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Chad, Factor 6: Sustainable Agriculture

### **Chad: Spreading the Knowledge of Advancements in Modern Agriculture**

I wake up early in the morning to do my chores, which take several hours. Like most people I do not have time to eat breakfast right away, but that does not matter because I know there will still be food waiting for me when I am done, although that privilege is not shared by all people. Everyone has experienced that awful feeling of not eating for a period of time and how distracting it can be from accomplishing anything. Just imagine feeling that constantly, never knowing when or if it will go away. For a child there should be no worry in their mind that they will not get to eat that day. Sadly this is the case in so many millions of lives. They learn to deal with the pain; it is second nature, a part of life if you will. Instead of getting an education or just being a kid, their time is spent working to help provide food, a mandatory need. Three things must be present in order to sustain life on the most basic level: food, shelter, and water. Currently, humans are the only species that have developed an intelligence to do more than search for food to survive. In primitive times this accounted for the large majority of human lives. Despite the modern times, for some it is still significant part of life. According to the World Food Program, some 795 million people do not have enough food to sustain a healthy active life (WFP). That is the least of our worries in America. As people that are so fortunate it is our responsibility to help those in need. The highest prevalence of hunger in the world as a whole is in Sub-Saharan Africa, one in four people there are undernourished (WFP). The lack of availability of food has so many factors, many of which are simple issues that have solutions already discovered in further developed countries. One of the biggest differences that effects food security between America and under developed countries is the lack of further developed sustainable agricultural practices. There are still people in today's age who plant their crops by hand and know nothing of basic crop rotation. These types of situations should not be the reason for people to go hungry because there are easy ways around them. By establishing some simple sustainable farming practices and making the information available the problem can be eliminated.

Chad is an underdeveloped country that lays dead center in one of the harshest continents on the planet, Africa. They are land locked by several other countries, and part of Sub-Saharan Africa. Life there is typical of what one might expect a scarcity of water and food, and harsh dessert climate. The large majority of people still live a nomadic lifestyle, roaming from place to place grazing their livestock and struggling to survive. The vast majority of population resides in the southern more fertile part of the country. It is quite typical for a family to be led by the father who has more than one wife and a large extended family with many children and relatives. In this nomadic society it is common for families to join together and form clans to help each other before splitting up and going their separate ways. Early marriage of young women is very popular and is the leading factor women leave education. Chad is in the top ten countries for child marriages with 68 percent (Smerdon).

Millet is the staple food in the diet of a Chadian. It is used to make bread and a large array of other starch dishes. Other grains such as maize and rice are used frequently as well. Vegetables such as okra and cassava are very popular along with many other varieties of fruit. A lack of protein is quite common in many people's diets, but the most prevalent is fish from rivers and lakes. Poultry, goat, and mutton are eaten as well. Beef is not as popular due to the fact that cattle are a sign of prosperity and they are highly treasured (Fd&dlylife).

Education is a struggle for the country as a whole. The widely dispersed population makes it hard to get children grouped together. Although it is mandatory for kids to attend by law, most parents are hesitant to send their kids to school. Chad's literacy rate is 35 percent (Chad Facts).. The country's only form of high

education is at the University of N'Djamena. There are other smaller scale schools for vocationally focused jobs. This problem also leads into their disastrous healthcare system. Very few people in the country have easy access to any kind of modern medical treatment. It is estimated that there are fewer than 3 physicians, 15 nurses, and 2 midwives per 100,000 people (Hlth.Chad).

According to the CIA eighty percent of the population's work force is involved in agriculture. This sector of their economy accounts for nearly half of their GDP (Labor Force). The majority of people in the country use subsistence food production only growing and raising what is needed to support their family. Production of livestock has seen an increase that past several years especially in the cattle industry. The most common forms for nomadic tribes are goats and sheep, with beef production growing more prominent in the south. Camels are used in the desert conditions of the north part of the country.

The main crops grown for use by families are sorghums, millet, corn, wheat, rice, legumes, tubers, and peanuts. Most land is owned collectively. The majority of larger plantations and agriculture operations are state owned and ran by hired workers in the southern more fertile part of the country. Crop rotation is most commonly practiced by citizens who are self-sustaining, switching between sorghum and some variety of a legume each year. Leaving fields fallow to give them a break from being cultivated is another common practice (Climate&Ag).

