

# Supplementary Material

First Place: Jada Blocker. She was awarded a USD 100.00 book scholarship from the Center for Sustainable Communities for her PowerPoint on Uganda as it relates to water, soil, and fire issues [23–25]. Most of the rural population of Uganda relies on groundwater, dominantly from shared boreholes equipped with hand pumps [26]. Many boreholes in Uganda tap groundwater from the weathered or fractured basement aquifer. Lakes and rivers tend to dry up fast after rainfall. Thousands of boreholes dug by the government are now nonfunctional. With dry fields, farmers are put out of work with no water or dry soil. In Uganda, surface fires are the most common in natural forests and plantations, causing major investment concerns [27]. Plantation soils are important aspects since soils provide the medium for plant growth and supply plants with nutrients for growth. Not only is the vegetation burnt, but fires interferes with education [28]. Different researchers have hypothesized that if wildfires were preventable, the soils would be more sustainable in Uganda.

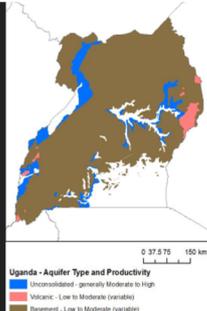
## Potable Water:

Drinkable water in Uganda is affected by the disposal of sewage, fertilizers, and surface runoffs during heavy rain-falls, and more

## Non-Potable:

Non-potable water in Uganda can be cleaned several ways. After getting the water, boiling it or taking it through a filter could make the water potable.

**Aquifers:** Uganda shares two transboundary aquifers: the Nile and Lake Victoria Basins



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# EWF for Uganda

By: Jada Blocker

**Fires:** The schools in Uganda catches fire often, killing several students and teachers due to not having the proper funding to implement safety measurements.

**Soil:** Soil erosion in Uganda is a big deal. The soil loss rate increases every year due to the lack of water and the wildfires. This put's farmers at a disadvantage and out of work.

Second Place: Jaiya Brown. She was awarded a USD 50.00 book scholarship from the Center for Sustainable Communities for her PowerPoint on Libya as it relates to water, soil, and fire issues [29–32]. Libya is an oil-rich country that borders Niger, Sudan, the Mediterranean Sea, Egypt, Chad, Algeria, Tunisia. Being that most of the country is flat and dry, not much of it is suitable for farming (only 1.03%), an aquifer is essential, and big fires come with no surprise.

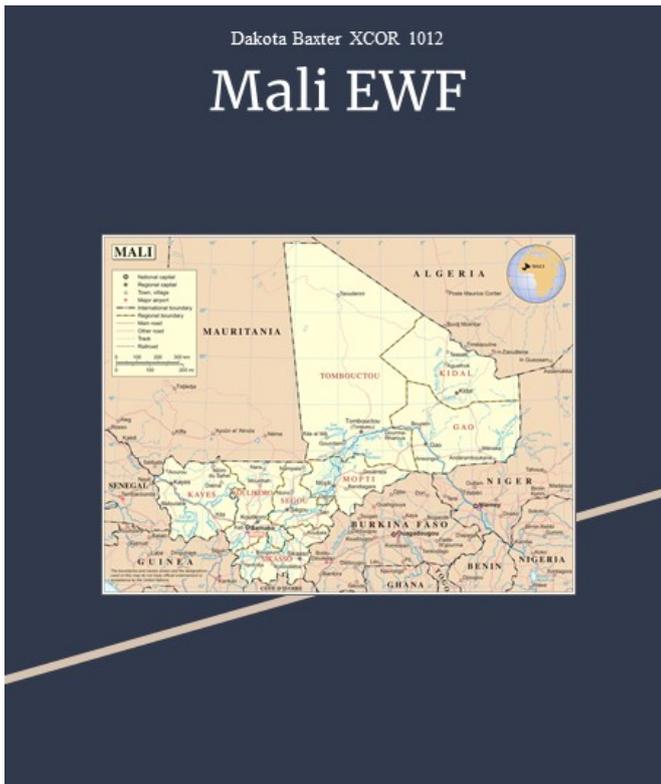
## EWF for Libya

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- Soil – Libya grows wheat, barley, olives, dates, citrus, peanuts, soybeans and many vegetables.
  - Water – The country is a dry and arid. The presence of freshwater and rainfall is extremely scarce. However, Libya contains many groundwater aquifers, which offers available quantities of water underneath the ground.
  - Fire - Libya's wildfire hazard is high considering how dry the area is. There is greater than a 50% chance of encountering weather that could support a significant wildfire that is likely to result in both life and property loss in any given year.
  - Aquifers – The Nubian Sandstone Aquifer System, Libya's surrounding aquifer, is the largest known fossil water aquifer in the world. It spans more than 2 million square kilometers across the Sudan, Chad, Libya, an Egypt, and contains more than 150,000 cubic kilometers of ground water - which is more water than the Nile River discharges in 500 years.
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Third Place: Dakota Baxter (Mali). She was awarded a USD 25.00 book scholarship from the Center for Sustainable Communities for her PowerPoint on Libya as it relates to water, soil, and fire issues. This powerpoint investigated the conditions and quality of agricultural soil [33] and potable water sources [34,35]; weigh the effectiveness of watersheds, aquifers, and other water storage structures as a non-potable water source; as well as assess the risks of wildfires in the sub-Saharan country of Mali [36]. Several experimental sites in southern Mali were evaluated to address those five aspects and to determine the risks and effects of poor management on human and environmental health. The studies focused on southern Mali, as it is the most population-dense region of Mali.



- Soil
  - Runoff and soil erosion are one of the biggest agricultural problems in the country. [33]
- Water
  - The majority of the population relies on potable groundwater. [34]
  - Many croplands in Mali are rainfed. [35]
- Fire
  - Vegetation patterns can influence the wildfire intensity and frequency. [36]
- Aquifers
  - The use of aquifers and other water management structures aids agriculture. [35]
  - There are multiple aquifers located throughout Mali, and are often shared between other West African countries. [35]