SAVE LAMU

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Re: Comments on the Environment and Social Impact Assessment (ESIA) Study for the Proposed 1,050MW Coal Fired Power Plant Project, Kenya

The Environmental and Social Impact Assessment ("ESIA") for the proposed Amu Power Coal Fired Power Plant Project (the "Project"), released in July 2016, falls short of meeting the African Development Bank ("AfDB" or "Bank") Integrated Safeguards System ("Safeguards")[1] standards in numerous respects. The document fails to demonstrate the level of site-specific analysis needed for a project of this type and scale. It has significant gaps – leaving whole project components out of its assessment entirely and omitting consideration of the Project's physical and economic resettlement impacts. Moreover, the structure of the ESIA as a series of separate analyses artificially segments each section, leading to gaps in the consideration of important cross-cutting issues.

We understand that the AfDB is considering providing a partial risk guarantee for key components of this Project.[2] The ESIA in its current form does not provide an adequate basis to accurately weigh the Project's negative impacts against its potential development benefits. Although nearly a year has passed since the ESIA was released, there is no evidence of any efforts to improve it. We urge the AfDB to cancel plans to provide a partial risk guarantee unless and until Project proponents produce additional social and environmental assessments that adequately identify and assess all impacts as required by the AfDB Safeguards.

The following comments highlight major areas of non-conformance with the AfDB Safeguards, including:

- The ESIA omits critical aspects of the Project from its impact assessment;

[1] The Integrated Safeguards System includes the Integrated Safeguards System Policy Statement and Operational
[2] "Lamu Coal Power Plant Partial Risk Guarantee," AfDB Project Portfolio, *available at* https://www.afdb.org/en/projects-and-operations/project-portfolio/p-ke-f00-006/. According to media reports, this guarantee would secure the Kenya Power and Lighting Company's obligations under a 25-year Power Purchase Agreement for the power generated by the Project, as well as risks of delays for the transmission line. "Chinese-Backed Coal Plant Jeopardises Kenya Climate Target," Climate Home (11 Apr. 2016), *available at* http://www.climatechangenews.com/2016/11/04/chinese-backed-coal-plant-jeopardises-kenya-climate-target/. The AfDB website also indicates potential financing for the coal plant through a separate, private side project. *See* "Lamu Coal Fired Power Plant (Private Sector)," AfDB Project Portfolio, *available at* https://www.afdb.org/en/projects-and-operations/project-portfolio/p-ke-fb0-001/.

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- Affected people were not adequately identified or consulted in Project planning, including in the development of the ESIA or since its release;
- The assessment of biodiversity impacts lacks detailed information necessary to develop adequate mitigation measures;
- The ESIA fails to recognize significant impacts to local livelihoods or develop measures to mitigate these impacts;
- Pollution impacts have not been properly assessed and the air quality baseline assessment appears flawed;
- The ESIA does not demonstrate sufficient efforts to ensure that affected people share in project benefits;
- The assessment of cumulative impacts improperly excludes known major development projects in the area of the Project; and
- The alternatives assessment is based on false assumptions and flawed reasoning regarding the viability of other energy sources.

Additionally, the ESIA itself incorrectly states that two of the AfDB Safeguards documents – the Environmental and Social Assessment Procedures ("ESAP") and the Integrated ESIA Guidance Notes ("IESIA") – have not yet been released,[3] suggesting that those documents were not considered in the development of this ESIA. Indeed, as discussed below, the ESIA does not conform to the requirements of these documents, although the policies were posted publicly at least seven months prior to the public release of the ESIA.[4]

I. The ESIA must be revised to include all aspects of the Project in its impact analysis

Critical omissions in the ESIA render it incomplete and ineffective in ensuring the Project's positive social and environmental performance. According to AfDB Operational Safeguard 1, a project's environmental and social assessment must cover the project's full area of influence, which includes "the area likely to be directly affected by the project and related facilities that the project proponent develops or controls (e.g. power transmission corridors, ... borrow and disposal areas, construction camps), and additional areas in which aspects of the environment could conceivably experience significant impacts."[5] It also includes "areas potentially affected by related or associated facilities dependent on the project and that would not have been implemented if the project did not exist, but that are not funded by the project."[6] All

[3] Environment and Social Impact Assessment Study for the Proposed 1,050MW Coal Fired Power Plant Project, Kurrent Technologies for Amu Power Company Ltd (Jul. 2016), Chapter 2: Policy Legal and Institutional Framework, §2.5.1.4 ["ESIA"].
[4] *See* http://www.afdb.org/en/news-and-events/article/afdb-launches-revised-version-of-its-environmental-and-social-assessment-procedures-for-2015-15013/.
[5] African Development Bank Group Integrated Safeguard System Policy Statement and Operational Safeguards (Dec. 2013) ["AfDB OS"], Operational Safeguard 1, p. 22; Integrated Safeguard System Guidance Materials (Dec. 2015) ["IESIA Guidelines"], Volume 1: General Guidance on Implementation of OS 1, p. 18.
[6] IESIA Guidelines Vol. 1 at 18.

impacts must be assessed early enough in the project cycle to ensure that adequate measures to avoid or mitigate impacts can be built into the project's design.[7]

As described below, the ESIA does not assess the impacts of all project components and related facilities, leaving out any substantive discussion of coal mining and transportation, the coal conveyor system, limestone mining activities and the Project's resettlement impacts. As discussed later in this document, the impact assessment also overlooks climate change impacts, public health impacts and other social costs. The omitted components are likely to bring significant additional impacts, yet the ESIA shows no sign that they were considered in any part of the impact assessment, or in the development of impact avoidance or mitigation measures. These omissions subvert the goals of the ESIA process,[8] which require a holistic approach, to ensure consideration of overlapping impacts from separate project components and to develop mitigation and avoidance measures that account for the full scope and degree of impacts.

Further, the scoping stage of the project should have involved collecting baseline data on all project components.[9] Even if certain components were not yet fully assessed and therefore not included in the ESIA impact assessment, they should have been addressed in the annexed studies that form the Project's baseline assessment. Yet, these studies also fail to include baseline information relevant to the following project components.

The ESIA was released over a year ago, and since that time project proponents have released no revisions or additions to correct these glaring omissions.

A. Coal transportation

The ESIA lists a coal conveyor system as one of the "key components" of the proposed Project, yet it does not identify or assess its impacts.[10] Likewise, the coal conveyor was not considered in preliminary studies that form the basis of the ESIA, such as the Climate Change and GHG Emissions Study.[11]

The ESIA briefly describes a 15km long coal conveyor system with transfer towers that will connect the coal receiving berth at the Kililana port to the coal stock yard within the Project site,[12] and then attempts to explain the omission of any impact assessment by stating that "[t]he design of the coal conveyor system is currently in the design phase and was unavailable at the time of undertaking this ESIA Study and consequently, no environmental and social impacts have been identified or assessed."[13] However, while the fact that the conveyor was still in a design phase may have limited the ability of the ESIA to discuss its precise impacts, there is no

[7] This timing is implicit in the AfDB Safeguards' requirement that social and environmental assessment must be conducted in order to develop an appropriate plan for managing possible impacts. AfDB OS 1, p. 22.
[8] These goals include promoting sustainable development in the region and mainstreaming social and environmental considerations. AfDB OS 1 at 21.
[9] IESIA Guidelines Vol. 1 at 20.
[10] ESIA Chapter 1: Executive Summary, §1.3.
[11] *See* ESIA Appendix 4: Climate Change and GHG Emissions Study, Sec. 4.4: Overview of Lamu Power Plant Emission Causing Activities.
[12] ESIA Chapter 1, §1.3.
[13] ESIA Chapter 4: Description of the Project, §4.6.1.2.

excuse for the ESIA's failure to make any attempt to estimate its impact based on the types of impacts one might expect from such a conveyor system. The coal conveyor will be built for the sole purpose of transporting coal to the Project site and will be developed and controlled by the Project proponent, Amu Power. It therefore falls within the Project's Area of Influence and should have been included in the ESIA's assessment of Project impacts.[14]

The ESIA and related preliminary studies should be updated to include consideration of impacts from the conveyor system. Although the ESIA was publicly released more than a year ago, no further assessment has been released, and local people remain unaware of the potential impacts of the coal conveyor system.

Nor does the ESIA describe in any detail the coal mining and transportation process prior to the conveyor system, stating simply that, based on an unnamed study, "coal deliveries are expected to occur from large mining companies in South Africa and Mozambique" by ship or rail.[15] This lack of detail prevents any meaningful impact assessment and alternatives analysis related to coal acquisition and transportation.

B. Limestone mining in Witu

Similarly, the ESIA does not assess the impacts of limestone mining operations in Witu. The ESIA makes clear that limestone mining will be a potentially critical part of the Project.[16] A limestone receiving system and gypsum handling system are listed as key project components, yet the ESIA provides no discussion of limestone mining activities, their impacts, or planned mitigation measures.[17] It does not provide any reason for this omission, nor does it identify limestone mining as an activity to be carried out by a third party or treated as a cumulative impact. Limestone mining activities are often associated with significant impacts, including dust and noise impacts and potential changes to an area's groundwater. These potential impacts must be identified, assessed and properly disclosed to affected people early in the project cycle.