One of the biggest problems that face Chadians in regards to improvement of agricultural practices is the lack of infrastructure and general knowledge of modern agriculture the people have. The fact that education has so little value to the citizens means they are never subjected to anything recently developed. This issue is hard to address because it comes as part of the culture in Chad. It is important that outside help does not infringe upon the local peoples belief or customs. They must be treated with fairness. Their trust can be gained though showing humility and genuine care. Also, Chad is a land locked country, which makes imports very expensive due to the amount of transportation needed. The weak infrastructure makes communication difficult and leads to disorganization of products that could be exported. Even though all these factors are important nobody will worry about expanding on them while there is still such a widespread problem with malnutrition.

Protein is an essential part of living a healthy lifestyle and growing correctly. However it is most commonly lacking from the people's diets. With the presences of experienced professionals at learning institutions or even international organizations that volunteer, the citizens of Chad can be shown the importance of a balanced diet. Helping them understand that raising livestock to eat instead of selling for a profit is more beneficial to themselves is another way to address this problem. The focus of providing immediate needs overpowers the importance of developing trade and technology. The recent discovery of oil has opened some new opportunities for jobs and also brings some income for the nation as a whole. Cotton is still a major export of the country.

In this underdeveloped country practices are being used that have been in place for thousands of years and nothing has changed to improve them. Efficiency is key and that is the biggest problem in producing enough food. A large portion of the land is available for cultivation and could be put to good use but some things will need to change. Continually using the same land to grow crops causes erosion and depletion of nutrients in the soil. If villages and families were taught proper management techniques of their livestock and basic healthcare or ways to improve production of crops the amount of food would increase greatly. Before larger scale problems can be fixed, the basics must be secured.

Even though women provide for a large amount of the work that is done in production of food they are not well respected. If practices were more efficient less work would be required of the women. One roadblock that prevents some of these practices from being used is the deficiency in funding. This is part of the reason developing nations have such a problem with food insecurity. The majority of all the people

in Chad live under the poverty level. Limited funding also means limited education so very little research and development is accomplished.

Many factors contribute to the establishment and development of sustainable agriculture, so it can be hard to assess the current scope of the issue. What we can look at in countries like Chad is economic development, education, and general living standards of people. For the people of Chad, development in this area only has room to improve. The more knowledge gained the better off they will be. The practices that are in place now remain the same, but with the population steadily growing, conflict over lands increasing, and corruption increasing the situation could take a turn for the worst. Chad is one of the few Sub-Saharan countries in Africa to have such a low presence of food safety net programs and other humanitarian aid organizations (“Chad”). These programs provide very beneficial help. By reaching out to International organizations and making them aware of the need in Chad they can become for helpful. Also going to them with specific plans as to where Chad needs the most help.

The biggest obstacle in preventing sustainable practices from being implemented is that the nomadic people who are in the most need have almost no means to access the technology. Forms of teaching can be done through several ways. First, there are many Americans and citizens of other countries with the means, and knowledge of agriculture that would be willing to teach the people of Chad basic sustainable practices, like crop rotation, irrigation, and fertilizers. With the coordination of international aid organizations, mission trips can be set up for them to teach first hand with the local people. A program as simple as one person with a knowledge of basic agricultural practices teaching in a village with the locals for a couple weeks could improve their situation tremendously. The ultimate goal would be for citizens of Chad to be trained well enough to teach others in their country. This would mean more people could be helped on a larger, permanent scale. With the convincing of the Chadian government, they can go to greater lengths in educating children in public schools and providing more opportunities to gain higher education. If there is an efficient way for people to be taught, more can get done.

The first thing after establishing how to teach these practices is to focus on improving the overall nutrition in the diet of the people. Grains like sorghum and millet are the staples of a Chadians diet, which is an essential part of nutrition, but does not meet all requirements for a healthy body. Eating more protein would help tremendously in this aspect. The cattle industry is growing in Chad but almost all of it is being exported. Many of the nomadic people that raise goats and sheep roam from the north to the south, depending on the season in search of food. Water is scarce in this arid environment, but recent research has shown that there are large basins of underground water that is untouched (McGrath). Finding ways to improve availability of water can improve all types of farming. One way of making water more available and providing economic growth is have a company or organization hire local people to build pumps and wells that go deep enough to reach the untapped water source. Then the water can be made available to locals and jobs are created. More water means an increase in production per acre of cultivated ground. Fresh water improves the health of livestock. All of these factors contribute to more wealth of the people.

