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Afghanistan and the ADT: Lending a Hand for Sustainable Agriculture

Jane Rottinghaus smiled as she opened the front door to her farmstead home. After being bombarded minutes earlier by two small children on the front porch, excitedly showing off their newly-caught pet frogs, I was eager to meet the mother of these smiling, young farm kids. Once inside, it was obvious that Mrs. Rottinghaus was very patriotic. Her United States flag t-shirt and elaborate stars and stripes table runner were just a few indications that some part of her was very connected to her country. Her connection was exactly why I was there.

Keith and Jane Rottinghaus live in rural Iowa, near the town of Jesup. There they raise corn, soybeans, and hogs. In addition to four children of their own, the Rottinghaus's have two younger adopted children. "It keeps us busy!" Jane laughed. Their daughter Nichole, is a homemaker and pre-school teacher in Wisconsin; she is married with three children. Their son Douglass is a banker in Colorado. Ashley, also their daughter, is interning at Allen Hospital in Waterloo, Iowa.; she is earning a second major in addition to her Vocal Music degree. And Scott, their oldest, is a member of the Iowa Army National Guard. All of their biological children are in their twenties. Angelo and Zoie, whom I had met on the way in, are still in grade school.

"Tell me more about Scott," I asked. First Lieutenant Scott Rottinghaus is a member of a specialized volunteer unit of the National Guard called the Agri-Business Development Team, or ADT. As a member of the 734th ADT, Scott was sent to Afghanistan in early July to work with local farmers to improve upon the sustainability of existing food growing practices.

"Scott started training for the ADT this past January," Mrs. Rottinghaus informed me. "He and the other team members spent a lot of time visiting the Amish. They're the closest thing we have to the low-grade technology the ADT has to work with in Afghanistan." She then continued on to explain that states take turns sending ADT teams. Teams include specialists such as agricultural mechanics, electricians, irrigation experts, and market analyzers, to name a few. Their purpose is to help teach the Afghani people how to be more sustainable in their farming practices. "Scott specializes in wheat production," she informed me.

At that moment, Mr. Rottinghaus walked through the door. After being chastised by his wife for bringing corn chaff into the house, he joined us at the kitchen table. He proceeded to remove his farmer's hat, running his hand through his hair, before replacing it back on his head. "I hear you wanted to know more about Scott."

I acknowledged his statement. "It's good to know someone's out there trying to put a word in for agriculture," he began, "After all you hear about farmers on the news, we look like a carbon creating, fossil fuel abusing, water resource polluting nightmare." I sympathized with him. Coming from a family farming operation myself, I too have heard the misconceptions dispensed to the general public. It was because of my background in agriculture and my family connections with the U.S. military that I was sitting at the Rottinghaus's kitchen table, pen and paper in hand, learning about this selfless volunteer group.

Another hour of discussion opened my eyes to the mission of the Iowa ADT. For the first time in history, the Iowa Air National Guard and Army National Guard had joined forces. Their intention? To help the

people of Afghanistan bring themselves back to their feet through agricultural education. It is not the mission of the ADT to sweep into the country, forcing a new way of life upon the people. Instead, they collaborate with the province they inhabit, following Afghani laws and helping citizens one step at a time.

Scott is joined by about fifty other men and women, including a few civilians, in the ADT Afghanistan project. However, of the fifty, only sixteen members actually specialize in an agricultural field. The rest are guards. Scott and his men are located in the town of Asadabad, three miles from the Pakistani border. Although no mortalities have ever occurred within an ADT unit, there have been injuries. It is critical that these peaceful agents of agriculture be kept safe.

Afghanistan, although not an ideal agricultural country, is capable of growing enough food to support its population. However, rural Afghans are exceptionally ignorant when it comes to modern farming practices, especially in the fields of technology, irrigation, and management. They also do not have the funds necessary to improve their situation. Families can barely provide food for themselves. Corn is cut early, before an ear has even begun to develop, because it cannot grow quickly enough to feed the family that planted it before they starve. According to the Rottinghouses, a large farm for a family is between one-third and one-half of an acre. That's only about as big as half a football field!

Having large families is important to Afghans. Children can work in the fields to produce food for the family. However, James Palmer wrote in his article for the San Francisco Chronicle that until children become of working age, they are extremely expensive to care for. Palmer continues on to state that Afghanistan's fertility rate is the highest in Asia with the average woman giving birth to more than seven children. 800,000 people are added annually to the population of Afghanistan, which has already reached 32 million. By 2050, this number will reach 56 million. Researchers say "continued population growth poses a greater obstacle to reducing poverty than HIV/AIDS," concludes Palmer.

