OUR REF: NJ/NEMA/Lamu-Lokichar Oil Pipeline/19/2 10th August 2020
YOUR REF: TBA

Director General
National Environmental Management Authority
Popo Road, South C, Off Mombasa Road
P.O. Box 67839-00200
NAIROBI

Copy sent via email to *dgnema@nema.go.ke*

Dear Sir,

RE: SUBMISSIONS TO THE LOKICHAR-LAMU CRUDE OIL PIPELINE ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT

The above matter and the Gazette Notice No. 4659 dated 10th July 2020 refer.

Kindly find attached our submissions to the Lokichar-Lamu crude Oil Pipeline EIA study report for your record and consideration.

Sincerely,

Rose Birgen
rose@naturaljustice.org
[This letter has been sent electronically and is not signed]

COMMENTS ON THE LAMU LOKICHAR CRUDE OIL PIPELINE ESIA STUDY REPORT

Thematic area/Issue And Section/Page Number	Comment	Explanation	Recommendation
LAND ACQUISITION, RESETTLEMENT AND COMPENSATION			
Land acquisition, resettlement and compensation	Absence of a Resettlement Action Plan (RAP) for communities whose land will be acquired to pave way for the implementation of the LLCOP project.	Land acquisition and compensation was among the greatest concerns raised by stakeholders throughout the ESIA process. In our considered opinion, the project proponent's willful omission to consider and address the issue of land acquisition, resettlement and compensation process during the ESIA study process is not justified in law. Further, the ESIA remains inadequate to the extent that it fails to provide a comprehensive plan for ensuring that project affected persons are compensated or resettled promptly where their land is acquired to pave way for the implementation of the LLCOP. This is very important for ensuring that affected communities do not remain displaced after the project has been completed like we have seen in previous cases such as the Standard Gauge Railway Project which the Court of Appeal recently declared illegal. According to the Land Act, the responsibility of the NLC, with regards to compulsory land acquisition, is to oversee the process and ensure it is conducted according to the law. However, in discharging its mandate **the NLC must work closely with the acquiring authority & project proponent**, to prepare a comprehensive Resettlement Action Plan	NEMA should neither appraise nor issue an EIA licence before the project proponent prepares and submits a RAP after extensive consultations with affected individuals.

		(RAP), which among other things identifies the number of people in actual occupation of the land and their interests in the land as well as the amount and type of compensation.[1] Moreover, the acquiring authority is required to deposit with the NLC the compensation fund for purposes of transmission to affected individuals.[2] It is an error in law for the project proponent to state that the responsibility to prepare a RAP solely rests with the NLC. To the extent that the displacement of project-affected persons is an impact of this project, issues of land acquisition, compensation and resettlement cannot be dealt with separately from the ESIA process. A RAP must be developed by the project proponent in collaboration with the NLC and in consultation with the affected persons during the ESIA process as a way of minimizing or totally avoiding the risk of internal displacement. The fact that the ESIA consultant is conducting this study on behalf of the project proponent does not take away the project proponent's obligation to demonstrate in this ESIA study report how they plan to resettle project affected persons by developing a RAP in collaboration with the NLC through a thorough consultative process with relevant stakeholders.[3] According to national and international best practices	

[1] Section 107 of the Land Act No. 6 of 2012.
[2] Section 111 (1A) of the Land Act No. 6 of 2012.
[3] The Addendum at Page 4 states that the Joint Development Agreement (JDA) Partners are the project proponents who have appointed PPMT to implement the project on their behalf. The PPMT is thus an agent of JDA Partners. They must therefore be responsible for ensuring that everything done under this project is done according to the law including land acquisition by following the process set out under the Land Act No. 6 of 2012.

		and guidelines, the RAP must be developed **before** the project is either appraised or licensed by the relevant authorities. A case in point is the Lamu Coal Plant project for which the project proponent (Amu Power) developed a RAP, which was attached to the ESIA study report submitted to NEMA. At the international level, the **United National Basic Principles and Guidelines on Internal Displacement**[4] sets out the threshold to be observed prior to evictions. One of the requirements is to ensure the effective dissemination by the relevant authority of information in advance including land records and the proposed **comprehensive resettlement plans** specifically addressing efforts to protect vulnerable groups. The **World Bank Operational Policy** also provides one of the best international practices that we can borrow from. According to this policy, a borrower of funds for a project involving resettlement must provide the Bank with a draft resettlement plan which, conforms to the policy **before** the project is appraised. The issues of land and its acquisition have social, economic and cultural impacts, which directly result from the implementation of development projects. The potential impacts of land acquisition to pave way for the project must therefore be evaluated comprehensively during the ESIA process and comprehensive prevention and mitigation plans put in place before NEMA appraises or grants an EIA licence allowing the project to proceed. The absence of a RAP, in our view, is a major omission, which	

[4] Which form part of Kenya's laws by dint of Article 2(5) and 2(6) of the Constitution of Kenya 2010.

