ENVIRONMENT AND SOCIAL MANAGEMENT AND MONITORING PLAN MARIME WATER SCHEME, EL HADI LOCATION, NORTH HORR 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 Construction of a new 100m³ RC tank, 100m³ elevated tank, 6km pipeline, 2 animal troughs, fencing, installation of Solar and pumping system infrastructure, pump	 The project alignment must avoid private land as the project component include outright land acquisition 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 	Approved project design with that is not affecting private land owners	Engineering consultant E&S Specialists	WSTF MoWSI
to land take/transfer	fitted with an 8-kW motor, 14-kW inverter, and 28- kW Solar array rated power to be supplied with 48# solar panels rated at	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
	585 W.	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
	ownership.	Follow the land take procedures outlined in the project ESMF	Compliance report	Consultant	WSTF MoWSI National Land Commission
Construction Phase					

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Potential soil Erosion	Site Excavation, Earthworks for Construction Works:	Develop and implement soil erosion control measures	Number of soil erosion control measures in the program of works, amount of	Contractor Supervision	NEMA
	Clearing vegetation for borehole infrastructure, water kiosks, pipelines, and		resources set for soil erosion control	Consultant	
	livestock water troughs, Excavation of trenches for	 Minimize and restrict vegetation removal to the project footprint. 	Project design that considers areas with minimal vegetation, Amount of	Supervision Consultant	
	foundations and trenches, Storage of excavated spoilt		vegetated area spared by the project		
	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	1	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
		Regular maintenance of machinery to control leaks.	Program of equipment maintenance	Contractor/ Supervision Consultant	WSTF

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		•	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 Nuisance to	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
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	
	Demolition works : Removal of old, worn-out infrastructure or equipment					
Exhaust emissions from equipment & vehicles Nuisance to workers and surrounding Contribution to Greenhouse effect (global warming)	vehicles, including particulate matter (PM), carbon monoxide (CO), and nitrogen oxides (NOx), can contribute to air quality deterioration and pose	•	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

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Noise and vibrations causing nuisance to the public	causing nuisance to Material transportation:	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
		• 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.	Relevant planned maintenance scheduled of the equipment available at the site, noise rating of the equipment	Contractor/ Supervision Consultant	Environment
		 Pneumatic drills and other noisy appliances should not be used after normal working hours. 	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
		Evidence of no use of herbicides/ pesticides for vegetation clearing	Evidence of proper methods applied to clear vegetation	Contractor	NEMA/ County

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		Re-vegetation of disturbed areas with native plant species.	No of tree seedling planted	Contractor	Department of
		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	Environment
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.	 Engage the road authority where the project will undertake road crossing and use of road reserve. Excavation of trenches should be 	Evidence of consultation with relevant road departments and agencies where applicable	Contractor/ Supervision Consultant	Kenya Highways Authority (KeNHA)
violation of traffic rules, traffic disruptions	unable to accommodate increased traffic. Construction activities:	carried in consultation with the concerned road authorities.			Kenya Rural Roads authority (KERRA)
	Blockage or diversion of roads during works.				County Government of Marsabit

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	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
		Adequate care/caution is taken so as not to cause any hindrance to the movement of traffic.	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.	 Implement the stakeholder engagement plan to ensure timely project information sharing with the community and stakeholders. Alternatives access ways should be communicated to the community. 	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
		 Provide diversions or temporary passages where roads are closed due to works. Provide temporary accesses to business and homes on excavated sections. 	Number and condition of the provided alternative routes	Contractor/ Supervision consultant MARWASCO	MARWASCO
Labour conflicts and forced labour	Recruitment and salary/wages conflicts, working conditions and forced labour	Implement site labour management procedures for the project based on the project LMP	Availability of the site specific LMPs	Contractor supervision consultant	WSTF
Toreca labour		Contractors to be trained on the LMP for the project before site mobilization	Training records and attendance list	supervision consultant	WSTF