The country is largely impoverished. Also in his article, Palmers states that 42 percent of Afghans live below the poverty line. To be defined as living beneath the poverty line, a person must live on \$1.25 USD or less per day ("Poverty Threshold"). According to Palmer, another 20 percent of the population is hovering just above this qualification. Decades of war, destruction, and government instability have prevented this nation from recovering on its own. Afghanistan has been in continual civil war since April of 1978. A lack of funding, low education standards (especially for females), religious restrictions, and few knowledgeable health technicians has led to the mortality rate of 17.83 deaths per 1,000 people. In comparison, the United States only has a mortality rate of 8.38 deaths per 1,000 people (CIA). Afghanistan is one of the least developed countries in the world, according to the United Nations (UN-OHRLLS). A country is classified as a Lesser Developed Country if it meets these three criteria:

- It is low-income. This means that the three-year average Gross National Income per capita is less than \$905 USD.
- There is a shortage of human resources. This is based on nutrition, health, education and adult literacy.
- The country is economically vulnerable. Vulnerability is based on the instability of agricultural production, instability of exports of goods and services, economic importance of non-traditional activities, merchandise export concentration, handicap of economic smallness, and the percentage of population displaced by natural disasters ("Least Developed Country").

However, although Afghanistan is poor monetarily, it has other resources that, if reaped, would prove extremely profitable. In 2010, U.S. Pentagon and American geologists revealed the discovery of about \$1 trillion USD in untapped mineral deposits in Afghanistan. These deposits included stores of metals such as gold, silver, copper, zinc, and iron ore; they also included precious gems such as lapis, emeralds, and azures; finally, these stores also contained resources such as petroleum, natural gas, uranium, coal,

chromite, talc, barites, sulfur, lead, and salt (“Afghanistan”). Unfortunately, these resources have remained largely untouched due to the country’s constant state of war.

That is where the ADT steps in. Their purpose is to determine the needs, and more importantly the *solutions*, that fit the modernizing capabilities of the region that would allow Afghanistan’s agricultural sector to become sustainable for future generations. National Guard Lieutenant General Clyde Vaughn anticipates having ten to fifteen Agri-Business Development Teams in Afghanistan by the time the country is ready to be independently sustainable (U.S. Dept. of State).

There are many things that can be improved upon in Afghanistan regarding agriculture. Agriculture is the main source of income for 70 percent of the Afghani population, as well as the primary source of income for the country (“Opium Production”). Currently, there are thousands of acres available for growing crops that are not being utilized in Afghanistan. Only 9,599,385.6 acres, about 6 percent, of the country is being used for farming. Total available land includes 23,998,464 acres, 15 percent of the country (“Afghanistan”). The remainder of the land resides in mountains, cities, and non-arable regions. The climate does not differ greatly from Iowa’s, excluding the fact that it is much drier. In the winter, temperatures can drop to 5°F; in the summer, temperatures can reach 95°F (“Afghanistan”).

Of the 6 percent of land that is currently being farmed, 4 percent was used to grow Opium, or poppy, illicitly according to a 2006 study (“Opium Production”). That leaves a total of 3,199,795.2 acres left to feed 32 million Afghans! Sadly, the crop provided more than 35 percent of the country’s total gross national product that same year (“Opium Production”). Opium provides a workplace for females as well as males. Because the demand for Opium is so great, women have been allowed to work in the poppy fields to earn extra money for their families (“Opium Production”). “2.9 million Afghans from 28 of 34 provinces are involved in Opium cultivation in some way, which represents nearly 10 percent of the population,” (“Opium Production”). Even though this illegal product does boost the income of the country’s economy and owners of the poppy fields, less than 20 percent of the \$3 billion in Opium profits actually returns to impoverished farmers. The other 80 percent lines the pockets of Opium traffickers (“Opium Production”). Afghanistan’s irrigation system is extremely poor. Because Opium does not require as much water as other crops in the region, poor villagers see growing this product as the only means by which they can earn enough money to feed their family.