		denies the decision maker an opportunity to adequately assess the extent of the potential social impacts of this project. Just like it was raised during the stakeholder engagement sessions[5], the resettlement action plan must be developed through a consultative meeting with the national and county government, NLC, LCDA and the Pipeline Project Management Team (PPMT) before the project is approved.	
NO ASSESSMENT OF THE IMPACT TO CLIMATE			
Page 4-16	An assessment of the project's impact on climate is absent from the ESIA	An understanding of the Lokichar to Lamu Crude Oil Pipeline must begin with the nature of the material the pipeline would transport: a waxy variety of crude oil that solidifies at ambient temperatures and must be heated to at least 50^{o} C throughout the 824-km length of the pipeline to arrive at Lamu port for international export. The world's temperature has increased by an estimated 0.9^{o} C as atmospheric levels of carbon dioxide (CO_2) have risen from 290 parts per million (ppm) in pre-industrial times to more than 415 ppm in 2019, an atmospheric level of CO_2 that has not existed since at least three million years ago. The Intergovernmental Panel on Climate Change (IPCC) is warning[6] that a further increase of the world's temperature by more than another 0.6^{o} C, a consequence of CO_2 levels exceeding 450 ppm, would have far-ranging catastrophic consequences on humanity, including food security and livability of cities.	We submit that indirect CO_2 emissions of the LLCOP project would *have immense environmental, social, economic, and moral dimensions*. Approval of the ESIA for the project without scrutiny of these consequences of its CO_2 emissions should be set aside as irrational. We therefore recommend that an assessment of the project's impact on climate must be part the ESIA

[5] ESIA Addendum at Pg. 28.
[6] Masson-Delmotte, V. (Ed.). (2018). Global Warming of 1.5 OC: An IPCC Special Report on the Impacts of Global Warming of 1.5° C Above Pre-industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty. World Meteorological Organization.

		According to page 4-16 of the ESIA, the purpose of the LLCOP project is to transport 65,000 barrels per day of crude oil from the Lokichar area so that the crude oil can be refined into transportation fuels that are used to power internal combustion engines, adding to the global atmospheric burden of CO_2 levels. An operational capacity of 65,000 barrels per day of crude oil is equivalent to 23.7 million barrels per year. The average CO_2 emissions from production and eventual combustion of crude oil (including its refined products) are estimated at 0.43 metric tons CO_2/barrel.[7] This implies that approval of the LLCOP project would entail adding 10.2 million metric tons of CO_2 to the atmosphere each year. The Interagency Working Group on the Social Cost of Greenhouse Gases (IWG) has published estimates of the social cost of CO_2 emissions to allow agencies to incorporate the social benefits of reducing CO_2 emissions into cost-benefit analyses of regulatory actions. In the methods adopted by IWG, the social cost of carbon is defined as: "[T]he monetized damages associated with an incremental increase in carbon emissions in a given year. It is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk,	

[7] Greenhouse Gases Equivalencies Calculator - Calculations and References
https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

and the value of ecosystem services due to climate change."[8]

The most recent estimates of the social cost of CO_2 emissions is presented in the following table:

Table ES-1: Social Cost of CO_2, 2010 – 2050 (in 2007 dollars per metric ton of CO_2)

Year	5% Average	**3% Average**	2.5% Average	High Impact (95th Pct at 3%)
2010	10	**31**	50	86
2015	11	**36**	56	105
2020	12	**42**	62	123
2025	14	**46**	68	138
2030	16	**50**	73	152
2035	18	**55**	78	168
2040	21	**60**	84	183
2045	23	**64**	89	197
2050	26	**69**	95	212

As noted above, from 2025 to 2029, indirect emissions of the LLCOP project will be at least 10.2 $MtCO_2eq$ per year. Applying the most recent Central Value (3% discount rate) and converting 2007 dollars to 2018 dollars,[9] then estimates of the social cost of CO_2 emissions of the LLCOP project would be as follows: For the years 2025-2029 inclusive:

- $**2.86 billion** ($46/tCO_2eq x 10.2 million tCO_2eq/year x 5 years x 1.22)

Therefore. Indirect CO_2 emissions of the LLCOP project would *have immense environmental, social,*

[8] IWG (August 2016) Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866.
[9] https://www.usinflationcalculator.com/.

		economic, and moral dimensions. Approval of the ESIA for the project without scrutiny of these consequences of its CO_2 emissions should be set aside as irrational.	
INADEQUACY OF THE ESIA STUDY REPORT:			
a. BIODIVERSITY, ECOLOGY AND PROTECTED AREAS			
Section 4.7.1	Conservation models and the associated dynamics	*"29 Protected Areas found within the Area of Interest (AoI) include; national parks, national reserves to community conservancies, reserves and private ranches within the area of traverse. The predicted impacts on biodiversity relates to changes in habitat integrity as a result of disturbance and change to protected areas, and impacts of species of high importance..."*. It is important to note that some of the areas identified as 'Protected Areas' are not nationally-designated conservation areas, for instance, community-based conservation models like in Kalama and Nakuprat Community Conservancy, which employ different (i.e. community-based) approaches/models and systems of conservation, while others like the Lewa Conservancy is Privately owned. The report has, observably, understood these different models from the standpoint of the national Kenyan wildlife legislation and policy (see 6.6.6) rather than interrogating how the different systems of conservation and power relations may interact with the dynamics of a mega-infrastructure.	There is a need for context-based guidelines guided by the understanding of the different models of conservation under the outlined areas of ecological and biodiversity importance. This is extremely important, as the most affected regions would be 2 community conservancies, Nakuprat-Gotu with 811 red listed species, 6 critically endangered, 8 near threatened; and 802 red listed species, 5 critically endangered, 8 endangered and 15 vulnerable in Kalama Conservancy.

