

Beth Carlson
Alta-Aurelia High School
Alta, IA
Mauritania, Factor 2

Mauritania: Improving Water Scarcity through Availability and Conservation Techniques

The Islamic Republic of Mauritania is one of the many countries in this world facing the issue of world hunger. Although Mauritania's lands are wide and wondrous there are a lot of disadvantages to living in this country. Mauritania is located on the west side of Africa, not only bordering the Atlantic Ocean, but also Western Sahara, Algeria, Mali, and Senegal. The Sahara Desert covers most of Mauritania with its hot, dry climate making it extremely difficult to grow sufficient amounts of food. A lot of the water that is used for plants evaporates in the sun. I focused my research on finding a way to get more access to water so supplies wouldn't be so scarce, and techniques for irrigation using the water conservatively without waste.

The average family in Mauritania usually has more than just a couple of kids. There is normally up to five or six children per household. Although there are families with fewer or less kids, they are not as common. Along with parents and children in the household there are also usually extended family members, such as aunts, uncles, grandparents, or cousins (J, Katie). A lot of times the children will stay in their parent's home until they obtain a job or until they're married. Even when the kids go to get a higher level of education, they will normally stay with relatives while attending the school. Education in Mauritania was started by the French colonizers. They opened public schools in Mauritania, mostly in the southern part of the country near the river. When individuals are six years of age they go into primary education from grades one to six are the only grades of education that are compulsory. After six years of primary education there is secondary education. It begins when you are twelve years old. Secondary education lasts for six years and is divided into two cycles with three years each ("Mauritania"). A little more than half of this country's population is literate, and because of schooling and the way this culture has grown over the years, men tend to have a higher educational background than women ("Education in Mauritania"). Because of higher divorce rates occurring towards the end of 2010, some Mauritanian women have been supporting their families without the help of a husband. With a good portion of these women being illiterate, it reduces a lot more job opportunities for them that their husband had previously obtained. Some women work in the fields; some sell fruits and vegetables or make clothes. But even then it's more difficult for these families to get good food because not only are these women supporting their children, but some even have their extended family living with them that they need to take care of as well (Nouakchott). A lot of a family's meal in Mauritania consists of fish and rice. On the south part of the country and the west there are rivers that are abundant in fish. After independence of their country in 1960 from France, nobody from Mauritania would go to fish in the waters because their government had little control over foreign fishing operations. Fishing wasn't a common practice until around 1980 when Mauritania established its New Fisheries Policy. The New Fisheries Policy led to immediate rapid growth in the fishing industry ("Mauritania").

Lack of water availability and accessibility in this country affects the agricultural productivity, which is a huge issue because a lot of these rural farmers are completely dependent on agriculture. The main portion of livestock consists of cattle and sheep. Without much water it makes it hard for owners of livestock or any animals to feed and hydrate them properly. Any animals or livestock that they grow are mainly used

for dairy so their families drink the milk. They don't really sell cattle because they are not exactly the healthiest and will sell for a very low price. They would rather use the animal than take the low money price. It also makes it difficult in the dry desert climate without water for crops to grow. The main crops grown in Mauritania are dates, millet, sorghum, rice, and corn. These are grown easily in the southern part of Mauritania where the irrigation that's used is provided by the Senegal River. A lot of other irrigation is from tributaries that run off from the Senegal River, such as the Gorgol River, and the Karakoro River. There is also a river that follows the border of Mauritania and Mali, called the Kolimbine River (Baker, Michael). This river goes through several lakes and contains a lot of dry patches, and ends up emptying into the Senegal River at the southern end of the country. Although, in the northern part of the country there isn't much water to use for irrigation. Some of the Sahara Desert runs through Mauritania. The Sahara Desert covers most of northern Africa with its 3.6 million square miles (Zimmermann, Kim). The land is so much drier and the land is prone to deforestation and even erosion of the land. This also affects food availability being that by not being able to grow good crop yields not as many crops are grown. Farmers grow most crops as cash crops and keep surplus crops for their agriculture and families, but with less and less amounts of crop they don't have a lot to sell effecting household income. The currency used in Mauritania is called the ouguiya. One United States dollar is equal to two-hundred and seventy-four ouguiyas ("Mauritania: Poverty Assessment"). A lot of these poor rural families survive off of about less than two United States dollars in one day. With less crops to sell and less money coming in they won't be able to buy as much food or nutrients as they need and they will have less to eat with less nutrition. The people that live in these rural areas will be more prone to diseases and sickness. Mauritania's health facilities are located mainly in the more inhabited parts of the country. There is one major hospital in the capitol, Naoukchott, and there are around fifty other health centers around the country. With how low the income is for all of these Mauritanian families, generally all of the health services they need are free. Only about 63% of Mauritania's population has access to health care ("Mauritania – Health"). Distribution of medication and supplements are free but not everyone's demands can be met. Main health issues include malaria, tuberculosis, influenza, and many pregnancy complications. These are due to lack of medical care and unsanitary conditions within the premises (Kjeilen, Tore).

Rural populations in Mauritania are heavily dependent on agriculture. With water scarcity being a concern it's difficult to grow crops, plants, and plant gardens in the dry climate and still have to keep livestock hydrated. With these factors being an issue the food that is grown won't be as high quality as it could be or in as much quantity. That also means that the crops sold for profit won't be worth as much and the household income will become less and less, making it harder to buy food as needed. Families won't be able to get the nutrition they need.

Water scarcity occurs to be more of a problem in the northern half of the country that is not located by water sources such as rivers. The rural population is particularly disadvantaged because they need more water for farming purposes and are more dependent on agriculture. The environment is also taking a hard hit. Mauritania is located within the Sahara desert and the climate is very dry and vulnerable to deforestation making it even more difficult for crops to grow.

