding selection of equipment that emits noise beyond prescribed levels.
- Deliberate selection of equipment with noise control devices and mufflers
- Use of documented SOPs
- Development of Noise management Plans
- Ensure the Use of PPE

6.2.4.2 Social impact and risks

Increased Pressure on existing social infrastructure

Negative, Short term, localised, moderately significant
The proposed subproject will result in project workers relying on existing social infrastructure particularly for water and sanitation. This may exert pressure on existing communities and may be a source of conflict and may affect the health of workers. Since the work will be mechanized, the number of employees onsite will be few and are likely not to have a significant impact in the county.

Mitigation measures

- Contractor to use mobile ablution facilities for their teams.
- Stakeholder engagement and dialogue to ensure harmonious relations and access to available resources.

Conflicts, fights

Negative, Likely, short term, localised, moderately significant
Interaction of the contractor workers with the community may result in misunderstandings and conflicts

Mitigation measures

- Induction and training of contractor staff
- Stakeholder engagement and dialogue to ensure constant updates and harmonious relations with communities.
- Enforcement of the employee Code of Conduct

Grievances

Likely, Negative, Short to medium term, localized, reversible, and significant.
The implementation of sub-projects may result in grievances emanating from the interaction of the project Contractor, employees, communities, and other stakeholders. These grievances can occur at any stage of project implementation and have the potential to affect and cause delays in project implementation.

Mitigation Measures
- Establishment of a platform to receive and manage grievances as provided for under the ECRP II.
- Education and awareness raising on the GRM to be extended to all relevant stakeholders.
- Disclosure of the GRM includes information of cases received and how they have been managed within the project area.

- Multiple channels will be made available for aggrieved parties to file their complaint, grievance, or feedback which include the suggestion boxes, BDC community volunteer, social mobilisers and the help desk as means upon which the aggrieved party may approach to lodge a complaint.

Chance Finds

Likely, Negative, Short to medium term, localized.

The implementation of the sub-projects may result in the exposure of archaeological remains. Such happenings may not be predicted but once observed the relevant necessary procedures and protocols should be followed.

Mitigation Measures

- If there are any chance finds during the implementation of the sub projects, IOM and the Contractor s are obliged to comply with the requirements of the Bank, national laws, and guidance from the traditional leaders. The provisions of the ECRP II ESMF and the Chance Finds procedure should guide such cases.
- Discrimination in employment and occupation with respect to gender and disability may also occur as well as possible child labor.

Gender Based Violence (GBV)

Likely, Negative

Floods and food insecurity are affecting several parts of Rubkona which increases women's/girls' vulnerability to GBV. The population is concentrated in an area increasing more risks for GBV. Increased cases of child/forced marriage and teenage pregnancies due to prolonged school closure and Hunger. Schools have been submerged by water; Farms are carried off by floods forcing families to send girls for marriages to get living. Cultural and Social norms which perpetuate and reinforce multiple forms of violence against women and girls. Girls are seen as bride price and liabilities . Worst with the ongoing floods and the 2021 conflict and crisis. Gender discrimination and social stigma prevent GBV survivors from seeking help and accessing services. Both men and women fear reporting GBV cases. Men are seen as superior , not allowing them to report. Women face even more violence when they attempt to report. The assessment noted that there are limited reporting opportunities and support services to child survivors of GBV.

Mitigation Measures

- Training and creating more awareness on GBV/SEA
- Continue GBV safety Audits of every sub-project. Safety Audits sessions also function as a space for creating more awareness and educating the communities on General protection and GBV in specific.
- Service mapping of protection and GBV related services. This helps to identify the updated referral pathways to the communities.
- Women Leadership Trainings and confidence Building to empower women to speak and raise concerns related to them.
- Promotion of reporting systems that are anonymous and that protect the victim.

Risks and impact of road safety and poor traffic management for workers and communities

Mitigation measures

- Implementation of a traffic management system i.e. speed limits, traffic controllers, installation of signage.
- Ensure adequate warning signs, protective fencing etc.
- Observe and respect traffic rules.
- Clean dike construction waste from the dike construction site when closing the dike construction site.
- Journey-specific risk assessments which will include the identification of potentially sensitive receptors along the traffic routes should be conducted. For significant traffic movements, including transport of dike construction materials to site, any affected communities/residents along the route should be sensitized, and wherever possible, attempts made to undertake the traffic movements at the least busy times of day.
- Only approved drivers should be allowed to operate vehicles; and
- Dike construction materials should, wherever possible, be preferentially sourced locally in a manner that reduces environmental and social impacts (e.g., transport distances) and maximizes local economic development opportunities.
- All roads should have clear and visible signage especially in community areas, around schools and hospitals to minimize the risk of-All staff should undergo an Environment, Health and Safety induction process which includes rules for safe driving, including speed limits in community areas; and
- Dike construction equipment should be maintained on site until the dike construction is complete to reduce on vehicle movement (Taking into consideration, their security

Risk to community health and safety e.g. accidents at burrow pits, UXOs, and mines

The implementation of the sub-projects will result in the establishment of borrow pits that will present a risk to the community.

Mitigation measures

- Fence the quarry site to prevent people and livestock trespass.
- Installation of hazard warning signs.
- Awareness raising initiatives.
- Rehabilitate the burrow pit to the extent possible.

Public Health and Safety Risk

Likely, Negative, Short-term, reversible, localised, insignificant

This assessment identifies potential impacts of the Project on Community, Health, and Safety. Impacts will primarily occur in the dike construction and phase and result in increased safety risks for communities in

the Project area. These include increase in ambient noise levels, elevated dust levels and risk of accidents or injuries if equipment is left lying around and accidents.

Mitigation Measures

- Dissemination of project information must be done to make the public aware of project and associated risks.
- Implementation of the recommended public safety actions (refer to the Environmental Management & Monitoring Plan)
- Warning signs must be erected in places where pits have been dug and in dike construction sites to keep the public out.
- A concerns/complaints register must be made and follow ups done on each complaint . Workers must take tools to proper storage or leave it safely stored after work.

Communicable diseases

Likely, Negative, Short-term, reversible, localised, insignificant

The interaction of contractor workers and the communities may lead to the spread of communicable diseases.

Mitigation measures

- Providing surveillance and active screening and treatment of workers.
- Preventing illness among workers in local communities by:
- Undertaking health awareness and education initiatives, for example, by implementing an information strategy to reinforce person-to-person counseling addressing systemic factors that can influence individual behavior as well as promoting individual protection, and protecting others from infection, by encouraging condom use.
- Training health workers in disease treatment.
- Conducting immunization programs for workers in local communities to improve health and guard against infection.
- Providing health services.
- Providing treatment through standard case management in on-site or community health care facilities.
- Ensuring ready access to medical treatment, confidentiality, and appropriate care, particularly with respect to migrant workers.
- Promoting collaboration with local authorities to enhance access of workers' families and the community to public health services and promote immunization.

CHAPTER 7

ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

Table 2. ESMMP Summary Table

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Timeframe for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Timeframe for monitoring	Cost estimate (USD)
PRE-CONSTRUCTION/REHABILITATION STAGE									
Tender documents prepared with access to or use of the this ESMP	Tender documents will include a copy of the mitigation and monitoring plan ESMP, which shall be included in the safeguard clauses of the Technical Specifications in the contracts and commitment to comply with Lender Requirements	IOM (ECRP II), CCCM, UNMISS, & another partners	Before recruiting of contractor	Document review, Audits, and inspections	Number of tender documents (which included ESMP requirements) provided to contractors	Ongoing, any time when tenders are prepared.	IOM-ECRP II, County Dike Management Committee PMU	Monthly	1000
Planning/ Designing Ensure compliance with construction. legislation of South Sudan	Acquiring construction permit Provide Water management guidelines if sub-projects are executed near surface watercourses.	ECRP II, CCCM, UNMISS, & another Contractor	Before starting work	Document review, Audits, and inspections	Number of permits acquired, and awareness meetings held on construction	Monthly	ECRP II, CCCM, County Dike Management Committee, PMU	At the start of the sub-projects	5000

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Timeframe for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Timeframe for monitoring	Cost estimate (USD)
PRE-CONSTRUCTION/REHABILITATION STAGE									
Planning/ Designing Potential damages to the existing infrastructure and facilities.	Preserving existing local infrastructure and working in cooperation with relevant institutions at all levels of authority.	ECRP II, CCCM, UNMISS, & Contractors	Continuously during planning phase	Inspections	Number of site inspections	Weekly	Contractor and County Dike Management Committee, PMU, UNMISS	Continuous throughout project implementation	
Poor drainage system and dike rehabilitation/construction planning	-Careful selection of engineering options at planning stage. -Limitation of degree of channel modification on maintenance.	ECRP II, CCCM, UNMISS, & Contractors	Continuously during planning phase	Inspections	Number of site inspections	Weekly	Contractor and County Dike Management Committee, PMU, UNMISS	At planning stage	
Occupational Health and Safety	-Pre-Task Risk assessment Adequate PPE supply, Worker Induction, -Close monitoring through inspections, and audits	ECRP II, CCCM, UNMISS, & Contractors	Continuously during planning phase	Document review, Audits and inspections	Documented OHS Management plan Adequate PPE supply Clear Work Procedures Induction register Pre-Task Risk assessment	Weekly by Field teams /Monthly by Juba Teams	ECRP II, CCCMCDRMC, PMU, UNMISS	Continuous throughout project implementation	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Materials supplies: Soil burrow pit; disturbance of wetland edges; water quality	Use the approved quarry/ burrow pits. After exploitation, ensure borrow pits are remediated.	ECRP II, CCCM, UNMISS, & other Contractors,	daily	Inspection reports	Number of site inspections	daily	ECRP II, CCCM, UNMISS County Dike Management Committee, PMU	Weekly	
Material transportation e.g. soils, sand	-Cover truck load	ECRP II, CCCM, UNMISS, & other Contractors	daily	Inspection reports	Number of site inspections	daily	Contractor and County Dike Management Committee, PMU	Weekly	
Soil erosion and Loss of topsoil due to access roads, quarry sites work areas and drainage system and dike construction/rehabilitation activities	-Scheduling to avoid heavy rainfall periods (i.e., during the dry season) to the extent practical. -Contouring and minimizing length and steepness of slopes -Mulching to stabilize exposed areas. -Re-vegetating areas by replanting grass and or reforestation promptly. -Reducing or preventing off-site sediment transport through use of settlement ponds, silt fences, and modifying or suspending activities during extreme rainfall and high winds to the extent practical.	ECRP II, CCCM, UNMISS, & other Contractors	daily	Inspection reports	Number of site inspections	daily	Contractor and County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Potential surface and ground water impacts due to soil erosion and sedimentation	-Establish appropriate erosion and sediment control measures (e.g. silt fences) to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers. -Minimum drainage work for excessive flood waters only within the embankment site, causing temporary turbidity. -Drainage depth will be less than 2m. A properly organized waste disposal is a mandatory requirement for the Project.	ECRP II, CCCM, UNMISS, & other Contractors	daily	Site inspections	Number of site inspections	weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Potential water and soil pollution due to improper material storage, management, and usage, waste disposal, and drainage of wastewater to construction site.	-All wastes generated during construction activities should be collected and disposed of appropriately at designated sites; -Undertake monitoring of the soil and water quality and devise corrective action when changes attributed to project implementation have been observed; -The waste management hierarchy should be followed during the construction phase. According to this hierarchy, source reduction of waste will be the first option and disposal of unavoidable waste as the option of the last resort; -Dispose waste material at authorised location protected	ECRP II, CCCM, UNMISS, & other Contractors	daily	Site inspection reports	Number of site inspections	weekly	Contractor and County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	from washing out, should be marked in the site plan. -Undertake routine preventive maintenance of motorized equipment to avoid any fuel leakage and spills. -Storage of fuels and oils should be undertaken in a manner that does not allow leakage to the soil as the fuel can readily infiltrate the soils polluting the soils, ground, and surface water. -Preparing plans and procedures to respond to the discovery of contaminated media to minimize or reduce the risk to health, safety, and the environment. -Managing contaminated media with the objective of protecting the safety and health of occupants of the site, the surrounding community, and the environment. -Organize and cover material storage areas. -Select areas for washing that are not free draining directly into the watercourse Installation of ecological toilettes for workers to avoid direct discharge of wastewater to water body.								

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Poor maintenance and repairs and refueling at the construction site.	-Avoid servicing and refueling at the site. -Use protective foils during vehicle refueling and maintenance at the construction site. - Provide absorbing material in case of fuel spills. -Used oiled materials and agents should be managed in line with the waste management report.	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection reports	Number of site inspections	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Road safety and poor traffic management risks and impact for worker and communities	-Implementation of a traffic management system i.e. speed limits, traffic controllers, installation of signage. -Ensure adequate warning signs, protective fencing etc. -Observe and respect traffic rules. -Clean construction waste from the construction site when closing the construction site. -Journey-specific risk assessments which will include the identification of potentially sensitive receptors along the traffic routes should be conducted. For significant traffic movements, including transport of construction materials to site, any affected communities/residents along the route should be sensitized, and wherever possible, attempts made to undertake the	ECRP II, CCCM, UNMISS, & other Contractors	Daily	Implement the Construction Site Organization Plan.	Number of site inspections	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	traffic movements at the least busy times of day. -Only approved drivers should be allowed to operate vehicles. -Construction materials should, wherever possible, be preferentially sourced locally in a manner that reduces environmental and social impacts (e.g., transport distances) and maximizes local economic development opportunities. -All roads should have clear and visible signage especially in community areas, around schools and hospitals to minimize the risk. accidents; -All staff should undergo an Environment, Health and Safety induction process which includes rules for safe driving, including speed limits in community areas; and -Construction equipment should be maintained on site until the construction is complete to reduce vehicle movement (taking into consideration their security).								

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Disturbance to the cultural and religious sites.	-Avoid any cultural or religious sites. If cultural or archaeological items are found during soil excavation and dike embankment works or drainage system, the contractor shall stop work and trigger the Chance Find Procedure.	ECRP II, CCCM, UNMISS, & other Contractors	daily	Site inspection reports	Weekly	Number of site inspections	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Possibility of encountering an archaeological site, archaeological materials, cultural significance, shrines	If an archaeological site is encountered such as a graveyard, the Contractor will immediately suspend the Works. Barricade the area and follow the chance finds procedure. and inform the project, county authorities (trigger chance find procedure).	ECRP II, CCCM, UNMISS, & other Contractors	Daily	Chance Find Procedures in place	Weekly	Number of cultural items found	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Equipment maintenance and fueling	Ensure proper handling of lubricants, fuels and solvents while maintaining the equipment and work vehicles. Put in place gravity oil separator, absorbent mat/ fabric	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Camp and construction site inspections	Number of site inspections	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Impacts on land use/ settlements expansion	The dikes will be constructed on public land reserves. There will be no physical displacement of any household. The county administration pledged to control encroachment because of settlement expansion towards the dikes.	ECRP II, CCCM, UNMISS, & other Contractors	daily	Site inspection reports	Number of site inspections	weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Air quality due to dust from transportation of construction materials and truck traffic and elevated levels of nitrogen oxide (NOx) and sulfur oxide (SOx) from construction equipment exhausts	-Minimizing dust from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression, bag house, or cyclone). - Minimizing dust from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content. -Dust suppression techniques should be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements. -Avoiding open burning of solid.	ECRP II, CCCM, UNMISS, & other Contractors	Daily	Monitoring speed limit within town	Speed and dust observations	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Minimal loss of flora and fauna can occur during material excavation at	Flora and fauna in the surrounding towns and wetlands might be affected. -Flora -Land clearance should be restricted to that which is	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection reports	Number of site inspections	Weekly	ECRP II, CCCM, UNMISS, & other	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
quarries and embankments (work ways along the dike)	required for the project components to minimize the loss of vegetation. -Restrict vehicle movements to and from the project site(s) to the project access road – offroad driving should be prohibited. -Site restoration should be undertaken for areas where temporary project infrastructure will be established during the construction phase. The affected areas should be restored, and only indigenous vegetation replant or re-seed vegetation e.g. grasses, trees -Intentional restoration using exotic plant species should be avoided; -Sensitize workers against unnecessary destruction, trampling and clearance of flora/crops and fauna. -In an event that the project activities may have potential adverse impacts on biodiversity, a biodiversity management plan should be developed, if the potential risk of project activities are insignificant, the appropriate mitigation measures should be implemented.						Contractors County Dike Management Committee, PMU		

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Noise pollution	Only limited temporary impact during excavation and embankments work. Impact can be mitigated by - Prior notice/community awareness will be undertaken for the local community members to keep them informed of what will take place/schedules of the subproject activities so that they are able to plan accordingly. -Construction/rehabilitation activities will be limited to only daytime hours. -Noise monitoring will be undertaken within the area and at nearby sensitive receptor sites during construction/rehabilitation. -Using noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities, exhaust muffling devices for combustion engines. -Avoiding or minimizing project transportation through community areas. -Use of well-maintained and serviced equipment that generates low noise levels will be emphasized.	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection reports	Number of site inspections	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	-Workers involved in construction/rehabilitation activities will be provided with requisite Personal Protective Equipment; and -Idling machinery including vehicles will be prohibited unless necessary.								
Solid waste like wood, stones, plastic materials, and fuels spill from the machine.	- Implement waste management hierarchy -Non-hazardous wastes can be managed by reusing, recycling, or can be sold to authorized collectors and recyclers and should be disposed using the South Sudan solid waste disposal facilities. -As there are no known facilities to dispose of hazardous waste in the country. The Contractor should consider designing a temporary hazardous waste storage facility in consideration of the generated amounts and timing before final disposal by licensed hazardous waste handlers in accordance with the national legislative requirements and world Bank ESF requirements and GIIP practices.	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection reports	Number of site inspections	weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	-Maximize the re-use of all excavated materials in the construction works. -Disposal of surplus material (spoil) only at designated sites approved by the responsible local authority and only by approved methods. -No spoil should be disposed of in wetlands, near watercourses and other important habits -Contract a licensed hazardous waste handler to safely transport and dispose of hazardous waste; -Capacitate and support licensed personnel who participate in hazardous waste disposal and management in all aspects including financial and technical support . -Identify the potential waste streams to be generated by the project activities, and how best they can be managed. -All waste shall be properly disposed of in accordance with the national legislative requirements and in accordance with ESF requirements and GIIP practices.								

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Impact on natural hydrology. Disruption of hydrology of natural waterways	Develop layout plan to limit haphazard disruption of water channels	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Inspection	Inspection reports	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Vibration risks from moving of construction vehicles and machinery.	-Restrict vehicle movement to defined routes. -Notification communities through awareness exercises. -Avoiding or minimizing project transportation through community areas.	ECRP II, CCCM, UNMISS, & other Contractors	Daily/Weekly	Inspections, Documents review	Reports, meeting minutes	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Risk to community health and safety (ESS4) e.g. accidents at burrow pits, UXOs, and mines	-Fence the quarry site to prevent people and livestock trespass. -Installation of hazard warning signs. -Awareness raising initiatives. -Rehabilitate the burrow pit to the extent possible.	ECRP II, CCCM, UNMISS, & other Contractors	Prior to the commencement of material abstraction	Inspection s, Document review, Observation s	Number of Incidents	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
Health and safety risks posed by the influx of workers or people providing support services in an area	Awareness campaigns Education and awareness raising targeting employees	ECRP II, CCCM, UNMISS, & other Contractors	weekly	Document review, Inspections	Number of Incidents	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA)	All employees to be inducted. Education training and capacity building. Signing and adherence with an employee CoC mandatory Demand from all workers to abide by the Protection at work measures. Daily Safety talks	ECRP II, CCCM, UNMISS, & other Contractors	Daily	Site inspection reports	Number of site inspections	Weekly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Communicable diseases	-Providing surveillance and active screening and treatment of workers. -Preventing illness among workers in local communities by: - Undertaking health awareness and education initiatives, for example, by implementing an information strategy to reinforce person-to-person counseling addressing systemic factors that can influence individual behavior as well as promoting individual protection, and protecting others	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection reports	Number of site inspections	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	from infection, by encouraging condom use. -Training health workers in disease treatment. -Conducting immunization programs for workers in local communities to improve health and guard against infection. -Providing health services. -Providing treatment through standard case management in on-site or community health care facilities. -Ensuring ready access to medical treatment, confidentiality, and appropriate care, particularly with respect to migrant workers. -Promoting collaboration with local authorities to enhance access of workers' families and the community to public health services and promote immunization. -Community awareness campaigns. -Education and awareness raising workshops for staff on spread and management of communicable disease.								
Community health and safety risk related to Pools of water act as	-Prevention of larval and adult propagation through sanitary	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Construction Health and Safety	Number of site inspections	Monthly	County ECRP II, CCCM, UNMISS, &	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
breeding grounds for disease and illness(mosquitoes)	improvements and elimination of breeding habitats close to human settlements -Elimination of unusable impounded water. - Increase in water velocity in natural and artificial channels. - Considering the application of residual insecticide to dormitory walls. - Implementation of integrated vector control programs. - Promoting use of repellents, clothing, netting, and other barriers to prevent insect bites. - Use of chemoprophylaxis drugs by non-immune workers and collaborating with public health officials to help eradicate disease reservoirs. -Monitoring and treatment of circulating and migrating populations to prevent disease reservoir spread. - Collaboration and exchange of in-kind services with other control programs in the project area to maximize beneficial effects. - Educating project personnel and area residents on risks, prevention, and available treatment.			Management Plan			other Contractors County Dike Management Committee, PMU		