		Community conservancies in this case have the risk of high biodiversity loss (whether directly or indirectly) as they are not governed under the Protected Areas guidelines.	
	Failure to assess indirect impacts that are a significant or high threat to biodiversity and natural habitats	*Page 29 of the WWF report states:* *"The most significant potential threat to Important Biodiversity and Natural Habitats, Wildlife habitats and corridors is indirect and is likely to occur during the LLCOP operation phase. While the risks of an oil spill are marginal due to the safety standards of modern day pipelines, infrastructures such as AGIs and service roads often facilitate further development, which might pose a greater threat to wildlife and important natural habitats than the actual pipeline. Planned AGIs and service roads will be required for continuous use and generate traffic, which increase wildlife roadkill especially in protected areas and conservancies. In addition, new or expansion of roads may lead to unintended consequences including new settlements and exploitation, potentially leading to overexploitation of resources, increase in poaching, shifting agriculture and charcoal production, habitat fragmentation, land speculation, human wildlife conflicts, communicable diseases, loss of culture, local knowledge and livelihood of indigenous groups. These impacts are usually more severe and affect a wider area than the direct infrastructure impacts. As such, although the direct impacts of the operation stage might be seen as marginal, the indirect or unintended consequences of the pipeline might pose a significant risk. As a result, the operation stage is*	The lack of Biodiversity Management Plan at the ESIA stage denies stakeholders and decision-makers an essential document for understanding whether the indirect impacts to biodiversity and natural habitats can be minimized to an acceptable level. We therefore recommend that the Biodiversity Management Plan for the project be developed in order to understand the indirect impacts associated with increased access and to outline how indirect impacts to biodiversity and natural habitats can be minimized to an acceptable level.

		classified as "Significant or high threat " to Important Biodiversity and Natural Habitats, and Wildlife habitats and corridors." Stated briefly, along the pipeline route there will be new above ground infrastructure (AGI), consisting of 16 pump stations and additional stations providing power generation, block valves, and launchers/receivers for pipeline maintenance. Because some of the stations will be in remote areas, a total of 31.4 km of new access roads are required for the project. The influx of people attracted to these new roads and stations creates the potential for a significant or high threat impact to biodiversity and natural habitat in these remote areas. Despite the issue being raised in the WWF report, the ESIA report lacks an assessment of these impacts and how to prevent or mitigate them. Page 7-114 of the ESIA states: "Loss of habitat due to direct disturbance associated with the Project was quantified by overlaying the current, baseline extent of the habitat with the Project footprint. Additional, indirect impacts to habitat receptors were estimated by applying the results of other technical discipline impact analysis to indicate possible changes in habitat quantity and/or quality caused by edge impacts, fragmentation, sensory disturbance (light, noise, vibration), and air emissions and dust. *It should be noted that the majority of these impacts are wholly temporal in nature.* The transient nature of these impacts reduces the magnitude to receptors."	

		Pages 7-133 to 7-134 of the ESIA states: “Indirect impacts resulting from the Project “Indirect impacts may include population influx to nearby settlements during construction, and subsequent increases to natural resource harvest and grazing pressure on vegetation communities and habitats*. In addition, the construction of the Project will also increase the prevalence of access tracks for people and vehicles. This will result in greater accessibility to areas previously not exposed to increases in footfall and regular vehicular movements.* In addition, any unregulated increase in access could result in increases in hunting pressure. *The regulation of access to the Project RoW, to be defined within the Biodiversity Management Plan (refer operational mitigation), will be critical to the avoidance of indirect impacts associated with increased access*. The regulation of access within conservancies and habitats supporting SoCC will be most strictly governed. In the absence of operational mitigation, the impact significance of population influx is considered to be moderate (adverse).” This information is internally inconsistent and fails to address the issue raised in the WWF report about the influx of people attracted to new roads and stations, creating the potential for a significant or high threat impact to biodiversity and natural habitat in these remote areas. Once built, the new access roads and AGI would remain for the duration of the project; *the impact would be permanent, not temporary or transient*. The ESIA simply fails to assess these indirect impacts that are a significant or	

		high threat to biodiversity and natural habitats raised in the WWF report. As for mitigation of these impacts, the ESIA states: *The regulation of access to the Project RoW, to be defined within the Biodiversity Management Plan (refer operational mitigation), will be critical to the avoidance of indirect impacts associated with increased access*. However, *the Biodiversity Management Plan* for the project does not yet exist. Page 7-159 of the ESIA states: "In order to protect SoCC [Species of Conservation Concern], a Biodiversity Management Plan (BMP) ***will be*** prepared as part of the Project Environmental & Social Management Plan (ESMP). The BMP will set out the mitigations and management controls defined in the ESIA in a clear, implementable and auditable manner. Mitigations will cover the complete mitigation hierarchy from avoidance through minimization through to biodiversity restoration." The lack of Biodiversity Management Plan at the ESIA stage denies stakeholders and decision-makers an essential document for understanding whether the indirect impacts to biodiversity and natural habitats can be minimized to an acceptable level.	
	Failure to identify key biodiversity areas	*The pipeline is set to cross two protected areas, Rahole (IUCN Category VI); with a total number of red listed species: 604 Critically endangered: 4 Endangered: 7 Vulnerable: 12 Near threatened: 15 Least concern: 566 (Station 11) and Nyambene; with*	We submit that the report cannot be silent/ overlook these key biodiversity areas. We recommend that these

		a total number of red listed species: 819 Critically endangered: 5 Endangered: 8 Vulnerable: 14 Near threatened: 21 Least concern: 771 (Station 8) The report does not acknowledge these two areas as Key Biodiversity Areas (IUCN category) despite being listed as designated as such by IUCN.	key biodiversity areas be acknowledged and adequate mitigation measures be outlined.
Section 4.1.2.1	Impacts on sensitive areas *of biodiversity and community cultural heritage and livelihoods importance*	*"The selected route option avoids settlements and sensitive areas of biodiversity and community cultural heritage and livelihoods importance..."* *Although it is mentioned that the route would avoid sensitive areas, the report has extensively highlighted the ecological impacts of key biodiversity areas designated by UNESCO as a World Heritage Site, for instance the Lewa Conservancy and Ngare Ndare Forest reserve and the extensive Somali/Maasai and Mt. Kenya ecosystem, amongst other 29 areas of biodiversity significance.*	In 3.4.6, Offsetting is outlined as a potential mitigation measure in such instances. It is therefore important that cumulative impact assessment of these regions guide on critical areas where offsetting can be implemented
Section 4.1.12.2	Biodiversity/ecological related securitization plan	*"The Pipeline Control System will be manned for 24 hours, 365 days a year will be monitored, operated and controlled through an Integrated Control and Safety System ICSS consisting of a process control system."* The securitization system is biased towards the protection of property (across all project stages) rather than close monitoring of ecological impact, which only seems to be of great concern during the construction and or lesser concern during the operational stage.	The report has cited IPIECA (2007) an ecosystem approach to oil and gas industry biodiversity conservation; hence these best practises should reflect in the management plan. Other than the main Control Centre and CPF control rooms, biodiversity/ecological related securitization plan, given the expected encroachment, should be

