## ENVIRONMENT AND SOCIAL MANAGEMENT AND MONITORING PLAN PROPOSED MANYATTA LENGIMA WATER SUPPLY SCHEME WITHIN LONYORIPECHAU LOCATION, NGURUNIT WARD, LAISAMIS SUB-COUNTY, MARSABIT COUNTY.

E & S Impacts	Source of Impacts	Proposed Mitigation Measure	Monitoring and Measurement	Responsible Entity	Supervising Agency
Preconstruction Phase					
Land acquisition Loss of pasture land Fencing of land restrict free movement of animals and people. Grievances related	The project activities entail installation of #3 Solar photovoltaic pumping systems, 9km of pipeline, construction of #2 reinforced concrete tanks of capacity 100m3,, construction of #2 water	<ul> <li>The project alignment must avoid private land as the project component include outright land acquisition</li> <li>Align water pipelines along public roads and spaces to avoid any physical and/or economic displacement as much as possible, or infringement on the land rights holders</li> </ul>	Approved project design with that is not affecting private land owners	Engineering consultant E&S Specialists	WSTF MoWSI
to land take/transfer	kiosks and 10 individual connections, construction of #2 livestock troughs; #1 camel/cattle trough and #1 sheep/goat trough,	Complete the process of land transfer from community to public before the operation of the project	Valid allotment letters/title deeds for the scheme	MARWASCO County Government of Marsabit	WSTF National Land Commission
	#1 sheep/goat trough, Construction of #1 sanitation facility diameter ranging from 50-150mm,  The scheme will require approximately 5,020m <sup>2</sup>	Hold community consultations to discuss the final design of the scheme, the associated impacts and project implementation timelines before construction	Minutes of disclosure meeting, Agenda and attendance register	MARWASCO County Government of Marsabit	WSTF NEMA
	(1.24 acres) The land is expected to be transferred from community to public ownership.	Follow the land take procedures outlined in the project ESMF	Compliance report	Consultant	WSTF MoWSI National Land Commission

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Construction Phase					
Potential soil Erosion	Site Excavation, Earthworks for Construction Works:  Clearing vegetation for borehole infrastructure, water kiosks, pipelines, and livestock water troughs,  Excavation of trenches for foundations and trenches,	<ul> <li>Develop and implement soil erosion control measures</li> <li>Minimize and restrict vegetation removal to the project footprint.</li> </ul>	Number of soil erosion control measures in the program of works, amount of resources set for soil erosion control  Project design that considers areas with minimal vegetation, Amount of vegetated area spared by the	Contractor Supervision Consultant Supervision Consultant	NEMA
	Storage of excavated spoilt soil and construction materials,	Expedite back-filling and compaction of excavated soil.	Number trenches that are backfilled and compacted	Contractor	-
	Uncontrolled surface run-off from construction site  Spillage of water during borehole testing,	Use existing access tracks to minimize the need for new tracks.	Number of enforcement measures to ensure use of the existing routes during site access	Contractor	
Soil and subsurface water pollution	Spills of the fuel and hazardous chemicals stored at the site, fugitive spillage of fuel and used oil from equipment, poor	Develop and implement soil pollution prevention measures to include storage of chemicals, procedure for fuelling at the site and	Availability of soil pollution measures in the program of works	Contractor/ Supervision Consultant	WSTF NEMA
	management of construction and sanitation waste	Ensure the waste oil, fuel, lubricants and other chemicals stores have an impervious surface	Number or availability of fuel and chemical stores with impervious surface	Contractor/ Supervision Consultant	WSTF
		training workers on handling of the hazardous materials/wastes; provide appropriate tools/equipment for transfer of the hazardous materials	Training records and plans, attendance lists, number of workers trained	Contractor/ Supervision Consultant	NEMA