C. Resettlement Action Plan

For over a year, government officials have promised communities that a Resettlement Action Plan (RAP) would be forthcoming, having indicated last summer that the extreme delay in releasing the ESIA was due in part to delays in developing a RAP. Despite this, the ESIA does not include the RAP nor a timeline for releasing the RAP, and the Project's forced resettlement impacts are not assessed anywhere else in the ESIA. Even now, a year after the public release of the ESIA, local communities are still waiting for a RAP, without which they lack access to critical details about the Project's displacement impacts and proposed mitigation and compensation measures.

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[14] *See* AfDB OS 1, p. 22; IESIA Guidelines Vol. 1 at 18.
[15] ESIA Chapter 4: Description of the Project, §4.6.1.1.
[16] A concession of 2000 acres was granted by the County Assembly (presumably to Amu Power) for limestone mining in Witu. ESIA Chapter 4 at §4.2. *See also* ESIA 4.3, describing the need for limestone for the wet flue desulfurization system.
[17] In discussing cumulative impacts on traffic and transportation, the ESIA does mention potential impacts of transportation of limestone from "identified quarries" to the coal plant site. ESIA Chapter 10: Cumulative Impact Assessment, §10.3.14. However, the impacts of the limestone mining itself are not identified or discussed.

The AfDB requires that any individuals who will be displaced by a project must be provided with targeted resettlement assistance to ensure that their standards of living, income-earning capacity, production levels and overall livelihoods are improved beyond pre-project levels.[18] Preference should be given to land-based resettlement strategies and land-for-land compensation over cash compensation.[19] Every effort must be made to ensure that resettled people will have the opportunity to share in project benefits,[20] and alternative project designs should be considered to avoid or minimize physical or economic displacement.[21] Finally, the AfDB requires a Full Resettlement Action Plan (FRAP) for projects that involve resettlement of more than 200 people or that are likely to adversely impact vulnerable groups.[22] This document must be released to the public at least 120 days before the proposed project is presented to the AfDB Board of Directors for approval.[23]

The ESIA states that the Project will require the acquisition of 880 acres of land, which "may result in the involuntary re-settlement of landowners."[24] The figure contradicts various other public notices and documents provided by the Project proponent and the Kenyan Government, all of which vary by approximately 100 acres, suggesting that neither of these parties are certain as to the acreage of the project area. For example:

Date	**Document**	**Project Area**
02/11/2015	Daily Nation – Notice of Action issued by the National Land Commission	351.8 ha (869.31 acres)
29/04/2016	Kenya Gazette – Land Acquisition Notice issued by the National Land Commission	387.363 ha (957.194 acres)
10/07/2016	EPR – Appendix 8.11.6	975 acres
10/07/2016	EPR – Appendix 4 and Appendix 12.2.3	880 acres
28/09/2016	Application to the Energy Regulatory Commission submitted by Amu Power	865 acres
August 2017	ESIA Summary	975 acres

Such a large discrepancy will have a significant bearing on the FRAP and the scale of the resettlement impacts.

Furthermore, the ESIA provides no further assessment regarding the scope or degree of this impact, or the number of people who will be resettled. Although the ESIA itself does not

[18] AfDB OS 2 at 35.
[19] *Id.* at 35.
[20] *Id.* at 35.
[21] *Id.* at 32.
[22] *Id.* at 34.
[23] *Id.* at 35.
[24] ESIA Chapter 9: Overview of the SEP, GM and RAP, §9.4 at 8.

include an estimate of how many people will be resettled, news reports indicate that around 600 land owners are expected to be affected, which is more than enough to trigger the AfDB's requirement for a FRAP.[25]

The official list of local landowners and land users who will receive compensation is still unknown, two years after the initial consultations on this Project took place.[26] In particular, the fate of the many farmers who lack title deeds, but have customarily used the land at the coal plant site to grow crops, remains uncertain. The ESIA does not provide sufficient information to identify who will receive compensation, or to ensure that displaced people will be provided the type and quality of resettlement benefits required by AfDB policy. There have also been reports that after a two-year delay in the planned resettlement process, farmers relying on Government assertions of resettlement and compensation have neither been paid nor have they been able to continue to grow crops at the planned Project site.[27]

Per the AfDB Safeguards, the FRAP is typically finalized as a supplement to the ESIA documents.[28] However, the AfDB requires all aspects of project planning to include consideration of resettlement impacts and costs.[29] Resettlement considerations should factor into the overall assessment of project impacts, the alternatives assessment and stakeholder engagement planning, among other aspects of project planning. Further, the baseline assessment should have included information necessary to prepare the RAP – such as the number of landowners and land users who will be forcibly resettled by the project.

Despite these requirements, not only does the ESIA fail to include the RAP, it also fails to adequately account for resettlement impacts. For example, the assessment of alternative sites does not mention physical resettlement or economic displacement impacts, focusing instead on consideration of the relative costs of each site.[30] Furthermore, it fails to acknowledge the likely economic displacement of fishermen who customarily use the waters (with associated legal rights) that will be impacted by the plant's operation, or the pastoralists and honey harvesters who utilize the area for their livelihoods.

Once a FRAP is released, it is imperative that sufficient time is allowed for full public consultations on that document. As described below, Project proponents have not held consultations with communities for the past two years. The required 120-day consultation period

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[25] *See, e.g.*, "Kenya: Lamu County Puts Coal-Fired Power Plant on Hold," AllAfrica (9 Aug. 2016), *available at* http://allafrica.com/stories/201608100091.html.

[26] As discussed below, consultations for this Project were held in early 2015, but abruptly stopped in June 2015. No formal community consultations to discuss the Project have been held since.

[27] "Kenyans at loggerheads over coal plant at world heritage site," Reuters (5 Jan. 2017), *available at* http://www.reuters.com/article/us-kenya-coal-idUSKBN14P1U5.

[28] AfDB OS 2 at 34-35.

[29] For example, AfDB policy requires that consideration of total project cost include the full cost of all resettlement activities, factoring in the loss of livelihood and earning potential among the affected population. The "total economic cost" of the project should also take into account the social, health, environmental and psychological impacts of displacement, which may disrupt productivity and social cohesion. AfDB OS 2 at 35.

[30] ESIA Chapter 6: Project Alternatives, §6.1. This section also cites coal dust impacts as the primary (perhaps only) reason not to site the project near the Mombasa port, yet it does not provide any comparative assessment of the relative pollution impacts to Manda Bay and the surrounding area.

after the FRAP is released is necessary to ensure that affected people are adequately informed and consulted about the proposed resettlement plan.

II. Affected people must be adequately identified and consulted in Project plans

Consultations with affected people during the preparation of the ESIA were flawed and incomplete. The AfDB requires a thorough, inclusive Stakeholder Mapping Analysis, which should aim "to capture all affected communities and other relevant stakeholders."[31] This process should be carried out before initiating the ESIA.[32]

The AfDB further requires clients to meaningfully consult with communities likely to experience social and environmental impacts from a project.[33] A key facet of "meaningful consultation" is "that all groups are given the capacity to express their views with the knowledge that these views will be properly considered."[34] This means that: (1) communities likely to be affected by a project are given the opportunity to "express their doubts, concerns and opinions"; (2) consultations cover *all* affected groups; and (3) opinions and concerns are fed back into the decision-making process.[35] Stakeholder consultation must be free, prior and informed, and the borrower must ultimately be able to achieve Broad Community Support for the project through the consultation process.[36]

A. Lack of information and limited consultation meetings has prevented meaningful engagement on the Project

The AfDB Safeguards require that consultations be based on the prior disclosure and dissemination of relevant, transparent, objective, meaningful and easily accessible information in a culturally appropriate language and format that is understandable to affected communities.[37] Consultations must be held throughout the various steps of the ESIA process, so that communities have the opportunity to participate in key stages of project design, and community input should feed directly into the preparation of the ESIA terms of reference and the ESIA itself.[38] For Category 1 projects, this means at minimum obtaining stakeholder input into the preparation of the ESIA terms of reference (TOR), the draft ESIA report and summary, and the draft Environmental and Social Management Plan (ESMP).[39]

Consultations to date have not satisfied these requirements. Meetings about the Project were held in early 2015, but abruptly stopped in June 2015. At the time of these early meetings, no

[31] IESIA Guidelines Vol. 2 at 6.
[32] IESIA Guidelines Vol. 1 at 19.
[33] AfDB OS 1 at 27. *See also* Environmental and Social Assessment Procedures, African Development Bank, (Nov. 2015), 3.4(a) ("Affected communities (including vulnerable groups) and other stakeholders shall be meaningfully consulted during the preparation of the SESA / ESIA and ESMP (and where applicable the FRAP / ARAP). The borrower shall follow and monitor the SESA / ESIA and ESMP (and where applicable the FRAP / ARAP) progress closely, particularly when consultants are involved.").
[34] IESIA Guidelines Vol. 2 at 5.
[35] *Id.* at 7.
[36] IESIA Guidelines Vol. 1 at 19.
[37] AfDB ISS, OS 1 at 27.
[38] *Id.*
[39] IESIA Guidelines Vol. 1 at 19.

detailed or meaningful information had been released about the Project, its potential impacts (including major community concerns about air and water pollution, ash storage and resettlement) or proposed mitigation measures. Attendees of some meetings received a Project information brochure, but this brochure lacked information about basic Project components and only briefly referred to negative impacts.[40] The brochure was not translated into the local language, Kiswahili. This high-level treatment of Project impacts is inadequate to allow communities to develop an informed opinion of the proposed Project. Critical components, like the hazardous storage facility, were not included in these documents, and descriptions of coal storage and transport systems were too vague to enable a meaningful understanding of them. At some meetings, participants received no Project materials whatsoever.