			outlined in the BMP
Section 4.1.7.3		*The Pipeline's the Right of Way is indicated as a Land Use right (i.e. 26m) for the construction of the pipeline by the company.* In areas where avoidance/ offsetting was not possible, how have the Right of Way dynamics interacted habitats of concern; with the dynamics of key biodiversity areas in the ecoregion six ecoregions and 29 Protected Areas; these include sites of biodiversity importance, such as Important Bird Areas (IBA), Endemic Bird Areas (EBA), Key Biodiversity Areas (KBA), Ramsar sites, WWF Ecoregions	The Biodiversity Management Plan should specifically address this, given the Environmental Management plan has not adequately addressed it.
Section 4.7.2		*On Marine ecosystem; the AoI is located on a sheltered coastline, with dense mangrove coverage within a continuous mangrove system that forms a key biological component of the coastal and marine Lamu-Kiunga landscape and seascape. There is high connectivity between the Lamu-Kiunga mangrove belt and nearby coral reefs and seagrasses, facilitating the use of mangrove as nursery grounds by fish species.* Given the ecological importance of the AoI and the detrimental impacts an oil pipeline could have on such ecosystem, it is important, other than a general mitigation plan, to specify the pipeline design, material design, external coating and third party interference dynamics. While adherence to good practices is promised, a Biodiversity Management Plan should ascertain the	Although Chapter 2 of the report indicates the Adherence to good practises and that key guiding documents have been consulted, a BMP is specifically (and of additional) important for the Marine Ecosystem. We recommend that Biodiversity Management Plan for the project be developed before an environmental license is issued/ granted.

		extent and management of any residual impacts.	
Section 6.6.7.3.1	Spread of Invasive and Alien species	*"Spread of Invasive and Alien species Program and a review report [10]indicates that one of the biggest threats to Hirola conservation is the spread of the invasive and alien Acacia reficiens tree which has transitioned former open grassland habitats into scrubby bare ground mosaic habitats of little conservation value. Habitat restoration for reducing fragmentation, and semi-captive breeding has been high on the list in efforts to recover the ailing population of Hirola.* It is evident that anthropogenic corridors increase the spread and cover of invasive species.[11] It is expected that both the construction and operational phase will have unusual human activities, hence the introduction of another dimension of ecological disturbance that may lead to spread of invasive species that compromises the ecological integrity and value as evidenced in the cited reports.	Best guidelines should be adopted from the energy and biodiversity initiative 2006. Good Practise on Mitigation of primary and secondary impacts on biodiversity; and practical actions should reflect in the Management Plan
Sections 5.5. 5.5.1 and 7.5.9	Lack of a biodiversity management Biodiversity Management Plan	*"The implementation of a Biodiversity Management Plan (BMP), Wildlife Rescue Procedure, Invasive Species Management Procedure, wildlife awareness component for workers, as well as having a Biodiversity Officer (BO) employed by PipeCo is outlined as additional mitigation measures during the construction phase."*	We strongly recommend that prior to project licensing, the mentioned documents and a long-term, responsive pipeline management system (that focuses on biodiversity management) should be

[10] Abdullahi, H. Ali. Hirola Conservation Programme, Kenya. LAPSSET and LLCOP Mitigation Recommendations for the Critically Endangered Hirola. Unpublished Report. Submitted to Golder Associates UK Ltd. 30th July 2019.
[11] Hulme, P. E. (2009). Trade, transport and trouble: managing invasive species pathways in an era of globalization. *Journal of applied ecology*, *46*(1), 10-18.

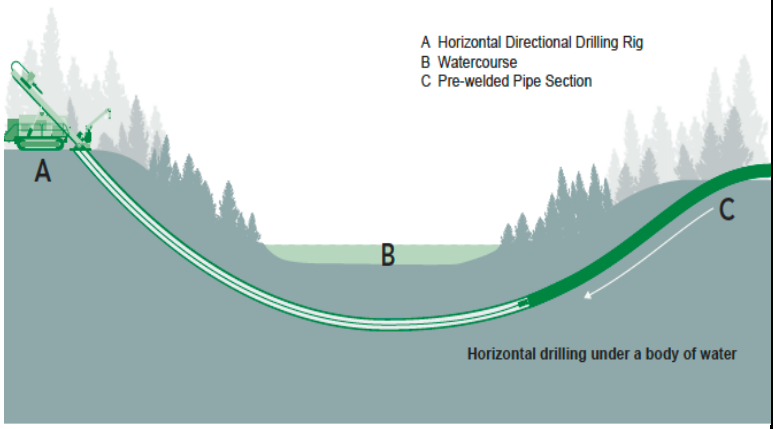
		Further, in section 7.5.9 it is indicated that a BMP will be prepared as part of the Project Environmental and Social Management Plan. a. The BMP, Wildlife Rescue Procedure and Species Management Procedure are documents only mentioned in the report but have not been developed, despite the project being of high risk to biodiversity, and species of high concern. b. The implementation of these measures (for instance hiring a Biodiversity Officer) should not only focus on the construction phase, given the expected risks in the operational stages (refer to Industrial Accidents Convection, 2006) c. Referring to 7.5.9 the BMP is extremely vital as it sets out specific mitigation and management control in a clear, implementable and auditable manner.	developed to guide action and monitoring activities. The BMP cannot be substituted with an operational mitigation plan.
Sections 7.5/ Section 7.5.4/ and Section 7.5.5	Failure to use real time data for analysis	*Biodiversity connectivity in terms of habitat and possible fragmentation within the Area of Interest is extensively explored.* This analysis, has observably, relied on secondary review of data, with Ojwang et. al., (2017) and Van Breugel et.al., 2015) being a key source of information. This has led to generalized rather than specific information.	We strongly recommended that as best practise, that local assessment should be conducted to understand real-time issues. The IBPES (2019) emphasizes on the importance of consideration of traditional/indigenous knowledge systems in shaping such understanding.
b. ECOSYSTEM SERVICES			

