**AFRICA**

Statistical information (as of 2021)

Area: 30.2 million square kilometers

Population: 1.3 billion

Total Countries: 54 sovereign countries

Natural Resources:

Minerals Agricultural Land Fisheries Oil Palm & Rubber

Oil & Gas Water Renewable Energy

Forests Wildlife/Biodiversity Gemstone

**WATER**

This map depicts water use in Africa during the last three decades ending 2021.

Causes of the substantial increases in water use between 1992 – 2021 are due rise in population and agriculture expansion. Population increases creates more demand for water for drinking, sanitation, and agriculture. To compensate for the boom in the population on the continent, agricultural expansion occurred in short time and made use of inefficient irrigation practices.

While there are still substantial sources of water in Africa, there are many challenges and opportunities to and for its management. As it relates to climate change impact, we considered extreme weather events and the resulting vulnerabilities.

A few of the extreme water events occurring during the 30 years analyzed were:

* The East African Floods of 1997 and 1998. These devastating floods impacted Kenya, Tanzania, Uganda, Rwanda, Somalia, Ethiopia, South Sudan.
* The Nigeria flooding in 2012. The rains started in July and continued until September/October. With so much rainfall, the Niger and Benue Rivers overflowed their banks leading to significant agricultural losses and food shortages.
* The Cyclone Idai of March 2019. A cyclone is another major weather event is globally described as a rotating weather system with a low-pressure center. In the United States cyclones are also known as hurricanes. The Idai cyclone impacted Mozambique, Zimbabwe, Malawi, and Madagascar.

Common outcomes of these major water events were the destruction of homes, displacement of entire communities, significant agricultural losses resulting in food shortages, infrastructure damage to buildings, roads and bridges and the health risks due to inadequate and poorly managed drainage systems, stagnate water and cholera.

Africa’s water use vulnerabilities were substantial and have natural and human causes. Constant cycles of flooding and droughts create limited access to clean water for drinking for agriculture and sanitation uses. These natural limitations combined with a rapidly expanding population puts additional stress on water resources and causes competition and conflict for and depletion to water resources.

**LAND**

This map depicts land use in Africa during the last three decades ending 2021.

Land use and availability has great agricultural potential due to the vast variety of natural resources, minerals, oil, and gas however, the impact climate change has greatly threatened the sustainability of life on the continent.

Climate change in Africa impacts how the land is being used and the resources the land produces.

* The Sahel drought is not defined by one period but occurs over many years and has varying degrees of severity. It is characterized by prolonged periods of below average rainfall followed by recurring droughts and impacted many countries in North and West Africa. The Sahel region includes Mauritania, Senegal, Mali, Burkina Faso, Niger, Chad, Sudan, South Sudan, Eritrea, and Ethiopia.
* The desertification of the Horn of Africa. Desertification is the expansion of desert conditions, soil degradation and decline in productivity. The Horn of Africa is comprised of the countries of Djibouti, Eritrea, Ethiopia, Somalia, and South Sudan. As the arid and semi-arid areas of the Horn become drier and drier, the period between droughts become shorter and shorter.
* The wildfires of South Africa. Occurring sporadically during the 30 years in our study, has caused significant ecological, economic, and social impacts in both the Western and Eastern Capes of South Africa. Fueling these fires were the dry conditions caused by little precipitation and hotter temperatures, strong winds and dry flammable crops.

Greatly impacted by the water vulnerabilities previously discussed, the common land outcomes resulting from climate change in Africa were prolonged droughts, reduced crop sizes, livestock losses, food insecurities, expansion of deserts and decreased agriculture.

Many of the same vulnerabilities affecting water use in Africa also impact land use in Africa. Just like for water, these vulnerabilities were the result of natural and human causes. Extreme temperatures, concurrent year droughts, low precipitation, urbanization caused by increased populations and migration to areas to better sustain communities, overgrazing of livestock, lack of land use planning and land grabbing—primarily caused by foreign entities/investors seeking to acquire large amounts of land all continue to have negative impacts on the land in Africa.

**FORESTRY**

This map depicts forestry use in Africa during the last three decades ending 2021.

African forests are not only essential to life in Africa, but are a major contributor to the earth’s environment, climate regulation and the overall well-being of humanity.

Climate change has resulted in several catastrophic events affecting the forests and forestry sector in Africa.

* Forest fires in Algeria and Morocco occur so regularly during the hot and dry summer months that there have been species loss of both plants and animals. The local communities that rely on the plants harvested and animals living in the forests were directly impacted when there were forest fires.
* The deforestation of Madagascar is 100% human caused. While the logging and timber industries clear large areas of land to make room for agriculture, and to produce coal contributes to an increase in the Greenhouse Effect because of a releasing of carbon when the trees are fell. The climate in and around Madagascar is disrupted causing a decrease in rainfall and an increase in temperatures.

Common outcomes from the of loss of Forestry in Africa were the loss of biodiversity, soil degradation which occurs when trees is removed and the soil begins to erode and lose fertility or the ability to produce crops. When climate cycles were changed as more and more trees are fell, water availability decreases and so does the water’s quality. The areas affected by deforestation were susceptible to flooding and landslides.

Of all the vulnerabilities resulting from deforestation in Africa, the impact on the indigenous community and the animal populations were the most devastating. The indigenous lose access to food from plants and the animals living in the forests, but also sources for medicine and building materials.