Because of this lack of information, many comments from community members during early consultation meetings focused on requesting additional information, rather than being able to comment meaningfully on specific aspects of the Project. Appendix 9B of the ESIA shows that in many instances, Project representatives were unable to respond to questions about the Project's social and environmental impacts and the proposed mitigation measures, instead explaining that these issues would be covered in later studies.[41] The Environmental Project Report (EPR), released in late 2015, provided some additional information on the Project, but no consultations were held around or following its release. Even following the release of the ESIA in July 2016 Project officials held only one meeting, which cannot be considered a consultation because it was held in a location that was inaccessible to most residents of Lamu, due to travel distance and costs. The ESIA itself includes references to studies and guidelines[42] that are not accessible to affected communities.

This consultation process fails to meet the minimum requirements of the AfDB Safeguards. The inadequate level of information provided in advance of consultation meetings prevented affected people from engaging meaningfully in Project planning and design. Further, consultations should have continued throughout the Project's planning stages. As new information on Project design, potential impacts and mitigation measures became available, it should have been relayed to communities in a timely manner, both prior to and during community consultation meetings. Without these minimum measures, Project proponents have not been able to achieve Broad Community Support for the Project among local affected people and other community stakeholders.

B. Several affected groups have been left out of the consultation process

The listed Project Stakeholders do not include all groups that will be materially impacted by the Project. For example, the list of Project Stakeholders does not include Witu residents,[43] even though the ESIA Project Description affirms that a large land concession in Witu was

[40] ESIA Appendix 9B: Social Impact Assessment Study Appendices, Kurrent Technologies (Jul. 2016), §1.1 (Project Brochure).
[41] *See, i.e.*, ESIA Appendix 9B at §3.1.1 (Stakeholder Engagement Log No. 1: Save Lamu representatives), item 18 (question regarding emergency response measures in case of accidents); 14, item 20 (question regarding impacts on sources of traditional medicine such as roots and leaves); 111, item 11 (concerns regarding impacts to fish population and fishing community); 125, item 8 (question regarding impacts to marine ecology and aquatic life).
[42] Including Chinese language guidelines such as GB 18599-2001 related to ash storage.
[43] ESIA Appendix 10: Stakeholder Engagement Plan, Kurrent Technologies (10 Jul. 2016), §4.

granted as part of the Project approval process, specifically for the purpose of limestone mining.[44] As discussed above, impacts of limestone mining in Witu have been completely omitted from the ESIA. This unjustified and unreasonable omission is also linked to a failure to appropriately identify or consult with Witu residents about how the Project may directly impact them.

C. Concerns expressed in consultations have not been meaningfully integrated

The AfDB Safeguards require that "the link between stakeholder feedback and the constituent elements of the ESIA … be clearly demonstrated, reflecting an attention to stakeholder concerns and perspectives,"[45] yet the ESIA does not reflect any incorporation of the comments and concerns expressed during community consultations.

Project stakeholders and community groups have repeatedly raised concerns regarding the lack of an adequate alternatives assessment early in Project planning to justify developing a coal plant. The decisions to develop the Project without ultra-supercritical technology, the dangers of the cooling water intake process, and the chosen location of the Project along the vulnerable mangroves and beaches of Manda Bay have all been raised by local groups and affected people in the Project's early planning phases.[46] Nonetheless, the Project design in the ESIA is nearly identical to the design outlined in the 2015 EPR and matches information in the brochure distributed during introductory meetings in early 2015.

The ESIA public comment and government approval process further calls into question whether stakeholder input has truly been considered. Despite the many deep flaws outlined in public comments submitted to the Kenyan National Environmental Management Authority (NEMA), that agency issued an approval of the EIA License on September 7, 2016, just days after the close of the public comment period, without requiring any changes to the ESIA based on stakeholder feedback. Given this timeline of events, it is difficult to understand how the public consultation process could have provided a genuine opportunity for stakeholders to input into the development of the ESIA, as required by the AfDB Safeguards.

A case is currently pending in Kenya's National Environmental Tribunal (NET) raising NEMA's failure to meaningfully integrate public comments prior to issuing the EIA License.[47] Filed by Save Lamu along with several individual residents in November 2016, the case argues that NEMA erred in granting a license based on poor social and environmental assessments and an inadequate public consultation process and includes demands to void the EIA License and conduct a new ESIA, based on current information and involving consultation with all relevant stakeholders. The NET directed that all activity related to the Coal Plant must stop pending the

[44] ESIA Chapter 4, §4.2 at 4. The list of project stakeholders was developed based on an initial mapping analysis done in 2014.
[45] IESIA Guidelines Vol. 1 at 19.
[46] *See* Save Lamu letter to Amu Power (13 Mar. 2016).
[47] Notice of Appeal, National Environmental Tribunal Appeal No. NET/196/2016, 3-4, http://accountabilitycounsel.org/wp-content/uploads/2017/11/NET-Notice-of-Appeal-Cover-Page-w_-NET-Stamp-and-Appeal.pdf.

resolution of the case, and that stay has been in place since November 2016.[48] Hearings on the case are yet to be completed.

D. Intimidation by public actors has hindered community dialogue

A pattern of intimidation by government officials has impeded attempts by local groups to hold community information sessions to engage and discuss Project impacts as a community. These meetings have aimed to foster better discourse across Lamu's many communities about sustainable development and external threats to local livelihoods, ecosystem, health, and wellbeing, to fill the gap left after Amu Power discontinued its community consultation meetings in 2015. However, public officials have repeatedly enacted barriers to prevent community meetings from taking place and have even acted to discredit the work of these groups. On numerous occasions, government officials have denied groups permission to host public information meetings about the Project, or effectively prevented meetings from taking place by repeatedly postponing their decision.[49] Earlier this year, the Lamu County Commissioner publicly accused activists of demanding bribes and accepting payment to oppose the Project, without citing any evidence.[50]

Where intimidation by public officials affects a community's ability to publicly meet and discuss a project, the AfDB has a particular responsibility to ensure that its client conducts meaningful consultations and that affected communities are free to participate without any intimidation or coercion.[51] The ESIA, which lacks evidence of any consultation meetings whatsoever during the past two years, does not establish the required degree of consultation. Additional consultations must be held, and the AfDB must take proactive steps to ensure that these consultations provide an opportunity for all affected people to raise concerns and voice dissent, free of any intimidation or coercion.

III. The assessment of biodiversity impacts lacks detailed information necessary to develop adequate mitigation measures

The AfDB Safeguards require that projects "not cause significant modification of natural habitats."[52] If modification of natural habitats cannot be avoided, they require mitigation measures to achieve either net benefit, or at minimum, no net loss, of biodiversity.[53] Further, the Bank may only agree to finance a project in a critical habitat if the client demonstrates that the project will provide "clear benefits and positive outcome for biodiversity and ecosystem services," with no adverse effects on the criteria for which the critical habitat was designated.[54]

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[48] Re: Stop Order for the Proposed Construction of a 1050 MW Coal Fired Power Plant and Associated Facilities and Amenities at Kwasasi Area, Hindi Division, Lamu County, National Environmental Tribunal (14 Nov. 2016), *available at* http://www.decoalonize.org/wp-content/uploads/2017/04/NET.pdf.
[49] *Save Lamu Facing Intimidation and Interference*, deCOALonize, Medium (9 May 2017), *available at* https://medium.com/@deCOAL/save-lamu-facing-intimidation-and-interference-9007309d166e.
[50] *Critics of Lamu coal-fired plant are corrupt, says state official*, The Star (29 Mar. 2017), *available at* http://www.the-star.co.ke/news/2017/03/29/critics-of-lamu-coal-fired-plant-are-corrupt-says-state-official_c1533287.
[51] AfDB OS at 16, 27.
[52] AfDB OS 3 at 41.
[53] *Id.*
[54] *Id.*

To properly assess impacts on critical and natural habitats, the ESIA must conduct a sufficiently thorough assessment to establish the type, extent, duration, scale, frequency, magnitude and significance of each defined impact.[55]

The Ecological Impact Assessment Study, which is annexed to the ESIA, indicates that there are many critical habitats surrounding the Project site,[56] and that the Project will modify at least some of these habitats. However, the ESIA does not provide sufficient detail to establish the degree or scope of these impacts. As discussed below, the ESIA lacks information on the exact impacts of dredging; entrainment of marine organisms in cooling water intake systems; or the planned discharge of elevated temperatures of water into the surrounding marine environment. It does not address at all with the biodiversity impacts of the planned 15km coal conveyor system. Without this information, the Project cannot develop effective mitigation measures for negative impacts, nor can it accurately establish the benefits of biodiversity and ecosystem services that will be destroyed.