Sections 4.11.2, 4.11.3, 4.11.4, 4.11.5	Failure to consider long term impacts on ecosystem services	*"4.11.2 Provisioning Service,4.11.3, Regulating Services, 4.11.4 Cultural Services, 4.11.5 Supporting Services."* *During the operational phase, the only residual impact relates to potential oil leaks and/or spills (from pipeline, station facilities, tanks, or during transfer between facilities) with minor impacts on freshwater (fishing) and marine (fishing and mangroves)* a. Analysis of impacts on all the ecosystem services have focused on the construction phase, and there is less consideration on the post-construction (operational phase). b. Cases of oil leakages on water bodies and the ensuing pollution effects have been detrimental from various case studies. In other cases, impacts have been irreversible. The ESIA report has evidently underestimated this impact, yet the pipeline traverses 3 permanent rivers, other seasonal rivers and marine environments.	a. The project analysis should not be short-sighted, but instead acknowledge that ecosystems services will be impacted all through the project period, with the report documenting short-term and long-term impacts on the various ecosystem services. ● Additionally, given the magnitude and the scale of the project, in relation to the ecosystem services, a Ecosystem Valuation should have been conducted to inform the Project Alternatives and ascertain the economic viability of the project. b. We recommend a reconsideration of the pollution impact on water bodies, and an adequately developed

			mitigation and (or) response plan.
Section 4.11.3	Inadequate risk and hazard management	*"Hydrological systems which regulate water run-off, influence groundwater recharge and maintain water storage potential of the landscape. The natural landscape is also likely to regulate flooding during intense rainfall events. Along the coast, mangroves provide coastal protection from erosion and inundation by the sea."* While the regulatory and supporting services play an important natural role in prevention of natural disasters and livelihood systems for human security respectively, the report has not extensively linked the anticipated impacts with the risks, or incorporated these aspects in risk and hazard management. The two sections (e.g. Ecosystem services and Risk Management) are observably handled as stand-alone.	The dynamics of the disturbance of the regulatory functions should reflect in the risk management section, and adequately inform the EMP.
Section 4.11.4	Inadequate consideration of traditional knowledge in developing mitigation measures for cultural services	*Cultural Services: Sacred sites and intangible cultural heritage, evident within the AoI, are intrinsically linked with natural ecosystems such as wetlands, rivers, lakes and forests. Some species of acacia trees are regarded as sacred and used during ceremonies and community members indicated that they should not be destroyed.* The proposed mitigation measures for cultural sites, which include but not limited to site-fencing (as proposed in the report), may not be in line with traditional knowledge and practices of communities along the traverse. Fencing off is more often than not, among most communities, a western notion.	We recommend intensive consultation with the custodians of traditional knowledge in the affected communities; to inform mitigation measures/ management plans where the Right of Way coincides with areas that are important sources to cultural services.

WATER QUALITY AND WATER QUANTITY			
Section 6.4	The ESIA fails to consider measures for preventing impacts to rivers	*The construction of a crude oil pipeline could disturb river beds of important rivers such as the Ewaso Ngiro River which the pipeline crosses* The manner in which the construction of a pipeline crosses an important river determines the magnitude and duration of adverse impacts to such river. Importantly, ***such impacts can be avoided entirely by the use of horizontal directional drilling (HDD)*** in which a pipeline is laid beneath a river without disturbing the river itself. See the following material and illustration: "Trenchless techniques require limited or no in-stream construction and so cause little to no disturbance to the watercourse bed and banks. The most common type of trenchless crossing is a Horizontal Directional Drill (HDD). HDD can be used to avoid congested or environmentally sensitive areas such as large or sensitive water bodies."[12]	We recommend that the project proponent provide more information on the use of horizontal directional drilling (HDD), as an alternative to the open cut method, and outline how this method can be used for preventing the disturbance of the beds of these rivers, including creation of heavy sediment loads.

[12] National Energy Board of Canada (2016): How do pipelines cross rivers and streams? https://www.neb-one.gc.ca/bts/nws/rgltrsnpshts/2016/10rgltrsnpsht-eng.pdf



Section 6.4 of the ESIA discusses three important rivers:

“Kerio River

“The Kerio River originates from the Metkei and Timboroa forests and flows approximately 500 kilometres (km) towards the northeast, passing through the Kerio Valley before draining to Lake Turkana. Flow data are generally scarce (Wood Group, 2018). There is a gauging station (Station 2C8) at Lokori. Based on measurements between 1970 and 1973 at this station, the mean inter-annual flow was estimated to be 10.5 cubic metres per second (m3/sec).