E & S Impacts	Source of Impacts	Proposed Mitigati	on Measure	Monitoring and Measurement	Responsible Entity	Supervising Agency
			d implementing criteria qualifications) for all or recruitment.	Availability of recruitment criteria, number of workers engaged through the criteria	Contractor	WSTF
		induction and		Formal contracts the workers Number of workers with contract	Contractor	WSTF
		Documenting information employment.	relevant worker including terms of	Well documented worker information	Contractor	WSTF
		• Ensure equal treatment during	opportunity and fair ng recruitment.	Formal commitment by the consultant to offer equal opportunities	Contractor	WSTF
				Number of workers recruited at Marime area through transparent process		
		form unions organizations o	workers' legal right to or other workers' f their own choosing and ollectively with their	Human Resource Policy with workers' rights	Contractor	WSTF
		No employmen (under 18 years)	nt of underage persons s).	ID for all the employed persons, evidence of no child engaged	Contractor	WSTF
			e workers grievance all direct workers and kers.	Availability of GRM that is relevant to Marime site	Contractor	WSTF

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		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 Marime 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 over jobs, resources, or land.	Increased competition for local resources: food, water, and other community resources.	Prioritize local labour force.	No of workers from Marime area employed in the project	Contractor/u pervision consultant MARWASCO	WSTF
	Social tensions: Unresolved workers grievances	Regular community engagements.	No of community engagements	Contractor/ MARWASCO	WSTF
Public health risks: Influx of workers may lead to the spread of infectious	Hiring of workers outside the project area	Regular community and project workers training, awareness and sensitization on HIV/AIDS.	Training Plan, No of the workers trained.	Contractor/ MARWASCO	WSTF

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diseases if health services are insufficient.	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 Marime 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	Prepare and implement site security management plan in accordance with	Availability of approved site specific SMP.	Contractor/ MARWASCO	WSTF
	Unresolved project, land and intertribal conflicts	project Security Management Plan and SOPS.	specific sime.	MARWASCO	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 the project Health and Safety Action Plan	Availability and implementation progress of the HSAP	Contractor/ supervision consultant	DOSHS
	Exposure to intermittent and occupational noise, dust, heat	1 1011			

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	and chemicals, exposure to harsh climatic conditions, manual handling hazards,	Register the construction site with DOSHS	Valid construction workplace certificate from DOSHS	Contractor	DOSHS
	electrical hazards: Risks from installing solar panels and working with electrical systems, fall from height	Undertake an appropriate Health and safety risk assessment and submit the report to DOSHS Nanyuki	DOSHS signed copy of RA report	Contractor	DOSHS
	heights, falling objects hazards during steel tank erection	Induction of workers on health and safety before commencing works	Number of workers inducted	Contractor	DOSHS
	Poor sanitary facilities may result in waterborne or communicable diseases.	Engage a qualified and competent health and safety officer for the lot	Qualification of the Health and safety officer at the site	Contractor	DOSHS
	Traffic incidents and 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
		The contractor should have a WIBA insurance policy to cushion self and	Workers with WIBA	Contractor	DOSHS

E & S Impacts	Source of Impacts	Proposed Mitigation Measure	Monitoring and Measurement	Responsible Entity	Supervising Agency
		workers against loss of income or an accident on site			
		Workers Welfare	1		
		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 Marime 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		All trenches must be barricade using the appropriate safety tape	Trenches with barricading tape	Contractor	DOSHS
, and the second		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
		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

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		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
	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	 Qualification of the GBV / social safeguard officer Number of incidences (both reported and unreported), their investigation, solution and closure according to the SEAH Response Plan 	Contractor/S upervision Consultant Local Community Leaders MARWASCO SEAH Expert	WSTF Gender Department Marsabit County
Sexual exploitation	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	
and harassment (SEA-H)	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 non-compliance; project-level IEC materials;	Number of the signed CoC		

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		• 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	construction works Sexual abuse of children in the project area by the project workers Exposing Drug and alcohol to children	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
		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
		 Training and signing of CoC by the project team sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour; 	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, persons with disabilities, and other vulnerable groups.	Plan of public consultation that is appropriate for community	Contractor/ Supervision consultant	Social Protection Department

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	Failure to implement SEP	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