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	-Monitoring communities during high-risk seasons to detect and treat cases. -Awareness raising campaigns.								
Risk and impacts of occupational health and safety	-The Contractor must make sure that there is a Site Safety, Health & Environmental Officer or appointed focal person. A Safety, Health and Environment awareness induction training should be conducted for both contractual and casual employees before construction commences. -Construction should be conducted in accordance with relevant occupational health and safety standards. -Integrity testing must be done before work begins on heights. -Workers must be trained on climbing techniques and fall protection measures. -Adequate PPE and tool bags must be delivered for workers and ensure workers are using PPE properly. -Minimum standards of provision of segregated lockable sanitary facilities for males and females where necessary.	ECRP II, CCCM, UNMISS, & other Contractors	Daily	Site inspection reports, Construction Health and Safety Management Plan	Number of site inspections	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Weekly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	-Machines and Equipment must be operated only by qualified staff. -Fire risks are possible due to improper storage facilities and lack of fire drills, and this requires provision of regular training and awareness creation to the workers. -The entire workforce should be trained in the use of protective gear, handling of chemical products, procedures for entering enclosed areas, fire protection and prevention, emergency response and care procedures. -The contractor must develop workers' Health and Safety Plan for managing risk and impact associated with OHS gaps in case of accidents.								
Labor risks of injuries. Workers may raise their concerns (safety, discontent, maltreatment or else) through the Grievance Mechanism.	-Provide PPEs; Install warning signs at the construction site; adopt a construction management plan. -Establishment of a worker specific grievance redress mechanism for project workers. -The project worker is entitled to give suggestions, remarks and information regarding health and safety at work. The project workers should be informed on available grievance redress	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection report	Number of site inspections	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
CONSTRUCTION/REHABILITATION PHASE									
	mechanisms upon their employment or engagement.								
Reduced access through the area where the works are executed.	Plan the relocation of equipment at times when daily traffic is not jammed; Provide alternative passage for pedestrians and vehicles in cooperation with local authorities Avoid roads through inhabited areas especially near schools and hospitals; Prepare and implement the Construction Site Management Plan that incorporates good construction practice measures.	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection report	Number of site inspections	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Construction material leftovers after the completion of dike construction.	-Reuse/recycle leftovers. Dispose unwanted remnants in approved sites.	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection report	Amount of materials leftover after completion of work	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
OPERATION AND MAINTENANCE PHASE									
Handover of the dikes to County authorities	Provide detailed product design and lecture on repair and maintenance of dike, drainage, and road works PDRMc and County Authorities to ensure long-term sustainability.	ECRP II, CCCM, UNMISS, & other Contractors	Once off	Dike Operation and Repair Manual	Handover report	Once off	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Once off	
Water logging along the dikes may become a breeding ground for vectors	Provide for drainage from runoff from the dike edges	ECRP II, CCCM, UNMISS, & other Contractors	Monthly	Site inspection	Report of site condition	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU,	Monthly	
Risk of vandalizing s	Erect crossing points for people and livestock Monitor the s during O&M inspections	ECRP II, CCCM, UNMISS, & other Contractors	Monthly	Site inspection	Completion report	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU	Monthly	
Adverse effects on fisheries and other aquatic resources by disruption of migratory routes, deterioration of habitat and changes water quality (e-g	Protection of reproductive sites for fish. -Incorporation of fishery management.	ECRP II, CCCM, UNMISS, & other Contractors	Monthly	Site inspection	Report of site condition	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU,	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
OPERATION AND MAINTENANCE PHASE									
sediment load) leading to reduce to productivity of riverine.									
Reduction of floodplain grazing, both through ecological changes on the floodplain and intensified development (Irrigated agriculture).	-Production of fodder crops and usage of byproducts of irrigated food crops and development of alternative water sources. -Integration of existing rangeland use (e.g., si-nomadic herding) with planned developments, to ensure substantial ground watering possibilities in the valley during the dry season.	ECRP II, CCCM, UNMISS, & other Contractors	Monthly	Site inspection	Report of site condition	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU,	Twice a year	
Loss of wildland and wildlife habitat.	-Identification of critical habitats and planning of flood control measures to minimize effects. -Whose habitats or species are dependent on natural flooding regime, minimize disruption of flow in that area to the extent possible. -Establishment of settlements free zones, settlements with migration corridors and hunting protection areas and seasons (dry season).	ECRP II, CCCM, UNMISS, & other Contractors	Monthly	Site inspection	Report of site condition	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU,	Twice a year	
Flooding problems created downstream	-Protection of natural overflow areas downstream. -Creation of overflow basins.	ECRP II, CCCM, UNMISS, & other Contractors	Monthly	Site inspection	Report of site condition	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike	Twice a year	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
OPERATION AND MAINTENANCE PHASE									
should be incorporated.	-Implement emergency preparedness measures (see section 8)						Management Committee, PMU,		
Potential for structural failure and floodwaters higher than capacity of control structures /measures	-Implementation of non-structural measures, such as watershed management activities (e.g., increasing vegetative cover, particularly on slopes, improving agricultural practices, implementing gully erosion control measures, etc.), planting of vegetation along riverbanks to help contain and reduce flooding, and protection of, or restriction of, use of wetlands which have a natural flood control effect to prevent increased flood risk, and -Implement flood warning system using the emergency preparedness measures (See Chapter 8).	ECRP II, CCCM, UNMISS, & other Contractors	Weekly	Site inspection	Report of site condition	Monthly	ECRP II, CCCM, UNMISS, & other Contractors County Dike Management Committee, PMU,	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
Material transportation e.g. soils, sand	-Cover truck load	Government of South Sudan, Contractors and other Partners	daily	Inspection reports	Number of site inspections	daily	Government of South Sudan, Contractors and other Partners	Weekly	
Soil erosion and Loss of topsoil due to access roads, quarry sites work areas and drainage system and dike construction/ activities	-Scheduling to avoid heavy rainfall periods (i.e., during the dry season) to the extent practical. -Contouring and minimizing length and steepness of slopes -Mulching to stabilize exposed areas. -Re-vegetating areas by replanting grass and or reforestation promptly. -Reducing or preventing off-site sediment transport through use of settlement ponds, silt fences, and modifying or suspending activities during extreme rainfall and high winds to the extent practical.	Government of South Sudan, Contractors and other Partners	daily	Inspection reports	Number of site inspections	daily	Government of South Sudan, Contractors and other Partners	Monthly	
Potential surface and ground water impacts due to soil erosion and sedimentation	-Establish appropriate erosion and sediment control measures (e.g. silt fences) to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers. -Minimum drainage work for excessive flood waters only within the embankment site, causing temporary turbidity. - Drainage depth will be less than 2m. A properly organized waste	Government of South Sudan, Contractors and other Partners	daily	Site inspections	Number of site inspections	weekly	Government of South Sudan, Contractors and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	disposal is a mandatory requirement for the Project.								
Potential water and soil pollution due to improper material storage, management, and usage, waste disposal, and drainage of wastewater to dike construction site.	-All waste generated during dike construction activities should be collected and disposed of appropriately at designated sites. -Undertake monitoring of the soil and water quality and devise corrective action when changes attributed to project implementation have been observed. -The waste management hierarchy should be followed during the dike construction phase. According to this hierarchy, source reduction of waste will be the first option and disposal of unavoidable waste as the option of the last resort. -Dispose waste material at authorized locations protected from washing out, should be marked in the site plan. -Undertake routine preventive maintenance of motorized equipment to avoid any fuel leakage and spills. -Storage of fuels and oils should be undertaken in a manner that does not allow leakage to the soil as the fuel can readily infiltrate the soils polluting the soils, ground and surface water. -Preparing plans and procedures to respond to the discovery of	Government of South Sudan, Contractors and other Partners	daily	Site inspection reports	Number of site inspections	weekly	Government of South Sudan, Contractors and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	contaminated media to minimize or reduce the risk to health, safety, and the environment. -Managing contaminated media with the objective of protecting the safety and health of occupants of the site, the surrounding community, and the environment. -Organize and cover material storage areas. -Select areas for washing that are not free draining directly into the watercourse . Installation of ecological toilettes for workers to avoid direct discharge of wastewater to water body.								
Poor maintenance and repairs and refueling at the dike construction site.	-Avoid servicing and refueling at the site. .-Use protective foils during vehicle refueling and maintenance at the dike construction site. - Provide absorbing material in case of fuel spills. -Used oil materials and agents should be managed in line with the waste management report.	Government of South Sudan, Contractors, and other Partners	Weekly	Site inspection reports	Number of site inspections	Weekly	Government of South Sudan, Contractors, and other Partners	Monthly	
Road safety and poor traffic management risks and impact for worker and communities	-Implementation of a traffic management system i.e. speed limits, traffic controllers, installation of signage. -Ensure adequate warning signs, protective fencing etc. -Observe and respect traffic rules.	Government of South Sudan, Contractors, and other Partners	Daily	Implementing the Dike construction Site Organization Plan.	Number of site inspections	Monthly	Government of South Sudan, Contractors, and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	-Clean dike construction waste from the dike construction site when closing the dike construction site. -Journey-specific risk assessments which will include the identification of potentially sensitive receptors along the traffic routes should be conducted. For significant traffic movements, including transport of dike construction materials to site, any affected communities/residents along the route should be sensitized, and wherever possible, attempts made to undertake the traffic movements at the busiest times of day; -Only approved drivers should be allowed to operate vehicles. -Dike construction materials should, wherever possible, be preferentially sourced locally in a manner that reduces environmental and social impacts (e.g., transport distances) and maximizes local economic development opportunities. -All roads should have clear and visible signage especially in community areas, around schools and hospitals to minimize the risk. accidents; - -All staff should undergo an Environment, Health and Safety induction process which includes rules for safe driving,								

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	including speed limits in community areas; and -Dike construction equipment should be maintained on site until the dike construction is complete to reduce vehicle movement (taking into consideration their security).								
Disturbance to the cultural and religious sites.	-Avoid any cultural or religious sites. If cultural or archaeological items are found during soil excavation and dike embankment works or drainage system, the contractor shall stop work and trigger the Chance Find Procedure.	Government of South Sudan, Contractors and other Partners	daily	Site inspection reports	Weekly	Number of site inspections	Government of South Sudan, Contractors and other Partners	Monthly	
Possibility of encountering an archaeological site, archaeological materials, cultural significance, shrines	If an archaeological site is encountered such as a graveyard, the Contractor will immediately suspend the Works. Barricade the area and follow the chance finds procedure. and inform the project, county authorities (trigger chance find procedure).	Government of South Sudan, Contractors and other Partners	Daily	Chance Find Procedures in place	Weekly	Number of cultural items found	Government of South Sudan, Contractors and other Partners	Monthly	
Equipment maintenance and fuelling	Ensure proper handling of lubricants, fuels and solvents while maintaining the equipment and work vehicles. Put in place gravity oil separator, absorbent mat/ fabric	Government of South Sudan, Contractors and other Partners	Weekly	Camp and dike construction site inspections	Number of site inspections	Weekly	Government of South Sudan, Contractors and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
Impacts on land use/ settlements expansion	The dikes will be constructed on public land reserves. There will be no physical displacement of any household. The county administration pledged to control encroachment because of settlement expansion towards the dikes.	Government of South Sudan, Contractors and other Partners	daily	Site inspection reports	Number of site inspections	weekly	Government of South Sudan, Contractors, and other Partners	Monthly	
Air quality due to dust from transportation of dike construction materials and truck traffic and elevated levels of nitrogen oxide (NOx) and sulfur oxide (SOx) from dike construction equipment exhausts	-Minimizing dust from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression, bag house, or cyclone). - Minimizing dust from accessible area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content. -Dust suppression techniques should be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements. -Avoiding open burning of solid.	Government of South Sudan, Contractors, and other Partners	Daily	Monitoring speed limit within town	Speed and dust observations	Weekly	Government of South Sudan, Contractors, and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
Minimal loss of flora and fauna can occur during material excavation at quarries and embankments (work ways along the dike)	Flora and fauna in the surrounding towns and wetlands might be affected. -Flora -Land clearance should be restricted to that which is required for the project components to minimize the loss of vegetation. -Restrict vehicle movements to and from the project site(s) to the project access road – offroad driving should be prohibited. -Site restoration should be undertaken for areas where temporary project infrastructure will be established during the dike construction phase. The affected areas should be restored, and only indigenous vegetation replant or re-seed vegetation e.g. grasses, trees -Intentional restoration using exotic plant species should be avoided; -Sensitize workers against unnecessary destruction, trampling and clearance of flora/crops and fauna; -In an event that the project activities may have potential adverse impacts on biodiversity, a biodiversity management plan should be developed, if the potential risk of project activities are insignificant, the appropriate mitigation measures should be implemented.	Government of South Sudan, Contractors and other Partners	Weekly	Site inspection reports	Number of site inspections	Weekly	Government of South Sudan, Contractors and other Partners	Monthly	
Noise pollution	Only limited temporary impact during excavation and embankments work. Impact can be mitigated by	Government of South Sudan, Contractors	Weekly	Site inspection reports	Number of site inspections	Weekly	Government of South Sudan, Contractors	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	- Prior notice/community awareness will be undertaken for the local community members to keep them informed of what will take place/schedules of the subproject activities so that they are able to plan accordingly; -Construction/ activities will be limited to only daytime hours; -Noise monitoring will be undertaken within the area and at nearby sensitive receptor sites during construction/; -Using noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities, exhaust muffling devices for combustion engines. -Avoiding or minimizing project transportation through community areas. -Use of well-maintained and serviced equipment that generates low noise levels will be emphasized. -Workers involved in construction/ activities will be provided with requisite Personal Protective Equipment; and -Idling of machinery including vehicles will be prohibited unless necessary.	and other Partners					and other Partners		

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
Solid waste like, wood, stones, plastic materials, and fuels spill from the machine.	- Implement waste management hierarchy. -Non-hazardous wastes can be managed by reusing, recycling, or can be sold to authorized collectors and recyclers and should be dispose using the South Sudan solid waste disposal facilities. -As there are no known facilities to dispose of hazardous waste in the country. The Contractor should consider designing a temporary hazardous waste storage facility in consideration of the generated amounts and timing before final disposal by licensed hazardous waste handlers in accordance with the national legislative requirements and world Bank ESF requirements and GIIP practices; -Maximize the re-use of all excavated materials in the dike construction works. -Disposal of surplus material (spoil) only at designated sites approved by the responsible local authority and only by approved methods. -No spoil should be disposed of in wetlands, near watercourses and other important habits -Contract a licensed hazardous waste handler to safely transport and dispose of hazardous waste;	Government of South Sudan, Contractors and other Partners	Weekly	Site inspection reports	Number of site inspections	weekly	Government of South Sudan, Contractors and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	-Capacitate and support licensed personnel who are involved in hazardous waste disposal and management in all aspects including financial and technical supports. -Identify the potential waste streams to be generated by the project activities, and how best they can be managed; -All wastes shall be properly disposed of in accordance with the national legislative requirements and in accordance with ESF requirements and GIIP practices.								
Impact on natural hydrology. Disruption of hydrology of natural waterways	Develop layout plan to limit hazard disruption of water channels	Government of South Sudan, Contractors and other Partners	Weekly	Inspection	Inspection reports	Weekly	Government of South Sudan, Contractors and other Partners	Monthly	
Vibration risk from moving of dike construction vehicles and machinery.	-Restrict vehicle movement to defined routes.-Notification communities through awareness exercises. -Avoiding or minimizing project transportation through community areas.	Government of South Sudan, Contractors and other Partners	Daily/Weekly	Inspections, Documents review	Reports, meeting minutes	Weekly	Government of South Sudan, Contractors and other Partners	Monthly	
Risk to community health and safety (ESS4) e.g. accidents at burrow pits,	-Fence the quarry site to prevent people and livestock trespass. -Installation of hazard warning signs. -Awareness raising initiatives. -Rehabilitate the burrow pit to the extent possible.	Government of South Sudan, Contractors and other Partners	Prior to the commencement of material abstraction	Inspections, Document review, Observations	Number of Incidents	Weekly	Government of South Sudan, Contractors and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
UXOs, and mines									
Health and safety risks posed by the influx of workers or people providing support services into an area	Awareness campaigns Education and awareness raising targeting employees	Government of South Sudan, Contractors and other Partners	weekly	Document review, Inspections	Number of Incidents	Weekly	Government of South Sudan, Contractors and other Partners	Monthly	
Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA)	All employees to be inducted Education training and capacity building. Signing and adherence with an employee CoC mandatory Demand from all workers to abide by the Protection at work measures. Daily Safety talks	Government of South Sudan, Contractors and other Partners	Daily	Site inspection reports	Number of site inspections	Weekly	Government of South Sudan, Contractors and other Partners	Monthly	
Communicable diseases	-Providing surveillance and active screening and treatment of workers. -Preventing illness among workers in local communities by: - Undertaking health awareness and education initiatives, for example, by implementing an information strategy to reinforce person-to-person counseling addressing systemic factors that can influence individual behavior as well as promoting individual protection, and protecting others from infection, by encouraging condom use. -Training health workers in disease treatment.	Government of South Sudan, Contractors and other Partners	Weekly	Site inspection reports	Number of site inspections	Monthly	Government of South Sudan, Contractors and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	-Conducting immunization programs for workers in local communities to improve health and guard against infection. -Providing health services. -Providing treatment through standard case management in on-site or community health care facilities. -Ensuring ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers. -Promoting collaboration with local authorities to enhance access of workers' families and the community to public health services and promote immunization. -Community awareness campaigns. -Education and awareness raising workshops for staff on spread and management of communicable disease.								
Community health and safety risk related to Pools of water act as breeding grounds for disease and illness(mosquitoes)	-Prevention of larval and adult propagation through sanitation . improvements and elimination of breeding habitats close to human settlements. -Elimination of unusable impounded water. - Increase in water velocity in natural and artificial channels. - Considering the application of residual insecticide to dormitory walls.	Government of South Sudan, Contractors and other Partners	Weekly	Dike construction Health and Safety Management Plan	Number of site inspections	Monthly	Government of South Sudan, Contractors and other Partners	Monthly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	- Implementation of integrated vector control programs. - Promoting use of repellents, clothing, netting, and other barriers to prevent insect bites. - Use of chemoprophylaxis drugs by non-immune workers and collaborating with public health officials to help eradicate disease reservoirs. -Monitoring and treatment of circulating and migrating populations to prevent disease reservoir spread. - Collaboration and exchange of in-kind services with other control programs in the project area to maximize beneficial effects. - Educating project personnel and area residents on risks, prevention, and available treatment. -Monitoring communities during high-risk seasons to detect and treat cases. -Awareness raising campaigns.								
Risk and impacts of occupational health and safety	-The Contractor must make sure that there is a Site Safety, Health & Environmental Officer or appointed focal person. A Safety, Health and Environment awareness induction training should be conducted for both contractual and casual employees before dike construction commences.	Government of South Sudan, Contractors and other Partners	Daily	Site inspection reports, Dike construction Health and Safety Management Plan	Number of site inspections	Monthly	Government of South Sudan, Contractors and other Partners	Weekly	

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
	-Dike construction should be carried out in accordance with relevant occupational health and safety standards. -Integrity testing must be done before work begins on heights. -Workers must be trained on climbing techniques and fall protection measures. -Adequate PPE and tool bags must be delivered for workers and ensure workers are using PPE properly. -Minimum standards of provision of segregated lockable sanitary facilities for males and females where necessary. -Machines and Equipment must be operated only by qualified staff. -Fire risks are possible due to improper storage facilities and lack of fire drill, and this requires provision of regular training and awareness creation to the workers; -The entire workforce should be trained in the use of protective gear, handling of chemical products, procedures for entering enclosed areas, fire protection and prevention, emergency response and care procedures; -The contactor must develop workers' Health and Safety Plan for managing risk and impact associated with OHS gaps in case of accidents.								

Potential risk and Impacts	Mitigation measures	Responsible body for implementation	Time frame for implementation	Method of Monitoring	Monitoring indicator	Monitoring frequency	Responsible body for monitoring	Time frame for monitoring	Cost estimate (USD)
DECOMMISSION PHASE									
Labor risks of injuries. Workers may raise their concerns (safety, discontent, maltreatment or else) through the Grievance Mechanism.	-Provide PPEs; Install warning signs at the dike construction site; adopt a dike construction management plan. -Establishment of a worker specific grievance redress mechanism for project workers. -The project worker is entitled to give suggestions, remarks and information regarding health and safety at work. The project workers should be informed on available grievance redress mechanisms upon their employment or engagement.	Government of South Sudan, Contractors and other Partners	Weekly	Site inspection report	Number of site inspections	Monthly	Government of South Sudan, Contractors and other Partners	Monthly	
Reduced access through the area where the works are executed.	Plan the relocation of equipment at times when daily traffic is not jammed; Provide alternative passage for pedestrians and vehicles in cooperation with local authorities Avoid roads through inhabited areas especially near schools and hospitals; Prepare and implement the Dike construction Site Management Plan that incorporates good dike construction practice measures.	Government of South Sudan, Contractors and other Partners	Weekly	Site inspection report	Number of site inspections	Monthly	Government of South Sudan, Contractors and other Partners	Monthly	
Dike construction material leftovers after the completion of dike construction.	-Reuse/recycle leftovers. Dispose unwanted remnants in approved sites.	Government of South Sudan, Contractors and other Partners	Weekly	Site inspection report	Amount of materials leftover after completion of work	Monthly	Government of South Sudan, Contractors and other Partners	Monthly	

CHAPTER 8

EMERGENCY PREPAREDNESS AND RESPONSE PLAN

This section provides a summary of key steps that the project team can follow in the event of an emergency. The hazard/aspect impact identification and assessment process for all ECRP II operations has identified various emergency situations that can arise in the process of implementing sub-projects in Rubkona County. This therefore calls for a plan to be put in place in preparation for such a contingency. The following are some broad guidelines when dealing with emergencies: -

- Speed and knowing what to do, are the main points when discovering an emergency.
- Effective communication in cases of emergencies is very important as it saves time and life.
- All persons must be aware of their responsibilities and duties when an emergency arises.
- Regular drills should be conducted to ensure that all key players adapt to the response in cases of real emergency.
- Emergency Co-coordinators, team members and all employees must be trained and familiarized with all the contents of this document including their duties. This will enable them to respond appropriately whenever an emergency arises.

Planning Coordination:
Procedures should be prepared for:

- Informing the public and emergency response agencies.
- Documenting first aid and emergency medical treatment.
- Taking emergency response actions.
- Reviewing and updating the emergency response plan to reflect changes and ensuring that employees are informed of such changes.

Emergency Equipment: Procedures should be prepared for using, inspecting, testing, and maintaining the emergency response equipment.
Training: Employees and contractors should be trained on emergency response procedures.

8.0. HOW TO RESPOND TO AN EMERGENCY SITUATION:

- **ESTABLISH:**
  - The nature, type and magnitude of the emergency

- **CALL:**
  - For help by contacting the Emergency call centre (Security).

- The departmental emergency coordinator.
- The Site HSE Personnel
- IOM NOO

- **INVESTIGATE:**
  - Extent of emergency and establish the affected person's location.
  - Get the relevant information and inform the IOM NOO, IOM Safeguarding Officer and ECRP II program coordinator.

- **ASSIST:**
  - The injured or affected persons.

- **ASSEMBLE:**
  - At the designated Assembly Point, if safe to do so.

- **BRIEF:**
  - Emergency Coordinator of the sequence of events and follow instructions given when the Emergency Coordinator takes over.

- **EVALUATE:**
  - The need to systematically shut down operations.
  - Contain hazardous Substances or
  - Protect equipment as well as type of assistance required.

- **AWAIT:**
  - For instructions and response from the Emergency Coordinator.

- **REMAIN:**
  - At the assembly point until further instructions from an official

- **AWAIT:**
  - For declaration of **"ALL CLEAR"** notification

8.1. FIRE RELATED INCIDENTS

What constitutes fire?

- Fire on mobile equipment
- Fire on conveyor belt or other installations
- Fire from fuel pump/stations
- Fire from cooking activities
- Fire on electrical installations (cables, substations)
- Gas Cylinder Explosion

Person at scene to report to the designated onsite Emergency Coordinator

Actions by the Designated onsite Emergency Coordinator

For all emergency scenarios in this category

a) Stop all running machinery/equipment

For fires

b) Try to fight the fire if trained to do so and if safe to do so.
c) If not trained or fire gets out of hand, raise the alarm .

Designated on site Emergency Coordinator:

a) Call the firefighting team.
b) Evacuate employees to the Assembly point if it is safe to do so
c) Switch off all energy sources (electrical in affected area).
d) Conduct roll call.
e) Communicate with the Security, clinic, Fire Team, IOM ECRP II Local Staff clearly stating the nature and magnitude of the emergency, exact location and number of casualties if any.
f) IOM ECRP II Local staff to communicate to the NOO, Safeguarding officer and Project Manager
g) Call the Ambulance if necessary

8.1.1 Safeguarding Official:

a) Assess situation and take action to assist as necessary
b) Arrange logistics for investigation and reporting in consultation with the safeguarding officer and the project manager.

8.2. MULTI-CASUALITY

What constitutes multiple casualties?

Accidents / incidents in which more than **one person** is injured to warrant evacuation from the site of incident/ accident to a safe place of recovery e.g. Clinic. Multi casualty incidents/ accidents can be as a result of anything e.g. road Traffic accidents

Person at Scene report to IOM ECRP II National Operation Officer Immediately

Designated onsite Emergency Coordinator

For all emergency scenarios in this category

a. For Road traffic accidents, the person at scene reports the case to the Police and ECRP II National Operation Officer.
b. The National Operations officer has the obligation to report the incident following the ECRP II incident reporting system.
c. Raise the alarm .
d. Call Emergency number

e. Withdraw men from dangerous areas
f. Attend to injured and call for ambulance
g. Render First Aid.
h. Transport injured to the nearest approved medical facility.

8.3. FLOODING/ BREACH

This emergency action plan caters for floods and breach scenarios. Although monitoring measures (including closely follow up and monitor current flood warning) have been put in place, a breach may occur due to multiple factors. This may lead to displacement of communities and death of livestock due to flooding.

Person(s) at Scene:

a) Move to safe higher ground
b) Inform the site supervisor and plant operator of the situation.
c) Inform IOM ECRP II Local Officers
d) Inform IOM ECRP II National Operations Officer
e) Warn unsuspecting public of the hazard.
f) Help casualties if any.

Designated onsite Emergency Coordinator

a) Conduct the County Disaster Risk Management Committee (DRMC) to sound the emergency alarm/notification immediately
b) Designated onsite Emergency Coordinator to immediately inform the IOM National Operations Officer, Security focal points, Clinic and Safeguarding Assistants.
c) Designated onsite Emergency Coordinator to conduct a preliminary assessment of the magnitude of flood and breach.
d) Call for an ambulance and emergency services
e) Confirm that the Project Manager, Head of Sub-office, Safeguarding officer, Safety and Security staff, have been notified
f) Once on site, assess the situation and raise the following for assistance where Necessary:

- Ministry of Humanitarian Affairs and Disaster Management
- Fire Brigade
- Police
- Ministry of Health

g) Confirm with the clinic for casualty arrangement.
h) Give instruction for inspections to be done by a team headed by a Senior Engineering Official before issuing emergency evacuation instructions.