“The ESIA aquatic ecosystems baseline work (Annex II) included dry season estimations of watercourse width and height, and flow velocities. The estimated dry season discharge was 3.64 m3/s. The predicted extreme event 1 in 100-year return period peak flow for the Kerio River (Wood Group, 2019) is 1,040 m3/s.

		“Suguta River “The Suguta River originates in the Suguta Valley. The low rainfall and high evaporation rates in the valley means that the flow regime is irregular and major discharge only occurs following the rainy season. The river has a large flood valley that includes several abandoned channels. The current channel is approximately 100 m wide at the proposed pipeline crossing, but the floodplain (with the possibility of channel migration) means the distance between ‘banks’ could be much greater (up to 6.2 km) (Wood Group, 2018). A photograph of the Suguta River near the crossing location is included as Figure 6.4-3 (Golder, 2019a). The ESIA aquatic ecosystems baseline work (Annex II) included the estimation of dry season discharge at 2.85 m3/s. The predicted 1 in 100-year return period peak flow for the Suguta River (Wood Group, 2019) is 1,450 m3/s. “Ewaso Ng’iro River “The pipeline route crosses the Ewaso Ng’iro River near Archer’s Post. The river originates from the wetter Nyandarua Mountains and Mount Kenya over 200 km in the west and flows for about 700 km to the Somalian desert. Its drainage basin covers an area of 210,000 kilometers squared (km2) (Wood Group, 2018). The Ewaso Ng’iro River at the proposed pipeline crossing at Archer’s Post is typically perennial. In most years the river becomes ephemeral near the town of Merti, which is located approximately 120 km downstream and northeast of the pipeline crossing, but when the rains are poor	

		flows can cease further upstream (Acacia Water, 2014). “At the pipeline crossing, the river is approximately 150 m wide (Wood, 2018). The southern bank mainly comprises fine sand, with local fluvial conglomerates underneath. … “Field data from a flow gauge in the Ewaso Ng’iro River (Wood Group, 2019) shows that the maximum annual flow discharge during the period 1960 to 1978 ranged between 220 m3/s in 1960 and 1,752 m3/s in 1961, but that the maximum annual flow discharge for most years fell between 400 m3/s and 700 m3/s. The predicted extreme flow is 1,131 m3/s for the 1 in 20-year return period and 1,540 m3/s for the 1 in 100-year return period according to Wood Group (2019). ...” Rather than avoid impacts to these rivers entirely, the project proponent is proposing to cross these rivers using the open cut method. Page 4-35 of the ESIA states: “River Crossings “The three permanent rivers crossed by the pipeline will be crossed with the pipeline installed at depths to prevent erosion or impacts to water and sediment. Permanent and seasonal rivers will be crossed using open cut methods.” Although the Acronyms for the ESIA includes Horizontal Directional Drill (HDD), the ESIA nowhere else mentions HDD as an alternative to the open cut method for constructing the pipeline across the Kerio	

		River, Suguta River, and the Ewaso Ng'iro River. This failure deprives stakeholders and decision-makers the ability to understand whether use of HDD as an alternative to the open cut method is a reasonable alternative preventing the disturbance of the beds of these rivers, including creation of heavy sediment loads, that the open cut method entails.	
Section 4.1.10.2/ Page 7-52 od ESIA	The ESIA fails to assess the impacts of hydrostatic testing	Before oil pipeline segments can be placed in services, they must be tested for safety by passing large quantities of water through the pipeline segment under very high pressure in a process called hydrostatic testing. The process jeopardizes water availability in locations where water is scarce, and impairs water quality by releasing hydrostatic testing effluent Since the construction of the pipeline may require water extraction for concrete mixing and hydrostatic testing, there is a possibility of a water conflict with local communities especially who depend on water sources for domestic use or farming or for their livestock. In fact, page 29 of the WWF report identifies this Impact and notes the area along Isiolo where there is concentrated human settlement along the route. These impacts are acknowledged in the ESIA. Page 7-378 of the ESIA states: "7.13.6.1 Construction Phase "Based on the Project description, and the understanding of the baseline ecosystem services conditions that have been developed, there are	We recommend that the livelihood of the majority of the communities is based on pastoralism and fishing and therefore significant measures must be taken to ensure that site specific assessments are conducted to identify any local water users dependent on access to local water supplies prior to construction. We also recommend that the use of grazing lands and migration routes of the pastoralist communities must be considered in the assessment and determination process of water resources to be utilized in the LLCOP construction phase

		aspects of the Project that have been identified as having the potential to present sources of impact to either ecosystem services quality or availability during the construction phase. The potential sources of impact and routes by which they could impact ecosystem services quality and/or quantity are: … "***Abstraction of water (e.g. for hydrotesting) leading to impact on overland flows, erosion, decreased water availability for people***, agricultural irrigation, and livestock;" However, the specific impacts of hydrostatic testing cannot be assessed because the sources of water for hydrostatic testing is 'currently unconfirmed." Page 7-52 of the ESIA states: "Pipeline Flushing and Hydraulic Testing "The source (or sources) of water for commissioning (hydrotesting) activities and the water demand is currently unconfirmed. Water could be taken from surface watercourses and it could therefore directly impact flows. If water is taken from the ground, this could impact existing water levels. The incorporated mitigation means that hydrostatic test water will be obtained in accordance with applicable regulations and abstraction and discharge will occur in the same catchment, where possible. Water demand will also be reduced by water reuse where possible. Existing water users are	