Moreover, while the ESIA at least acknowledges the presence of critical habitats in the Project area, it provides no similar assessment of the presence of natural habitats. Under the AfDB Safeguards, these are separate, although sometimes overlapping, categories, for which different requirements attach. Thus, the ESIA must be revised to include a clear assessment of whether any areas surrounding the Project site constitute natural habitats, and if so, it must assess the degree and scope of the impacts on those natural habitats and establish corresponding mitigation measures.

A. Impacts from dredging

The ESIA states that "dredging activities during the construction phase are projected to cause significant and serious damage to the neighboring mangroves, sea grasses and coral reef habitats."[57] However, the assessment itself notes that many significant factors were not considered in the ESIA, preventing any specific prediction of the nature, degree and scope of these impacts. For example, the assessment does not take into consideration the specific design of intake and discharge structures, the construction of which "may include" offshore dredging.[58] The amount of material that will be dredged is not known.[59] While the ESIA notes that sedimentation resulting from dredging is a serious concern,[60] it does not provide information on the likely sedimentation impacts in this case. Changes in availability of nutrients and dispersion of contaminants during dredging and disposal are mentioned as theoretical impacts of dredging, but the ESIA provides no information or assessment of how these impacts are likely to manifest at this Project site.[61]

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[55] IESIA Guidelines Vol. 1 at 16.
[56] *See* ESIA Appendix 5, Ecological Impact Assessment Study (July 2016), §7.4, listing critical habitats including sea grass beds, coral reefs, estuaries, mangroves, lagoons and rocky shores. *See also* ESIA §3.2.12.
[57] ESIA Chapter 8: Assessment of Potential Environmental and Social Impacts and Mitigation Measures, §8.9.1 at 53.
[58] *Id.* at 52.
[59] The ESIA merely states that it "may be on the order of several hundred thousand m^3." *Id.*
[60] *Id.*
[61] *Id.* at 53.

In addition to these significant gaps in information regarding dredging impacts, the mitigation measures are seriously under-developed. For example, mitigation measures include recommendations to "consider the timing of the dredging" based on knowledge of local hydrodynamics and tidal patterns in order to minimize sediment dispersion, and to identify an access route for the dredger and barges that will avoid damaging coral reefs, without including any assessment of how to do this or whether these measures are feasible and likely to be effective. Without further analysis, it is difficult to believe that minor changes to timing and route will be sufficient to avoid the admittedly significant and serious effects of dredging on delicate marine habitats.

With so much basic information missing from the ESIA, it is impossible to conclude that the stated mitigation measures are adequate to ensure no net loss in biodiversity.

B. Impacts from entrainment and impingement of marine organisms

Despite the availability of less harmful technology, the coal plant proposes to use a once-through cooling system. The ESIA states that organisms may become caught (entrained) in the water intake systems and/or caught on the outer screen of the intake valve (impinged).[62] It notes that both scenarios may result in the death of local marine organisms,[63] but it provides no assessment of the extent or magnitude of the impact (i.e. how many organisms are likely to succumb to this fate and how will this affect the marine biosphere overall). No measures are proposed to avoid or mitigate these impacts.

C. Impacts from the rise in water temperatures

The Project's once-through water-cooling system will release used cooling water back into the sea at an elevated temperature of 9 degrees Celsius higher than the ambient water temperature.[64] The ESIA predicts that the impacts from this can change the distribution and composition of marine organisms in an area, but it does not provide any site-specific analysis to determine the likely impacts on local flora and fauna in this particular environment.[65] Considering information in the ESIA about the widespread harm caused by a different, smaller water temperature change in the same region of only 1-2 degree Celsius,[66] releasing water that is 9 degrees Celsius higher than the ambient water temperature could be catastrophic to marine life in the area. Moreover, the Project could avoid such impacts through the use of an alternative cooling system, such as an air-based system.[67]

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[62] *Id.* at 54-55.
[63] *Id.* at 54.
[64] *Id.* at §8.4.1 at 22.
[65] *Id.* at 23.
[66] *Id.* at 22 ("Water for cooling the systems will be obtained directly from the sea, used for cooling then released back into the sea; at the discharge point, the temperature differential of the ambient and discharged water will be about 9°C. Without adequate mitigation measures, waters with such elevated temperature differentials can potentially be harmful to sensitive habitats such as coral species. For instance, the 1997–1998 El Niño weather phenomenon in East Africa resulted in a sea temperature rise of 1–2°C in March–April 1998, resulting in widespread coral bleaching and mortality in the region.").
[67] "Legal Proceedings – Tuesday Afternoon: Mark Chernaik," deCOALonize, Medium (5 Jun. 2017), *available at* https://medium.com/@deCOAL/legal-proceedings-488336c40f29 (Quoting expert testimony from Mark Chernaik during the NET hearings about the Project, "there are different ways to cool system. Water. Fans. Water, you can

The ESIA's Marine Thermal Discharge Study assesses various discharge options and asserts that the chosen option complies with the IFC requirement that thermal discharge not cause an increase in water temperature of more than 3 degrees Celsius beyond a certain area.[68] However, this 3 degree requirement should be viewed as a minimum "floor", which is not necessarily adequate to ensure the protection of flora and fauna in the sensitive marine environment surrounding the Project.[69] In addition to the 3-degree requirement, the IFC also has other standards which, similar to the AfDB's standards, explicitly require that a thermal discharge system be designed to prevent negative impacts and avoid endangering sensitive areas or significantly impacting breeding and feeding habits of local organisms.[70] The complete absence of an analysis of site-specific impacts for a design component with potentially significant and broad-ranging implications for local marine habitats falls far from meeting the standards set by AfDB Operational Safeguard 3.

D. Impacts from Ash Yard

Waste including fly ash, bottom ash and gypsum, will be disposed as waste in an ash yard for 15 years.[71] Such ash yards require a significant amount of otherwise arable land and carry major environmental risks, including leakage, and have irreversible environmental impacts. The ESIA fails to adequately consider less harmful and economically-beneficial alternatives including recycling ash into coal combustion products ("CCPs").

The ESIA provides little information about the standards that will be used to construct the yards, citing Chinese Standard GB 18599-2001 without providing an English translation. The report also fails to explain how ash will be stored after the estimated 15-year capacity with a project timeframe of 25 years. The ESIA also fails to explain how the waste will be treated when the plant is decommissioned.

IV. Methodological weaknesses in ecological baseline studies call into question ESIA findings

The Ecological Impact Assessment Study, included as Appendix 5 to the ESIA, acknowledges a number of gaps and issues with on-site information collection. These issues call

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cool & reuse. I don't know why they chose a once-through system. But it's the one that would have the largest impacts on marine environment. The type of cooling with least impact would be air-drying: using fans to cool the turbines.").

[68] *See* ESIA Appendix 1: Hydrodynamic Modelling Report, Kurrent Technologies (14 Feb. 2016), §4.1 at 27.

[69] The standard is found in the IFC's General Environmental Health and Safety Guidelines and is framed as one of a number of considerations that must be taken into account when setting project-specific performance standards for wastewater effluents. IFC General EHS Guidelines (30 Apr. 2007), p. 26, *available at* http://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES.

[70] IFC Environmental Health and Safety Guidelines for Thermal Power Plants (19 Dec. 2008), §1.1, p. 10, *available at* http://www.ifc.org/wps/wcm/connect/dfb6a60048855a21852cd76a6515bb18/FINAL_Thermal%2BPower.pdf?MOD=AJPERES&id=1323162579734. Note that this standard is specific to thermal power plants, unlike the 3-degree Celsius requirement, which is a general requirement applying to all wastewater discharges.

[71] ESIA Chapter 4 §4.6.5.

into question the reliability of some of its findings. For example, the section notes that the study of avifauna included significantly fewer point counts than is recommended for this type of study and that on-site observations were limited to one vantage point for just a few hours, during a time of day when birds are not typically active.[72] Combined, these factors make it difficult to trust the study's avifauna findings. Moreover, the study also notes that there is a lack of pre-existing data for the area to supplement the sparse baseline studies,[73] further calling into question the reliability of conclusions.