8.4 HAZARDOUS SUBSTANCES SPILLAGE

This emergency action plan caters for incidents involving the accidental spillage of hazardous material at sub-projects sites. Hazardous substances can be defined as any substances that has the potential to cause

irreversible harm or damage to human health and the environment. At ECRP II subprojects , common hazardous substances include flammable liquids (Petrol, Diesel), flammable gases e.g. LPG etc. In the event of a spillage or an accidental discharge, the following steps should be taken at ECRP II sites:

Person on site

a) b) Inform the site supervisor and plant operator of the situation.
c) Inform IOM ECRP II Local Officers
d) Inform IOM ECRP II National Operations Officer
e) Warn unsuspecting public of the hazard.

Designated onsite Emergency Coordinator

a) Determine what substance that has been involved in the spillages by asking what type of container the substances was in; and labels on the containers
b) Determine the extent of the spillage
c) Gather resources for attending to the spillage with the inclusion of: Adequate PPE for the complete team attending the spillage; Materials and resources to stop leaks such as wood plugs, self-adhesives, Material to store contaminated soil, clothing, materials, etc.
d) Upon approaching the spillage site, determine the wind direction. Approach the spillage scene from upwind as best as possible.
e) Assess the actual type, quality and quantity of the spilled substance, the location and area of the affected site
f) Determine evacuation distances using the ER Guidebook provided
g) Secure the area;
h) Place labels and warning signs on the scene of the spillage to alert the public and other staff members
i) Demarcate scene in Hot, Warm and Cold Zones as guided by the ER Guidebook provided
j) If necessary, evacuate people [Remember the priorities: Save life-Save property-Save the environment]
k) If safe to do so, contain the spillage in one area. Stop leaks if any.
l) Assess the impacts that the spillage has already caused or will cause to the environment
m) Alert the users of the receiving environments of the dangers associated with the spillage.

ECRP II National Operations Office

a) Cause the cleanup operations to be done according to best available cleanup methods to the satisfaction of the relevant authorities following the guidance provided in the safety data sheet as read with the ER Guidebook)
b) Call for an ambulance and emergency services
c) Confirm that the Project Manager, Head of Sub-office, Safeguarding officer, Safety and Security staff, have been notified
d) Once on site, assess the situation and raise the following for assistance where Necessary:
    - Ministry of Humanitarian Affairs and Disaster Management
    - Fire Brigade
    - Police

- Ministry of Health

e) Give instruction for inspections to be done by a team headed by a Senior Engineering Official before issuing emergency evacuation instructions.

TRAINING AWARENESS RAISING & CAPACITY BUILDING

The project recognises the capacity gaps that exist in South Sudan when it comes to the management of Environmental and Social Safeguarding issues. In a bid to ensure the sustainable implementation of the proposed subprojects will focus on providing capacity building training for workers and communities to ensure effective implementation of this ESMP. A summary of the training that will be considered are presented in the table below.

Table 4. Targeted trainings for the effective implementation of the ESMP

OBJECTIVES	ISSUES FOR ENGAGEMENT	METHOD OF ENGAGEMENT	STAKEHOLDERS/TARGET POPULATION AND AREA	RESPONSIBLE PERSON	TIME FRAME	BUDGET IN USD
Enhance awareness and knowledge about GRM and OHS risk with its prevention measures.	GRM	Training, Plenary discussion with questions and answer	Beneficiaries, Contractors, PDCs, BDCs, PDRMC, Contractor workers, community leaders	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants COAs	Weekly	5000
ES induction training	ES Safeguarding issues	Training	All project workers as defined under ESS2	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants NOOs, Senior Engineers, Site Engineers	Ongoing for all new staff	Included in staff costs
Ensure compliance to implementation of ESMP and	Environmental and Social Risks Management	Training, Focus group discussions, site visits and interviews	Beneficiaries, Contractors	ES Safeguarding Officer, Gender GBV Officer,	Monthly	7000

OBJECTIVES	ISSUES FOR ENGAGEMENT	METHOD OF ENGAGEMENT	STAKEHOLDERS/TARGET POPULATION AND AREA	RESPONSIBLE PERSON	TIME FRAME	BUDGET IN USD
Safeguarding requirements				Safeguarding Assistants COAs		
Subproject Environmental and Social screening	E&S Screening	Training, On the job training	ECRP II Staff	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants COAs	Prior to commencement of sub-projects	Included in staff costs
Stakeholder engagement	SEP	Workshop	ECRP II Staff, Contractors	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants	Prior to commencement of sub-projects	3,000
GBV Action Plan	GBV risks	Meetings	Beneficiaries, communities, contractors, subcontractors, primary suppliers, workers	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants COAs	Prior to commencement of sub-projects	10,000 USD
LMP	Labor risks	Meetings	Contractors, subcontractors, primary suppliers, workers	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants	Prior to commencement of sub-projects	Included in staff costs
Emergency preparedness and response	EPP	Meetings	Contractors, subcontractors, primary suppliers, workers	ES Safeguarding Officer, Gender GBV Officer,	Prior to commencement of sub-projects	10,000 USD

OBJECTIVES	ISSUES FOR ENGAGEMENT	METHOD OF ENGAGEMENT	STAKEHOLDERS/TARGET POPULATION AND AREA	RESPONSIBLE PERSON	TIME FRAME	BUDGET IN USD
				Safeguarding Assistants		
Implementation, monitoring and reporting of ESMPs	E&S risk mitigation	Workshop	Contractors, subcontractors, primary suppliers, workers	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants COAs	Prior to commencement of sub-projects	Included with other training costs
Provision of a safe working environment and management of OHS risks	OHS risk management	Training, FGDs, site visits, inspections and interviews	Beneficiaries, contractor staff	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants COAs	prior to construction works	5,000 USD
Provision of a safe working environment and management of OHS risks	Refresher training on provision of a safe work environment and OHS risk management	Training/workshop	ECRP II Staff, Contractors	ES Safeguarding Officer, Gender GBV Officer, Safeguarding Assistants	Prior to commencement of sub-projects	10,000

CHAPTER 9

INSTITUTIONAL ARRANGEMENTS

The successful implementation of this ESMP depends on the commitment and capacity of various institutions and stakeholders to implement the ESMP effectively. Thus, the institutional arrangements as well as the roles and responsibilities of the institutions and persons that will be involved in the implementation, monitoring and review of this ESMP are discussed in the 5 below.

Table 5. Table Institutional arrangement for the Implementation of the ESMP

INSTITUTION	ROLES AND RESPONSIBILITIES
PMU	▪ Review all ESMPs documents prepared by IOM and ensure adequacy under the World Bank Safeguard policies. ▪ Ensure that the project design and specifications adequately reflect the recommendations of the ESMPs. ▪ Coordinate application, follow up processing and obtain requisite clearances required for the project, if required. ▪ Prepare compliance reports with statutory requirements. ▪ Develop, organize and deliver training program for the project staff, the contractors and others involved in the project implementation, in collaboration with IOM ▪ Review and approve the Contractor's Implementation Plan for the environmental measures, as per the ESMF. ▪ Liaise with the Contractors and the IOM team on the implementation of the ESMPs; ▪ Liaise with various National government and State Government agencies on environmental and other regulatory matters. ▪ Continuously interact with the NGOs and community groups that would be involved in the project. ▪ Review the performance of the project through an assessment of the periodic environmental and social monitoring reports. ▪ Provide a summary of the same to the Project Manager, and initiate necessary follow-up actions;
IOM	▪ Management, implementation, monitoring, and compliance of the ESMP, and any approval conditions, including construction supervision and performance of project staff, contractors and subcontractors. ▪ Review of ESMP performance and implementation of correction actions ▪ Stop work procedures, in the event of breaches of ESMP conditions

INSTITUTION	ROLES AND RESPONSIBILITIES
	that may lead to serious impacts on local communities, or affect the reputation of the Project ▪ Ensure effective communication and dissemination of the content and requirements of the ESMP to contractors and subcontractors. ▪ Assisting the contractor with implementation of ESMP sub-plans. ▪ Monitoring of ESMP performance ▪ Ensuring compliance to all Project social commitments, including implementation of the social management plans ▪ Report environmental performance of the Project directly to PMU. ▪ Prepare environmental reports summarizing Project activities, as required, ▪ Representing the Project at community meetings ▪ Ensuring effective community liaison and fulfilling commitments to facilitate public consultation throughout the Project cycle. ▪ Establish dialogue with the affected communities and ensure that the environmental and social concerns and suggestions are incorporated and implemented in the project;
Contractors	▪ Contractors should ensure that all their personnel or subcontractor's personnel has received proper induction. o and awareness arising as necessary of ESMP, health and safety management practices, and are aware of relevant site rules. ▪ Keep the health and safety records of their subcontractors or partners in a joint venture and keep those records available for IOM inspection at any time. ▪ Contractors will include environmental and social requirements in the procurement and contracting process including bidding documents, for potential civil works. ▪ Relevant requirements are included in contracts and subcontracts consistent with the requirements of Environment and Social Standards (ESSs); codes of conduct are required for contractors, subcontractors, primary suppliers, and their workers. ▪ Contractor will prepare a detailed construction-ESMP (C-ESMP) that is costed, with sufficient budget to mitigate E&S risks ▪ Contractor's commitment and compliance will be monitored in accordance to ESSs ▪ Contractor will be trained by IOM on grievance redress mechanisms and their subcontractors are expected to do the same to the affected communities and other stakeholders. ▪ The contractor will develop a grievance mechanism to handle concerns of

INSTITUTION	ROLES AND RESPONSIBILITIES
	their employees. ▪ Conducting weekly HSSE Inspection and submitting the reports to IOM Site Engineer ▪ Contractors will provide Monthly and quarterly details on contractor's oversight on environmental, social, health and safety (ESHS) performance. ▪ The contractor shall have a Labor Management Plan (LMP), which conforms to the requirements of the LMP and Environmental Social Standards 2. ESS2
IOM Field Engineer	▪ Supervision of contractor performance of implementation of the Construction ▪ Reporting any incidents or non-compliance with the ESMP to the CI HSSE Team ▪ Conducting weekly HSSE inspection at the sites and Submitting reports to CI HSSE Team ▪ Making recommendations to the CI HSSE Team regarding ESMP performance as part of an overall commitment to continuous improvement
World Bank	▪ Overall supervision and provision of technical support and guidance. ▪ Recommend additional measures for strengthening the management framework and implementation performance. ▪ Supervising the application and recommendations of sub- project ESMPs.
General Public	▪ Identify environmental and social issues that could derail the project and support project impacts and mitigation measures. ▪ Assist in awareness campaigns

9.1 Proposed budget for ESMP implementation

The total cost for implementing this ESMP is estimated to be USD 190 ,000.

The table below breaks down the budget estimate and the responsibility for implementation of the ESMP.

Table 6. Proposed budget for ESMP implementation

S/N	ITEM	RESPONSIBILITY	COST ESTIMATE (USD)
1	Mitigation	IOM, Contractor, and PMU	120,000.00
2	Audits & Monitoring	IOM & PMU	50,000.00
3	Capacity Building	IOM & PMU	20,000.00
Total			**190,000.00**

9.2 Reporting

Reports shall be produced through the course of implementation of monitoring programs, collecting incident/grievances forms, consulting with local communities and auditing performance of existing programs/mitigation measures within the ESMP.

Table 7. Types of reports required.

RESPONSIBILITY	TYPE OF REPORT	PURPOSE/DETAILS OF REPORTING	FREQUENCY OF SUBMISSION	SUBMIT TO:
Contractor	Accidents/Incident Report	Filing/notification of accidents or unplanned events	Within 24 hours of the incident	IOM Safeguards Assistant/IOM safeguards officer
	Weekly Site Inspection Report	Report of compliance and noncompliance issues / measures	Weekly	IOM Safeguards Assistant/IOM safeguards officer
IOM Site Engineer	Accidents/Incident Report	Filing/notification of accidents or unplanned events	Within 24 hours of the incident	IOM Safeguards Assistant/IOM safeguards officer

RESPONSIBILITY	TYPE OF REPORT	PURPOSE/DETAILS OF REPORTING	FREQUENCY OF SUBMISSION	SUBMIT TO:
	Site Inspection Report	Report of compliance and noncompliance issues / measures	Weekly	IOM Safeguards Assistant/IOM safeguards officer
IOM Safeguarding Team	Incident Investigation/ Review report	Detail the cause, nature and effect of any environmental and/or social incident	Not more than 5 days from occurrence	PMU
IOM Safeguarding Team	Monthly Compliance Report	Monthly report of compliance before the 5th of every new month	Monthly	PMU
PMU	Quarterly Compliance Report	Quarterly report of compliance to ESMP	Quarterly	World Bank

9.3 ESMP Disclosure

The ESMP shall be disclosed to the Public following the review and clearance by the World Bank.

Table 7. ESMP Disclosure

ACTIVITY	RESPONSIBILITY
Disclosure of the ESMP at the National Level on the Public notice boards	PMU will liaise with IO M and the relevant government authorities
Disclosure of the ESMP at the State level on the public notice boards	PMU will liaise with IOM and the relevant government authorities
Disclosure of the ESMP at the County and Payam level on the public notice boards	PMU will liaise with IOM and the relevant government authorities
Disclosure of the ESMP at the project community	PMU will liaise with IOM and the relevant government authorities

CHAPTER 10

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

10.1 DISCUSSION

The Environmental and Social Management Plan (ESMP) for the Rubkona DRM Infrastructure Upgrading Project presents a comprehensive understanding of the environmental, hydrological, social, and institutional context of Rubkona County. The discussion below synthesizes these findings and critically analyses the potential impacts, opportunities, and systemic implications of the project.

10.1.1 Overall Relevance and Rationale for the Subprojects

Rubkona County continues to experience multi-year, compounding flood events, which have overwhelmed traditional coping capacities and local governance systems. Flooding has repeatedly:

- Displaced thousands of households from Rubkona, Bentiu, Pakur, and Bieh
- Destroyed essential infrastructure, including schools, health facilities, markets, and roads
- Undermined agricultural productivity, livestock health, and local income sources
- Triggered secondary hazards such as waterborne diseases, malnutrition, and protection risks

The proposed interventions—including Stage 2 dike upgrade, drainage improvements, feeder road rehabilitation, and nature-based solutions directly address the urgent need for resilient flood control systems. Stakeholder consultations reveal near-unanimous community support, demonstrating that the project aligns strongly with local priorities, humanitarian assessments, and county-level development plans.

10.1.2 Environmental Implications and Ecological Dynamics

Soil and Geotechnical Considerations

The prevalence of Black Cotton Soils (Vertisols) greatly influences engineering design. These soils:

- Expand when wet and shrink during dry seasons
- Are highly prone to cracking and uneven settlements
- Have poor drainage characteristics

Construction in such geotechnical conditions increases the likelihood of:

- Structural deformation of dikes

- Rapid erosion of embankments
- Sedimentation of newly constructed drainage channels

Mitigation measures—such as engineered slopes (1:4 gradient), compacted layers, staged construction, and timely vegetation restoration—are therefore essential.

Hydrology and Floodplain Dynamics

The Bahr el Ghazal River and its floodplain create a complex and dynamic hydrological regime. The dike system will undoubtedly alter:

- The direction and timing of floodwaters
- Flow accumulation patterns
- Inundation frequency in downstream areas

This necessitates continuous monitoring and the integration of natural overflow basins to avoid unintended downstream flooding. The drainage system and NBS interventions will also enhance long-term hydrological balance.

Vegetation, Biodiversity and Aquatic Systems

Flood recession ecosystems in Rubkona support:

- Seasonal grasslands
- Papyrus and sedge belts
- Wetland-dependent fish species
- Migratory birds and breeding grounds

While the project will reclaim significant portions of floodplain for human settlement and livestock use, it may temporarily disrupt:

- Fish migration routes into floodplains
- Feeding habitats for native species
- Local biodiversity around borrow pits and dike alignments

The ESMP's emphasis on controlled access points, habitat protection, borrow pit rehabilitation, and vegetative restoration will be crucial to minimize these impacts.

10.1.3 Social and Livelihood Implications

Socioeconomic Benefits

The subprojects are expected to produce profound positive impacts, including:

- Protection of over 76,000 residents from recurrent floods
- Restoration of farmland and grazing land
- Improved market access, reducing transport times and costs
- Protection of the only water treatment plant, ensuring continuity of safe water supply
- Stabilization of settlement patterns, reducing displacement and overcrowding

These benefits will significantly enhance food security, household income, service delivery, and overall resilience.

Social Risks and Vulnerabilities

Despite the positives, the construction and operational phases introduce several risks:

- Child safety hazards due to excavations, borrow pits, and construction equipment.
- GBV/SEA risks in crowded work zones and among displaced populations
- Spread of communicable diseases, particularly respiratory infections and TB
- Possible tensions between contractors and local communities
- Safety concerns for PWDs, elderly people, and women when accessing services.

The ESMP proposes comprehensive approaches including:

- GBV Action Plan
- Codes of Conduct
- Community awareness on construction hazards
- Borrow pit fencing.
- GRM strengthening.
- Contractor OHS protocols.

The GRM, with multiple accessible channels (suggestion boxes, social mobilizers, BDC volunteers), is expected to significantly enhance accountability and trust.

10.1.4 Institutional Capacity and Implementation Readiness

The implementation framework involves multiple actors—PMU, IOM, County authorities, contractors, PDCs, BDCs, and PDRMCs. While the arrangements are clearly defined, the following challenges persist:

1. Limited technical expertise within the county to supervise complex engineering works.
2. Weak enforcement of land use controls, increasing risks of illegal settlement near dikes
3. Inadequate equipment and resources for sustained O&M activities
4. High turnover rates among community-level committees
5. Limited environmental monitoring capacity that is further worsened by the nonexistence of an enabling legal framework.

Thus, capacity building, including ESMP training, OHS induction, environmental monitoring skills, and GRM training—is critical for long-term sustainability.

10.1.5 Sustainability Considerations

The long-term functionality of the dikes and drainage systems will depend on:

- Effective Operations and Maintenance (O&M) structures
- Community involvement in monitoring and reporting breaches
- Regular inspections by County Dike Management Committees
- Strict control of settlement encroachment on dike corridors
- Integration of Nature-Based Solutions (NBS) to complement engineered structures

Failure to maintain the O&M systems may lead to structural deterioration and catastrophic failure during future flood events.

10.2 CONCLUSION

The DRM Infrastructure Upgrading Project in Rubkona County is a high-impact resilience intervention that addresses urgent humanitarian, developmental, and environmental needs. The ESMP concludes that the project is environmentally feasible, socially acceptable, and institutionally viable provided that all mitigation and monitoring measures are rigorously applied.

10.3 RECOMMENDATIONS

Below are detailed and actionable recommendations for effective implementation.

10.3.1 Environmental Recommendations

1. Strengthen erosion and sediment control by installing silt traps, stabilizing exposed soils, and scheduling earthworks during the dry season.
2. Ensure strict borrow pit management, including fencing, signage, progressive restoration, and final backfilling or conversion into temporary water storage facilities.
3. Enhance dust and air quality management, especially near schools, markets, and health facilities.
4. Implement vegetation restoration plans immediately after construction using indigenous species.
5. Integrate Nature-Based Solutions (NBS) such as grassing, reforestation, and wetland buffers to maximize ecological resilience.

10.3.2 Social and Community Recommendations

1. Conduct continuous community sensitization on project risks, GBV/SEA prevention, safety near construction zones, and GRM accessibility.
2. Strengthening GBV mitigation mechanisms through regular audits, women's leadership empowerment, referral pathway mapping, and Codes of Conduct enforcement.
3. Foster inclusion, especially of women, youth, PWDs, and displaced households, in project decision-making and O&M committees.

4. Enforce access and safety controls around hazardous areas, especially near schools and residential zones.
5. Enhance community feedback structures, ensuring regular GRM reporting and transparency.

10.3.3 Occupational Health and Safety (OHS) Recommendations

1. Mandatory OHS induction for all workers before deployment.
2. Use of full PPE, equipment integrity testing, and emergency preparedness drills.
3. Strict enforcement of speed limits, signage, controlled access zones, and safe driving protocols.
4. Provision of clean, segregated sanitation facilities for workers.
5. Regular contractor compliance audits with penalties for non-compliance.

10.3.4 Institutional and Capacity Strengthening Recommendations

1. Continuous training for County Dike Committees, PDCs, BDCs, and PDRMCs on monitoring, reporting, and maintenance.
2. Strengthen coordination among IOM, PMU, State Ministries, UNMISS, and contractors through joint field supervision.
3. Develop a simplified O&M Manual and translate it into local languages for community-level actors.
4. Improve logistical support including boats, motorbikes, inspection kits, and PPE for county-level teams.

10.3.5 Sustainability Recommendations

1. Strictly enforce land use zoning around dikes and drainage corridors through promulgation of state laws that protect DRM infrastructure.
2. Establish annual maintenance schedules and community monitoring systems to detect early signs of erosion or breaches.
3. Build community stewardship by integrating dike protection into local governance structures.
4. Promote livelihood activities in reclaimed areas to increase community ownership.
5. Integrate emergency preparedness and early warning systems into county disaster management structures.

10.3.6 Overall Recommendation

The project should proceed to full implementation, as the environmental and social impacts are manageable within the established ESMP framework. With robust oversight, community engagement, and institutional support, the subprojects will significantly enhance flood resilience, protect critical infrastructure, and improve overall wellbeing in Rubkona County.

REFERENCES

BGS (British Geological Survey). (2023). *Africa Groundwater Atlas: South Sudan Hydrogeology Maps.*

Burrow, R., & Mannix, B. (2016). *Hydrogeological Characterisation of the Muglad Basin, East Africa.* Referenced in BGS Hydrogeology datasets.

Hiscock, K. & Bense, V. 2014. *Hydrogeology: Principles and Practice*. (Hydraulic conductivity data as included in BGS Earthwise summary.)

Hiscock, K., & Bense, V. (2014). *Hydrogeology: Principles and Practice.* Data applied as summarized in BGS Earthwise hydraulic conductivity assessments.

IOM (International Organization for Migration). (2025). *Environmental and Social Management Plan for Immediate Flood Mitigation Measures, Rubkona County (ECRP II).*

PAX. (2023). *Toxic Floods? Climate, Natural Hazards and Risks to South Sudan's Oil Infrastructure.*

UNDP. 2023. *Flood Assessment Report in South Sudan*.
World Bank. 2023. *Rising from the Depths: Water Security and Fragility in South Sudan*.

UN Climate Security Mechanism. (2025). *Conflict-Sensitive Flood Response in South Sudan.*

UNDP (United Nations Development Programme). (2023). *National Flooding Impacts and Community Vulnerability Patterns in South Sudan.*

World Bank. (2023). *Rising from the Depths: Water Security and Fragility in South Sudan*

ANNEXES

ANNEX 1: ENVIRONMENTAL AND SOCIAL REQUIREMENTS FOR CONTRACTOR/S

General Conditions

The Contractor shall Implement all activities under this contract in compliance with the requirements of the World Bank Environmental & Social Framework and the applicable laws of South Sudan in line with the ECRP II Environmental and Social Management Framework (ESMF) together with associated specific Environmental and Social (ES) risk management tools that may have been developed by IOM. All Contractor s engaged on the project operate in a manner consistent with the requirements of the environmental and social standards (ESSs), including the specific requirements set out in the Environmental and Social Commitment Plan (ESCP). To achieve this, the Contractor shall:

a) Incorporate the requirements of ESMF and all other relevant E&S instruments in the bid document.
b) Adopt the sub-project ESMPs and necessary develop Construction Environmental and Social Management Plans (C-ESMPs) to help manage construction risks.
c) Make sure that the C-ESMP should get approval from IOM prior to commencing the project.
d) Implement, and review site specific Contractor - Environmental and Social Management Plans (C-ESMPs) as required by the ESMF and specifically the Labor Management Procedures (LMP) including, OHS plans, labor recruitment plan, code of conducts (CoCs) for employees, waste management plan, emergency plan, protection of biodiversity, land clearing and erosion control, traffic management, noise and dust control, and labor influx, communicable diseases and others.
e) Submit a recruitment plan containing number of staff required, intended working condition, Intended locations of staff and Job specifications in terms of qualification and experience to PMU/IOM for review and approval.
f) Publishes the job invitation in the appropriate media (local press or direct invitation for contracted worker, or word of mouth through local leaders for community workers) to ensure all potential candidates have access to the information, including women and persons with disabilities,
g) Employ qualified E&S personnel to oversee E&S performance, and that Contractor staffing and resources are commensurate with the magnitude and timing of work and potential E&S risks.
h) Ensure all workers have signed a Code of Conduct (see annex 3 of ESMF).
i) Prepare E&S training programs for workers and for communities if necessary.
j) Ensure the employee are aware of E&S commitments and their responsibilities, which including key Job Specifications, terms and Conditions of Employment, special Codes of Conduct, disciplinary Procedures, workers' Grievance Mechanism, freedom to join and participate fully in workers association activities, key E&S aspects of the ECRP-II ESMF and other E&S instruments, and emergency Preparedness before work commencement.
k) Adopt and implement the national, regional, and international best practices on Safety, Health, Environment and Social risk management.
l) Ensure the provision of Safety, Health, Environment and Social risk information to employees, communities, and all relevant stakeholders.

m) Focus on compliance with all applicable safety, health, environmental and Social Multilateral Agreements, policies, national laws, regulations, and Codes of practice applicable to the activities being implemented.