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		Regular maintenance of machinery to control leaks.  Program of equipment maintenance	Contractor/ Supervision Consultant	WSTF
		Engage NEMA registered waste handler Valid waste handler license and filled waste tracking sheets	Contractor/ Supervision Consultant	NEMA
		Maintain spill response kits at the site. Availability of a complete spill kit at the site	Contractor/ Supervision Consultant	WSTF
		Use of drip trays when carrying out minor servicing of equipment and fueling at the site  Availability of operational drip trays at the equipment servicing area	Contractor/ Supervision Consultant	NEMA
Air pollution through generation of excess dust	Construction activities including Clearing vegetation, grading, and excavation works, use of	Sprinkle water on dusty surfaces to suppress dust at the site and when working near dust sensitive receptors  Evidence of watered working areas where applicable	Contractor/	WSTF NEMA
Nuisance to neighbours Impaired visibility;	cement, movement of vehicles and equipment.	Equip workers who are directly in the location where dust is dispersed with dust masks.  Number of workers with appropriate dust masks	Contractor	
	Wind blowing on bare surfaces and potential dust storms	Training the workers on air quality hazards  Air Quality Training included in the EHS staff induction, training records	Contractor Supervision Consultant	
	<b>Demolition works</b> : Removal of old, worn-out infrastructure or equipment			
Exhaust emissions from equipment & vehicles Nuisance to workers and surrounding	exhaust emissions from vehicles, including particulate matter (PM), carbon monoxide (CO), and nitrogen oxides (NOx), can contribute to air quality	Scheduled maintenance of the machinery to reduce emissions including carbon monoxide, oxides of nitrogen.  Evidence of site specific equipment planned maintenance schedule	Contractor/ Supervision Consultant	WSTF NEMA
Contribution to Greenhouse effect (global warming)	deterioration and pose			

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Noise and vibrations causing nuisance to the public	Material transportation: Movement of trucks and loaders. Excavation and construction:	All Construction near noise sensitive receptors like schools, hospitals and residential houses should implement measure to minimise production of extra noise.	Noise control measures included in the program of works	Contractor/ Supervision Consultant	NEMA County Department of Environment	
	Digging and concrete works. Use of powered equipment. Borehole testing: Noise from pump flow tests.	<ul> <li>All equipment should be maintained in good mechanical order and fitted with the appropriate silencers, mufflers, or acoustic covers where applicable. Lubricating and regular repair of equipment and machinery.</li> </ul>	Relevant planned maintenance scheduled of the equipment available at the site, noise rating of the equipment	Contractor/ Supervision Consultant	Environment	
		<ul> <li>Pneumatic drills and other noisy appliances should not be used after normal working hours.</li> </ul>	Evidence of no night working policy at the site	Contractor/ Supervision Consultant		
			Workers exposed to occupational noise should be given noise protection equipment such as earmuffs and be taught how to use them and supervised to ensure such safety procedures are being adhered to.	Number of workers working in noisy environment with appropriate PPE for noise	Contractor/ Supervision Consultant	
		The public should be informed that short periods of noise may be inevitable but prior warning of when noisy activities are to take place and the days and times noise of when they could be expected should be widely publicized before the activity takes place.	Noise warning signs where applicable, evidence of noise agenda in the community consultation meeting	Contractor Supervision Consultant		
Loss and disturbance of the vegetation Introduction of alien invasive species	Site clearing, Excavation works, and pipeline laying disrupt habitats.  Movement of vehicles on the vegetated areas	Mature trees and vegetation outside project site will not be cleared.	Evidence of Measures implemented to avoid clearing mature trees and vegetation outside project site	Contractor/ Supervision Consultant	Kenya Forest Service/ NEMA/ County Department of Environment	

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		Evidence of no use of herbicides/ pesticides for vegetation clearing	Evidence of proper methods applied to clear vegetation	Contractor	NEMA/ County
		Re-vegetation of disturbed areas with native plant species.	No of tree seedling planted	Contractor	Department of Environment
		Control of invasive alien plant species through monitoring and physical/manual removal of invasive species as they appear as well as routine cleaning of newly deployed machines to the sites	Availability and implementation of measures to identify and control alien species	Contractor	
Disturbance of fauna	Excavation, vegetation clearing, and pipeline laying disrupt existing minimal fauna in the project area	Avoid clearing mature trees that are important habitats for birds and other small animals	Evidence of Measures implemented to avoid clearing mature trees and vegetation outside project site	Contractor/ Supervision Consultant	Kenya Forest Service/ Kenya Wildlife Service
		Create awareness among project staff (esp. plant operators) and local community on animal welfare and against animal harassment.	No of workers sensitized on protection of animals	Contractor	Kenya Wildlife Service
		Protection of the encountered wild animals	Availability, Awareness and implementation of measures to protect stray animals	Contractor	Kenya Wildlife Service
Traffic incidents and accidents including nuisance to the community,	Increased vehicles: More construction and supply vehicles on local roads.	<ul> <li>Engage the road authority where the project will undertake road crossing and use of road reserve.</li> <li>Excavation of trenches should be</li> </ul>	Evidence of consultation with relevant road departments and agencies where applicable	Contractor/ Supervision Consultant	Kenya Highways Authority (KeNHA)
violation of traffic rules, traffic disruptions	Narrow roads: Existing roads unable to accommodate increased traffic.	carried in consultation with the concerned road authorities.			Kenya Rural Roads authority (KERRA)