The mammal study similarly notes that the field sampling time was limited to only 5 days in the field, and as a result some target mammals were not sampled at all.[74] It notes that such a study would typically involve both daytime and nighttime sampling, during both dry and wet season, but nighttime and wet season sampling were not possible in this case due to security concerns (preventing nighttime visits) and time constraints.[75]

The study of coastal freshwater wetlands and marine biodiversity had similar flaws. For instance, it was primarily based on "rapid reconnaissance," and "sampling efforts for the five major taxonomic groups (marine invertebrates, seagrasses, fishery, coral reefs and mangroves) was low because there were only ten days of sampling."[76]

These gaps in on-site information gathering severely discredit the baseline's findings, especially regarding local fauna in the land and marine areas surrounding the Project. Moreover, the explanations for these gaps – time constraints imposed by the ESIA contractor, Kurrent Technologies, or security concerns – are troubling, considering that an accurate and thorough baseline assessment is a critical foundational requirement for any assessment of social and environmental impacts. Contractor-imposed restrictions on the amount of time that experts were allowed to spend collecting baseline data suggests a lack of commitment to managing social and environmental impacts, which goes completely against the requirements of the AfDB Safeguards.[77] Not to mention that there is no evidence that Project proponents have used the intervening two and a half years since the original baseline sampling took place to conduct additional information gathering to bolster the baseline data and fix any of the known deficiencies in the original studies.

The gaps and sampling issues noted in the Ecological Impact Assessment Study call into question whether its findings are an accurate portrayal of the existing, pre-Project ecological environment. Baseline assessments are a critical aspect of any impact assessment, and once construction begins it will become impossible to remedy any inadequacies in the baseline. It is therefore imperative that all significant knowledge gaps be remedied, and that the Ecological Impact Assessment be updated appropriately, before Project construction moves forward.

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[72] ESIA Appendix 5 at §7.1.
[73] *Id.*
[74] *Id.* at §7.3.
[75] *Id.* The note regarding time constraints preventing wet season sampling is curious, since the sampling occurred in January 2015, and the ESIA was not publicly released until July 2016, suggesting ample time to collect additional samples at other times of year.
[76] *Id.* at §7.5.
[77] Time constraints posed by security concerns, on the other hand, suggest that the proposed location of the Project may be unnecessarily risky, a factor that is also entirely unaddressed in the ESIA.

V. The ESIA does not properly identify impacts to local livelihoods or develop measures to mitigate these impacts

Operational Safeguard 3 requires actions to protect and maintain the services that an ecosystem provides to the local population. Ecosystem services are defined as benefits, including products and services that people derive from ecosystems.[78] The project impact assessment must identify "priority ecosystem services" based on their value to local livelihoods, to the project, or at the landscape/seascape level.[79] This assessment should be done in consultation with local communities and resources managers, and those services identified as "priority" should be protected through the biodiversity mitigation hierarchy, meaning avoidance of impacts must be prioritized over mitigation measures and compensation or offsets should only be considered as a last resort, for impacts that remain despite efforts to avoid or mitigate.[80]

While the ESIA recognizes that the local community currently benefits from a range of ecosystem services that could be impacted by the Project, including fishing, water abstraction and medicinal plants,[81] it does not analyze which of these are "priority" services that must be protected. Despite failing to identify "priority" ecosystem services, the ESIA does acknowledge that fishing is the second largest driver of the Lamu economy,[82] and that tourism is another key contributor, with tourists drawn to the area in part by Lamu's diverse flora and fauna, local national reserves and sandy beach coastline.[83]

The ESIA states generally that some of the ecosystem services that currently benefit the local community may be eliminated or reduced as a result of the Project, without including a detailed assessment of the degree or scope of impacts. Table 8-33 in the ESIA purports to assess ecosystem service impacts from the Project, but it is considerably too general to be effective, as it does not specify which ecosystem services are being assessed or how each of these services will be affected by the Project.

For example, as described above, marine organisms are likely to be significantly impacted by aspects of the coal plant's design which are not yet fully understood, including the disbursement of used cooling water into the surrounding marine environment, and the potential entrainment of organisms into cooling water intake systems. These processes will likely have an impact on local fish and shellfish populations, and therefore on local fishing livelihoods, but the risks are not specifically assessed, and it is not clear whether they were included in the ESIA's brief, single-page coverage of impacted ecosystem services. It is impossible to truly understand the Project's potential impacts on priority ecosystem services based on the ESIA's assessment.

Further, the ESIA identifies only two mitigation measures to address these impacts: support initiatives to create alternative sources of livelihoods for the local community; and

[78] *See* AfDB OS 3 at 39, fn 20 for full definition.
[79] *Id.* at 43.
[80] *Id.* at 40, 43.
[81] ESIA Chapter 5: Environmental Setting, §§5.8.1.1-5.8.1.3 at 23; ESIA Chapter 8, §8.10.1 at 58.
[82] ESIA Chapter 5, § 5.11.7.3 at 57.
[83] *Id.* at § 5.11.7.2 at 57.

support the enforcement of fishery laws to prevent overfishing or fishing in protected areas.[84] Both of these measures are too general to be effective. No detail is provided regarding how the Project will support livelihoods initiatives, nor is there any analysis of whether the listed alternative livelihoods would serve as adequate substitutes for fishing, one of the county's main economic activities. It is not possible to fully assess the adequacy of the alternative livelihoods plan without further information.

Moreover, neither of these mitigation measures entails the restoration of ecosystem services for local people. Instead, they both indicate a strategy to end or reduce traditional fishing practices around the Project site. This approach to mitigation is out of line with the mitigation hierarchy envisioned by the AfDB policies, which requires avoidance of impacts to be prioritized, with other options such as compensation or offsets used only as a last resort. Finally, the ESIA's approach to mitigation measures does not serve the intended purpose of OS 3, which is to "respect, conserve and maintain [the] knowledge, innovations and practices of indigenous and local communities... [and] to protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements."[85]

VI. Pollution impacts have not been properly assessed and the air quality baseline assessment appears flawed

Operational Safeguard 4 (Pollution Prevention and Control) requires that a project manage and reduce pollutants in a way that does not threaten human health or the environment. The first obligation is to prevent discharge of pollutants into the air, water and land. If prevention is not feasible, specific actions must be taken to reduce or minimize the effluents or volume of discharges.[86] In addition to concerns previously raised about water (including thermal) pollution and coal ash, we note the following:

A. Pollution from coal yard not properly assessed

The ESIA predicts that leaching of gasses from coal stored in the coal yards may result in fugitive emissions, but it does not include an assessment of the potential impacts of this pollutant discharge, stating simply that there is "insufficient information and lack of quantifiable data" to determine the full impact.[87] Given that the ESIA states the approximate amount of coal to be stored at the site (up to 420,000 metric tons),[88] the decision not to estimate the amount of fugitive emissions is unjustified. The ESIA's failure to assess this potentially significant pollutant impact is out of compliance with OS 4.

B. Air quality baseline assessment is flawed

[84] ESIA Chapter 8, §8.10.1, Table 8-33.
[85] AfDB OS at 10.
[86] AfDB OS 4 at 44-48.
[87] ESIA Appendix 4: Climate Change and GHG Specialist Study, WEC Solutions (25 Oct. 2015), p. 49.
[88] ESIA Chapter 4, §4 at 15.

A thorough and reliable baseline assessment is a prerequisite to accurately assessing a project's air pollution impacts. The air quality baseline assessment for this Project was conducted based on a weak sampling methodology and contains unrealistic findings, which undermines all Project impact assessments conducted based on this data.

For instance, the Atmospheric Dispersion Monitoring Report describes that the impact of pollutant emissions to ambient air quality was calculated by adding predicted air concentration of pollutants to the existing (baseline) air concentration of pollutants.[89] The resulting concentration of pollutants must be below certain set values. In this case, the baseline air concentration of pollutants was determined by collecting single 4-hour samples of particulate concentrations at each of ten monitoring sites.[90] A single 4-hour time period is a woefully short timeframe from which to deduce baseline particulate concentrations. A more typical sampling method for detecting concentrations of particulate matter is exemplified in a recent Environmental Impact Assessment for a coal plant in India: "The duration of sampling of PM10, PM2.5, SO2, and NO2 was each twenty-four hourly continuous sampling per day and CO and Ozone was sampled for 8 hours continuous thrice in 24 hour duration monitoring. The monitoring was conducted for two days in a week for three months."[91]

In this case, the inadequate duration of the testing resulted in baseline pollutant measurements that are implausibly low. The ESIA records concentrations of PM 2.5 and PM 10 that are each below 1µg/m^3 at nearly every monitoring site.[92] In even the most pristine environments, ambient air concentrations of PM2.5 are typically between 5-10 µg/m^3.[93] While it is not impossible that the particulate concentrations recorded near the Project site are correct, the combination of a very short sampling timeframe and implausibly low results calls into question the legitimacy of the baseline air quality analysis.

There are also dramatic differences in the reports on baseline air quality monitoring contained in different appendices. For example, Appendices 14a and 14b reports that PM2.5 concentration at Bargoni Village, assessed during an almost four-hour period on 10 January 2015, found concentrations of 17,917,[94] while Appendix 2 reports that PM2.5 concentrations at the same location over a four hour period sometime between 10 January and 17 February 2015 resulted in a measured concentration of 18.0.[95] Similar discrepancies are visible across other sample sites. A discrepancy of this magnitude must be investigated and explained before any of the air quality reports can be considered reliable.