Ensure that substantial resources are allocated for the prevention of accidents, injuries, and fatalities in all areas of operation including the provision of a safe working environment for all.

o) Promote sustainable consumption and utilization of natural resources focusing on the prevention of environmental pollution, and environmental degradation. n) report E&S performance timely (on at least a monthly basis throughout the construction phase, including mobilization, construction, and demobilization), including investigating and resolving all complaints, issues, incidents, accidents, and non-conformities. o) Participate in a regular weekly meeting with IOM to evaluate E&S performance-monitoring results and to improve its performance.

p) Establish, maintain, and update relevant environmental and social risk management registers as required by IOM.
q) Conform to the requirements and provisions of the World Bank Environmental and Social Framework (ESF) as read by the applicable Environmental, Health and Safety Guidelines (EHSG).
r) Monitor and keep records of E&S performance in accordance with the E&S management plans. This may include monitoring of E&S matters, scheduled and unscheduled inspections to work locations, observations made during routine activities, desk reviews, drills, and any other monitoring protocols implemented by the Contractor to ensure E&S compliance.

Failure to comply with the Environmental and Social Safeguarding requirements shall constitute a violation of contractual provisions and may lead to the cancelation of the contract. IOM may recover any unanticipated costs from any funds withheld in terms of the contract to remedy any environmental and social residual risks that shall be attributed to the Contractor 's activities. Generally, the Contractors shall take corrective action(s) for major noncompliance, including to the LMP implementation. The following are some of the major noncompliance that Contractors need to take note of:

Failure to submit mandatory quarterly progress report.
Failure to avail of inspection specified documentation pertaining to the implementation of the ESMP, C- ESMP and LMP.
Failure to timely notify and submit incident and accident investigation report.
Failure to appoint or replace a competent and experienced EHS officer.
Failing to enforce C-ESMPs including provision of adequate appropriate PPE.
Recruitment of nontechnical staff from outside the local community.

1. Specific Conditions

2.1 Application National Policies and Laws

The policy, legal and administrative framework provides guidance and provisions for the protection and conservation of the environment, employees, and the communities. Contractor s must comply with the

Transitional Constitution of South Sudan (2011), the Environment Policy of South Sudan (2015-2025), The Draft Land Policy (2016), Forestry Policy (2019), the Land Act (2009), and the National Labour Act.

2.2 The World Bank Environmental and Social Framework (ESF) and relevant Environmental and Social Standards (ESSs).

2.2.1 ESS 1: Assessment and Management of Environmental and Social Risks and Impact

In line with the management of environmental and social risks, the Contractor shall:

a) identify, evaluate, and manage the environment and social risks and impacts of the sub-project in a manner consistent with the requirements of the World Bank ESF and relevant legislation of South Sudan.
b) adopt a mitigation hierarchy approach to: (a) Anticipate and avoid risks and impacts; (b) Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; (c) Once risks and impacts have been minimized or reduced, mitigate; and (d) Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.
c) adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the sub-project.
d) Utilize national environmental and social institutions, systems, laws, regulations, and procedures in the assessment, development, and implementation of projects, whenever appropriate.

The Contractor is required to take a risk-based approach when undertaking any activities under this contract. They are required to assess, manage, and monitor environmental and social risks and impacts associated with each stage of the sub-project implementation to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESSs) set out in the WB ESF and the relevant national legislation of South Sudan. The Contractor is obliged to maintain documented information and records as evidence of maintaining a robust system for the management of ES risks. Such documents should include but may not be limited to:

- *ECRP/ESS-P003 Contractor Management Plan (CMP)*
- *ECRP/ESS-P004 Waste Management Plan*
- *ECRP/ESS-P005 Site emergency and response plan*
- *ECRP/ESS-P006 Emergency phone numbers*
- *ECRP/ESS-RPT03 Daily Safety Talks*
- *ECRP/ESS-PR01 Accident & Incident Reporting procedure*
- *ECRP/ESS-PR02 Accident & Incident Investigation procedure*

2.2.2 ESS 2: Labor and Working Conditions

For all works to be undertaken by the Contractor and/or their sub-Contractor s including any other third parties, the following labour and working conditions shall apply:

a) Promotion of safe and healthy working environment at all ECRP II sub-project Contractor managed sites including all Contractor workstations and offices.
b) Promotion of fair treatment, non-discrimination, and equal opportunity for all workers.

c) Protection of workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with the requirements of IOM, World Bank and the Government of South Sudan[1]) and migrant workers, contracted workers, community workers, and primary supply workers, as appropriate.
d) Prevention of the use of all forms of forced labor and child labor.
e) Supporting the principles of freedom of association and collective bargaining of workers in a manner consistent with the Laws of South Sudan.
a) Provide workers with accessible means to raise workplace concerns, issues, and grievances and fully aware of and be ready to implement the Workers' Grievance Redress Mechanism.

Furthermore, for managing the OHS issues, the Contractor shall:

1. Develop and maintain an OHS management system that is consistent with the scope of work, duration of contract and IFC General Environmental Health and Safety Guidelines (EHSGs) on Occupational Health and Safety.
2. Appoint an appropriately qualified and experienced OHS/Environmental Officer whose responsibility is to advise the employer on OHS related issues.
3. Prepare task specific risk assessment (TRA) and safe working procedures (SWP) for executing work.
4. Provide preventive and protective measures, including modification, substitution or elimination of hazardous conditions or substances informed by TRA and SWP.
5. Provides for appropriate training/induction of project workers and maintenance of training records on occupational health and safety subjects including TRA and SWP.
6. Documents and reports on occupational accidents, diseases, and incidents.
7. Provides emergency prevention and preparedness and response arrangements to emergency situations including and not limited to workplace accidents; workplace illnesses; flooding; fire outbreak; disease outbreak; labor unrest and security.
8. Comply with all requirements of applicable occupational Health and Safety legislation and Environmental legislation including WB EHS guidelines.
9. Maintain all such records for activities related to safety health and environmental management for inspection by the PMU or the World Bank.
10. Verification of the soundness of the Contractor 's implementation of the requirements of the LMP by IOM.
11. Provide a fully equipped first aid kit.
12. Mainstream HIV issues in the workplace by providing HIV prevention training during induction and continuously during employment through health and safety talks.

The Contractor should recognize the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. They should promote sound worker-management relationships and enhance the development benefits of a sub project by treating workers in the project fairly and providing safe and healthy working conditions. The Contractor is obliged to maintain documented information and records as evidence of maintaining a sound OHS system:

- *ECRP/ESS-R003 HSSE Training and Induction register*
- *ECRP/ESS-R004 GRM Register*

[1] The more stringent requirement shall apply.

- *ECRP/ESS-R006 Accident, Incident, near misses Register.*
- *ECRP/ESS-R007 Meeting Attendance Register*
- *ECRP/ESS-R011 Emergency drill and simulation register*
- *ECRP/ESS-F001 Accident, Incident, Near misses Report Form*
- *ECRP/ESS-F002 Pre-Task Risk Assessment Form*
- *ECRP/ESS-PTW001 Working at Heights permit.*
- *ECRP/ESS-PTW002 Working in cornified spaces permit.*
- *ECRP/ESS-PTW003 Excavation permit*
- *ECRP/ESS-PTW004 Lifting permit.*
- *ECRP/ESS-PTW005 Hot works permit*
- *ECRP/ESS-G004 Occupational Safety and Health Guidelines*

2.2.3 ESS3: Resource Efficiency and Pollution Prevention and Management

The Contractor shall:

a) promote the sustainable use of resources, including energy, water, and raw materials.
b) avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from sub-project activities.
c) avoid or minimize sub-project-related emissions of short and long-lived climate pollutants.
d) avoid or minimize generation of hazardous and non-hazardous waste.
e) minimize and manage the risk and impacts associated with pesticide use.

The Contractor should recognize that sub-project activities often generate pollution of air, water, and land, and consume finite resources that may threaten people, ecosystem services, and the environment. Thus, they are required to address resource efficiency and pollution prevention and management throughout the sub-project life cycle. The Contractor is obliged to maintain a system and keep documented information and records as evidence. Such records should include:

- *ECRP/ESS-R001 Licenses, Permits and Authorizations Register*
- *ECRP/ESS-P006 Site rehabilitation Plans (these shall include areas for the abstraction of pits and, river sand, quarry sites and any materials that shall be required for the implementation of sub-project sites)*
- *ECRP/ESS-R014 Materials abstraction register*

2.2.4 ESS 4: Community Health and Safety

The Contractor shall:

a) anticipate and avoid adverse impacts on the health and safety of sub-project-affected communities during the project life cycle from both routine and non-routine circumstances.
b) avoid or minimize community exposure to sub-project-related traffic and road safety risks, diseases, and hazardous materials.
c) have in place effective measures to address emergency events.
d) ensure that the safeguarding of personnel and property is conducted in a manner that avoids or minimizes risks to the project-affected communities.
e) Contractor shall ensure that all non-technical work is reserved for locals (identifiable with the host community and witnessed by host community leadership).
f) Beneficiary selection and employment recruitment should verify the authenticity of the localness of potential employees.

g) g) Contractor liaises with local leadership on enrolment for community workers while at the same time ensuring that no grievances derive from nepotism via utmost transparency in the selection process, announcing hiring campaigns early enough in community consultations and/or other outreach activities.

h) Where there are camp establishments, Contractor shall ensure camp management and community relations are good. If labor camps are required, special management plans need. to be developed, or if smaller establishment, camp management reflected in the ESMP.
   Security within camp
   Social relations with community members should be cordial and consistent with GBV. and SEA
   Waste management
   Water and sanitation
   Proper camp demobilization

i) Establish code of conduct for contract workers' interaction with the host community. This may include:
   Access to camp by children, non-employed girls and women
   Appropriate language
   Time restrictions where required.
   GBV/SEA

j) good conduct if small numbers of workers are accommodated in communities rather than camps (requirements on when to establish a camp shall be included in the POM)

k) Contractor shall ensure that local supply shall not negatively impact the availability of resources for the local communities and sourcing of local wildlife shall be prohibited.

Sub-projects are implemented within communities and Contractor s should address the health, safety, and security risks and impacts on project-affected communities. Focus should be put on avoiding or minimizing such risks and impacts, with particular attention to people who, because of their circumstances, may be vulnerable. The Contractor shall maintain clear records of stakeholder engagement and shall erect safety signage and/or barricades to alert communities of perceived risks. *ECRP/ESS-R002 Stakeholder engagement minutes shall be kept at site offices as a record of engagement of communities regarding community safety and health.*

2.2.5 ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

The Contractor shall:

a) avoid an activity that may lead to involuntary resettlement.
b) shall ensure that the sub-project implemented has land donation forms and land has been voluntarily given for the purposes of the sub-project.

The Contractor is obliged to maintain a system that documents information and records all land issues as evidence: The following documents shall be kept:

- *ECRP/ESS-F005 Land donation forms*
- *ECRP/ESS-R002 Stakeholder engagement minutes*

2.2.6 ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

Protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Thus, the Contractor should strive to recognize the importance of maintaining core ecological functions of habitat within their area of operation. They

should also ensure sustainable management of primary production and harvesting of living natural resources and recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, whose access to, or use of, biodiversity or living natural resources may be affected by a sub-project. The Contractor is obliged to establish and maintain documented information and records as evidence as follows:

- *ECRP/ESS-R001 Licenses, Permits and Authorizations Register*
- *ECRP/ESS-P006 Site rehabilitation Plans (these shall include areas for the abstraction of pits and, river sand, quarry sites and any materials that shall be required for the implementation of sub-project sites)*
- *ECRP/ESS-R014 Materials abstraction register (The register should capture the quantity of materials used for each sub-project site and this includes Pit sand, River sand and Water)*
- *Preservation of nationally protected and/or globally threatened species*

2.2.7 ESS 7 - Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.

This ESS applies to distinct social and cultural groups.

a) To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities.
b) To avoid adverse impacts of projects on Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts.
c) To promote sustainable development benefits and opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in a manner that is accessible, culturally appropriate and inclusive.
d) Enhance opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities to participate in, and benefit from, the development process in ways that do not threaten their unique cultural identities and well-being. The Contractor is obliged to keep the following records:

- *ECRP/ESS-P002 Stakeholder Engagement Plan (SEP)*
- *ECRP/ESS-PR05 Grievance Redress Mechanism (GRM) Procedure*

2.2.8 ESS 8: Cultural Heritage

The Contractor shall:

a) protect cultural heritage from the adverse impacts of sub-project activities and support its preservation.
b) address cultural heritage as an integral aspect of sustainable development.
c) promote meaningful consultation with all relevant stakeholders regarding cultural heritage.

Cultural heritage provides continuity in tangible and intangible forms between the past, present, and future. The Contractor should adopt measures designed to protect cultural heritage throughout the sub-project activities. The Contractor is obliged to keep the following records:

- *ECRP/ESS-R002 Stakeholder engagement minutes*
- *ECRP/ESS-PR04 Chance finds Procedure.*
- *ECRP/ESS-PR05 Grievance Redress Mechanism (GRM) Procedure*

2.2.9 ESS 10: Stakeholder Engagement and Information Disclosure

The Contractor shall:

a) Establish a systematic approach to stakeholder engagement that will identify stakeholders and build and maintain a constructive relationship with them.
b) Assess the level of stakeholder interest and support for the sub-project and enable stakeholders' views to be considered in sub-project design and environmental and social performance.
c) Promote and provide means for effective and inclusive engagement with sub-project-affected parties throughout the sub-project life cycle on issues that could potentially affect them.
d) Ensure that appropriate sub-project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format.
e) Provide sub-project-affected parties with accessible and inclusive means to raise issues and grievances and allow IOM to respond to and manage such grievances.

The Contractor should ensure open and transparent engagement of project stakeholders. Effective stakeholder engagement is envisaged as a tool to improve the environmental and social sustainability of sub-projects, enhance sub-project acceptance, and make a significant contribution to successful sub-project design and implementation. The Contractor is obliged keep the following records:

- *ECRP/ESS-R002 Stakeholder engagement minutes*
- *ECRP/ESS-P002 Stakeholder Engagement Plan (SEP)*

ANNEX 2: POLICY, LEGAL, ADMINISTRATIVE AND REGULATORY FRAMEWORK REVIEW

POLICY, LEGAL, ADMINISTRATIVE AND REGULATORY FRAMEWORK REVIEW

The GoSS is committed to the sound management of its environmental resources focusing on the sustainable utilization of natural resources, prevention of pollution and land degradation. The government has promulgated several instruments with a view to providing principles, guidance, and stipulations to guarantee the protection of the country's environment, social and cultural values.

The development of ESMPs is done to proactively identify potential impacts on environmental and social resources prior to the implementation of targeted projects. The focus of the ESMP development process is to ensure that identified positive impacts are enhanced while the mitigation of negative impacts is place at the core of the process and is supported through the adoption of sustainable approaches to avoid, reduce, mitigate, and/or offset negative impacts.

The project seeks to abide by all the existing legal provisions to ensure the protection of the environment and adherence to environmental and social standards as stipulated in the laws of South Sudan. Since attaining Independence in July 2011, the GoSS has adopted a new constitution which is operationalized through various legal instruments including policies, statutes, regulations, and guidelines. The development of environmental and social laws in South Sudan is ongoing, and the country has several legal instruments that are being drafted with the aim of enhancing sustainable socio-economic development. The policies and laws provide procedures to be followed in the planning and implementation of activities to ensure adherence to environmental and social standards.

This section provides an overview of the relevant environmental and social international, regional, and national legal, policy and Institutional Framework that apply to ECRP II. Internationally and regionally, a review of Multilateral Environmental and Social agreements is presented while at national level, the hierarchy of laws presented in 33 was used to guide the legal review. The World Bank Environmental and Social framework as read with the provisions of applicable Environmental, Health and Safety Guidelines were also reviewed and presented in this section highlighting the critical Environmental and Social Standards that Apply to ECRP II.

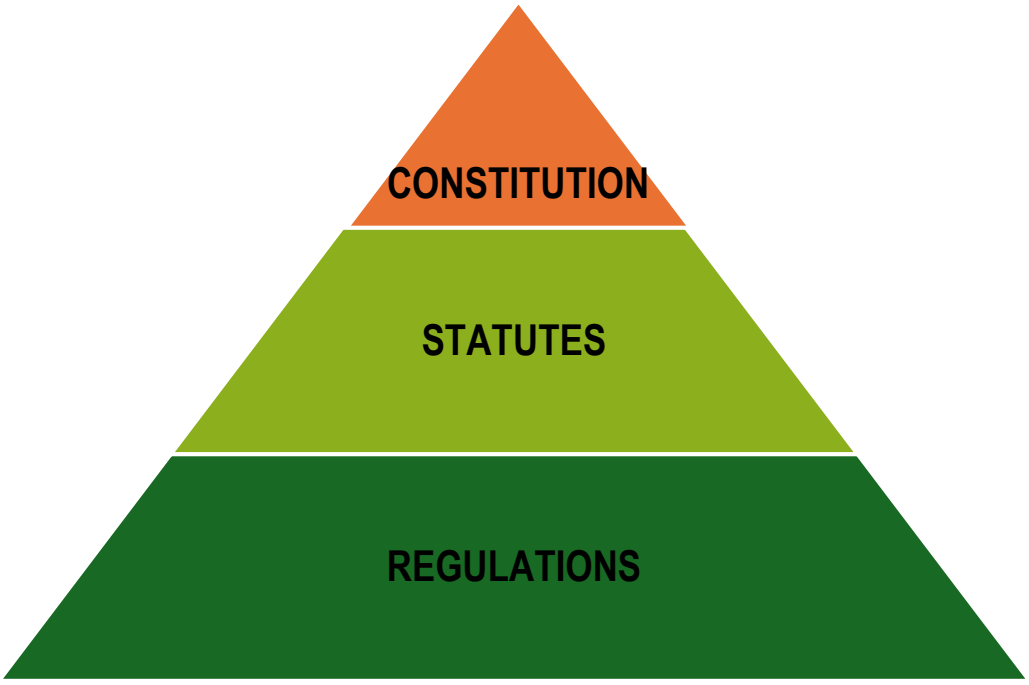


Figure 33. Hierarchy of Laws

The following sections provide an overview of some of the relevant legal instruments that guide the maintenance of environmental and social standards in South Sudan.

Constitution of South Sudan

The Transitional Constitution of the Republic of South Sudan of 2011 includes numerous provisions that have a bearing on the environment. Under Article 41 (1), the constitution stipulates environmental rights and provides that the people of South Sudan shall have a right to a clean and healthy environment and (2) that every person shall be obliged to protect the environment and (3) that future generations shall have the right to inherit an environment protected for the benefit of present and future generations. Furthermore, Article 166 (6) expects local governments to involve communities in decision-making in the promotion of a safe and healthy environment. The constitution stipulates that:

"Women shall be accorded full and equal dignity of the person with men. Women shall have the right to equal pay for equal work and other related benefits with men. Women shall have the right to participate equally with men in public life. All levels of government shall: (a) promote women participation in public life and their representation in the legislative and executive organs by at least twenty-five per cent as an affirmative action to redress imbalances created by history, customs, and traditions; (b) enact laws to combat harmful customs and traditions which undermine the dignity and status of women; and (c) provide maternity and childcare and medical care for pregnant and lactating women. Women shall have the right to own property and share in the estates of their deceased husbands together with any surviving legal heir of the deceased."

The rights of children are provided in the constitution which defines any person under the age of eighteen years as a child. The constitution seeks to protect children from unfair and unjust practices.

In executing the project, IOM and the Contractor s will need to adopt policies and systems that fully address the stipulated human rights in terms of the Constitution.

Policies

South Sudan Vision 2040

The major government document that is guiding the future development of South Sudan is the entitled "Towards Freedom, Equality, Justice, Peace and Prosperity for All". The document spells out the national goals of Vision 2040 that are meant to create a vibrant, competitive, and diversified economy that is largely driven by various industrial sectors which include agriculture, mining, tourism, and services in view of attracting investors. The commitment of the GoSS to sustainable environmental management and prevention of environmental pollution that emanates from developmental programs is also explicitly highlighted. Vision emphasizes the need to minimize greenhouse gas emissions as a measure to combat climate change. Furthermore, the medium-term development plan (Revised National Development Strategy for South Sudan - 2021-2024) includes Establish and/or strengthen institutions for transparent, accountable and inclusive governance in a bid to foster macroeconomic stability and lay foundations for the diversification of the economy. The government is focusing on building critical infrastructure for sustainable development, which includes roads, public buildings, and broadband capability. Moreover, the government is also focusing on mainstream gender in all development policies and programs and empower women and youth as drivers of growth and nation-building.

The ECRP II project is aligned to government focus as it is focusing on the construction of community infrastructure. Furthermore, the project has mainstreamed the involvement of the youth and women including vulnerable groups. IOM and the Contractor s should continue to uphold the principles of the project that are aligned to the South Sudan Vision 2040.

South Sudan National Environment Policy 2015 to 2025

The South Sudan Environmental Policy of 2015 provides the basis and framework for the sound management of environmental resources and paves the way for the mainstreaming of sustainable development agenda in the development agenda in the country. The policy has been developed in response to the challenges posed by existing environmental challenges, such as pollution and depletion of natural resources. The policy recognizes the essential links between sustainable development and sound environmental management. The policy provides strategies that seek to guide key actors in the public, private, and community domains in relation to the management of environmental resources. The policy focuses on making provisions for protection and subsequent improvement in the way environmental resources are managed in a bid to improve the quality of life of both present and future generations. The nexus between environmental protection and occupational safety and health is presented and the policy seeks to guide sustainable economic growth.

The proposed project has the potential to cause environmental pollution during the construction and operation phases, and these issues are addressed in the ESMP document. Also, by undertaking the ESMP, the project has observed the requirements of the national environmental policy and will continue to observe the requirements of the policy during the whole life cycle of the project.

The South Sudan Forest Policy (2019)

The Forest Policy of South Sudan was launched in 2019. The Policy is broadly intended to protect the roles forests play in stabilizing the global systems including the hydrological balance, the carbon balance, atmospheric systems. The policy seeks to promote ecological stability of riverine systems, the lakes, swamps, agricultural production, and other natural ecological systems. The guiding principles of the Forest Policy include:

(i) sustainable management of all forests and tree resources of South Sudan to ensure continuous accrual of benefits to the present and future generations.
(ii) Establishment and management of permanent forest estates (PFE) to ensure conservation of biodiversity and steady flow of benefits.
(iii) forests and tree resources will be managed in accordance with set criteria and indicators for sustainable management.
(iv) regular development of appropriate policies, legislation, and institutional reforms that will be implemented to support growth and sustainability of the forest sector.
(v) establishment of industrial and other plantations for sustainable supply of forest resources to meet the increasing demands.
(vi) increased community participation in forest management through collaborative management schemes while the community sustainably benefit from forest resources; (vii) development of forest products based industrial development (forest products processing) to promote, and support increased economic benefits from forest resources.
(vii) strengthening of forestry management institutions increase productivity, achieve household food security, alleviate poverty, and contribute to the macro-economy of South Sudan.
(viii) sustained commitment to forest related regional and international agreements and conventions; and
(ix) human capacity development in the management of forests and tree resources.

While the project shall focus on avoiding the cutting down of trees, in the unlikely event that trees will be cut, the project shall ensure that planting of trees shall be done to compensate the trees that could have been cut down during sub- project implementation.

South Sudan Draft Environment Bill (2023)

The Bill has been crafted in a bid to pave way to the promulgation of the statutes that are focusing on the protection of the South Sudan environment. The bill also seek to promote sustainable development that is centered on improving the quality of life for both the present and future generations. Explicitly, under section 18 of the Draft Environmental and Protection Bill, requirements for Environmental Impact Assessments are set out. The bill defines the

Environmental Impact Assessment (EIA) as a systematic examination conducted to determine whether or not a project will have any adverse impact on the environment and prescribe mitigation measures. The EIA process as enshrined with the bill seeks to ensure that environmental and social risks are proactively identified and managed systematically. The bill under section 32 stipulates provisions relating to Environmental Audits. The focus of the audits is to assess the extent of compliance of developmental projects to the provisions of the Environmental Impact Assessment (EIA) provisions. The audits also provide mechanisms for comprehensible implementation procedures of a project so as to mitigate adverse environmental impacts and provide regulatory bodies with a framework for ensuring compliance with, and the performance of an environmental management plan. Under section 20 the bill provides for Environmental Monitoring. The mandate for environmental monitoring is placed on line ministries and includes monitoring the operations of projects and/or project activities to determining its immediate and long-term effect on the environment.