		considered to be secondary receptors that could be indirectly impacted by changes to water availability because both groundwater and surface water along the route of the pipeline is used at present. However, further characterization of the water environment and local users at the selected abstraction location(s) would be required, so the initial predicted impact magnitude from abstractions to groundwater, surface watercourses and associated human water user receptors is medium (adverse). Discharge of the used water could impact the quality of the receiving water body. The incorporated mitigation means that hydrostatic test water will be discharged in accordance with applicable regulations. The use of biocides and corrosion inhibitors will be avoided where possible. Discharge of the used water could also lead to increased erosion and impact flows/flood risk in surface watercourses. The incorporated mitigation means that hydrostatic test water will be discharged in the same catchment as it was abstracted. The initial predicted impact magnitude to the smaller watercourses where the discharge could be a large proportion of flows is high (adverse), to large watercourses, shallow groundwater and water users is medium (adverse) and low (adverse) to the marine environment and Lake Turkana." The failure of the ESIA to identify the sources of	

		water for use in hydrostatic testing is a serious defect. This failure deprives stakeholders and decision-makers with an essential understanding of required hydro testing for the project would create decreased water availability for people.	
Section 4.1.10.3/ Page 4-55	Dewatering - Discharge of water	The ESIA refers to the discharge of hydrotest water post-use to a site pre-agreed with the regulator. However, the site has not been identified in the ESIA.	Section 94 of the Water Act prohibits obstruction and pollution of water resources. We recommend that not only should the project proponent identify the site for discharge of hydro test water but that an assessment should be done to establish the impacts of the discharge. In identifying the discharge site, we recommend that the proponents should adhere to national and international laws in water abstraction and discharge in ensuring no harm to flora, fauna and the people. The waste water should be treated and discharged in a manner that ensures it shall not seep into other natural water resources.
LANDSCAPE AND VISUAL			
Section 5.6.1 and 5.6.2	Impacts from the landscape/visual assessment is not clear	*The landscape assessment, landscape character area, sense of place and the nature of disturbance and transformation has been outlined.*	Local voices will help understand the difference (in perspectives) between the

		The potential visibility of the VLCC is low and overall, the residual visual impact of the Port development will be minor during both construction and operation largely due to the distance to the Project The magnitude/nature of scale of the impacts from the landscape/visual assessment is not clear. There is, observably, a general lack of local perspectives/voices in this section, as it is only informed by expertise data.	involved proponent (who is represented in this by the expert) and the locals.
c. SOILS, GEOLOGY AND GEOHAZARDS			
Section 4.6 of the non-technical summary of the initial ESIA study report.	The potential impact of long-term subterranean heating on the soil, geology and geohazards during the operational phase has not been addressed.	In describing the project in section 2.0 of the non-technical summary of the initial ESIA study report, the project proponent states that the pipeline will be heated and insulated to maintain the oil at a temperature to maintain its optimum flow characteristics. The report does not, however, **quantify** the amount of heat that will be used and how this may affect the composition and characteristics of the soil, geology and geohazards over a long period of time. No mitigation measure is also proposed to address any potential impacts that might arise from this.	NEMA should require the project proponent to conduct further studies and provide further quantifiable information on the potential impacts of subterranean heating and suggest mitigation measures in the ESMP.
Section 4.6 of the non-technical summary of the initial ESIA study report.	The project proponent makes provision for further studies on the faults to the West of Suguta and possible further changes in project design after the	The ESIA study concluded that any movements of the faults would be small and could be accommodated by the pipeline without requiring special pipeline fault crossing design. However, the project proponent states that further field evaluation will be undertaken for the faults to the west of the	We recommend the following: - a. That NEMA requires the project proponent to conduct further surveys on the faults of

	submission of the ESIA study report.	Suguta Valley and should any potential large fault movements be identified, then the **pipeline will be further designed** to accommodate this movement without risk of failure. This goes against the precautionary principle and may provide an avenue for the project proponent to make major adjustments to project designs without following the required legal process.	the West of the Suguta Valley before the license is issued. b. The project proponent informs NEMA about any changes in the design of the project at any point during the construction phase or at later stages of the project. c. That NEMA requires the project proponent to conduct fresh ESIA studies for changes in designs of the project.
d. SOCIAL AND CULTURAL IMPACTS			
Social Impacts Section 7.11 - Economics and employment	Inadequate analysis of the economic impacts of the project.	The ESIA study report is not clear about the implications of implementing this project on taxpayers. The project proponent failed to disclose the full details of the contract including an assessment of the burden that taxpayers will have to shoulder. Further, the project proponent failed to quantify the cost implication of any environmental damage that could occur due to the project. A cost-benefit analysis that is quantifiable is important for the public and NEMA since it will help	We recommend that NEMA direct the project proponent to consider the economic implications of the project before a license is issued.

		them make an informed decision on the viability of this project.	
Section 7.12 - Livelihoods	Inadequate mitigation measures for the disruption of livelihood.	As stated in the ESIA study report, the provision of employment for local communities will be largely during the construction period. This, in our view, will not be sustainable for local communities whose livelihood will be significantly affected by displacement from their ancestral lands. The sharing of benefits from the exploitation of natural resources and provision of job opportunities to local communities should also extend beyond the construction phase. This should also include non-monetary benefits that would cushion the affected communities from losing their livelihood beyond the construction phase. For instance, the project proponent should endeavor to build the capacity of community members and train them to take up job positions even after the construction phase is complete.	The project proponent should put in place a plan that will cushion the affected persons from losing their livelihood after the construction phase. A comprehensive capacity building is required to help the community to acquire the skills necessary to take up permanent job positions after the project construction phase.
Impacts on Cultural heritage: Section 4.9	Failure to subject the entire project area to a field survey in order to identify all cultural sites and the provision for changes in design during the construction phase.	The ESIA study report states that the tangible and intangible cultural heritage identified in the Areas of Influence (AoI) is a representative sample, as due to constraints not all areas have been subject to field surveys and it is likely that additional sites may exist in those areas that were not reached. The project proponent proposes that these un-identified cultural sites will be identified by surveys and further	We recommend that NEMA requires the project propone to conduct further surveys in AoI not covered and develop the Site Clearance Procedure, Cultural Heritage Management Plan and Chance Find Procedure through a consultative