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[89] ESIA Appendix 2: Atmospheric Dispersion Modelling Report, § 5.7.1 at 36.
[90] *Id.* at § 3.1, p. 16; ESIA Appendix 14A: Baseline Air Quality Assessment Report for the Proposed Lamu Coal Power Plant Project at 10.
[91] Environmental Impact Assessment for the Proposed Expansion of Parsa East and Kanta Basan Opencast Mine and Pit Head Coal Washery, Chapter 3: Baseline Environment Status, Vimta Labs Limited, 23.
[92] ESIA Appendix 2 at 19, Table 3-4 and 3-5.
[93] For example, when scientists looked at background levels of PM2.5 in a 'relatively clean Southern African Savannah environment" - the Botsalano game reserve in South Africa, located 50km from the nearest city - the background level they found was 10.5 µg/m3. Laakso, L., Laakso, H., Aalto, P. P., Keronen, P., Petäjä, T., Nieminen, T., ... & Molefe, M. (2008). Basic characteristics of atmospheric particles, trace gases and meteorology in a relatively clean Southern African Savannah environment. *Atmospheric Chemistry and Physics Discussions*, 8(2), 6313-6353, *available at* https://hal.archives-ouvertes.fr/file/index/docid/304062/filename/acpd-8-6313-2008.pdf.
[94] ESIA Appendix 14a at 16; Appendix 14b.
[95] ESIA Appendix 2, Table 3-4.

Because of the way that the baseline data feeds into the rest of the ESIA, these inadequacies in the baseline impair the validity of the entire analysis of Project air pollutant impacts. The baseline assessment must be re-done in order for the ESIA's analysis of air pollutant impacts to meet AfDB standards.

In addition, while SO2 and NOx (oxides of nitrogen) have their own attendant health effects, their most important effect is that when emitted into the atmosphere, they form sulfate and nitrate particles, this is known as secondary particle formation.[96] Secondary particle formation is the most important contribution of coal-fired power plants to $PM_{2.5}$ pollution, responsible for over 90% of population exposure to particulate matter. An air pollution expert who conducted air quality modelling on the Lamu coal plant found that the air quality modelling conducted for the plant failed to accurately assess the degree and impacts of secondary particulates pollution, as this measure of PM2.5 was excluded from the modelling.[97] As the formation of secondary particles is ignored by the ESIA, the ground-level concentrations of PM2.5 resulting from the emissions from the proposed power plant are likely underestimated.

The air pollution expert further found that, contrary to the modelling approach used by the ESIA, most of the population exposure to pollution will take place more than 100 kilometers away in population centres such as Garissa and Voi.[98] Similar studies conducted for other power plants using the same modelling as the Lamu ESIA, found that for most sources, a radial distance of a thousand kilometers from the source was needed to capture 50% of the population exposure to $PM_{2.5}$ pollution caused by the emissions.[99] The area of 50km x 50km, as modelled in the Lamu ESIA is woefully inadequate, representing only 0.1% of this 1000km radius.

As it is, the analysis of air pollutant impacts in the ESIA is wholly inadequate to meet AfDB standards.

C. Climate Change Impact Assessment

The severe drought experienced in Kenya earlier this year is a testament to the climate change vulnerability of the country. The Climate Change and GHG Specialist report states Lamu Coal-fired Power Plant will increase the country's Green House Gas (GHG) emission by between 6% - 10%.[100] Kenya's 2015 Intended Nationally Defined Contribution projects that

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[96] Sander, S.P., Seinfeld J.H., 1976. Chemical kinetics of homogeneous atmospheric oxidation of sulfur dioxide Environmental Science and Technology 10, 1114–1123. See also Richards L.W., 1983. Comments on the oxidation of NO2 to nitrate: day and night Atmospheric Environment, 17, 397–402.

[97] Lauri Myllyvirta, *Save Lamu & Ors v National Environment Management Authority & Anor* (2016) NET Appeal 196/2016.

[98] *Ibid.* See further, Lauri Myllyvirta and Clifford Chuwah, *Assessing the Air Quality, Toxic and Health impacts of the Lamu Coal-Fired Power Plant* (Greenpeace, 2017) http://accountabilitycounsel.org/wp-content/uploads/2017/11/FINAL-Air-Quality-toxic-and-health-impacts-modelling-study-of-the-Lamu-Coal-Plant.pdf.

[99] Zhou Y et al 2006. The influence of geographic location on population exposure to emissions from power plants throughout China. Environment International 32, 365–373.

[100] ESIA Appendix 4, §7.5.

national emissions will grow by approximately 3.4% year on year to 2030,[101] thus this one plant will alone contribute almost double all other emissions combined: an untenable option when the country needs to be, and has committed to, reducing its overall GHG emissions, and projected growth in emissions. This is indirect contradiction of Kenya's low carbon and sustainable development path as set out in the National Climate Change Action Plan and in violation of Kenya's commitments under the Paris Agreement.

Furthermore, it is important to note that the Climate Change and GHG specialist study report was compiled "post completion of the ESIA",[102] and as a result "only a desktop exercise was possible".[103] The study also cannot be considered an assessment of the relative merits of alternatives in terms of climate change as it deals only with the single option described in the ESIA, the coal plant. As a result, the ESIA (and associated climate change assessment) is fatally flawed in scope in that it addresses only the potential impacts of climate change on the proposed infrastructure itself, and not of the project's contributions to climate change in comparison to alternative options.

VII. The ESIA does not demonstrate sufficient efforts to ensure that affected people share in Project benefits

AfDB Operational Safeguard 2 requires clients to make "every effort to provide opportunities to the affected people to derive appropriate development benefits from the project that involves their resettlement."[104] Based on indications in the ESIA, it does not appear that such efforts have been made, or that any plan is in place to promote benefit sharing.

The ESIA states that the purpose of the proposed 1,050MW coal fired power plant is to provide Kenyans with electricity at a cost-effective price in order to grow the economy, and lists "increased affordability, reliability and stability of electricity supply" as one of the Project's primary social impacts.[105] As discussed above, the ESIA does not include a FRAP, and the issue of benefit sharing for resettled people is not otherwise addressed in the ESIA.

Moreover, based on discussions in prior community consultations, it does not appear that Amu Power has made every effort to ensure that communities resettled by the Project will be able to share in the Project's primary potential benefit. As mentioned in the community consultation notes, many affected households do not have an electricity connection.[106] Electricity access is often more dependent on electricity distribution, than generation,[107] however

[101] Ministry of Environment and Natural Resources, *Kenya's Intended Nationally Determined Contribution* (23 July 2015) *available at* http://www.environment.go.ke/wp-ontent/uploads/2015/07/Kenya_INDC_20150723.pdf.
[102] ESIA Appendix 4, §2.1.
[103] ESIA Appendix 4, §2.3.
[104] AfDB OS 2 at 35.
[105] ESIA Chapter 8, §8.11.1 at 85. However, other statements in the ESIA call into question this point. For example, ESIA Chapter 1, §1.5 states that the power that will be generated by the Project is already earmarked for reasonably foreseeable energy intensive industrial projects, such as a railway, Konza City Technopolis, other LAPSSET projects in Lamu, and the steel smelting and manufacturing sector.
[106] ESIA Appendix 9B, §3.1.18 (Stakeholder Engagement Log No. 18: Women), Item 4.
[107] James Ryan Hogarth & Ilmi Granoff, Overseas Development Institute "Speaking truth to power: why energy distribution, more than generation, is Africa's poverty reduction challenge" (May 2015) https://www.odi.org/publications/9406-truth-power-energy-poverty-ambition-africa. For this reason, distributed

Amu Power has made no commitments to ensure that local Lamu communities will receive power hook-ups, arguing that only KPLC has this mandate.[108] However, even if Amu Power does not have the mandate to provide electricity hook-ups itself, their responsibility under the AfDB Safeguards nonetheless requires further efforts to ensure benefits for resettled people. In this case, it is easy to imagine that Amu Power could make such efforts given the Government of Kenya's role in commissioning this Project. The ESIA does not indicate whether obvious steps have been taken, such as arranging with KPLC to cover the costs of local electricity hook-ups through the Project budget.

Finally, we understand that project benefits from employment are overstated, as 40% of jobs will be reserved for Chinese workers.[109]

Benefit sharing must be subject to further consideration in a revised ESIA, and in a FRAP, before this AfDB requirement will be met.

VIII. The assessment of cumulative impacts improperly excludes LAPSSET components

The AfDB Safeguards require an assessment of cumulative impacts during the scoping phase.[110] Cumulative impacts are defined as "incremental impacts from other third party developments that are planned or probable at the time the impact assessment process is conducted."[111] Foundational questions that any cumulative impact assessment must determine are the scope of the assessment – the size of the area and the time period to consider – and "how to practically assess the complex interactions among different projects occurring at different times."[112]

The ESIA's Cumulative Impact Assessment acknowledges that a number of projects are "envisaged" in the area, including LAPSSET project components, but decides not to include them in the cumulative impact assessment because the timeline for their development is unknown.[113] The Cumulative Impact Assessment does include brief mentions of various LAPSSET projects, but the impacts of the separate components are not identified or assessed separately, and in many sections consideration of LAPSSET is missing entirely. For example, LAPSSET components are not considered in assessing potential population increase or impacts to water resources, waste, involuntary resettlement, infrastructure (needed to accommodate a population increase), public services, transportation and traffic.