The Bill has not yet been passed into law and as such it is not enforceable. Thus, the project will voluntarily adopt the best international practices that are aligned to the provisions of the bill.

Gender Policy

The Government of South Sudan has committed to gender equality for women, men, girls and boys. It is the spirit of the policy to protect women and girls from harmful social norms. The Government has endorsed pledges to end female genital mutilation (FGM) and child marriage and prevent and respond to gender-based violence (GBV).

IOM and its contractors shall ensure alignment of the Gender Action plan with the provisions of the policy.

South Sudan National Women's Strategy 2016

The South Sudan National Women's Strategy document is a tool that is designed to be used by women and men from different sector, institutions, and organizations, which are committed to mainstream gender and provide for gender equality in different sectors of the society. Thorough this document, the women of South Sudan seek to emphasize and shade more light on the existing opportunity for women based on the gender competence among the women and women's rights as equal citizens of South Sudan. The objective of this strategy document is to ensure that women participation and contribution in decision making at national level is seen beyond the limitation of the 25% thresh hold of gender quota which is enshrined in the Constitution of Republic of South Sudan (2011) amended 2015.

IOM and its contractors shall ensure that Women are provided with an equal opportunity for employment and the project shall meet the stipulated gender quota.

Statutes

The Land Act of 2009

One of the key objectives of the Land Act is to promote a land management system, which can protect and preserve the environment and ecology for the sustainable development of South Sudan. It also provides for fair and prompt compensation to any person whose right of occupancy, ownership or recognized long-standing occupancy or customary use of land is revoked or otherwise interfered with. The Land Act reinforces the Government's recognition of customary land tenure.

The Land Act requires the Government to consult local communities and consider their views in decisions about community land. The Act also gives pastoralists special protection: No person shall without permission to conduct any activity on the communal grazing land which may prevent or restrict the residents of the traditional communities concerned from exercising their grazing rights.

The proposed project has the potential to affect landholders. Thus, IOM and its contractors will be obliged to comply with the requirements of the Land Act. Though the project has explicitly stated the need to avoid involuntary resettlement due to any project activities. The project should continue to exercise due diligence to ensure that verification of land allocated for sub-projects is voluntarily donated to avoid any compensation issues.

The Public Health (Water and Sanitation) Act (2008)

Emphasizes the prevention of the pollution of air and water and encourages improvement in sanitation. Key provisions include the protection of the sanitation of the environment, and it encompasses the measure to address air and water pollution. The act provides for the prevention of pollution of water for consumption; prevention of pollution of potable water; guides anyone who offers the public water to drink or human food, and which includes frozen food. It stipulates that such individuals should ensure that the water conforms to the portable water regulations. To some extent, it guides the management and disposal of hazardous waste, and storage of wastes on the premises of waste generators.

The project will implement sub-projects that will provide the public with portable drinking water. Such water facilities shall be subjected to drinking water quality testing to ensure that the regulations and provisions of this act are fully met.

The Labor Act (Act No. 64 of 2017)

The Labor Act provides the minimum conditions of employment, labor relations, labor institutions, dispute resolution and provisions for health and safety in the workplace. It further reinforces the right to equal remuneration for work of equal value as guaranteed by the constitution. Section 6(1) of the Labor Act provides that 'No person shall discriminate, directly or indirectly, against an employee or job applicant in any work policy or practice'. Section 6(2) also forbids discrimination by any Trade Union, Employers Association or Federation. Section 6(3) defines discrimination as 'any distinction, exclusion or preference with the effect of nullifying or impairing equality of

opportunity or treatment in employment or occupation' based on a series of grounds including sex and pregnancy or childbirth. The Labor Act provides protection for children, however, there is a legal gap when it comes to clarity on prohibitions on the worst forms of child labor.

IOM and its contractor should comply with the provisions of the labor laws in the implementation of the sub projects. The contractor should comply with the provisions of the ECRP II Labor management procedures. The LMP seeks to:

(a) Identify the diverse types of project workers that are likely to be involved in the project.
(b) Identify, analyze and evaluate the labor related risks and impacts for ECRP II.
(c) Set out procedures to meet the requirements of ESS2, ESS4 and applicable national legislation.

As such, the LMP will be very relevant to ensure that the requirements of the labor laws are fulfilled and should be applied with consideration to the requirements of national laws, the interrelatedness of ESS2 and ESS4.

The Child Act (Act No. 10 of 2008):

The Child Act regulates the prohibition on child labor, the protection of children and young persons and hazardous child labor.

IOM and its contractors shall put in place measures to ensure that NO child labor cases will be recorded under the ECRP II.

Multilateral Environmental and Social Agreements (MESAs)

United Nations Framework Convention on Climate Change

The primary purpose of the Convention is to establish methods to minimize global warming and in particular the emission of greenhouse gases. The Convention was adopted for signature in 1992 and came into force in 1994.

IOM and the Contractor should ensure that at Sub-project level, designs and relevant plans are developed and implemented to minimize the release of GHG emissions.

Vienna Convention on the Protection of the Ozone Layer

The Vienna Convention was an intergovernmental negotiation for an international agreement to phase out ozone depleting substances in March 1985. It ended in the adoption of the Vienna Convention for the Protection of the Ozone Layer. The Convention encourages intergovernmental cooperation on research, systematic observation of the ozone layer, monitoring of CFC production, and the exchange of information.

IOM and the Contractor should ensure that at Sub-project level there is compliance with the national regulations on the prohibition and Control of Ozone Depleting Substances, and Greenhouse Gases.

Ramsar Convention for the Conservation and Sustainable Utilization of Wetlands

The Convention is an international treaty for the conservation and sustainable utilization of wetlands, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value. South Sudan is a party to the convention since 10 October 2013. The country has 1 Ramsar site which covers an area of about 5.700.000 hectares.

The proposed Sub-project will avoid ecologically sensitive areas such as wetlands. IOM and the Contractor will be operating in the area with wetlands e.g. rivers. As such, both IOM and the Contractor should ensure that the wetlands are protected, and Sub-project activities should not alter or interfere with the wetlands.

Convention on the Rights of the Child

The Convention on the Rights of the Child from 1989 is the most comprehensive compilation of international legal standards for the protection of the human rights of children. It acknowledges children as individuals with rights and responsibilities according to their age and development, as well as members of a family or community. This includes non-discrimination, the best interest of the child, the right to life, survival and development and the right to participation.

IOM and the Contractor should ensure that the rights of children are protected.

Eight Fundamental Conventions of the International Labour Organization

The eight “fundamental” Conventions cover subjects that are considered to be fundamental principles and rights at work. The freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labour; the effective abolition of child labour; and the elimination of discrimination in respect of employment and occupation.

IOM and the Contractor should ensure that the rights of employees are protected and issues of occupational, health and safety are fully addressed. This includes the provision of a safe working environment and management of workplace hazards.

Convention on the Elimination of all forms of Discrimination against Women.

CEDAW places explicit obligations on states to protect women and girls from sexual exploitation and abuse.

IOM and the Contractor should ensure that at Sub-project level, the protection of women and girls from sexual exploitation and abuse is upheld.

Basel Convention

The Basel Convention (BC) on the Trans-boundary movement of hazardous Waste and other wastes is one of the MEAs that addresses the issues of hazardous waste management. The BC was adopted in 1989, in response to a public outcry following the discovery, in the 1980s, in Africa and other parts of the developing world of deposits of toxic waste imported from abroad. The thrust of the convention has been to combat the "toxic trade", as it was termed. The convention restricts the movement of hazardous waste and sets out a procedure that needs to be followed when hazardous waste is to be transported.

IOM and the Contractor should ensure that at Sub-project level, if any hazardous waste is generated, it should be managed in an environmentally sound manner.

Bamako Convention

The Bamako Convention controls the trans-boundary movement of hazardous wastes to and within Africa. The convention seeks to complement the BC through the protection of African states from the environmentally toxic effects of hazardous waste, e-waste included by imposing a ban on the ban of the import of toxic waste into Africa.

IOM and the Contractor should ensure that at the Sub-project level, if any hazardous waste is generated, it should be managed in an environmentally sound manner.

Stockholm Convention on Persistent Organic Pollutants (POPs)

The Stockholm Convention on Persistent Organic Pollutants (POPs) was signed on the 22nd of May 2001. POPs pose major and increasing threats to human health and the environment. Among the POPs that are earmarked for phasing out include Poly Chlorinated Biphenyls (PCBs) which are still widely used in old transformer oils.

The Contractor has the obligation to ensure compliance to the requirements of the Stockholm Convention during the construction phase to uphold the same compliance level at implementation. Focus should be put on ensuring that POPs are managed in an environmentally sound manner.

Minamata Convention

The Minamata Convention (named after the Japan City of Japan) on Mercury was adopted and signed on 10th October 2012 at a Diplomatic Conference in Kumamoto Japan. The Minamata Convention is an international treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. The convention includes provisions that

relate to the entire life cycle of mercury, including controls and reduction across a range of products, processes, and industries where mercury is used, released or mitted.

The Contractor has the obligation to ensure compliance with the provisions of the convention in ensuring that the designs take into account measures to control and reduce the releases of mercury into the environment.

Kyoto Protocol, 2005

The Kyoto Protocol was adopted on 11 December 1997 and entered into force on 16th February 2005. The Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing industrialized countries to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets. The Protocol requests countries to adopt policies and measures on mitigation to report periodically. It binds developed countries and places a heavier burden on them under the principle of 'common but differentiated responsibility and respective capabilities. Annex B of the Protocol sets binding emission reduction targets for 36 industrialized countries and the European Union; these targets add up to an average of 5 per cent emission reduction compared to 1990 levels over a five-year period 2008 – 2012 which is the first commitment period.

IOM and the Contractor should ensure that at Sub-project level, designs and relevant plans are developed and implemented to minimize the release of GHG emissions.

Montreal Protocol adopted 15th September 1987.

Montreal Protocol on Substances that Deplete the Ozone Layer is a multilateral environmental agreement that regulates the production and consumption of over man-made chemicals referred to as Ozone Depleting Substances (ODS), over 100 of them. When released to the atmosphere, those chemicals damage the stratospheric ozone layer, Earth's protective shield that protects humans and the environment from harmful levels of ultraviolet radiation from the sun. The Montreal Protocol phases down the consumption and production of the different ODS in a stepwise manner, with different timetables for developed and developing countries. Under the Protocol, all parties have specific responsibilities related to:

- The phase out of the different Ozone Depleting Substances.
- Control of ODS trade.
- Annual reporting of data.
- National licensing systems to control ODS imports and exports.

Although both developing and developed countries have equal but differentiated responsibilities, all countries have binding, time-targeted and measurable commitments.

The Protocol includes provisions related to Control Measures, Calculation of control levels, Control of trade with non, Special situation of developing countries, Reporting of data, Non-compliance, Technical assistance. The substances controlled by the treaty are CFCs, halons, other fully halogenated CFCs, carbon tetrachloride, methyl chloroform, HCFCs, methyl bromide and HFCs.

IOM and the Contractor should ensure that at Sub-project level, designs and relevant plans are developed and implemented to minimise the release of ODS emissions at all stages of the Sub-project

World Bank (WB) Environmental and Social Framework (ESF)

The WB Environmental and Social Framework (ESF) became effective on October 1, 2018, and is applicable to the ECRP II. The ESF covers areas such as labor, non-discrimination, climate change mitigation and adaptation, biodiversity, community health and safety, and stakeholder engagement – including expanding the role of public participation and grievance mechanisms. Through the ESF, the World Bank's enhances commitment to sustainable development through adoption of a set of ten Environmental and Social Standards (ESS). The ESF is built upon the risk-based approach that promotes increased responsiveness to changes in Sub-project circumstances through adaptive risk management and stakeholder engagement.

ESS 1: Assessment and Management of Environmental and Social Risks and Impact

The ESS1 provides the guiding principles for the effective environmental and social assessment of Sub-projects, conduction of stakeholders' engagement, legal agreement between the Borrower and the Bank. The focus is to ensure the effective implementation and management of the environmental and social risks through a legal Environmental and Social Commitment Plan (ESCP) and conduction of monitoring as well as regular reporting of environmental and social performance against the ESSs.

The proposed sub-Sub-projects will adopt the provisions of ESS 1 by addressing the environmental and social risks and impacts, which shall arise as result of implementation of the proposed sub-Sub-projects activities. IOM and its Contractor s are obliged to adopt the mitigation hierarchy in addressing significant ES risks at all stages of the Sub-project.

ESS 2: Labour and Working Conditions

The provisions of ESS 2 are applicable to this Sub-project. This objective of this standard is to promote health and safety in the workplace; protect Sub-project workers, particularly vulnerable workers such as women, persons with disabilities, migrant and community workers etc.; prevent child labour and forced labour; support principles of collective bargaining and freedom of association; and provide Sub-project workers means to raise workplace concerns.

The proposed sub-Sub-project will involve a Contractor and thus the ESS 2 will be very relevant to the Sub-project. The Contractor should ensure that the key risks related to OHS are addressed following the hierarchy of controls. Employees must be provided with adequate PPE, training and capacity building on OHS issues. A workers GRM platform should be established and there should not be any discrimination at the workplace. The Contractor should ensure that a safe working environment is always maintained and OHS risks are communicated. Information on OHS should be made available to employees. Aligned to the provisions of ESS2, the LMP that were developed under ECRP II should be adhered to aid in fulfilling the requirements of ESS2 by the Contractor.

ESS 3: Resource Efficiency and Pollution Prevention and Management

The ESS 3 takes into account the necessary aspects of resource consumption for conduction of developmental activities, and as a result generate waste, resulting in air, water, soil and noise pollution, which may threaten the wellbeing of humans, ecosystem services and the environment. As such, adoption of more efficient and effective resource consumption measures, pollution control and prevention mechanisms and GHG emission avoidance, and mitigation technologies and practices will provide a more sustainable approach for Sub-project implementation.

The ESS is applicable to the Sub-projects since the activities include resources consumption and the subsequent generation of waste. As such, IOM and the Contractor should ensure that plans and measures are put in place to ensure the sustainable extraction of natural resources, prevention of pollution and land degradation. At the design stage, the constructor should focus on measures to avoid the unnecessary abstraction of resources. The provisions of the ESS3 have already been taken into consideration during planning through the design considerations, adoption of SoPs, and adoption of pollution abatement technology. IOM should ensure that the Contractor adheres to the design specification during construction.

ESS 4: Community Health and Safety

The ESS4 generally lays down ESF principles for the health, safety, and security risks and impacts of Sub-project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.

The proposed Sub-projects will be implemented at a hospital that interacts with a surrounding community which includes schools, churches and other facilities. As such, to ensure community safety, IOM and the Contractor should ensure that hazard and risk communication signs are installed at various critical points. Engagement of community to ensure that they are aware of the anticipated risks and hazards to ensure community preparedness should be done prior to Sub-projects implementation. Mitigation measures following the mitigation hierarchy should be adopted.

ESS 6: Biodiversity Conservation

ESS 6 emphasizes the importance of protecting and conserving biodiversity along with the core ecological functions of habitats and thus, sustainably managing primary production and harvesting of living natural resources.

Measures to ensure that Biodiversity impacts are minimized should be adopted.

ESS 8: Cultural Heritage

The ESS seeks to address the effects of Sub-project activities on tangible, intangible as well as movable and immovable cultural, archaeological, religious, and paleontological assets.

The ESS is relevant, and IOM and the Contractor should work closely with the traditional leaders in the area to ensure that the culture, values, and norms of the people of South Sudan is respected and upheld during all stages of the Sub-project.

ESS 10: Stakeholder Engagement and Information Disclosure

ESS10 recognizes the importance of transparent and meaningful consultation throughout the Sub-project cycle as an essential element of good international practice. Meaningful stakeholder engagement can improve the environmental and social sustainability of Sub-projects, enhance Sub-project acceptance and contribute to successful Sub-project design and implementation. The Sub-project has established a structured approach to stakeholder engagement and public outreach that is based upon meaningful consultation and disclosure of appropriate information, considering the specific challenges associated with combating COVID-19.

The ESS is relevant and IOM together with the Contractor should ensure the Stakeholder Engagement Plan is developed and followed and the ECRP II Grievance Redress Mechanism should be implemented.

WB Guidelines: Environmental, Health and Safety Guidelines General EHS Guidelines.

The Environment, Health and Safety (EHS) Guidelines contain performance levels and measures for development of industrial Sub-projects that are achievable in new facilities at reasonable costs by existing technology. Under these guidelines, the World Bank has several guidelines, many of which are applicable to various components of the proposed Sub-project namely:

a) EHS Guidelines-Air Emissions and Ambient Air Quality

b) EHS Guidelines-Waste Management.

c) EHS Guidelines-Health Care Facilities.

d) EHS Guidelines-Hazardous Materials Management

e) EHS Guidelines-Construction and Decommissioning.

OM and the Contractor are required to comply with the provisions of the WBG, Environmental, Health and Safety Guidelines General EHS Guidelines at all stages of the Sub-project.

EHS Guidelines: Air Emissions and Ambient Air Quality

The guidelines mainly focus on preventing the generation and release of air emissions in this case through selection of fuel type, the optimal operation of the incinerator, the avoidance of burning all waste and proper healthcare waste handling skills among other initiatives. These guidelines are meant for all types of Sub-projects with "significant" emissions, sources of air emissions, and potential for significant impacts to ambient air quality to prevent or minimize impacts by ensuring that Sub-project activities do not result in the release of pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards. The Sub-project should avoid, minimize, and control adverse impacts to human health, safety, and the environment from emissions to air. Where this is not possible, the

generation and release of emissions of any type should be managed through a combination of:

• Energy use efficiency

• Process modification

• Selection of fuels or other materials, the processing of which may result in less polluting emissions

• Application of emissions control techniques

Moreover, the EHS guidelines require the application of national legislated standards, or in their absence, the current WHO Air Quality Guidelines, or other internationally recognized standards.

Sub-projects that generate fugitive air emissions, especially during construction and operation. Furthermore, during the implementation of the Sub-projects there will be release of air pollutants from mobile sources. Thus, these guidelines are applicable as they give control and monitoring measures. IOM and Contractors should ensure that adoption of measures to manage the release of air emissions are considered at all stages of the project.

WB EHS Guidelines: Waste Management

The guidelines apply to the management of non-hazardous and hazardous waste. This Sub-project will result in the generation of both hazardous and non-hazardous waste at various stages of the Sub-project. These guidelines provide categories of various wastes and a summary of treatment and disposal options. These guidelines provide good guidance on waste on-site handling, collection, treatment, and disposal for both the proponent and the Contractor s during construction and operation phases respectively.

These guidelines are applicable to the Sub-projects. As such, both IOM and the Contractor should ensure that all stages of the Sub-projects are following the requirements of the guidelines to ensure the sound management of both waste and hazardous waste including healthcare waste. The waste management plans should be aligned to the provision of these guidelines.

WB EHS Guidelines: Noise

This section addresses impacts of noise beyond the property boundary of the facilities. These guidelines are applicable during the construction phase whereby construction equipment and activities are expected to emit noise.

These guidelines are applicable to this Sub-project so both IOM and the Contractor should ensure that throughout all stages of the Sub-project the provisions of the guideline are complied with. The noise levels should not exceed the levels presented in Table 1.7.1 of the guidelines or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

WB EHS Guidelines: Occupational Safety and Health

These guidelines guide employers and supervisors in fulfilling their obligation to implement all reasonable precautions to protect the health and safety of workers. The guidelines provide guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. Although the focus is placed on the operational phase of Sub-projects, much of the guidance also applies to construction and decommissioning activities. The guidelines also describe how facility operation workplace design should be undertaken to prevent occupational health and safety risks and hazards. The guidelines also give examples of internationally published exposure guidelines which may be used to measure occupational health and safety performance. Such examples include the threshold limit Values, Occupational exposure guidelines and biological exposure indices published by the American Conference of Governmental Industrial Hygienists. Permissible exposure limits published by the Occupational Safety and Health administration of the United States, and Indicative occupational exposure limit values. The guidelines also provide guidelines on handling chemical hazards of asbestos containing materials. The guidelines state that emphasis must be put on:

(a) Eliminating the hazard by removing the activity from the work process.

(b) Controlling the hazard at its source through use of engineering controls.

(c) Minimizing the hazard through design of safe work systems and administrative or institutional control measures and

(d) Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

These guidelines are applicable to the Sub-projects and as such, both IOM and the Contractor should ensure that all stages of the Sub-project the provisions of the guideline are complied with. Occupational Safety and Health standards should be adhered to, and the Contractor should ensure employees are

made aware of the hazards that they are likely to face. Measures to eliminate or reduce exposure of employees should be adopted guided by the application of the hierarchy of controls. Provision of PPE, training and capacity building should be prioritized at all stages of the Sub-project.

WB EHS Guidelines: Construction and Decommissioning

These provide additional and specific guidance on prevention and control of community health and safety impacts that may occur during new Sub-project development, at the end of the Sub-project life cycle, or due to expansion or modification of existing Sub-project facilities. On road design · the guidelines stipulate that there is a need to limit access road gradients to reduce runoff induced erosion and there is a need to ensure provision of adequate road drainage based on road width, surface material, compaction, and maintenance.

These guidelines are applicable to the Sub-projects as such, both IOM and the Contractor should ensure that all stages of the Sub-project designs, plans and activities are aligned to comply with the provision of the guideline

Table 9. Summary of requirements & obligations for WB ESF and Guidelines

REF.	WB ES INSTRUMENT	RELEVANCE	COMPLIANCE LEADING INDICATORS	COMPLIANCE LAGGING INDICATORS
1.	WB ESF: ESS1: Assessment and Management of Environmental and Social Risks and Impact	Integrates Environmental and Social Assessment; includes requirements related to non-discrimination and social inclusion; proportionality and adaptive management; use of the ESCP	ESCP ESMP GRM ES procedures implemented. Permits and Licenses obtained	Grievances Fines and penalties from regulators Near misses, incidents, and accidents at workstations
2.	WB ESF ESS2: ESS 2: Labour and Working Conditions	Prohibits child labour and forced labour, heightened focus on OHS, grievance mechanisms	OHS Policies, Procedures and Protocols Number of staff trained. PPE issued	High staff turnover. Grievances Fines and penalties from regulators Near misses, incidents, and accidents at workstations
3.	WB ESF ESS 3: Resource Efficiency and Pollution Prevention and Management	Promotes efficient management of energy, water, and other resources and materials; hazardous materials management; pesticides; GHG assessment mandate	ES Policies, Procedures and Protocols Permits and Licenses Education, Awareness raising, and Capacity building.	Grievances Fines and penalties from regulators Land degradation. Environmental pollution
4.	WB ESF ESS 4: Community Health and Safety	Assess risks and impacts on communities; Design of safe and resilient infrastructure, equipment operation, products,	ES Policies, Procedures and Protocols Education, Awareness raising, and Capacity building.	Grievances Fines and penalties from regulators

REF.	WB ES INSTRUMENT	RELEVANCE	COMPLIANCE LEADING INDICATORS	COMPLIANCE LAGGING INDICATORS
		services, road safety, hazardous materials; emergency preparedness		Near misses, incidents and accidents at workstations
5.	WB ESF ESS 8: Cultural Heritage	Enhanced consultation with affected communities, intangible heritage	SEP implemented. Number of engagement meetings held. Stakeholder feedback incorporated	Grievances Fines and penalties from regulators
6.	WB ESF ESS 10: Stakeholder Engagement and Information Disclosure	Meaningful consultation, access to information and grievance redress through the life of Sub-project	SEP implemented. Number of engagement meetings held. Stakeholder feedback incorporated. Grievances recorded, investigated, and closed. Sub-project information disclosed	Number of grievances recorded. Fines and penalties from regulators
7.	WB Guidelines: Environmental, Health and Safety Guidelines General EHS Guidelines.	The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP)	WB compliant ESMP developed and implemented. ES tools developed and implemented. Safety talks records	Number of grievances recorded. Fines and penalties from regulators Near misses, incidents and accidents recorded.