Implementing no tillage or minimal tillage of the soil prevents large scales of soil erosion. Soil is a non-renewable resource that takes hundreds of years to regenerate. With today’s modern technology, no tilling can achieve conventional yields while minimizing the subjection to erosion. Furthering developments in practices of crop farming can increase Chad’s ability to produce cotton, which is one of their largest exports. Any of these practices can improve yield and efficiency, increase profit, and further economic development. Chad has a very unstable econ so foreign investors are hesitant to take the gamble. Gaining more stability can be done by improving the availability of product. One way to convince foreign investors is to show them through credible research that the opportunity to be successful is present in Chad. Whether that be through test plots that show certain cash crops grow productively or connecting them with willing citizens to work with.

For decades farmers all over the world have dealt with the factors of Mother Nature. Although we have no way of controlling the weather, technologies have developed to withstand the challenges it brings. Sustainable practices are designed to withstand changes in climate. They are used to adapt to the environment and be the most efficient. As a developing country, birth control is not widely used, which leads to rapid population growth. A growing population leads to more urbanization of land and an increase in pollution. Sustainable Agriculture at its heart is designed to increase efficiency of production, which can make it possible to meet the needs of a growing population.

I believe that utilizing the resources already available in the country itself is most practical. According to the rural poverty portal Chad has 39 million hectares of arable land, which only 6 percent is currently being used (Geo.ag.econ.). Spreading the use of irrigation is instrumental in the development and productivity of this land. Tapping the resource of underground water and efficiently distributing it among farmers can increase yields on an exponential level. With the new advancements in genetically modified organisms, crops that are high in protein can be bred to withstand dryer climates. Using a drought resistant grain crop in place of conventional crops would also bring increases of production. By increasing the production of each family's crops and livestock, they can help themselves instead of relying on an outside source for food. Another way that food production can be increased is instead of focusing on the exporting of goods such as cotton, the land that is used to grow it could be used to produce crops that can be consumed. This would require convincing the government run plantations to change what they grow. One possible way to do this is to show them the financial benefits of growing a food crop that holds more value to the people that live in the country.

In regards to livestock development, implementing practices such as meeting more of their nutritional requirements can improve their overall health and weight gain. Also with nutrient deficiencies being so prevalent, teaching about use of animal manure as a natural fertilizer can increase those depletions without an extra cost. If irrigation practices are implemented than food availability for livestock becomes less of a problem, so time can be spent focusing on increasing ways of profitability instead of the nomadic lifestyle searching for food.

One project already in place to increase sustainable agriculture is sponsored by the World Bank. It is called the Agriculture Production Support Project. Their goal is to increase the production of selected crops and livestock species in selected areas of the recipient's territory; and the use of sustainable land and water management practices in climate vulnerable ecosystems (Hopkins). Ways to upscale this project could include getting volunteers who are knowledgeable about sustainable practices to go to Chad and spend a little time teaching the people about how to implement them. It is the responsibility of the rural farmers in Chad to take the help that is given and progress forward from it. Using these practices to increase production of food is vital for the society as a whole to further develop. Organizations such as the United Nations and other international research agencies can continue to educate and help provide these opportunities to the rural citizens.

If you compare a country that is considered successful to a country that is impoverished most of the time the successful country has a well-developed agricultural system and invests money and research into making it better. This is not by coincidence. The United States economic growth started from its success in agriculture production and continued to grow because technology was still being advanced. This is one of the main reasons it has been able to develop into the successful world power it is today. Agriculture is still its number one industry and new advancements are made each day. The sustainable practices that have been discovered here can be put in place in Chad and other developing countries to increase their economic development and provide enough food for their growing population. No longer should pain of hunger be a problem in these countries. There should not be thousands of children each day that lack the nutrition they need to grow and develop, or even more wonder when they will eat their next meal. One of the biggest satisfactions a person can feel is to see the work they have done with their own hands. There

are other ways to help than just giving food to people in need. By teaching these people to help themselves through sustainable agricultural practices not only can permanently sustain them, their families, and provide a way of life, it can give them a sense of pride in doing it themselves. If the population in a country can establish food security they can begin focusing less on surviving and more on education, research, and the development of a higher society. I know I am so fortunate to live comfortably and not worry about feeling the pain of hunger, but it is a natural right of all people young and old to be happy, successful, and get enough to eat. Through sustainable agriculture practices we can help in solving world hunger and improving the lives of millions of people across the globe.

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