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	Construction activities: Blockage or diversion of roads during works.				County Government of Marsabit
	Heavy equipment: Slow- moving machinery disrupting traffic flow.	Erect warning signs of on-going works when pipeline crosses the road.	Availability of appropriate safety signs at the road crossing point	Contractor	County Government of Marsabit
		<ul> <li>Adequate care/caution is taken so as not to cause any hindrance to the movement of traffic.</li> </ul>	Traffic (vehicle, human and livestock) control measures where applicable	Contractor	County Government of Marsabit
		Alternatives access ways should be communicated to the community where road cutting is taking place	Number and condition of the provided alternative routes	Contractor	County Government of Marsabit
	Excavations along home accesses, business access and roads.	<ul> <li>Implement the stakeholder engagement plan to ensure timely project information sharing with the community and stakeholders.</li> <li>Alternatives access ways should be communicated to the community.</li> </ul>	Community consultation plan, number of consultation meetings	Contractor/ Supervision consultant MARWASCO	MARWASCO
Short-term disruption of community activities		Hoarding and installation of safety signs on road crossings.	Number of appropriate road signs installed	Contractor/ Supervision consultant MARWASCO	MARWASCO
		<ul> <li>Provide diversions or temporary passages where roads are closed due to works.</li> <li>Provide temporary accesses to business and homes on excavated sections.</li> </ul>	Number and condition of the provided alternative routes	Contractor/ Supervision consultant MARWASCO	MARWASCO
Labour conflicts and forced labour	Recruitment and salary/wages conflicts,	Implement site labour management procedures for the project based on the project LMP	Availability of the site specific LMPs	Contractor supervision consultant	WSTF

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	working conditions and forced labour	Contractors to be trained on the LMP for the project before site mobilization	Training records and attendance list	supervision consultant	WSTF
		Developing and implementing criteria (skills and qualifications) for all positions due for recruitment.	Availability of recruitment criteria, number of workers engaged through the criteria	Contractor	WSTF
		All the project workers to undergo induction and to be engaged formally via contract with start date, end date, job description, wage, disciplinary measures among others	Formal contracts the workers  Number of workers with contract	Contractor	WSTF
		Documenting relevant worker information including terms of employment.	Well documented worker information	Contractor	WSTF
		Ensure equal opportunity and fair treatment during recruitment.	Formal commitment by the consultant to offer equal opportunities	Contractor	WSTF
			Number of workers recruited at Manyatta Lengima area through transparent process		
		Protection of workers' legal right to form unions or other workers' organizations of their own choosing and to bargain collectively with their employers.	Human Resource Policy with workers' rights	Contractor	WSTF
		No employment of underage persons (under 18 years).	ID for all the employed persons, evidence of no child engaged	Contractor	WSTF

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		Implement the workers grievance mechanism for all direct workers and contracted workers.	Availability of GRM that is relevant to Manyatta Lengima site	Contractor	WSTF
		Compliance to labour relations practices as provided for by Kenya legislations and International Labour Organisation;	Legal register for the lot	Contractor	WSTF
		Advertising at the local villages and markets for any position that needs to be filled; and	Number of job adverts placed in the chiefs office or common public area at Manyatta Lengima area	Contractor	WSTF
		Sub-contractor requirement to submit a past forced labor performance declaration, and a declaration of ongoing Bidder commitment to prevent, monitor and report on any forced labor.	Evidence of submitted forced labor performance declaration	Contractor	WSTF
		• Include in contracts with subcontractors/ suppliers/ manufacturers of materials (pipes, fittings, solar panels and equipment) obligations to prevent Forced Labor among the staff, employees, workers and any other person employed or engaged by the Subcontractor/ supplier/ manufacturer.	Formal commitment to prevent forced labour	Contractor	WSTF
Social tensions: Potential conflicts between local communities and incoming workers	Increased competition for local resources: food, water, and other community resources.  Social tensions:	Prioritize local labour force.	No of workers from Manyatta Lengima area employed in the project	Contractor/u pervision consultant MARWASCO	WSTF
over jobs, resources, or land.		Regular community engagements.	No of community engagements	Contractor/ MARWASCO	WSTF