REF.	WB ES INSTRUMENT	RELEVANCE	COMPLIANCE LEADING INDICATORS	COMPLIANCE LAGGING INDICATORS
			Disclosure of OSH information Number of trained personnel on Osh issues Awareness raising initiatives recorded. Signage, Hazard and risk communication strategy	Environmental pollution
8.	EHS Guidelines: Air Emissions and Ambient Air Quality	Applies to facilities or Sub-projects that generate emissions to air at any stage of the Sub-project life cycle	ESMP developed and implemented. Designs that incorporate technologies for the reduction of emissions Monitoring air emissions and ambient air quality Training, capacity building and awareness raining initiatives Number of stakeholders trained	Air pollution Fines penalties and tickets from regulators Elevated pollutant levels
9.	WB EHS Guidelines: Waste Management	Applies to facilities or Sub-projects dedicated to the management of municipal solid waste and industrial waste, including waste collection and transport; waste receipt, unloading, processing, storage; landfill disposal; physico-chemical and biological	ESMP developed and implemented. Waste management hierarchy implemented. Use of adequate PPE during waste management	Environmental pollution Fines penalties and tickets from regulators Elevated pollutant levels Outbreak of diseases

REF.	WB ES INSTRUMENT	RELEVANCE	COMPLIANCE LEADING INDICATORS	COMPLIANCE LAGGING INDICATORS
		treatment; and incineration Sub-projects.	Training, capacity building and awareness raining initiatives Number of stakeholders trained	Number of grievances
10.	WB EHS Guidelines: Noise	Addresses impacts noise beyond the property boundary of the facilities. Worker exposure to noise is covered	ESMP developed and implemented. Ambient noise monitoring plan implemented. Initiative-taking selection of Noise standards compliant equipment implemented	Environmental pollution Fines penalties and tickets from regulators Elevated ambient noise levels Number of grievances
11.	WB EHS Guidelines: Construction and Decommissioning	provides additional, specific guidance on prevention and control of community health and safety impacts that may occur during new Sub-project development, at the end of the Sub-project life cycle, or due to expansion or modification of existing Sub-project facilities	ESMP developed and implemented. Waste management/disposal licenses/permits acquired. Waste management hierarchy applied. Training, capacity building, and awareness raising on waste management. Number of stakeholders trained	Environmental pollution (Air, Land and Water) Fines penalties and tickets from regulators Elevated ambient noise levels Number of grievances
12.	WB EHS Guidelines: Occupational Safety and Health	Focuses on provision of a safe working environment. Guides the management of hazards and risk through the application of the hierarchy of controls.	ESMP developed and implemented.	Fines penalties and tickets from regulators Number of grievances

REF.	WB ES INSTRUMENT	RELEVANCE	COMPLIANCE LEADING INDICATORS	COMPLIANCE LAGGING INDICATORS
			Legal register developed and updated. Near misses, incidents, accidents recorded, investigated, and closed. Adequate PPE provided. Training, education, capacity building, and awareness raising conducted. Hierarchy of controls Implemented in management of OHS Hazards and Risks Pre and Post Medical examinations conducted. Hazard and risk communication	Number of near misses, incidents and accidents recorded

ANNEX 3: LIST OF STAKEHOLDERS CONSULTED

	ECRP II ECRP/ESS-R002	
		STAKEHOLDERS CONSULTATION REGISTER
	Office	ECRP II
	Location	Rubkona, Bentiu

DRM IFMM/2026 SUB-PROJECTS

No.	ORGANISATION/INSTITUTION	DESIGNATION/POSITION	NAME	AGE GROUP	GENDER	LEVEL OF ENGAGEMENT
1	County Government	Commissioner	James Clement Jul	25-59Years	Male	County
2	County Government	E.D office of commissioner	Gatkuoth Sabah Biel	25-59Years	Male	County
3	County Government	Director for Accounts	Mut Geng Chiek	25-59Years	Male	County
4	County Government	Chair lady	Tapitha Nyeyune Gui Gui	25-59Years	Female	County
5	County Government	Education Director	Kuok Gatdor Kuorwai	25-59Years	Male	County
6	County Government	County Labour Director	Simon Diab Giel	25-59Years	Male	County
7	County Government	RRC County Director	Kubany Dobrol	25-59Years	Male	County
8	County Government	Block leader	Nyabol Thinduel Choul	25-59Years	Female	County
9	County Government	Town Council	Mayiel Gany Giu Gui	25-59Years	Male	County
10	County Government	Director of Revenue	Tap Chartut Nger	25-59Years	Male	County
11	County Government	Director of WASH	Duol Pech Chuol	25-59Years	Male	County
12	County Government	Director of Animal Resources	Albino Chuol Duop	25-59Years	Male	County
13	County Government	Director of Admin, CHD	Latjor Tangloah W	25-59Years	Male	County
14	State Government	Secretary General, USB	Zechariah Bol Tuor	25-59Years	Male	State
15	State Government	Director General, Local Gov't	Sudan Chuong Mut	25-59Years	Male	State

16	State Government	Director of Accounts, MF	Wiel Badeng Choad	25-59Years	Male	State
17	State Government	Director for B/P, Local Gov't	Nhial Chany Koang	25-59Years	Male	State
18	State Government	DG SNGCSWF	Nyalada Bading Jageah	25-59Years	Female	State
19	Community	Chairman Site E	Kuol Kuany Tut	25-59Years	Male	Boma/Block
20	Community	Block leader	Peter Gatkuoth Tut	25-59Years	Male	Boma/Block
21	Community	Youth Representative	Jinub Lok Lak	25-59Years	Male	Boma/Block
22	Community	Direct beneficiaries	Geresa Nyaliah Thiway	25-59Years	Female	Boma/Block
23	Community	Direct beneficiaries	Chiedeng kueth Reat	25-59Years	Male	Boma/Block
24	Community	Teacher	Garmain Kerong Golong	25-59Years	Male	Boma/Block
25	Community	Teacher	Peter Gai Gieng	25-59Years	Male	Boma/Block
26	Community	Direct beneficiaries	Nyawuor Gatkuoth Nyak	25-59Years	Female	Boma/Block
27	Community	Head Teacher	Lok Dak Deng	25-59Years	Male	Boma/Block
28	Community	Direct beneficiaries	Nyeruob Mutlek Lok	25-59Years	Female	Boma/Block
29	Community	Direct beneficiaries	Jime Wang Bichiok	25-59Years	Male	Boma/Block
30	Community	Direct beneficiaries	Andrew Maluit Bok	25-59Years	Male	Boma/Block
31	Community	Teacher	Peter Ruai Thor	25-59Years	Male	Boma/Block
32	Community	Teacher	Chuol Dak William	25-59Years	Male	Boma/Block
33	Community	Direct beneficiaries	Bentiu Jal Kuol	25-59Years	Male	Boma/Block
34	Community	Direct beneficiaries	Nyekuoth Guel Peat	25-59Years	Female	Boma/Block
35	Community	Direct beneficiaries	Bichar Riak Deng	25-59Years	Male	Boma/Block
36	Community	Direct beneficiaries	Kai Gany Ruot	25-59Years	Male	Boma/Block
37	Community	Teacher	Gatkhor Hou Luony	25-59Years	Male	Boma/Block
38	Community	Teacher	Stephen Gatchang Mathoat	25-59Years	Male	Boma/Block
39	Community	Direct beneficiaries	Nyeriek Dajul Chiik	25-59Years	Female	Boma/Block
40	Community	Direct beneficiaries	Nyenen Matai Yieth	25-59Years	Female	Boma/Block
41	Community	Direct beneficiaries	Nyekoang Kuol Meat	25-59Years	Female	Boma/Block
42	Community	Direct beneficiaries	Nyenhial Riek Gatkhor	25-59Years	Female	Boma/Block
43	Business	Health officer(trader)	Santino Wuor Beliew Guoth	25-59Years	Male	Payam

44	Business	Trader	Both Lok Wan	25-59Years	Male	Payam
45	Business	Trader	Mayiel Juol Dakdor	25-59Years	Male	Payam
46	Business	Tarder	Nyayang Tap Koat	25-59Years	Female	Payam
47	Business	Trader	Bieth Chatem Dhadhor	60+Years	Male	Payam
48	Business	Trader	Wanbul Machit Chuol	25-59Years	Male	Payam
49	Business	Trader	Makal Kuol Nguondeng	60+Years	Male	Payam
50	Business	Tarder	Nyakoang Yar Jiey	25-59Years	Female	Payam
51	Business	Trader	Gatkuoth Matek Mutwang	25-59Years	Male	Payam
52	Religious	Catechist	Micheal Riak Chuol	25-59Years	Male	Boma/Block
53	Religious	Church committee	Peter Chiang Geng	25-59Years	Male	Boma/Block
54	Religious	Youth Representative	Teresa Nyagosa Golong	25-59Years	Female	Boma/Block
55	Religious	Catechist	William Riak Kuil	25-59Years	Male	Boma/Block
56	Community	Direct beneficiaries	Roda Nyakuek Ket	25-59Years	Female	Boma/Block
57	Community	Youth Representative	Samuel Bol Phan	25-59Years	Male	Boma/Block
58	Community	Direct beneficiaries	Veronica Nyagak Maliah	25-59Years	Female	Boma/Block
59	Community	Teacher	Khor Kueth Diu	25-59Years	Male	Boma/Block
60	Community	Teacher	John Kuaher Wan	25-59Years	Male	Boma/Block
61	Community	Teacher	Nyamalidi Bol Gatdet	25-59Years	Female	Boma/Block
62	Community	Teacher	Nyanaath Nger Ngai	25-59Years	Female	Boma/Block
63	Community	Teacher	Riek Gatluak Dech	25-59Years	Male	Boma/Block
64	Community	Teacher	Nelson Lunysow Thol	25-59Years	Male	Boma/Block
65	Community	Direct beneficiaries	Raan Kuany Panyum	25-59Years	Male	Boma/Block
66	Community	Direct beneficiaries	Tuach Chaan Ngoap	25-59Years	Male	Boma/Block
67	Community	Boma chief	Gatdiit Biel Juoy	60+Years	Male	Boma/Block
68	Community	Direct beneficiaries	Lat Giel Tier	25-59Years	Male	Boma/Block
69	Community	PWD village leader	Mayam Nger Chap	25-59Years	Male	Boma/Block
70	Community	Direct beneficiaries	Nyaluok Maluak Gok	25-59Years	Female	Boma/Block
71	Community	Direct beneficiaries	Giel Koryom Nyan	60+Years	Male	Boma/Block

72	Community	PWD Women Representative	Nyakuoth Ter Koryom	60+Years	Female	Boma/Block
73	Community	Direct beneficiaries	Ganun Machok Diu	25-59Years	Male	Boma/Block
74	Community	PWD Chairperson	John Ruot Lam	25-59Years	Male	Boma/Block
75	Health	PHCU Nurse	Peter Gatkouth Beliew	25-59Years	Male	Boma/Block
76	Health	Midwife	Nyawuora Gatkuoth Nyak	25-59Years	Female	Boma/Block
77	Community	Direct beneficiaries	Lok Dak Deng	25-59Years	Male	Boma/Block
78	Health	PHCU Cleaner	Nyeruob Mutlek	25-59Years	Female	Boma/Block
79	Community	Direct beneficiaries	Biel Kai Jal	25-59Years	Male	Boma/Block
80	Health	Healthcare worker	Sarah Nyalok Kuol	25-59Years	Female	Boma/Block
81	Community	Direct beneficiaries	Both Kuang Wel	60+Years	Male	Boma/Block
82	Community	Direct beneficiaries	Nyawal Noath Khan	25-59Years	Female	Boma/Block
83	Community	Women Representative	Nyakuoth Neur Lam	60+Years	Female	Boma/Block
84	Community	Direct beneficiaries	Nyabara Tutroal Thai	60+Years	Female	Boma/Block
85	Community	Direct beneficiaries	Abraham Tary Kai	25-59Years	Male	Boma/Block
86	Community	Direct beneficiaries	Simon Kol Chan	25-59Years	Male	Boma/Block
87	Community	Direct beneficiaries	Nyabula Both Lual	25-59Years	Female	Boma/Block
88	Community	Direct beneficiaries	Malual Chom Tery	60+Years	Male	Boma/Block
89	Community	Direct beneficiaries	Nyamuch Both Thor	25-59Years	Female	Boma/Block
90	Community	Direct beneficiaries	Nyadak Majok Malual	25-59Years	Female	Boma/Block
91	Community	Direct beneficiaries	Nyajal Bey Kang	25-59Years	Female	Boma/Block
92	Community	Direct beneficiaries	Philip Wal Gai	25-59Years	Male	Boma/Block
93	Health	County Health Director (CHD)	Joseph Gatkor Mayil	25-59Years	Male	County
94	Community	Direct beneficiaries	Tuach Kum Kuol	25-59Years	Male	Boma/Block
95	Community	Direct beneficiaries	Maliah Puol Mayok	25-59Years	Male	Boma/Block
96	Health	Midwife PHCC	Bekit Nuor Ruei	25-59Years	Male	County
97	Health	CHD Clerk	Muhammed Chan Mar	25-59Years	Male	County
98	Community	Direct beneficiaries	James Thayien Kaong	25-59Years	Male	Boma/Block

99	Health	CHD IPC WASH	Tor Lok	25-59Years	Male	County
100	Health	CHD Cleaner	Nyekuol Bilew	25-59Years	Female	County
101	Health	CHD Secretary General	Wat Gatnyai	25-59Years	Male	County
102	Health	CNV	Nyakume Wan Mut	25-59Years	Female	County
103	Community	Direct beneficiaries	Ben Ruop Liep	25-59Years	Male	Boma/Block
104	Community	Direct beneficiaries	Nyakama Kuok Bangoang	25-59Years	Female	Boma/Block
105	Health	Midwife/Nurse	Nyamana Biran	25-59Years	Female	County
106	PDRMC	PDRMC SG	Geaw Dude Gatdet	25-59Years	Male	Payam
107	PDRMC	PDRMC Member	Nyamuoch Ruai	25-59Years	Female	Payam
108	PDRMC	PDRMC Member	Nyekhor Nyieth	25-59Years	Female	Payam
109	PDRMC	PDRMC Member	Giel Gattiop Badeng	25-59Years	Male	Payam
110	PDRMC	PDRMC Member	Loang Gatluak	25-59Years	Male	Payam
111	PDC	PDC Chairperson	Nyebula Both Cheingjock	25-59Years	Female	Payam
112	PDC	PDC Member	Nyelekna Gatnyai Chap	25-59Years	Female	Payam
113	PDC	PDC Member	Nyachuida Kun Nhial	25-59Years	Female	Payam
114	PDC	PDC Member	Nyalir Garyang Mut	25-59Years	Female	Payam

115	PDC	PDC Member	Rebecca Nyachang Dhor	25-59Years	Female	Payam
116	PDC	PDC Member	Yang Luk Tatdel	25-59Years	Female	Payam

ANNEX 4: DETAILED ENGINEERING DRAWINGS

NB: ATTACHED SEPERATELY

- Stage 2 Dike Design
- Crossing Point
- Docking point
- Drainage designs
- Gravel roads

ANNEX 5: CHANCE FINDS PROCEDURE

This procedure was developed in accordance with the mandate of the Ministry of Youth, Culture and Sports (Directorate of Archives and Antiquities) of protecting and preserving both tangible and intangible cultural heritage records of South Sudan and the requirements of the World Bank's ESS 8 (To protect cultural heritage from the impacts of project activities and support its preservation, to address cultural heritage as an integral aspect of sustainable development, to promote meaningful consultation with stakeholders regarding cultural heritage and to promote the equitable sharing of benefits from the cultural heritage).

This procedure is included as a standard provision in the implementation of ECRP II Public Works contracts to ensure the protection of cultural heritage (Archaeological and Historical Sites). All Implementing Partners as well as sub-contractors and implementers will be required to observe this procedure as documented hereafter.

Excavation in sites of known archaeological interest will be avoided, including sites where ESS& would require FPIC due to impacts on cultural heritage. Where this is unavoidable, prior discussions must be held with the concerned officers from the Ministry of Youth, Culture & Sports in order to undertake pre-construction excavation or assign an archaeologist to log discoveries as construction proceeds. Where historical remains, antiquity or any other object of cultural or archaeological importance are unexpectedly discovered during construction in an area not previously known for its archaeological interest, the following procedures should be applied:

Stop construction activities.

- Delineate the discovered site area;
- Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a full-time guard should be present until the responsible authority takes over;
- Notify the responsible foreman/archaeologist, who in turn should notify the responsible authorities, the concerned officers from the Directorate of Archives and Antiquities and local authorities (within less than 24 hours);
- Responsible authorities are in charge of protecting and preserving the site before deciding on the proper procedures to be carried out;
- An evaluation of the finding will be performed by the concerned officers from the Ministry of Youth, Culture & Sports in the Directorate of Archives and Antiquities. The significance and importance of the findings will be assessed according to various criteria relevant to cultural heritage including aesthetic, historic, scientific or research, social and economic values;
- Decision on how to handle the finding will be reached based on the above assessment and could include changes in the project layout (in case of finding an irrevocable remain of cultural or archaeological importance), conservation, preservation, restoration or salvage;
- Implementation of the authority decision concerning the management of the finding;

- Construction work can resume only when permission is given from the concerned officers from the Ministry of Youth, Culture & Sports after the decision concerning the safeguard of the heritage is fully executed;
- In case of delay incurred in direct relation to archaeological findings not stipulated in the contract (and affecting the overall schedule of works), the contractor may apply for an extension of time. However, the contractor will not be entitled for any kind of compensation or claim other than what is directly related to the execution of the archaeological findings works and protections.

ANNEX 6: ES SCREENING REPORT

	Environmental and Social Screening Report - ECRP
Subprojects are screened for their inherent Environmental and Social risks regardless of planned mitigation and management measures. It is necessary to identify potential inherent risks if mitigation measures are not implemented or fail. This means that risks should be identified as if no mitigation or management measures were to be put in place.	
SECTION A: General Information	
Date of screening	01 January -28 February 2026
Subproject title	**Upgrading of Disaster Risk Management (DRM) Infrastructure in Rubkona County, South Sudan**
Subproject component	Component one (1)
Implementing Agency	IOM
Proposed subproject budget	Approximately USD 5.8
Proposed subproject duration	6 months
ES Screening Team Leader and Contact Details	GADA Brian Safeguarding Officer IOM Juba, South Sudan Email: - bgada@iom.int
ES Screening Team Members	YONGO Viola (National Project Officer – GBV) Peter Gatduel Goh (COA) Gai Turuk William (COA) Gatluak Kuon Bol Luak (COA) WODEBO Desta (DRM Engineer)
Payam/Boma/Subproject location	Rubkona Payam/Bentiu
Subproject Description. Describe subproject activities in detail showing activities that	**UPGRADING OF DRM INFRASTRUCTURE IN RUBKONA COUNTY, SOUTH SUDAN**

interact directly with the host biophysical, social, cultural environments. Attach drawings, maps and pictures were

The Government of South Sudan (GoSS) through the Ministry of Finance and Planning (MoFP) with funds received from the World Bank is currently implementing the ECRP II in 17 counties across the country.

Rubkona County in Unity State is one of the Counties that are targeted by the project. The county lies on the northern bank of the Naam river and connects with the State capital in Bentiu via the Peace Bridge. The existing DRM infrastructure in Rubkona County has been prioritized by the communities for upgrading.

The proposed sub-projects will focus on the upgrading of Immediate Flood Mitigation Measures for Rubkona County (*Upgrading & Drainage System Works in Rubkona County)*, rehabilitate of three main roads in Rubkona inside ECRP II reclaimed area and implementation of natural based solution. The proposed sub-projects in Rubkona County, Unity State lie at 399m above sea level (9°16'47.1"N and 29°46'41.9"E). Though Rubkona county comprises eight (8) payams, the sub-project will be targeting Rubkona and Panhiany Payams. Both Payams are secured with dikes constructed during previous floods (2022 and 2025) , the dikes were constructed under Enhancing Community resilience and local governance project II will be upgraded to according to detailed design (Stage 2 design) that was designed and developed under the ECRP II project. The table below shows the total dike network for the targeted areas:

ITEM	DIKE NAME	DIKE LENGTH, ROAD LENGTH	STATUS
1.	Bentiue (site-E) dyke upgrading based on detail design	17.7KM	IFMM dike (Stage 1 Dike) completed Dewatering will ongoing.
2.	Pakur dyke upgrading based on detail design	13.7 KM	IFMM dike (Stage 1 Dike) completed Dewatering completed
3.	Drainage system of Pakur	3KM	The existing drainage system require upgrading
4.	Upgrading of Road that connects Rubkona to Pakur.	3KM	The road was almost destroyed an in need of rehabilitation .
5.	Upgrade Bentiu-Kuach (until prison) raised road (site-E feeding road)	2.5KM	The road was almost destroyed an in need of rehabilitation .
6.	Road from Animal resource to Kuach road (site-E feeding road)	8.1KM	The road was almost destroyed an in need of rehabilitation.
7.	Pakur NBS[2] implementation	N/A	No natural based solution on th ground to provide and support th community members to find solutio by using the natural materials

[2] NBS- Nature Based Solution

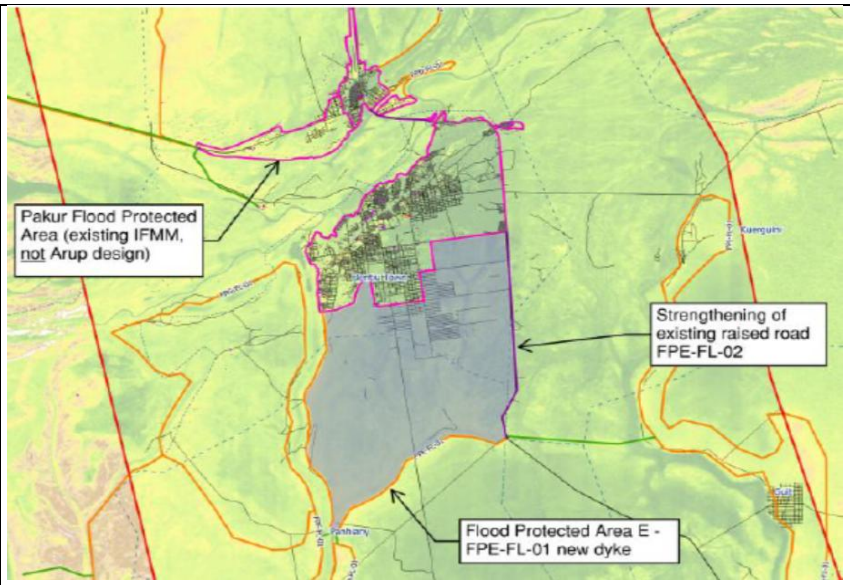


Figure 1: Map showing the alignment of the dikes.

Potential Environmental/Social Risks Impacts of Subprojects					
Risk Category *(Please check each line appropriately. At this stage, questions are answered without considering magnitude of impact – only yes, no or I don't know are applicable answers)*	Yes	No	Don't know	If these risks (yes') are present, refer to:	Comment
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts					
Is an Environmental and/or Social Assessment required?	☒	☐	☐	ESMF	All subprojects under ECRP II are subjected to ES screening to allow IOM to identify possible Environmental and Social risk in a bid to determine which environmental and social management tool to ensure sustainable project implementation.
Is there a risk of lack of monitoring of the subproject activities due to remoteness of location and insecurity?	☒	☐	☐	Safety and Security Management Plan (SSMP)	The proposed subproject is in an area prone to flooding. During the rainy season, access can be challenging because the area is prone to flooding. The soil type is largely in the group of expansive clays (black cotton soil) which are slippery when wet and this further exacerbates the access challenges. However due to the constructed IFMM dikes, access has improved
Is there a risk that the subproject benefits may not reach truly vulnerable populations?	☐	☒	☐	Stakeholder Engagement Plan (SEP)	The rehabilitation benefits will be realized by all the people in the targeted area.