Contrary to the conclusion of the ESIA, most of the LAPSSET components planned in Lamu have a sufficiently clear timeline such that they could have been and must be considered in the coal plant's cumulative impact assessment. It would be particularly inappropriate to exclude

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renewables generally better serve the needs of the energy poor: Lucy Stevens and others, Practical Action Policy and Practice "Poor People's Energy Outlook 2016" (2016) https://policy.practicalaction.org/resources/publications/item/poor-people-s-energy-outlook-2016.

[108] Community Consultation Notes, ESIA Appendix 9B at 157.

[109] ESIA Chapter 4 §4.9.9.

[110] AfDB OS 1 at 23; IESIA Vol. 1 at 19.

[111] IESIA Guidelines Vol. 1 at 19.

[112] *Id.* at 22.

[113] ESIA Chapter 10: Cumulative Impact Assessment, §10.1.

LAPSSET from consideration, as the ESIA names it as one of the major energy-intensive projects in Kenya that justifies the need for the coal plant.[114]

The LAPSSET project components relevant to Lamu County are in various phases of development, with some in early preparation while others are already under construction. The groundbreaking for the development of Lamu Port took place in 2012, and since then various infrastructure facilities have been built. The LAPSSET website lists a clear target timeline for this component, with the first berth to be completed by 2018 and an additional two by 2020.[115] The AfDB, through the NEPAD-IPPF Infrastructure Project Preparation Facility, has already provided financing for preparatory activities to support the construction of a further 29 berths.[116] Other LAPSSET components are in similarly advanced stages of planning. For instance, an ESIA for the Lamu-Garissa Road, also financed by the AfDB, was completed in April 2016.[117] Improvement works for the Manda Airport are already underway to improve the airport's capacity "in anticipation of a rapid increase in population in Lamu due to increased industrial, agricultural and commercial activities."[118] Resort cities in Lamu are at the "planning stage," while the Government of Kenya recently signed an agreement for initial works on the crude oil pipeline that will end at the Lamu Port.[119]

While these components have varying development timelines and the specific impacts of some may still be uncertain, this does not justify excluding them from consideration in the cumulative impact assessment. The Cumulative Impact Assessment states that its scope includes the entire 25-year operational life of the Project.[120] Even if some LAPSSET components are in their early phases, all components are far enough along that they are likely to be developed within the next 25 years. The AfDB's Integrated ESIA Guidance Notes advise that the status of other developments and how much data is available about them will influence how the assessment of cumulative impacts must be approached.[121] In this case, the coal plant ESIA must consider whatever information is available about the potential impacts of each LAPSSET component that is likely to be developed in the next 25 years while the coal plant is operational.

Each of LAPSSET's components comes with unique risks and impacts, from the environmental impacts associated with multiple construction works in a small town to the many social impacts that will accompany the anticipated large increase in population. Together, these projects are likely to have sweeping implications for the people and environment in Lamu County. This is precisely the type of scenario that the AfDB's cumulative impact assessment requirements were designed to address, and it is crucial that the coal plant ESIA be revised to consider the impacts of each LAPSSET project component individually, and across all impact

[114] ESIA Chapter 3: Need for the Project, §3.3.
[115] Lamu Port Project webpage, LAPSSET Authority, *available at* http://www.lapsset.go.ke/lamu.
[116] *See* http://nepadippf.org/afdb-gives-sh195m-grant-for-lamu-port/.
[117] ESIA *available at* https://www.nema.go.ke/images/Docs/EIA%20-%201270%20-%201279/ESIA%20_1272%20Lamu-Garissa%20road%20report.pdf.
[118] Airports webpage, LAPSSET Authority, *available at* http://www.lapsset.go.ke/airports.
[119] Resort Cities webpage, LAPSSET Authority, *available at* http://www.lapsset.go.ke/resortcities; Oil Pipeline webpage, LAPSSET Authority, *available at* http://www.lapsset.go.ke/oilpipeline; BusinessDaily "Tullow signs deal to build oil pipeline" (Oct. 24, 2017) *available at* http://www.businessdailyafrica.com/corporate/companies/Kenya-Sh210-billion-crude-oil-pipeline-deal-Tullow/4003102-4153716-q6f1p2z/index.html.
[120] ESIA Chapter 10, §10.2.
[121] IESIA Guidelines Vol. 1 at 22.

categories. This assessment should pay particular attention to the potential social impacts of each component, which seem particularly likely to overlap with those of the coal plant and may be devastating for the small communities in the area if not properly identified and mitigated.

IX. The alternatives assessment relies on flawed reasoning and leaves critical questions unaddressed

The AfDB Safeguards require consideration of project alternatives to begin at the scoping phase.[122] The consideration of alternatives should be unbiased and balance economic, technical, environmental and social factors, "including the feasibility of mitigating unavoidable adverse impacts."[123] A full alternatives assessment must be included in the ESIA in order to evaluate early in the project cycle the possible environmental and social advantages of alternative locations, routes and processes, as well as alternative methods for managing environmental and social risks.[124]

A thorough and legitimate alternatives assessment is also a foundational requirement necessary to justify project impacts. Amu Power must prove that it has considered real alternatives to the Project location and design to avoid adverse social and environmental impacts. This is required, for example, to justify any involuntary resettlement impacts or impacts to natural or critical habitats.[125]

A. The ESIA does not provide sufficient justification for rejecting cleaner alternative energy sources

The alternatives assessment for the coal plant relies on flawed reasoning and faulty assumptions to reject alternative, less polluting energy sources. Its consideration of some alternatives is so brief and lacking in analysis that it is not possible to determine whether economic, technical, environmental and social factors were properly weighed. This section of the ESIA does not meet the AfDB requirements for consideration of project alternatives. As a practical matter, it fails to justify the decision to develop a higher-polluting energy source that does not use the best available technology to maximize efficiency.

The ESIA's alternatives assessment states that the coal fired power plant was selected as the preferred project option to fulfill the need for a "least cost steady state power plant."[126] The assessment purports to consider less-polluting options, including solar and wind, but the assessment of the cost and feasibility of these options is based on flawed assumptions and outdated information.

For example, the ESIA asserts that neither solar nor wind power can be stored or used as base load, and that neither type of power generation in Kenya should exceed 10% of the average electricity demand due to the variable nature of power generation, "otherwise the grid may

[122] AfDB OS 1 at 22; IESIA Guidelines Vol. 1 at 21.
[123] IESIA Guidelines Vol. 1 at 20, 21.
[124] *Id.*
[125] AfDB OS 2 at 31; AfDB OS 3 at 41.
[126] ESIA Chapter 6, §6.2.9.

become unstable."[127] However, the claim that wind and solar energy cannot power more than 10% of a grid, "otherwise the grid may become unstable,"[128] is false. Studies have found that solar power can be effective as the primary power source for a large grid,[129] and Denmark has been sourcing at least 40% of its power needs from wind since 2008.[130] Another study found that solar and wind power alone can reliably power a large energy grid (covering one-fifth of the United States).[131] Similarly, a recent study specific to sub-Saharan Africa suggests that there is no need to limit wind and solar power sources to a minor portion of total grid power.[132] This report bases energy modeling for sub-Saharan Africa on assumptions for wind and solar energy reliance far exceeding 10% of the grid, indicating that it does not see 10% as a relevant limitation.

Further, utility-scale wind and solar may be cheaper alternatives than the proposed coal plant. The ESIA says the coal fired power plant has the lowest levelized cost of electricity (LCOE), at US¢7.52/kilowatt hour (kWh).[133] Recent studies have found that the LCOE from utility-scale solar and wind is on par with or lower than this estimate. According to a 2013 publication by the Lawrence Berkeley National Laboratory, recent power purchase agreements for photovoltaic projects in the United States have fallen dramatically in recent years, by about US$25/megawatt hour (MWh) per year on average from 2008-2013, and the LCOE in 2013 for utility-scale solar power was as low as US$50-60/MWh, which amounts to US5-6¢/kWh.[134] These estimates are significantly lower than the estimated ¢7.52/kWh LCOE of the coal plant.