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Public health risks: Influx of workers may lead to the spread of infectious	Unresolved workers grievances  Hiring of workers outside the	•	Regular community and project workers training, awareness and sensitization on HIV/AIDS.	Training Plan, No of the workers trained.	Contractor/ MARWASCO	WSTF
diseases if health services are insufficient.	project area  Increased demand on infrastructure: Strain on local transport, sanitation, and healthcare facilities.	•	Implement clear and culturally sensitive GM and SEAH/GBV procedures at the project site.	Clear and culturally sensitive GM and SEAH/GBV procedures at the Manyatta Lengima project site.	Contractor/ MARWASCO	WSTF
	Cultural disruption: Cultural differences between workers and the local community	•	Provide adequate and appropriate welfare conveniences for the staff including washrooms, rest area and changing room	Number of sanitation conveniences and changing rooms for both genders, appropriate rest area	Contractor/ MARWASCO	WSTF
		•	Ensuring that children and minors are not employed directly or indirectly on the project.	Policy against child labour, Identification Numbers for all the employees	Contractor/ MARWASCO	WSTF
	Existing Intra and inter community conflict Unresolved project, land and intertribal conflicts	•	Prepare and implement site security management plan in accordance with project Security Management Plan and SOPS.	Availability of approved site specific SMP.	Contractor/ MARWASCO	WSTF County Government of Marsabit
Insecurity threats		•	The site specific SMP must be cleared by the E&S Team at the CPU before site mobilization Have sufficient emergency response plan before mobilizing to the field		Contractor/ MARWASCO	WSTF
		•	Use the county and community as entry points before mobilizing to the field	Evidence of consultation with CC	Contractor/ MARWASCO	WSTF
Occupational Safety and Health (OSH) hazards	Physical hazards: slips, trips, falls, and injuries from machinery or tools.	•	Develop and Implement a site specific Health and Safety Action Plan based on	Availability and implementation progress of the HSAP	Contractor/ supervision consultant	DOSHS

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	Exposure to intermittent and occupational noise, dust, heat and chemicals, exposure to harsh climatic conditions, manual handling hazards, electrical hazards: Risks from installing solar panels and working with electrical systems, fall from height heights, falling objects	the project Health and Safety Action Plan			
		Register the construction site with DOSHS	Valid construction workplace certificate from DOSHS	Contractor	DOSHS
		Undertake an appropriate Health and safety risk assessment and submit the report to DOSHS Nanyuki	DOSHS signed copy of RA report	Contractor	DOSHS
	hazards during steel tank erection  Poor sanitary facilities may	Induction of workers on health and safety before commencing works	Number of workers inducted	Contractor	DOSHS
	result in waterborne or communicable diseases.  Traffic incidents and	Engage a qualified and competent health and safety officer for the lot	Qualification of the Health and safety officer at the site	Contractor	DOSHS
	accidents at the site	Ensure there are trained first aider and fire Marshalls	Number of trained first aider and fire marshals	Contractor	DOSHS
		Conduct daily toolbox talks	Records of daily Tool Box Talks	Contractor	DOSHS
		Provide appropriate personal protective equipment (PPE) to workers and training on appropriate use. (Reflective jackets, helmets, face masks, ear plugs gloves, safety boots, etc.)	No of workers with appropriate PPEs	Contractor	DOSHS
		There should be adequate provision of the requisite sanitation facilities for human waste disposal	Clean and convenient sanitation facilities	Contractor	DOSHS
		Recording of all injuries that occur on site in the incident register, corrective actions for their prevention are instigated as Appropriate	Availability of incident register at the site Well filled incidents	Contractor	DOSHS