Potential Environmental/Social Risks Impacts of Subprojects					
Risk Category *(Please check each line appropriately. At this stage, questions are answered without considering magnitude of impact – only yes, no or I don't know are applicable answers)*	Yes	No	Don't know	If these risks (yes') are present, refer to:	Comment
Is there a risk that the selection of any location/beneficiaries in the activity will lead to a conflict?	☐	☒	☐	Security Management Plan (SMP) Grievance Redress Mechanisms (GRM)	The targeted subproject will be focusing on rehabilitation works of already existing infrastructure. No reports of conflicts that emanated from the existing s were reported during the screening process. However, the safety and security situation in Unity state has been dynamic and the project will constantly monitor the situation from time to time.
Does the activity pose a security risk for local staff?	☐	☒	☐	Security Management Plan (SMP)	
Is there a risk that the subproject activity will further facilitate disputed authority structures or will cause an increase in local disputes?	☐	☒	☐	Stakeholder Engagement Plan (SEP)	
Is there any risk of the subproject activity to natural habitat, Nile Basin, or SUDD Wetland?	☒	☐	☐	ESMF	The proposed subproject will be implemented along an existing river acting as a barrier to water from the River Naam and associated wetlands. While this is a brown field subject, precautions should be taken to ensure there is no contamination and/or pollution of the water. Furthermore, due care should be taken to

Potential Environmental/Social Risks Impacts of Subprojects					
Risk Category *(Please check each line appropriately. At this stage, questions are answered without considering magnitude of impact – only yes, no or I don't know are applicable answers)*	Yes	No	Don't know	If these risks (yes') are present, refer to:	Comment
					ensure that there will not be any disturbances to the riverine ecosystem.
ESS 2: Labour and Working Conditions					
Does any subproject activity include risk of child and forced labor use?	☐	☒	☐	Labor Management Procedures (LMP)	The work to be undertaken will be largely conducted by qualified trained machine operators. Thus, the risk of Child labor and forced labor is greatly reduced. The project will ensure that all recruitments are done following the LMP provisions. Formal proof of identification shall be used as the primary tool to ascertain the age of the workers
Does the subproject include a construction component?	☒	☐	☐	Labor Management Procedures (LMP) Following documents yet to be prepared: C-ESMP Occupational Health and Safety Plan	The scope of work will include: ● Site clearance ● Excavation and digging ● Compaction of materials ● Transportation of materials The use of Heavy machines, movement of trucks presents significant OHS risks. Such plant equipment uses significant amounts of

				(OHS)	fuel and other lubricants which presents risks when handling, storing, managing and using such hazardous substances. There will be a risk of spillage and accidental exposure.
Does the subproject include labor-intensive activities?	☐	☒	☐	Labor Management Procedures (LMP)	
Does the subproject include or influence primary agricultural activities?	☐	☒	☐	Labor Management Procedures (LMP) Occupational Health and Safety Plan (OHS)	
Will the subproject require a larger contractor workforce?	☐	☒	☐	Labor Management Procedures (LMP) Following documents yet to be prepared: Occupational Health and Safety Plan (OHS), C-ESMP	The subproject will include the use of heavy machinery and plant equipment with a minimal workforce.

Is there a security risk for subproject Workers?	☐	☒	☐	Security Management Plan (SMP)	
Is there a risk that the subproject may cause OHS[1] issues?	☒	☐	☐	Occupational Health and Safety management Plan (OHS)	The sub-project activities will include the following key aspects: ● Dust during excavation of materials and movement of heavy machinery. ● Noise from the movement of heavy machinery. ● Use of hazardous substances such as diesel and other lubricants. ● Moving parts and machines ● Slips, Trips and Falls from steep sides of the s ● Work Ergonomics issues and associated occupational hazards e.g. heat stress ● Inadequate supply of safe drinking water in the area. ● Inadequate ablution facilities in the area.
Is there a risk of labor induced in migration?	☐	☒	☐	Labor Management Procedures (LMP)	

Is there a risk of lacking adequate OHS management provisions for workers at the construction site?	☐	☒	☐	Occupational Health and Safety management Plan (OHS) Pest Management Plan (PMP) (yet to be prepared)	
Is there a risk of delayed payment of workers?	☒	☐	☐	Labor Management Procedures (LMP	Contractors may not pay workers.
Is there a risk that workers are underpaid?	☒	☐	☐	Labor Management Procedures (LMP)	Contractors may not follow LMP Plan
Is there a risk that women will not be employed?	☒	☐	☐	Labor Management Procedures (LMP) GBV Action Plan	The operation of plant equipment in South Sudan is largely dominated by males.
Is there a risk that provision of contracts causes conflicts?	☐	☒	☐	Security Management Plan (SMP) Grievance Redress Mechanisms (GRM)	

ESS 3: Resource Efficiency and Pollution Prevention Management					
Will the subproject result in the production of solid waste? (Directly by the subproject or by workforce)	☒	☐	☐	Following documents yet to be prepared:	Solid waste will be produced by the project workers as they work in the area.

Will the subproject result in the production of toxic or hazardous waste? (e.g., used oils, inflammable products, pesticides, solvents, pharmaceutics, industrial chemicals, ozone depleting substances)	☒	☐	☐	Waste Management Plan, based on *WBG Environmental, Health, and Safety General Guidelines* Pest Management Plan (PMP), C-ESMP	Waste oils and lubricants may be generated from plant equipment.
Will the subproject result in the generation of dust and noise?	☒	☐	☐	Following documents yet to be prepared: C-ESMP	Noise from operation and movement of plant equipment and trucks bringing materials to site. Dust produced from material mixing, excavation works and movement of trucks bringing materials to site
Is the project likely to cause soil erosion, siltation or degradation?	☒	☐	☐	Following documents yet to be prepared: C-ESMP	Soil erosion is possible especially soon after the excavation of soil. Excavation loosens the soil which makes it prone to erosion. Critical areas shall be addressed accordingly using specific nature-based interventions.
Will the subproject produce effluents (wastewater)?	☐	☒	☐	Following documents yet to be prepared: C-ESMP, Waste Management Plan	

Will the subproject result in increased levels of vibration from construction machinery?	☒	☐	☐	Following documents yet to be prepared: C-ESMP	The use of heavy plant machinery will present localized elevated vibrations.
Will the subproject produce air pollution? (e.g. significant greenhouse gas emissions, dust emissions and other sources)	☒	☐	☐	Following documents yet to be prepared: C-ESMP	Air pollutants will be released from various sub project activities which include: ● Excavation of materials will result in the generation of dust particles including Particulate Matter (PM_{10}, $PM_{2.5}$) ● Trucks and plant equipment to be used will generate dust, exhaust gases and fumes.
Will the subproject disturb any fauna and flora?	☐	☒	☐	Following documents yet to be prepared: C-ESMP	
Will the subproject result in polluted irrigation water	☐	☒	☐		
Will the subproject affect the surface or groundwater in quantity or quality? (e.g., discharges, leaking, leaching, boreholes, etc.)	☐	☒	☐	Following documents yet to be prepared: C-ESMP Waste Management Plan	
Will the subproject require use of chemicals? (e.g. fertilizer, pesticides, paints, etc.)	☒	☐	☐		

Is there any risk of accidental spill or leakage of material?	☒	☐	☐		Fuel that may be stored on site for plant equipment may accidentally spill.
Will the project require (during execution or after completion) significant amounts of water, energy, materials or other natural resources?	☒	☐	☐	ESMF	Water is required for control of dust and compacting soil.
ESS 4: Community Health and Safety					
Is there any risk of increased GBV/SEA cases due to labor influx?	☒	☐	☐	GBV/SEA Action Plan Labor Management Procedures (LMP	An increase in GBV may be possible as women gain income and are no longer willing to do their gender duties as outlined by the community. GBV might arise from women coming home late after work.
Is there any risk of spread of communal diseases due to labor influx?	☐	☒	☐	Labor Management Procedures (LMP). C-ESMP	
Is there a security risk to the community triggered by subproject activities?	☐	☒	☐	Security Management Plan (SMP)	
Does the subproject have the potential to upset community social dynamics?	☒	☐	☐	Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM)	Female workers may delay at construction that might cause GBV against her by the husband

Will the subproject include payments or cash transfers among the community/workers?	☐	☒	☐	Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM)	
Will the subproject expose community members to physical hazards on the subproject site?	☒	☐	☐	Following documents yet to be prepared: C-ESMP	Excavations pose safety risks to the community as injuries of both people and livestock can occur. Fall protection barriers, Hazard tapes and informing the community about the excavations must be used in a timely manner.
Will the subproject pose traffic and road safety hazards to the people?		☐	☐	Following documents yet to be prepared: C-ESMP	Movement of trucks and plant equipment poses great risk to communities and nearby camps

Is there a possibility that the subproject activities contaminate drinking water sources i.e. open wells?	☐	☒	☐	Following documents yet to be prepared: Waste Management Plan; C-ESMP	
Is there a possibility that the subproject activities cause spread of pathogens and other pollutants (e.g. latrines)	☐	☒	☐	Following documents yet to be prepared: Waste Management	

				Plan; C-ESMP	
Will the subproject contribute to the spread of disease (eg health facilities)?	☐	☒	☐	Following documents yet to be prepared: Waste Management Plan	
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement					
Will the subproject lead to physical displacement (relocation, loss of residential land, or loss of shelter)	☐	☒	☐	See negative list	
Is the subproject located in a conflict area, or has the potential of social problems which may cause social conflicts, for instance, land tenure and access to resources issues (e.g. a new road providing unequal access to a disputed land)?	☐	☒	☐	Stakeholder Engagement Plan (SEP)	
				Grievance Redress Mechanisms (GRM)	
Would the subproject potentially discriminate women and girls have based on their gender vulnerability, especially their participation in subproject implementation and/or access to the opportunities and benefits of subproject?	☐	☒	☐	Stakeholder Engagement Plan (SEP) Grievance Redress	

				Mechanisms (GRM)	
Is there a risk that the associated subproject activities lead to economic displacement (loss of land, assets, or access to assets leading to loss of income sources or other means of livelihood) to any of the stakeholder?	☐	☒	☐	See negative list	
Will the subproject lead to disputes over land ownership?	☐	☒	☐	ESMF	
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources					
Will the subproject affect sensitive areas such as habitats and wetland areas?	☒	☐	☐	ESMF	The subproject is implemented in areas in proximity with wetlands. The project area is affected by floods from the nearby river Naam and other water bodies. The s protecting the Water Treatment Facility (WTF) are within 10m or less from the Naam Riverbank. Any work that may be proposed should be done under strict supervision and monitoring to ensure protection of the environment, prevention of pollution and land degradation.
Is there a risk that the subproject causes ecological disturbances?	☐	☒	☐	ESMF	

Is there a risk that the subproject causes changes in landform and habitat, habitat fragmentation, blockage or migration routes, water consumption and contamination?	☐	☒	☐	ESMF	
Is there a risk that the subproject causes loss of precious ecological assets?	☐	☒	☐	ESMF	
Does the project involve harvesting or depletion of natural resources (e.g. forest, fisheries, etc.)?	☐	☒	☐	ESMF	
Can the project cause disruption of wildlife migratory routes?	☐	☒	☐	ESMF	
Can the project introduce alien species or GMOs?	☐	☒	☐	ESMF	
Can the project impact ecosystems upon which communities rely for food, water, fibers or other basic needs, including cultural and spiritual needs?	☐	☒	☐	ESMF	
Is the project likely to cause soil erosion, siltation or degradation?	☒	☐	☐	ESMF	Soil erosion is possible in areas where excavation will be taking place since soil disturbance loosens the soil making it vulnerable to erosion.
Is the project located directly on river embankments?	☐	☒	☐	ESMF	
Will construction, operation or decommissioning of the project involve physical changes, such as topography or land use (e.g. construction camps, housing, etc.)?	☐	☒	☐	ESMF	
ESS 8: Cultural Heritage					
Will the subproject be in or close to a site of cultural value, any archaeological or naturally important?	☐	☒	☐	Chance Find Procedures (ESMF)	The proposed sub-project area is not known for cultural or natural remains. A Chance Finds Procedure will be implemented during excavations.

Is the subproject site known to have the potential for cultural and natural heritage remains?	☐	☒	☐		
Will the subproject adversely impact the intangible cultural heritage. This includes practices, representations, expressions, knowledge, and skills including, objects, artifacts, and cultural spaces	☐	☒	☐		
Is there a risk that the subproject will have negative impacts on movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance.	☐	☒	☐		
ESS 10: Stakeholder Engagement and Information Disclosure					
Is there a risk that the subproject fails to incorporate measures to allow meaningful, effective and informed consultation of stakeholders, such as community engagement activities?	☐	☒	☐	Stakeholder Engagement Plan (SEP)	
Is there a historical exclusion of disabled persons in the area?	☐	☒	☐	Stakeholder Engagement Plan (SEP)	
Are women likely to participate in decision-making processes regarding the subproject?	☒	☐	☐	Stakeholder Engagement Plan (SEP)	Women are part of the BDCs. The BDCs form part of the key decision-making administrative structures in the area in terms of the Local Governance Act.

Is there a risk that exclusion of beneficiaries leads to grievances?	☒	☐	☐	Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM) – see ESMF	When beneficiaries are excluded, they may raise concerns and issues.
Is there a risk that the subproject component will have poor access to beneficiaries?	☐	☒	☐	Stakeholder Engagement Plan (SEP) Grievance Redress Mechanisms (GRM) – see ESMF	
s there a risk that the subproject activities will not provide affected parties with accessible and inclusive means to raise issues and grievances, including provision to respond and to manage such grievances.	☐	☒	☐	Stakeholder Engagement Plan (SEP) Grievance redress Mechanism (GRM)	
Is there a risk that appropriate project information on environmental and social risks and impacts will not be disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format	☐	☒	☐	Stakeholder Engagement Plan (SEP)	

				Grievance redress Mechanism (GRM)	

SECTION B: SUMMARY OF THE SCREENING PROCESS

E&S SCREENING	RESULTS AND RECOMMENDATION			
Screening Results: Summary of Critical Risks and Impacts Identified	Risk/Impact	Individual Risk	Impact Rating	Mitigation
	Occupational Health and safety	medium	medium	IOM to have an occupational, health and safety management in place. Dust protection masks for concrete batching teams and all necessary appropriate PPE shall be provided for working teams. Development and implementation of HIV /AIDS, Gender/GBV, PSEA/H awareness programmes for workforce and community. Ensure provision of potable water and ablution facilities for workers
	Gender mainstreaming	Medium	High	Gender mainstreaming during recruitment and allocation of work packages
	Uncovered borrow pit areas	Medium	High	The borrow pit shall be fenced and labelled. Systematic abstraction of soil shall be done according to an agreed plan. Backfilling shall be done prior to decommissioning the borrow pits.
	Recurrent natural disasters	Medium	Medium	Design and construction of robust and resilient dike structures which can withstand anticipated floods.

E&S SCREENING	RESULTS AND RECOMMENDATION			
	Social Conflict	medium	high	Inclusive planning of labour-based works with specific gender inclusion strategies. Stakeholder engagement in planning.
	Dust Pollution	Low	Low	Provision of appropriate safety clothing for workforce including dust masks, a watering down schedule will also be provided
	Solid Waste	Medium	Medium	Availing bins for refuse segregation and collection
	Sustainability	Medium	Medium	Involve the beneficiaries and community leadership in all project related work. Support capacity building on dike infrastructure management. Establish and train the PDRMCs, & CDRMCs
	Screening Result (see Table 7: Sub-projects Risk Level for further details)			**Summary of Screening Result Justification**
	No further ES Assessment required.			
	No further ES Assessment required but requires simple ESMP.			
	Detailed ESMP and/or RAP or VLD. Done internally.			ES Screening results revealed that most of the impacts are moderate but require mitigation measures to ensure that the potential impacts are minimised. A detailed ESMP will be drafted and implementation of the ESMP should be done religiously for compliance to the applicable project standards, national laws and regulations.
	Detailed ESMP and/or RAP. Contracted to Consultancy.			

E&S SCREENING	RESULTS AND RECOMMENDATION	
	ESIA and/ or RAP required. Contracted to consultancy.	
Is Additional Assessment Necessary?	Yes	No

ES Screening Conducted by

ES Screening Team Leader and Contact Details	GADA Brian – Environmental and Social Specialist
ES Screening Team Members	YONGO Viola (National Project Officer – GBV) Peter Gatduel Goh (COA) Gai Turuk William (COA) Gatluak Kuon Bol Luak (COA) WODEBO Desta (DRM Engineer)

Recommended by Project Manager: BARTOLONI Alexander: - Project Manager

Approved by PMU:

ANNEX 7: REPORT FORMAT

Summary of Key E&S Aspects during the Reporting Period

Project Status, E&S Incidents, E&S Changes, E&S Initiatives

Project Status

- Provide a brief description of any new developments in relation to operations and facilities over the reporting period.

E&S Incidents

- Please provide a summary of all the notifiable E&S incidents.

Please expand or collapse the table where needed.

Date	Incident description	Class	Reports sent to lenders	Corrective action / remedial plan	Status of Corrective Action

E&S Changes

- Please provide a summary of all the notifiable E&S changes.

- Please expand or collapse the table where needed.

Date	Change description	Reports sent to lenders	Implementation status

Improvements/initiatives regarding E&S performance

- Briefly describe improvements/initiatives implemented during the reporting period on the management of E&S aspects (e.g. energy/water savings, sustainability reports, waste minimization, etc.)

ESS1: Assessment and Management of Environmental and Social Risks and Impacts

E&S Impact / Risk Assessment

- Have any supplemental environmental, social, health and safety impact/risk studies been conducted during the reporting period? (Please provide copies).

E&S Regulatory Reporting, Permits and Supervision

- Please list any environmental reports submitted to the South Sudan authorities.

☐ Copies attached with this report ☐ Copies available upon request

- Please summarize South Sudan authority monitoring and inspections.

Management of contractor (IOM and others)

- Please illustrate with a chart or table on contractor's organizational structure to manage environment, health and safety, labor and social aspects during the reporting period. Please name the individuals in contractor who hold responsibility for environmental, social, health and safety, human resources, security performance and give their contact information.

Compliance with Environmental and Social Management Plans

- The status of the ESMP implementation should be described and any issues that remain outstanding should be detailed.

ESS2. Labor and Working Conditions

Human Resources Management

- Have IOM and other contractors changed/updated their Human Resource (HR) policy and procedures, HR manual, and Health & Safety (H&S) procedures, during the reporting period?

☐ Yes ☐ No

If yes, please provide details.

- Provide the following information regarding the workforce:

Previous year					
Reporting year					

- List the worker-related court cases and describe their status.

Occupational Health and Safety

- Describe the main changes implemented in terms of Occupational Health and Safety (OHS) during the reporting period, e.g. revision of the OHS management procedures, action plans for technical improvements, leading/lagging indicators used/introduced, identification of hazards, new controls, etc.

- Please attach Health & Safety audit reports available for the reporting period.

☐ Copies attached with this report ☐ Copies available upon request ☐ Not Available

Accident Statistics Monitoring

Report total numbers for each parameter	This reporting period			Last reporting period (not cumulative		
	Community workers	Direct workers	Contracted workers	Community workers	Direct workers	Contracted workers
Total number of workers						
Total manhours worked annual						
Total number of lost time occupational injuries						
Total number of lost workdays due to injuries						
Lost time injury frequency						

Vehicle collisions						

- Provide details for the non-fatal lost time injuries during this reporting period.

- Provide details for fatal accidents during this reporting period, if any, (and provide copies of accident investigation and respective corrective plan).

OHS Training

- Describe Health and Safety training programs carried out in the reporting period.

Workplace Monitoring

- Please provide a copy of any Workplace Monitoring reports developed for the reporting period.

ESS3. Resource Efficiency and Pollution Prevention

Environmental Monitoring

- Provide a copy of environmental monitoring data reports for this reporting period, collected consistent with the ESMPs for the subprojects.

- Briefly describe environmental mitigation measures implemented during the reporting period to comply with E&S requirements.

Resources Efficiency: Energy and Water

- Provide data on energy and water consumption during the reporting period. If the data requested are available in another format, they can be submitted instead.

- Describe the concessionaires' resources efficiency measures/efforts being implemented to minimize fuel, energy, and water consumption.

Hazardous and non-Hazardous Waste

-Provide detailed information of the generated amount of hazardous and non-hazardous waste and its disposal system.

- Erosion Control, Slope Stability and Reinstatement.

- Please describe status and actions implemented in terms of erosion control, slope stability, and reinstatement within the project's footprint and area of influence.

ESS4 Community Health, Safety and Security

Community Health and Safety

- Please list and describe any initiatives implemented in relation to community health and safety during the reporting period.

- Please provide the list and description of the actions, the expected or actual dates of implementation, progress/status, results obtained. You can use a tabular format (as below) or provide the information as an attachment of the report.

- During the reporting period, have any emergency drills been conducted with participation of the local authorities, public emergency organizations or local communities? Are the communities aware of the emergency response plans?

Accident Reporting

- Provide details for the non-fatal casualties, involving third parties, during this reporting period.

Date of Accident	Type of Accident	Description of Accident	# of People Injured	Preventive measures taken after the incident

- Provide details for fatal accidents during this reporting period (and provide copies of accident investigation and respective corrective plan).

Date of Accident	Type of Accident	Description of Accident	# of fatalities	Preventive measures taken after the incident

GBV/SEA and Child Protection Action Plan

- Please provide an update on the status and progress of the actions as defined in the GBV/SEA Action Plan.

You may attach relevant monitoring reports.

ESS5 Land Acquisition and Involuntary Resettlement

- Report any activities guided by the Resettlement plan

- Have any specific instruments in regards to land and resettlement been prepared in the reporting period

- Report on the implementation of specific land-related instruments (e.g. RAPs)

- Report any activities that are using voluntary land donations and assess compliance with the protocol

- Provide summary of voluntary land donations

ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources

Biodiversity Management

- Please report on the mitigation measures included in the ESMF and ESMPs.

- As needed, using the table below describe any new activities or expansions that have increased the project footprint into new areas of habitat during the reporting period.

ESS7 IP/SAHUTLUC

- List any information dissemination and consultation events vis-à-vis land donors that have been undertaken to fulfil free, prior and informed consent (FPIC) in land donations.

- List any cultural issues identified in subprojects, corrective actions, and lessons learned for future projects.

ESS8 Cultural Heritage

- Report if chance find procedures have been applied if not, please indicate Not Relevant.

ESS 10 Stakeholder Engagement and Information Disclosure

Stakeholder Engagement, Public Consultation and Disclosure

- List any stakeholder engagement events, including public hearing, consultation and disclosure, liaison with non-governmental organizations, civil society, local communities on E&S.

Date	Participant(s)	Formats of Interaction	Issues Discussed	Contractor response/ Agreement reached (attach minutes if any)	Actions Taken (if any)/ Remarks

Grievance Mechanism and Court Cases

- Report the number and type of requests and/or grievances received from project affected people / local communities / local organizations.

- How many have been resolved and how many are pending? (Please attach a log of the grievance redress registry.

Report the number and type of court cases on E&S grounds, if any (Please attach a log of all court cases and their status)

ANNEX 8: GRIEVANCE REPORT FORM

Reference No: _____

Details of Complainant:

Full name: _____

❑ I wish to raise my grievance anonymously

❑ I request not to disclose my identity without my consent Contact

_____

❑ **By Mail:** Please provide mailing address:

_____

Gender of Complainant:

Age of Complainant:

❑ By Telephone: _____

❑ By Email _____

Preferred Communication: ❑, ❑, ❑ English

❑ One time incident/grievance Date ____/_____/

❑ Happened more than once (how many times) _____

❑ On-going (currently experiencing problem)

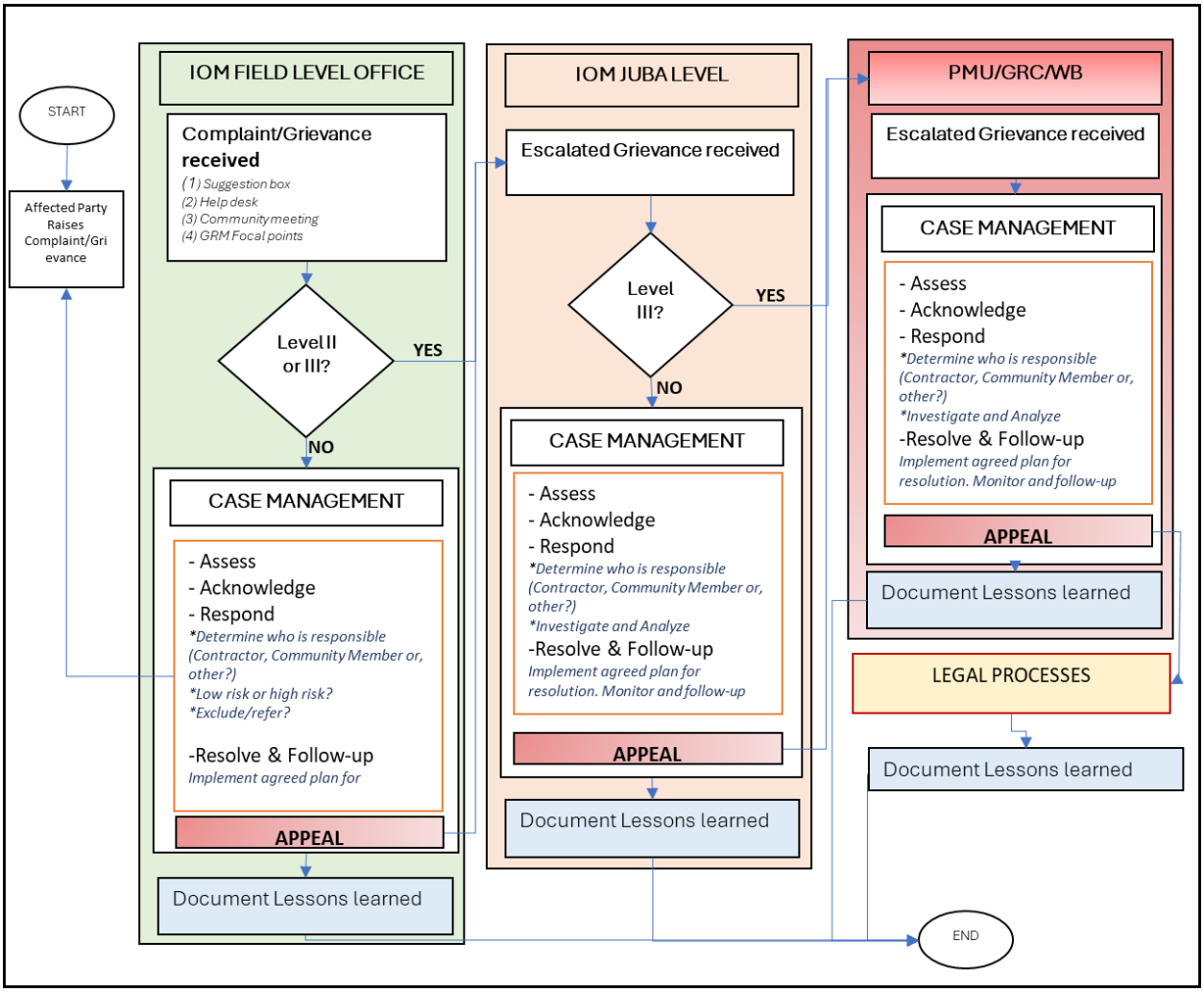
Description of Incident or Grievance:

Location of grievance:

What happened? Where did it happen? Who did it happen to? What is the result of the problem?

