

Water is Critical to Life and Livelihood in Lamu

On World Water Day – we are concerned with the risks to our waters and water-based livelihoods as a result of the proposed Lamu Power Plant.

The plant will affect our lives from three water-related activities:

1. Increased local water temperatures
2. Acid Rain
3. Toxins from Coal Ash entering the water

1. *Burning coal requires millions of gallons of water to keep the plant cool. After the water is used, the now-hot water will be released back into the ocean around Lamu. The increased temperature will harm the fish in the water and destroy the livelihood of the fisherman and the fishing industry.*ⁱ

- The Environmental Impact Assessment (EIA) states that “at the discharge point, the temperature differential of the ambient and discharged water will be about 9⁰C” but the World Bank Group EHS Guidelines for Thermal Power Plants states that the discharge cannot raise temperatures more than 3⁰C at a scientifically established point.ⁱⁱ
- Even slight increases in water temperature breaks down the relationship between coral and the algae that live in it – this breakdown is caused “coral bleaching.” If high temperatures persist for two months, the coral begins to die and no longer can sustain itself or the aquatic creatures that lived in the reef.ⁱⁱⁱ
- Mangroves are negatively affected by rising water temperatures and, as they decline, will no longer protect the shoreline, provide habitat for marine animals or fish, or be a source of wood for traditional architecture.^{iv}
- The EIA does not account for entrainment – how organisms like plankton are affected by cooling water intake. Water Keeper Alliance notes that “For a long term project like the Lamu Coal Plant, these kills or injuries will eventually be significant.”^v
- The “Hydrodynamic Modeling Report” did not use site-specific data collected over one year and therefore is not a reliable model on which to base impact decisions.^{vi}
- The EIA proposes that the coal plant’s release into Manda Bay would breach Kenyan water quality regulations at least one in every 20 days.^{vii}

2. *The particulate matter in the smoke from the coal plant creates Acid Rain. Acid rain is formed with emissions from coal plants mix with water in the atmosphere. There is also dry deposition – where the toxic chemicals released from coal plants move through the air and fall onto water, buildings, plants, and crops.*

- Acid rain can ruin water systems and crops, plants, and trees, and affect fish and wildlife.^{viii}
- Acid rain changes the chemistry of soil which reduces the nutrients in soil and damages the roots of plants and trees. It will reduce agricultural production as well as the health of trees, leaving them more vulnerable to environmental stresses and disease.^{ix}
- The nitrogen in acid rain kills fish and shellfish.^x This will significantly reduce potential incomes for fishermen and the fishing industry in the region.
- Dry acid deposition will cause corrosion and other damage to the historic buildings and structures.^{xi}
- Inhaling acidic fog or misty air can be damaging to human health as the particulate matter causes asthma and headaches, and irritates the nose, throat, and eyes. It is particularly dangerous for people who are old, sick, or have chronic respiratory problems.^{xii}

3. Burning coal creates Coal Ash which needs to be safely stored. The Lamu Coal Plant proposed an ash yard that will hold 26,740,000 cubic metres of ash and stand 25.8 metres high. The yard will be 200 metres from the intertidal zone.^{xiii}

- Coal ash contains toxic elements including mercury, cadmium, lead, naturally occurring radioactive materials, and over one dozen heavy metals. Exposure to these elements cause heart damage, lung disease, reproductive problems, birth defects, and cancer.^{xiv}
- The ash yard is planned to be built over a freshwater aquifer from which we obtain drinking water and therefore poses a significant health risk to anyone using nearby ground or surface water for drinking, washing, agriculture, or aquaculture.^{xv}
- The ash yard is designed to store ash for only 15 years, but the plant is expected to be in use for 50 years. There is no proposal for how the ash will be stored years 16-50.^{xvi}
- The EIA identifies the site of the Lamu Plant as “high flood risk and vulnerable” and that “flows are likely to cause flooding, water logging and inundation of the floodplains of some of the watersheds of Lamu Coal Power Plant project Kwasasi area.”^{xvii}
- The EIA does not detail the capacity of water treatment. Experts anticipate that “heavy rainfall events would overwhelm the water treatment facility at some point and highly toxic ash yard drainage would be released into Manda Bay.”^{xviii}

Help protect our water, our livelihood, and our health. Get involved!

About Save Lamu: A community-based organization whose mission is to engage communities and stakeholders to ensure participatory decision-making so as to preserve the environmental, social, and cultural integrity of the indigenous Lamu Community. www.savelamu.org

#deCOALonize: A collaboration among environmental and social justice advocates who want Kenya to have a green economy powered by sustainable and clean renewable energy. Partners consist of individuals and organizations from Kenya, South Africa, Australia, Europe, and the United States. www.deCOALonize.org

Notes:

ⁱ <http://www.ucsusa.org/clean-energy/energy-and-water-use/water-energy-electricity-cooling-power-plant#.WMje1xKGOCQ>

ⁱⁱ Winn, Paul. ESIA Study for 1,050MW Coal Fired Power Plant, Lamu County, Kenya Assessment of Potential Environmental and Social Impacts. p 8

ⁱⁱⁱ <http://www.gbrmpa.gov.au/managing-the-reef/threats-to-the-reef/climate-change/what-does-this-mean-for-species/corals/what-is-coral-bleaching>

^{iv} http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0001-37652015000200651

^v Winn, Paul. p 13

^{vi} Winn, Paul. p 10

^{vii} Winn, Paul. P 1

^{viii} <https://www.epa.gov/acidrain/effects-acid-rain>

^{ix} <http://nadp.sws.uiuc.edu/educ/acidrain.aspx>

^x <https://www.epa.gov/acidrain/effects-acid-rain>

^{xi} <https://www.epa.gov/acidrain/effects-acid-rain>

^{xii} <http://nadp.sws.uiuc.edu/educ/acidrain.aspx>

^{xiii} Winn, Paul. p 1

^{xiv} <http://www.psr.org/environment-and-health/code-black/coal-ash-toxic-and-leaking.html> and <http://www.psr.org/assets/pdfs/coal-ash.pdf>

^{xv} Winn, Paul. p 5

^{xvi} Winn, Paul. p 1

^{xvii} Winn, Paul. p 7

^{xviii} Winn, Paul. p 6