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		The contractor should have a WIBA insurance policy to cushion self and workers against loss of income or an accident on site	Workers with WIBA	Contractor	DOSHS
		Workers Welfare	l		
		Ensure that all site personnel are provided with an adequate supply of safe drinking water, which should be at accessible points at all times.	Number of water points for the workers at Manyatta Lengima site	Contractor	DOSHS
		Provide conveniently accessible, clean, orderly, adequate and suitable washing facilities within the site.	Clean and convenient sanitation facilities	Contractor	DOSHS
		Ensure the safety of residents by providing safety signs at strategic places around the access roads.	No of road appropriate safety signs provided	Contractor/ Supervision consultant E & S	DOSHS
				Specialists MARWASCO	
Community Health and Safety		All trenches must be barricade using the appropriate safety tape	Trenches with barricading tape	Contractor	DOSHS
		Cordoning off working sites to protect the public or unauthorized persons	Area cordoned off	Contractor	DOSHS
		Use of signs and warnings on sites with high risks such as the elevated tank site	Number of appropriate safety signs installed at the construction site	Contractor	DOSHS

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		Reduce unnecessary speeding to control for accidents from the movement of pedestrians or livestock in the area.	Speed limit at the site and within the project area	Contractor	DOSHS
		The elevated water tank to be installed a safe distance from human activities or property	Evidence of the consideration of community settlement in tank design	Supervision consultant	Planning Department
		The design and construction of the elevated steel tank to consider the changes in wind force in the area.	Approved design and construction methods	Supervision consultant	Planning Department
ti s V o e v p	Potential SEAH risk among the workers at the project site  Workers may take advantage of power imbalances to exploit local women or vulnerable individuals in the project area	Engage competent GBV / social safeguard officer	<ul> <li>Qualification of the GBV / social safeguard officer</li> <li>Number of incidences (both reported and unreported), their investigation, solution and closure according to the SEAH Response Plan</li> </ul>	Contractor/S upervision Consultant Local Community Leaders MARWASCO SEAH Expert	WSTF Gender Department Marsabit County
Sexual exploitation and harassment (SEA-H)	Lack of reporting mechanisms: Without proper channels, victims of SEAH or	Conduct SEA-H sensitization to the workers during induction	No of workers sensitized	MOWSI	
(OLLY 11)	GBV may not report incidents due to fear of retaliation or lack of support.	Background checks for the workers, subcontractors and suppliers.	Well documented procedures for background checks		
		Conduct SEA-H sensitization to the community in the project area	No of community sensitization meeting		
		Ensure all the workers signs the CoC developed for the project and sensitization of staff on responsibilities related to the COC and consequences of	Number of the signed CoC		

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		non-compliance; project-level IEC materials;			
		Implement the project SEAH action plan with an Accountability and Response Framework as part of the C-ESMP.	Level of the SEAH plan implementation at the site		
		Response to SEA-H: including survivor- cantered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures	Effective SEAH response plan		
Infringement of Children rights	Engagement of children in construction works  Sexual abuse of children in	Domesticate the LMP as part of the CESMP;	Level of the LMP implementation at the site	Contractor, Consultant and the WSTF	County Children's Department
	the project area by the project workers  Exposing Drug and alcohol to children	Develop and implement a Children Protection Strategy that will ensures minors are protected against negative impacts associated by the Project.	Availability and implementation status of Children Protection Strategy for the Lot	Contractor, Consultant and the WSTF	County Children's Department
	Workers working with the school	<ul> <li>Training and signing of CoC by the project team</li> <li>sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour;</li> </ul>	Number of workers trained on and signed CoC	Contractor/ Supervision consultant	County Children's Department
		Children under the age of 18 years shall not be hired on site as provided by Child Rights Act (Amendment Bill) 2014.	No of the workers with national identification card numbers at the site	Contractor/ Supervision consultant	County Children's Department
Infringement of VMGs rights'	Exclusion of vulnerable groups from consultations and inclusion in designs	Schedule meetings at convenient times and locations to accommodate women,	Plan of public consultation that is appropriate for community	Contractor/ Supervision consultant	Social Protection Department

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	Failure to implement SEP	persons with disabilities, and other vulnerable groups.			
		Focused engagements with the vulnerable groups. This will include dedicated consultations with the PwDs to understand their needs.	Number of VMGs identified and number of consultation	Contractor/ Supervision consultant	Social Protection Department
		Apply universal design in infrastructure to ensure accessibility for persons with disabilities to the water points.	Design that is user friendly to PWD	Supervision consultant	Social Protection Department
	Ensure that consultations are culturally appropriate, accessible, including the use of sign language interpreters, braille, and vernacular languages.	Site specific GRM Involvement of site GRC	Supervision consultant	Social Protection Department	