What would you like to see happen to resolve the problem?

ANNEX 9: GRIEVANCE CASE MANAGEMENT



ANNEX 10: LAND ACQUISITION DOCUMENTS

ATTACHED SEPARATELY

-WAYLEAVE FORMS

-LAND USE FORMS

ANNEX 11 STAKEHOLDER CONSULTATION FORMS

ATTACHED SEPARATELY

ANNEX 12: BORROW PIT MANAGEMENT PLAN (BPMP)

INTRODUCTION

Borrow pits serve as temporary extraction sites for soil, gravel, and aggregates essential to infrastructure delivery. However, decades of global practice consistently show that poorly planned or abandoned borrow pits contribute to slope instability, loss of life, land degradation, and contamination of water resources (e.g., Nwachukwu 2017; World Bank 2018). Studies identify risks such as frequent sliding, ecosystem service loss, groundwater pollution, and increased vector breeding when pits remain unrehabilitated. Soil erosion is further accelerated by excavation activities, particularly in landscapes facing unsustainable land use practices or climatic stressors, with FAO identifying erosion as one of the greatest global soil threats (FAO 2020).

Under ECRP II, this Borrow Pit Management Plan (BPMP) provides a comprehensive, evidence-based framework to ensure environmentally responsible excavation, rehabilitation, and safe integration of borrow pits into surrounding landscapes.

OBJECTIVES

The BPMP aims to:

a) Ensure environmentally sound sourcing of construction materials.
b) Reduce soil erosion, sedimentation, and hydrological disruption.
c) Safeguard community health and safety from pit-related hazards.
d) Prevent vector breeding in abandoned pits.
e) Support progressive rehabilitation using ecological best practice.
f) Align with World Bank ESF requirements (ESS1, ESS3, ESS4, ESS6).

SITE SELECTION & PLANNING

Principles for Borrow Pit Siting

International guidance stresses that improper site selection is a major contributor to long-term safety and environmental impacts (Csiap 2018). In view of this, ECRP II shall carefully consider the selection of the borrow pit sites guided by this BPMP. Moreover, consistent with FAO

recommendations , ECRP II shall avoid areas with high erosion sensitivity, wetlands, or hydrologically important zones to prevent degradation and water quality decline (FAO 2020).

Required Baseline considerations

PARAMETER	METHODOLOGY	EVIDENCE BASIS
Soil classification	Geotechnical sampling	Soil instability → excavation collapse risk (OSHA 2015; CDC 2026)
Hydrology & topography	GPS, DEMs	Protects drainage and reduces erosion impacts (FAO 2020)
Vegetation & biodiversity	Ecological survey	Topsoil & seed banks critical for natural regeneration (DBCA 2020)
Social context	Community assessment	Prevents exposure of vulnerable groups to hazards (GR4W 2021)

OPERATIONAL MANAGEMENT

Excavation Controls

For all ECRP II borrow pits, excavation shall follow engineering controls such as sloping and benching. Excavation literature shows that vertical faces and unsupported soils significantly increase collapse risks (Wahocho 2026). Progressive extraction is preferred, minimizing open exposed areas (OSSGA 2026).

Topsoil Conservation

The contractors shall ensure that topsoil must be removed, stockpiled, and protected. Research by the Department of Biodiversity Conservation and Attractions shows that natural regeneration depends heavily on topsoil preservation, even in degraded landscapes (DBCA 2020). Thus keeping the topsoil will provide a good platform for the decommissioning and final management of the borrow pits.

Health & Safety Requirements

Studies highlight that borrow pits without fences or signage pose significant risks of drowning, falls, and animal entrapment. Fencing and controlled access drastically reduce these risks (GR4W 2021). Thus All borrow pits under ECRP II shall be fences to ensure that they are protected.

Minimum safety measures that shall apply to all ECRP II borrow pits are as follows:

a) Perimeter fencing
b) Local-language hazard signage
c) Barricaded steep edges
d) Supervised entry
e) UXO-safe excavation procedures (where relevant)

ENVIRONMENTAL MANAGEMENT

Soil Erosion Control

FAO classifies soil erosion as the leading global soil degradation driver, intensified by construction and excavation activities (FAO 2020). ECRP II shall apply the following mitigation measures:

a) Diversion drains
b) Contour banks
c) Rapid vegetation cover
d) Silt traps downstream

Pollution Prevention

Groundwater contamination is frequently observed in abandoned borrow pits due to seepage and unregulated dumping (Nwachukwu 2017). ECRP II shall take the following measures:

a) Banning on-site maintenance and re-fuelling
b) Spill response readiness
c) Proper waste segregation and transport

REHABILITATION AND CLOSURE

Possible progressive rehabilitation

All ECRP II borrow pits that shall be subject to rehabilitation, the contractors shall ensure that rehabilitation should occur throughout the pit's operational life, not after abandonment.

Aggregate industry guidelines highlight improved safety, reduced costs, and better ecological outcomes when progressive methods are used (OSSCA 2026).

Required Rehabilitation Actions

Step	Action	Evidence Basis
Backfilling	Stabilize to prevent hazardous voids	Csiap (2018) highlights risks of unfilled pits
Regrading & contouring	Slope ≤1:3	Geomatics-based models stress slope stability (Nourddine 2025)
Topsoil reinstatement	Spread 20–30 cm layer	High success rate for vegetative regeneration (DBCA 2020)
Revegetation	Native species only	Supports biodiversity & long-term stability (GCCA 2020)
Drainage restoration	Prevent stagnant water	Reduces mosquito breeding (GR4W 2021)

ALTERNATIVE END USES

ECRP II Borrow pits may be converted to ponds, wetlands, or community aquaculture systems following properly planned and engineered approaches. However, such transitions require long-term ownership and site-specific safety measures (GR4W 2021) thus ECRP II shall ensure close coordination with local communities when borrow-pits are to be converted in this manner. Given the context of South Sudan, the conversion of a borrow pit into a temporary water-storage pond can provide short-term community benefits—such as emergency water supply, livestock watering, or drought buffering—provided the process is engineered, ecologically safe, and socially supported. Global guidance on borrow-pit safety, hydrological management, and pit-to-pond conversion highlights several critical steps for ensuring that such ponds remain safe, functional, and environmentally sustainable (Green Roads for Water 2021; Csiap 2018).

Site Stabilization and Earthworks

ECRP II shall ensure that before storing water, the pit must be reshaped and stabilized. Research shows that poorly graded pits lead to unstable slopes, erosion, and contamination risks (Csiap 2018; FAO 2020). Essential stabilization measures include:

a) Regrading internal slopes to ≤1:3 to prevent collapse and allow safe access for water users.
b) Compacting the pit floor to reduce seepage and improve water retention.
c) Installing perimeter berms to prevent inflow of contaminated runoff.
d) Constructing controlled inlet channels to capture rainwater or floodwater without causing erosion.

Water Quality Protection and Contamination Control

Open water stored in pits is vulnerable to pollution and disease vectors. Studies warn that unmanaged borrow-pit ponds often become mosquito-breeding and contamination hotspots (Green Roads for Water 2021; Nwachukwu 2017).

Mitigation actions include:

- Separating livestock watering points from human-use zones using fencing or designated access ramps.
- Vegetation management around pond margins to remove small water-filled depressions that support mosquito larvae.
- Encouraging water movement, where feasible, as stagnant water increases vector risk.
- Optional biological control using larvae-eating fish such as *Tilapia*, documented to reduce mosquito larvae by >90% (Green Roads for Water 2021).

Safety Measures for Community Protection

Converted pits remain hazardous without proper safeguards. Evidence shows children and animals are most at risk of falling into open pits with deep water (Green Roads for Water 2021).

Minimum safety measures:

a) Perimeter fencing using natural materials or posts and rails.
b) Warning signage in local languages around the pond perimeter.
c) Gentle access ramps for supervised water collection.

d) Prohibition of steep, vertical banks that increase drowning risk.
e) Regular inspections to detect erosion, slope failure, or unsafe conditions.

Hydrological Management

Temporary water-storage ponds must be hydrologically controlled to avoid overflow, erosion, and downstream damage. FAO research emphasises proper drainage and erosion-control structures for all landscape-water interactions (FAO 2020).

Key actions:

a) Spillway construction to manage overflow safely.
b) Sediment traps to prevent silt accumulation reducing storage capacity.
c) Controlled draw-down systems (e.g., simple outlet pipes or channels).
d) Seasonal monitoring to assess evaporation, seepage, and water quality.

Ecological and Social Integration

Well-designed borrow-pit ponds can serve short-term community needs while supporting landscape functions.

- Native vegetation planting around the pond helps stabilize soils and enhance biodiversity (DBCA 2020).
- Community management committees may be established to ensure shared responsibility and prevent misuse.
- Clear definition of allowed uses (e.g., livestock watering, small-scale aquaculture, emergency domestic supply).

International experience shows that ponds remain safe and productive only when governance arrangements are sustained and roles clearly assigned (Green Roads for Water 2021).

Decommissioning After Use

Since water storage is temporary, long-term plans must be established:

a) Backfilling or reshaping once the pond is no longer required.
b) Restoring natural drainage paths.
c) Revegetating the entire footprint with native species.
d) Monitoring for at least 12–24 months to confirm the site is stable (Nwachukwu 2017).

MONITORING & REPORTING

Minimum monitoring period: 24 months post-closure, due to delayed erosion and instability risks documented in reclamation studies (Nwachukwu 2017).

Key indicators:

- Vegetation ≥70% cover
- No erosion gullies
- Stable slopes (no slumping)
- No stagnant water
- No community grievances
- Biodiversity presence documented

COMPLIANCE MATRIX (BPMP vs Global Standards)

REQUIREMENT	ESS1	ESS3	ESS4	ESS6	BEST PRACTICE EVIDENCE
Site selection	✓	✓	✓	✓	FAO soil/erosion guidance
Baseline studies	✓	✓	✓	✓	OSHA/CDC excavation safety
Community safety	✓	—	✓	—	Borrow pit safety research
Erosion control	✓	✓	✓	✓	FAO + DBCA guidance
Progressive rehab	✓	✓	✓	✓	Quarry rehabilitation science
Biodiversity restoration	—	—	—	✓	GCCA biodiversity standards

ANNEX 13: TRAFFIC MANAGEMENT PLAN (TMP)

INTRODUCTION

Construction activities, including borrow-pit operations and material haulage, substantially increase traffic movement, interaction between heavy vehicles and pedestrians, and safety risks on public and community roads. Transport-related incidents are internationally recognized as one of the leading causes of construction-site fatalities and serious injuries if not properly managed (SafetyWise, 2025; Safety Notes, 2026).

This Traffic Management Plan (TMP) provides a structured framework to identify, prevent, and control traffic-related risks arising from construction activities while ensuring full compliance with South Sudan traffic legislation and international best practice for work-zone traffic management.

This TMP applies to:

- Borrow pit access roads and haul routes
- Internal construction site traffic
- Interfaces with public roads, footpaths, and community tracks
- Loading, unloading, and material stockpile areas

LEGAL AND REGULATORY FRAMEWORK (SOUTH SUDAN)

South Sudan Traffic Act, 2003

The Traffic Act, 2003 is the primary legal instrument governing road use in South Sudan. It defines drivers, commercial vehicles, heavy vehicles, livestock on roads, and sets obligations for licensing, vehicle inspection, obedience to traffic signs, speed control, and enforcement powers of the Traffic Police.

Southern Sudan Roads Authority Act, 2011

This Act establishes the South Sudan Roads Authority (SSRA), assigns responsibility for road classification, construction oversight, hazard elimination, and requires approval and coordination for works affecting inter-state, feeder, and public roads.

National Motor Vehicle Rules

Nationally applied traffic rules include:

a) Mandatory vehicle registration and licence plates

b) Mandatory valid driving licences
c) Speed limits of 50 km/h (urban), 80 km/h (rural), and 100 km/h (highways)
d) Mandatory seatbelt use
e) Prohibition of mobile phone use while driving (except hands-free)
f) Legal blood-alcohol limit of 0.08% BAC

Parliamentary Clarification on Enforcement

The Transitional National Legislative Assembly has clarified that Traffic Police must enforce only legally approved requirements under the Traffic Act, 2003, and that unauthorised fees or ad-hoc permits are unlawful.

TMP OBJECTIVES

The objectives of this TMP are to:

1. Protect workers, communities, and road users from traffic hazards.
2. Ensure compliance with South Sudan traffic laws and enforcement mandates.
3. Prevent vehicle–vehicle and vehicle–pedestrian conflicts.
4. Manage borrow-pit haulage safely and predictably.
5. Minimise disruption to public and community traffic.
6. Align construction practices with international traffic-safety standards (SafetyWise, WorkSafe, Procore).

DRIVER AND VEHICLE COMPLIANCE REQUIREMENTS

Driver Licensing

All drivers must:

- Hold a valid South Sudan driving licence issued by the Traffic Police
- Meet the minimum legal driving age of 18 years
- Hold an International Driving Permit or converted local licence if foreign nationals

Vehicle Compliance

All project vehicles must:

- Be registered with valid licence plates
- Have a valid inspection certificate
- Be roadworthy and fit for purpose
- Comply with load-security requirements under the Traffic Act, 2003

SPEED MANAGEMENT (LEGAL ALIGNMENT)

Statutory Speed Limits

Under South Sudan law:

- Urban areas: 50 km/h
- Rural roads: 80 km/h
- Highways: 100 km/h
-

ECRP II -Imposed Speed Limits

In accordance with international best practice for construction zones (Safety Notes, 2026):

a) Internal construction and haul roads: **≤20 km/h**
b) Near settlements, pedestrians, schools, markets: **≤10 km/h**

Stricter project limits supplement national limits for safety and do not override statutory requirements.

TRAFFIC HAZARD IDENTIFICATION

Major traffic hazards include:

a) Vehicle–pedestrian collisions
b) reversing vehicle incidents
c) poor visibility due to dust and weather
d) falling loads during loading/unloading
e) speeding and driver fatigue

These are consistent with internationally documented construction-traffic risks (Safety Notes, 2026; WorkSafe, 2026).

TRAFFIC CONTROL MEASURES

Traffic Zoning and Segregation

In line with WorkSafe and SCAL guidance:

- Vehicle-only zones for haulage and plant
- Pedestrian-only walkways
- Restricted loading/unloading zones
- Controlled shared-use crossings with banksmen
- No-go zones at active excavation edges

Traffic Flow Management

- One-way traffic systems where feasible
- Designated entry and exit points
- Minimization of reversing movements
- Mandatory spotters during reversing
- Scheduled deliveries to avoid peak community movement times

BORROW PIT HAULAGE CONTROLS

- Use only ECRP II approved haul routes on public roads
- Prohibit shortcutting through villages and pedestrian paths
- Prohibit overtaking on haul roads
- Maintain road surfaces through grader maintenance
- Apply dust suppression to maintain visibility
- Restrict night haulage unless adequate lighting and supervision are provided

SIGNAGE, BARRIERS, AND VISIBILITY

All temporary traffic signs must:

- Follow recognized shapes and colours compatible with national standards
- Be reflective and visible day and night
- Be placed at adequate sight distances

- Be bilingual where communities are affected
- Be removed once activities are completed
- Barriers, cones, rumble strips, and barricades must supplement signage, not replace it.

PEDESTRIAN AND COMMUNITY SAFETY

The Traffic Act, 2003 recognises pedestrians and cattle as lawful road users.

Mandatory measures:

- Clearly defined pedestrian routes
- Safe crossings with traffic marshals
- Speed calming near settlements
- Community awareness and advance notification
- Special care near livestock crossing points

ROLES AND RESPONSIBILITIES

ACTOR	RESPONSIBILITY
Traffic Manager	TMP implementation and supervision
Site Supervisor	Daily enforcement and coordination
Banksmen / Spotters	Control reversing and crossings
Drivers	Legal driving behaviour and compliance
Security / Gate Staff	Access control
Community Liaison	Community communication

TRAINING AND AWARENESS

All drivers and workers shall receive:

- TMP induction
- Legal responsibilities under Traffic Act, 2003
- Defensive driving training

- Refresher training when traffic conditions change (SafetyWise, 2025)

EMERGENCY MANAGEMENT

- Maintain clear emergency access routes
- Display emergency contact information
- Stop traffic during incidents
- Report all accidents to Traffic Police as required by law

MONITORING AND COMPLIANCE

- Daily inspection of signage and controls
- Weekly TMP compliance checks
- Speed monitoring
- Incident and near-miss tracking
- Corrective actions and TMP updates

ALIGNMENT MATRIX

TMP ELEMENT	SOUTH SUDAN LEGAL BASIS	INTERNATIONAL PRACTICE
Licensing & registration	Traffic Act, 2003	SafetyWise
Speed management	Motor Vehicle Rules	WorkSafe
Community safety	Traffic Act & SSRA Act	SCAL
Haul route approval	SSRA Act, 2011	Procore
Training & supervision	Traffic Act enforcement	SafetyWise

CONCLUSION

This Traffic Management Plan ensures that construction traffic operations are:

a) Legally compliant with South Sudan laws,
b) Consistent with international safety best practice, and
c) Protective of communities, workers, and road users.

ANNEX 14 ECRP II DRIVER CODE OF CONDUCT

PURPOSE

This Driver Code of Conduct establishes mandatory rules of behavior for all drivers engaged in ECRP II related to transport activities. It ensures compliance with the South Sudan Traffic Act, 2003, protects communities, and reduces road-traffic incidents associated with construction and borrow-pit haulage operations. Under the law, a "driver" includes any person in physical control of a vehicle on a road, and compliance with traffic rules is mandatory at all times.

LEGAL OBLIGATIONS OF DRIVERS

All drivers shall:

- Hold a valid South Sudan driving license, issued by the Traffic Police, in accordance with the Traffic Act, 2003.
- Drive only registered and inspected vehicles displaying valid number plates and inspection certificates, as required by law.
- Obey traffic signs, signals, and directions of Traffic Police and other authorized officers at all times.
- Respect statutory speed limits (50 km/h urban, 80 km/h rural, 100 km/h highways), and any lower limits imposed by the project Traffic Management Plan.

PROHIBITED CONDUCT

Drivers are strictly prohibited from:

- Driving under the influence of alcohol or drugs; the legal BAC limit is **0.08%**, and penalties include suspension or imprisonment.
- Using mobile phones while driving unless hands-free devices are used.
- Overloading vehicles or carrying unsecured loads that may fall onto the roadway, contrary to safe-loading provisions of the Traffic Act, 2003.
- Speeding, reckless overtaking, or driving in a manner dangerous to the public or livestock on the road, which constitutes an offence under the Act.

COMMUNITY SAFETY RESPONSIBILITIES

Drivers shall:

- Slow down and give way near schools, markets, settlements, livestock crossings, and pedestrian areas.
- Stop when instructed by authorized project marshals, banksmen, or Traffic Police.
- Exercise particular caution where cattle and domestic animals use roads, as these are explicitly recognized road users under the Traffic Act, 2003.

ENFORCEMENT AND DISCIPLINARY ACTION

Failure to comply with this Code may result in:

- Immediate removal from driving duties by the contractor.
- Reporting to Traffic Police for statutory penalties under the Traffic Act, 2003.
- Termination of contract for repeated or serious violations.

ROAD-SIGN LAYOUT SHEET

LEGAL BASIS

The Traffic Act, 2003 requires all road users to obey lawful traffic signs, and permits the use of internationally recognised road-sign conventions compatible with national standards. Temporary traffic signage must not conflict with permanent regulatory signs.

REQUIRED SIGN CATEGORIES

Advance Warning Signs

Installed **100–300 m** before the work zone, depending on road speed:

"ROAD WORKS AHEAD"

"TRUCKS ENTERING ROAD"

"SLOW DOWN"

Regulatory Signs

Installed at control points:

"STOP"

"GIVE WAY"

"SPEED LIMIT 10 / 20 km/h" (temporary, project-controlled)

All regulatory signs must follow standard shapes and colors recognizable to South Sudanese Road users.

Directional and Guidance Signs

"DIVERSION →"

"SITE TRAFFIC ONLY"

"PEDESTRIAN ROUTE"

Hazard and Community Safety Signs

"MEN AT WORK"

"SCHOOL CHILDREN" (near settlements and schools)

"ANIMAL CROSSING" (where livestock movement is common)

PLACEMENT PRINCIPLES

- All signs must be **reflective** and visible day and night.
- Signs must be bilingual (English + local language) where communities are affected.
- Signs must be removed once the hazard no longer exists, to avoid misleading drivers.
- Installation on public roads requires coordination with Traffic Police and the South Sudan Roads Authority (SSRA).

BARRIERS AND PHYSICAL DEVICES

- Traffic cones and drums to channel vehicles.
- Barricades at pit edges and excavations.

- Rumble strips near pedestrian crossings. These devices complement, but do not replace, lawful road signs.

COMMUNITY LEAFLET ON CONSTRUCTION-TRAFFIC SAFETY

STAY SAFE AROUND CONSTRUCTION TRAFFIC!

Important message for all community members

Construction activities involve trucks, machines, and heavy vehicles that can be dangerous if people are not careful. South Sudan's Traffic Act protects all road users, including pedestrians and livestock.

WHAT YOU SHOULD KNOW

- Trucks may enter and leave the area at any time.
- Heavy vehicles take longer to stop.
- Dust and noise may reduce visibility.

HOW TO PROTECT YOURSELF AND YOUR FAMILY

- Use **designated pedestrian paths and crossings**.
- Keep **children away from roads and construction areas**.
- Do not walk or herd animals close to moving trucks.
- Obey traffic signs and instructions from traffic marshals.

Domestic animals are recognized as road users under the Traffic Act, and drivers are required to take care—but community awareness is essential to prevent accidents.

WHAT DRIVERS MUST DO

Drivers are required by law to:

- Drive only with a valid license.
- Obey speed limits and traffic signs.
- Avoid drunk driving and phone use while driving.
- I respect pedestrians, children, and livestock on the road.

REPORTING SAFETY CONCERNS

If you see:

- Speeding vehicles
- Dangerous driving
- Missing or damaged signs

Report immediately to:

- ECRP II Staff
- IOM Staff and IOM Offices
- Community leaders
- Project grievance desks
- Traffic Police

Unsafe driving is punishable under South Sudan law.

REMEMBER

Road safety is everyone's responsibility.

Protect yourself, protect your family, protect your community.

#SAFETY BEGINS WITH YOU