While the figures from the Lawrence Berkeley study focus on the US solar market, they nonetheless call into question the ESIA's assertions that the coal-fired power plant has the lowest LCOE of the options considered. As the ESIA notes, Kenyan Feed in Tariffs for solar and wind energy will artificially inflate prices for those energy sources initially,[135] but these tariffs are temporary, and they do not apply to larger developments.[136] Wind and solar energy sources are

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[127] *Id.* at §§ 6.2.7, 6.2.8.
[128] *Id.* at §6.2.7.
[129] *See, e.g.,* Jacobson, M. Z., Delucchi, M. A., Cameron, M. A., & Frew, B. A. (2015). Low-cost solution to the grid reliability problem with 100% penetration of intermittent wind, water, and solar for all purposes. Proceedings of the National Academy of Sciences, 112(49), 15060-15065, *available at* http://www.pnas.org/content/112/49/15060.full.
[130] Sovacool, B. K. (2009). The intermittency of wind, solar, and renewable electricity generators: Technical barrier or rhetorical excuse?. *Utilities Policy*, *17*(3), 288-296, *available at* https://www.researchgate.net/profile/Benjamin_Sovacool/publication/46495038_The_intermittency_of_wind_solar_and_renewable_electricity_generators_Technical_barrier_or_rhetorical_excuse/links/00b7d526620ca159ea000000.pdf.
[131] Budischak, C., Sewell, D., Thomson, H., Mach, L., Veron, D. E., & Kempton, W. (2013). Cost- minimized combinations of wind power, solar power and electrochemical storage, powering the grid up to 99.9% of the time. Journal of Power Sources, 225, 60-74, *available at* http://www.edleaver.com/homepage/Archives/2013/06/pdf/CostMinimizedCombinationsOfWindSolarAndElectrochemicalStorage.pdf.
[132] Castellano, et al. (2015) *Brighter Africa: The growth potential of the sub-Saharan electricity sector*, 29, fn 43.
[133] ESIA Chapter 6, §6.2.9.
[134] Bolinger, M. (2014). Utility-Scale Solar 2012: An Empirical Analysis of Project Cost, Performance, and Pricing Trends in the United States, 25. http://escholarship.org/uc/item/3cf3876s.pdf.
[135] Kenya has set Feed in Tariffs for solar and wind power of US¢11/kWh and US¢12/kWh, respectively. ESIA Chapter 6, §§ 6.2.7, 6.2.8.
[136] Feed-in-Tariffs Policy on Wind, Biomass, Small Hydro, Geothermal, Biogas and Solar Resources Generated Electricity, Kenyan Ministry of Energy (Dec. 2012), Appendix 2, p. 16, *available at*

already cheaper than coal, and their prices are likely to fall further, making these smarter options for Kenya in the long run.

Along other parameters, wind and solar energy appear more favorable than a coal plant, even according to the ESIA's own assessment. In rationalizing the decision to develop a coal-fired power plant, the ESIA notes that it has a relatively quick development timeline. However, the ESIA establishes the development timeline for the coal plant as around 36 months, whereas the timelines for solar and wind are less than 12 months and 24-30 months, respectively.[137]

Finally, the assessment fails to acknowledge the renewable energy projects in Lamu county which would invalidate the need for the coal plant.[138]

Overall, the ESIA's approach of briefly listing positive and negative considerations for each "alternative" considered, without any true analysis, does not provide enough information to rule out wind and solar alternatives as less destructive, and potentially more economical, alternative options for Kenya's power needs. The AfDB's keysheet on thermal power projects instructs that in order to mitigate air quality impacts, projects should "use the cleanest fuel economically available, where natural gas is preferable to oil, which is preferable to coal."[139] As coal is identified as the least preferable option, cleaner options should be subject to a more thorough assessment in the ESIA.

B. The alternatives assessment does not adequately justify the chosen Project location

The assessment of alternatives to the chosen Project location does not take account of relevant social and environmental criteria. Throughout this section of the Alternatives Assessment, monetary cost is the primary consideration in weighing each option. For example, the option to select an inland site that would reduce environmental impacts to the Kenyan coastline as well as environmental and social pressures on nearby Lamu Old Town (a World Heritage site) is ruled out in just two sentences, citing prohibitive costs and providing no assessment whatsoever of other factors.[140] The ESIA does not discuss the physical resettlement or displacement impacts of any of the proposed sites, including the chosen site, making a comparison of resettlement impacts between potential locations impossible. It cites coal dust impacts as the primary (perhaps only) reason not to site the Project near the Mombasa port, yet it does not provide any comparative assessment of the relative pollution impacts to natural or critical habitats in Manda Bay and the surrounding area, including from the associated Lamu Port construction.[141] The resulting cost-focused assessment of alternatives provides no basis for the Client to determine whether resettlement impacts or impacts to natural or critical habitats could have been avoided through an alternative project location. This falls far short of the AfDB

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http://www.erc.go.ke/images/docs/fitpolicy.pdf. The Feed in Tariff does not apply to solar projects larger than 40 MW or wind projects larger than 50 MW.

[137] ESIA Chapter 6, §§ 6.2.5, 6.2.7, 6.2.8.

[138] For example: *Lamu, Tana River To Benefit From Ksh. 15.9Bn Solar Power Project*, The Daily Nation (23 March 2017), *available at* http://www.nation.co.ke/business/Lamu--Tana-River-to-benefit-from-Sh15-9b-solar-power-project/996-3861526-l3l45a/index.html

[139] IESIA Guidelines Vol. 3 at 54.

[140] ESIA Chapter 6, §6.1.

[141] *Id.*

requirements to avoid involuntary resettlement and impacts to critical and natural habitats wherever possible.[142]

C. The ESIA does not assess cleaner alternatives to critical design components

The alternatives assessment broadly describes two fuel combustion options, but provides no analysis to support the decision to use a supercritical pulverized coal fired boiler,[143] which is the more polluting of the two options. This fact is ignored by the assessment, which provides no explanation of the difference between supercritical and ultra-supercritical or advanced-ultra-supercritical technologies, nor does it weigh the pros and cons of these different options.[144] These omissions and the unexplained decision not to use the best available technology are particularly egregious considering that the decision to develop a coal plant rather than another, less polluting energy source is justified in part with the rationale that new advancements "from sub- critical technology to super-critical to ultra-super critical" have improved the efficiency of coal plants.[145] Some of the most obvious drawbacks of a coal-fired power plant are its impacts on the local environment and its contributions to global climate change. If this Project is to proceed as a coal plant, the ESIA must be revised to properly assess options to use the best available technology to maximize efficiency.

Consideration of alternative cooling system technologies and ash management options are similarly conclusory. The decision to use a once-through cooling system is explained in one sentence, stating that this is the most efficient option for cooling using supercritical boiler technology,[146] without acknowledging the significantly increased risks to the marine environment (explained above) of using this type of cooling system. The ESIA only describes the different cooling systems but does not give advantages and disadvantages of each. Although hybrid cooling is listed as one of the alternatives, the report does not describe it or any other environmentally cleaner alternatives such as recirculated wet cooling[147] or other advanced cooling systems.

The dry ash storage option is likewise explained with a simple statement that wet ash

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[142] AfDB OS 2 at 31, AfDB OS 3 at 41.
[143] ESIA Chapter 6, §6.4.
[144] See, for example, Poulsen, H. (2006). Advantages of Ultra Super Critical Technology in Power Generation. International Conference on Clean Coal Technologies for our Future CCT2005, Sardinia, Italy 10-12 May 2005. http://www.bwe.dk/download/articles_pdf/art-cct2005.pdf.
[145] *Id.* at §6.2.5 at 8.
[146] *Id.* at §6.5.3 at 14.
[147] When assessing benefits and disadvantages of recirculating cooling systems, research has shown that the system uses and releases less water and can therefore reduce impingement and entrainment: Kristin Gerdes and Christopher Nichols, "Water Requirements for Existing and Emerging Thermoelectric Plant Technologies" (N*ational Energy Technology Laboratory*, August 2008) *available at* http://www.netl.doe.gov/energyanalyses/pubs/Water%20Benefits%20Primer_09_02_08.pdf; Union of Concerned Scientists, 'Nuclear Power and Water' (*UCSUSA*, December 2011) *available at* http://www.ucsusa.org/sites/default/files/legacy/assets/documents/nuclear_power/fact-sheet-water-use.pdf; May, J., and Van Rossum, M.K (1995) "The Quick and the Dead: Fish Entrainment, Entrapment, and the Implementation and Application of Section 316(B) of the Clean Water Act" *Vermont Law Review* Vol. 20:376-493. The recirculating cooling system is however more expensive than the OTC. It is therefore clear that the project proponent is selecting cheaper alternatives that are less environmentally friendly rather than the most suitable technologies.

storage requires a lot of water, without acknowledging the air pollution risks posed by dry ash storage.[148] These brief statements are not adequate to evaluate the possible environmental and social advantages of alternative designs. Further, this cursory assessment provides no information on alternative methods for managing environmental and social risks.

X. Conclusion

A coal-fired power plant inherently creates many risks and impacts for local people and their environment, which the AfDB Safeguards mandate must be specifically identified and given proper weight and consideration in Project decisions. The current ESIA is woefully deficient and does not provide an adequate basis for such consideration. In order to meet the requirements of the AfDB Safeguards, the ESIA must be significantly revised, beginning with additional studies to form an adequate social and environmental baseline. Project sponsors must hold additional meetings to provide all affected groups with meaningful opportunities to learn about the Project, and to discuss and consider their concerns. A revised ESIA must detail the degree and scope of each social and environmental impact, filling in the many gaps identified above. It must thoroughly explain proposed mitigation measures that are adequate and effective, or propose compensation or other measures when full mitigation is not possible. This Project should not be presented to the Board, nor Project activities allowed to re-commence, before these extensive revisions are completed.

Sincerely,

Abubakar Mohamed Ali
Chairman
Save Lamu

[148] *Id.* at §6.6.1 at 15.