In Mauritania almost seventy percent of the country's food is imported. The other thirty percent is what the country actually produces aside from the natural disasters, locusts, and droughts. Mauritania is heavily dependent on international agencies for food aid and natural disaster aid, agencies such as United Nations World Food Program and World Vision. These agencies have spent lots of time and money into helping

countries with their food security issues by providing food when natural disasters occur (Blaver, Ettagale and Jason Laure).

By improving this factor, crops will become better in quality and more in quantity. Farmers will be able to sell more and have a higher household income which can be put towards buying higher quality food that have better nutrition for them and their families.

With this situation at hand, a lot of the farmers have been moving towards the cities and remaining farmers have had more space. Farming population has actually gone up which is why it's very important for water to become more available so the farmers and rural places will be able to thrive better than before, hopefully getting more crop yields and getting more household income.

Since farming and agriculture is such a huge part of their resource, I focused my research mainly on a way to make water more accessible, to be able to use it in farming methods, and to conserve it efficiently. One of the many ways to make water more accessible is by constructing wells. Along with construction, it would be helpful to educate the people using the wells so that if there is a future concern, difficulty, or even a problem with the well the people using it will be able to fix it properly and have it running again. Wells can help communities a lot. Without water there can't be much development. Water is can be used for cooking, laundry, drinking, and it has so many other purposes. It is a very important fundamental of life. It's also important that the water people are using is clean. A lot of times there is water that comes from a river or lake that appears to be clear. Inside of that water could be germs, particles, and other bacteria that can make people sick (Irin). When kids get sick they can't go to school, when others get sick, it's hard for them to work. Some peoples' work contributes to gardening or farming which can affect the growth of the plants. The plants might not get water that day and won't grow as well. An effective way to use water in farming, but also conserving water, is micro irrigation. Micro irrigation is an Israeli invention; it's basically a slow application of water to a precise point at the plant's roots either from the surface down or sometimes inside the ground directly at the roots. This system is beneficial because you can apply water to the roots of a plant more accurately with less water usage. This system also means that less labor is involved and water isn't being put in areas where it isn't needed. Especially in a drought and in places where water would be more expensive this system can be very beneficial ("Drip Irrigation Systems/Irrigation in the Desert). Vegetation can also be useful to farmers and families because certain types of plants can produce fruit, create wind barriers for plants, and even help enrich the soil with nitrogen. The vegetation would have to be adaptable to Mauritania's climate and such plants could include: *Acacia raddiana* save (Umbrella acacia), *Acacia Senegal* (Gum Arabic acacia), *Balanites aegyptiaca* (Egyptian balsam), and even *Prosopis juliflora* (Honey mesquite) (Berte, Charles Jacques). Funding for one or more of these ideas could possibly come from the agencies that are already there for Mauritania during food insecure natural disasters such as the United Nations World Food Program or World Vision. Although these agencies usually interfere during times by giving food they could possibly build wells, introduce farmers to different techniques such as drip irrigation systems, or they could simply start planting vegetation around communities that need it so in an event of a drought when an agency is contacted for immediate attention towards Mauritania, they have more resources and the damage may not be as bad.

The water scarcity in Mauritania is one of the main factors contributing to hunger. The dry climate makes it difficult to grow plants and the water that is used for farming is easily evaporated. Construction of wells

will help the scarcity of water become less and less. With water being used for farming and growing plants there will be a lot more crops grown with better quality. Using the micro irrigation technique people will be able to use less water and have a better outcome. Water won't be used where it's not needed and it will be efficiently put right at the roots of the plants where it's needed most.

Works Cited

- J, Katie. Family Units. *Blogspot*. 25 Mar. 2009. Web. 27 Mar. 2013 <learnmauritania.blogspot.com>
- "Mauritania". *Encyclopædia Britannica. Encyclopædia Britannica Online*. Encyclopædia Britannica Inc., 2013. Web. 31 Mar. 2013 <.britannica.com>
- "Education in Mauritania" *Maps of World*. 2012. Web. 31 Mar. 2013 <mapsofworld.com>
- Nouakchott. "More Women Support Own Households in Mauritania" *Al Arabiya News. Al Arabiya News Channel*, 27 Dec. 2010. Web. 31 Mar. 2013 <English.alarabiya.net>
- Baker, Michael. "Rivers of Mauritania" *USA Today. Demand Media*, n.a. Web. 28 Mar. 2013. <traveltips.usatoday>
- Zimmermann, Kim. "The Sahara: Facts, Climate and Animals of the Desert" *Live Science*. 12 Sept. 2012. Web. Mar. 2013 <livescience.com>
- "Mauritania: Poverty Assessment" *The World Bank. Poverty Reduction & Equity. The World Bank*. 2011. Web. 31 Mar. 2013. <web.worldbank.org>
- "Mauritania – Health" *Encyclopedia of the Nations*. JRank, 2013. Web. 31 Mar. 2013. <nationsencyclopedia.com>
- Kjeilen, Tore "Health" *Look Lex Encyclopaedia*. n.a. Web. 31. Mar. 2013 <looklex.com>
- Irin "Mauritania: Water Treks Grow Longer, Rougher" *Irin. Humanitarian News and Analysis*, 2 Jan 2009. Web. 31 Mar. 2013 <irinnews.org>
- "Drip Irrigation Systems/Irrigation in the Desert" *Untold News*, 2013. Web. 31 Mar. 2013 <untoldnews.org>
- Blaver, Etagale and Jason Laure. *Cultures of the World Mauritania*. New York: Marshall Canendish, 2009. Print.
- Berte, Charles Jacques. *Fighting Sand Encroachment*. Rome: FAO, 2010. Print.