		consultations with local communities before and during construction. Secondly, the project proponent states that as a mitigation measure, they will micro-align the project components to avoid identified cultural heritage receptors in addition to having a Site Clearance Procedure and Cultural Heritage Management Plan. Besides, they state that a Chance Find Procedure will be implemented. In our view, this approach goes against the precautionary approach and the essence of the ESIA study process which aims to ensure that all potential impacts are comprehensively identified and clear mitigation measures put in place before the project is implemented. Therefore, it is not in order for the project proponent to use “constraints” as an excuse. Instead, they should find ways of working closely with community members within all the AoI to identify the cultural sites. Similarly, the Site Clearance Procedure, Cultural Heritage Management Plan and Chance Find Procedure have not been provided in the ESIA study report. Also, since the project proponent commits to developing them at a later stage outside the ESIA process, there is a high risk that community members will not be effectively involved in the process of developing these plans. Another issue of concern is the fact that the project proponent makes an allowance for the modification	process before the license is issued. Any changes made to the design after the construction phase must be reported to NEMA and a fresh ESIA in respect of the changes conducted.

		of the project design where unidentified cultural sites are spotted during the construction of the pipeline. The environmental impacts of such modifications will remain unclear unless subjected to an ESIA study process. Allowing this will provide an opportunity for the project proponent to sneak in significant project modifications that can be potentially detrimental.	
PUBLIC PARTICIPATION PROCESS			
Stakeholder Engagement: Section 5.0	Inadequate public participation	The public participation process for the initial ESIA study process and the ESIA Addendum was inadequate for the following reasons: - a. The project proponent failed to strictly comply with **all** the requirements of Regulation 17 and in particular, Regulation 17(2) (a), (b) and (c) of the Environmental (Impact Assessment and Audit) Regulations 2003. b. The process of selecting and notifying stakeholders was very selective especially in respect of the ESIA Addendum. c. Provisions of inadequate and inaccessible information during the stakeholder engagement processes. Contrary to the requirement of Regulation 17(2)(a), (b) and (c) of the EIA Regulations, the project proponent failed to provide evidence of compliance with the following **mandatory** legal requirements: - a. Posting posters with information on the proposed project in strategic public places in the vicinity of the site, and b. Publishing a notice on the proposed project for two successive weeks in a newspaper with	NEMA should not grant a licence unless public participation is conducted in accordance with the law.

		nation-wide circulation, and c. Making an announcement of the notice in both official and local languages in a radio with nationwide coverage for at least once a week for two consecutive weeks. For instance, the stakeholder engagement exercises conducted on 9 March 2020 and 11 March 2020 in Lamu and Garissa County respectively were not conducted according to the process laid down above. Instead, invitation letters were circulated via e-mail to specific selected individuals and organizations, leaving out other members of the general public who could be potentially affected. No announcements were made in the newspaper or radio station with nationwide coverage and where they claim to have done so, no evidence has been provided to prove the same. In the case of S*ave Lamu & 5 others v National Environmental Management Authority (NEMA) & Amu Power,* the National Environmental Tribunal (NET) stated that the wording of Regulation 17 (2) imposes a **mandatory obligation** on project proponents to strictly comply with all the requirements. It therefore, leaves no room for manipulation or alteration of the procedure. The Tribunal further stated that the emphasis on nation-wide publication/ announcement was because the impact of such projects, in many instances, were of national interest. Wider consultations according to the law was necessary in respect of the ESIA Addendum since the change from Lamu Marine Terminal Offshore Storage option to Lamu Marine Terminal Onshore	

		Storage Option could still have negative impacts on the marine ecosystem. According to Section 48 of the Fisheries Management and Development Act, this would require a Fisheries Impact Assessment to address the potential impacts it may have on marine species and their habitats. This alone, justifies the need for greater and wider consultations on the change of alternative. The process of selecting and notifying stakeholders was very selective especially in respect of the ESIA Addendum where invitation letters were sent to specific individuals and organizations and not the general public. In *Mui Coal Basin Local Community & 15 others v Permanent Secretary Ministry of Energy & 17 others*, a three-judge bench set out the minimum basis for adequate public participation. One of the principles of public participation as set out in this judgment is that there must be i**ntentional inclusivity** and **diversity** in the process. Any clear and intentional attempts to keep out a bona fide stakeholder would therefore render the public participation process ineffective and illegal by definition. Ensuring that every person is included would mean taking deliberate actions aimed at creating an enabling environment for people to participate including choosing a convenient location for holding meetings, selecting an appropriate time for holding consultations and holding sufficient number of meetings to allow for wider consultations. This deliberate inclusion of the wider public was lacking in the stakeholder engagement especially for the ESIA Addendum. Access to timely and meaningful information is essential for ensuring that the consultation process is	

		effective. However, the information provided to communities was very scanty and not sufficient to help them understand the project. This denied them an opportunity to present their views effectively.	
TRAFFIC			
Section 5.8.1	Lack of a Traffic Management Plan	Impacts on traffic volumes and composition during construction will be partially mitigated through an appropriate Traffic Management Plan (TMP) and traffic accidents control. Given the magnitude of the cumulative impacts on both the marine and terrestrial traffic, a Traffic Management Plan is extremely vital. Although the report mentions its adoption, a comprehensive TMP is not attached/developed.	Prior to licensing, a comprehensive Traffic Management Plan, informed by best guidelines, laws and principles that address the anticipated traffic issues, should be developed and reviewed.