As mentioned previously, the irrigation systems in Afghanistan are horrendous. In actuality, Afghanistan does not face any water shortages. During the winter, snow covers the mountains surrounding Afghanistan. Once the snow melts, the water runs into rivers, lakes, and streams. But because of Afghanistan’s faulty irrigation systems, most of the water flows into neighboring countries (“Afghanistan”). Canals have been built to help water loss by carrying the water from the mountains directly to the cropland. However, a study done by the Afghan Ministry of Water and Energy estimated that 70 percent of available water is lost due to evaporation and leakage each year as it flows through “crumbling, decades-old canals,” as mentioned by James Cogan in an article for the World Socialist Web Site. Two-thirds of the farmland in Afghanistan requires irrigation (“Agriculture”). To combat the country’s irrigation handicaps, farmers began drawing water from underground sources through a series of excavated vertical shafts. This water is then distributed through surface ditches and underground channels (“Agriculture”). This method is only a temporary solution to watering crops. 50 percent of the groundwater in Afghanistan has now been depleted due to this unsustainable practice, adds Cogan. To correct this practice, Afghanistan needs \$2 billion USD to rehabilitate its irrigation systems so that the water is properly used (“Afghanistan”). Currently, Cogan says the insufficient irrigation systems have led to “as much as [9,884,215.3 acres] of potentially productive land not being cultivated.”

So, how can the ADT and the Afghani people work together to revitalize their agricultural way of life? First, the implementation of Genetically Modified Organisms, or GMO's, can significantly increase the amount of food grown in Afghanistan. 99 percent of the Afghani population is Islamic ("Religion"). According to the Islamic Jurisprudence Council, "foods derived from biotechnology-improved ... crops are halal – fit for consumption by Muslims," says K. Hazzuh in his article, "Are GMO's Halal?" The only thing that would allow a GMO to become haram, or non-halal, would be if it directly contained DNA from a forbidden food, such as pork. But, the Orthodox Union, the strictest interpreter of Halachic laws, has stated that if a food substance was developed with a gene from a non-kosher source, the food still remains halal. This is because the non-kosher gene was merely used to create the chemical formulation that was introduced to the plant by bacterium. Hazzuh says because the non-kosher source is no longer directly connected with the food substance, the GMO becomes halal. Conclusively, there is no religious disagreement preventing Afghanis from eating the higher yielding product.

In Afghanistan, wheat yields this year are projected to be 24 bushels per acre according to Nabeeha Hutchins in her personal blog. To put this into perspective, she explains that anticipated wheat yields this year in the United States are expected to reach 45 bushels per acre. Although Afghani wheat is expected to yield only half as much as U.S. wheat, Hutchins recorded only 14 bushels per acre production in the 2008-2009 crop year. In Afghanistan, 24 bushels is a major increase in production.

The ADT is helping to introduce GMOs to the country. In his PowerPoint "All About Afghanistan!", Douglas Greig informs that Afghanistan used to be the number one exporter of raisins in the world. He also explains that Afghanistan was also known for their production of nuts and fruits, especially pomegranates. Additionally, the ADT is helping farmers to obtain better prices for their products by selling them on the world markets rather than just locally (National Guard; contributed). With the Agri-Business Development Team's help, Afghanistan can increase the caloric value of each acre of land. GMO technology has the potential to eradicate starvation in Afghanistan.

In addition, the ADT is assisting in the restoration of canals. Part of the reason that crops in Afghanistan yield so poorly is because of water loss. For GMOs to reach their full producing potential, fields need to be provided with an adequate water supply. A cash-for-work program has been established by the ADT for clearing clogged irrigation canals (National Guard; Witte, Gary). Another program for the benefit of providing water for agriculture is the Circle of Life. The Circle of Life is "a comprehensive village sustainment program that can support five to six thousand people. The Circle of Life includes wells, micro-dams and irrigation, as well as Afghan-appropriate programs to increase yields...." (KYFB)

I believe the country can directly benefit from improving their canal system. Crop yields will increase, more food will be produced, less death due to starvation will occur, groundwater depletion will slow down, and Afghanistan could quite possibly produce a surplus of fruit, nuts, and grain crops. This surplus will lead to more exports and healthy economic activity. Also, if there is a surplus of legal crops, farmers may begin to stray from raising Opium for profit. When a farmer plants poppy, he is taking a risk. If his field is discovered before it is harvested, his Opium crop will be destroyed by the authorities and with it, the money he needs to feed his family for the year. By introducing GMOs, Afghani farmers have the opportunity to grow enough food for their families *and* have some left over to sell. Many benefits can come from improving the canal system.

There are numerous things that can be done in the country of Afghanistan to improve the quality of life, and they all start with farming. The basis of an economy lies in agriculture. Without it, there would be no means of providing the basic necessities of food, fuel, and fiber for the population. For a country to flourish, it must have an efficient and effective agricultural sector. And for agriculture to continue thriving for generations to come, current farming practices must become sustainable. As part of the Iowa

734th ADT team, First Lieutenant Scott Rottinghaus has dedicated his life to bettering the Afghan society through sustainable agriculture education. “We are so proud of him,” concluded Mrs. Rottinghaus.

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