

Carter Larson
Baxter High School
Baxter, IA
Factor 2: Water scarcity

India: Cleaning families and farms one at a time

When you think about farming, you think FFA, John Deere and men working the fields till dark right? Well, there's a whole other side that we don't even think about. There's so much more. In today's economic society, we don't think much about smaller farms or subsistence farming. It's nothing to the big companies or wolves of Wall Street, but, it should be. Those farms are a large chunk of the world's population. Smaller, subsistence farms also happen to be the most impoverished. This type of farming is where they farm to stay alive rather than make a profit. But, without the right types of supplies, wrong weather conditions, and natural disasters it's a struggle to survive and produce. With hardly making enough to feed themselves, they have more trouble finding money to pay for livestock, farming needs, medical attention and correct nutrition. Finding ways to help these farmers grow both through farm expansion and within their family needs to become a bigger concern of ours. We have an abundance of agricultural technology, why aren't we using it to help the less fortunate? Showing them better farming techniques and even homemade little ideas to make things easier can be a huge help. One man's trash is another man's treasure, right? It can be done if we put our minds and hearts to it.

Indian families, tend to be whole, consisting of all members. This is because of the rural location that happens to be seventy-three percent of the population. These families are also less educated. The country as a whole only has a fifty-nine percent literacy rate, it's even less in rural areas. During the three farming seasons, farmers grow a variety of crops. In Kharif, farmers grow rice, jowar, bajra, maize, cotton, sugarcane and soybean. During Rabi, wheat, barley, grains, linseed, rapeseed and mustard is produced. Maize, rice and groundnut are grown during the summer.

Because the farmer and his/her family lacks proper irrigation systems, the produce from your typical subsistence farm is not close to being sellable. If the family so happens to find a market that they could sell produce in, they are hardly making enough for themselves so they have no extras to sell. Your average subsistence farm brings in about INR400-450 (US\$ 7.20-8.20) a week. That's only 374.40-426.40 dollars a year. They only own about one hectare, which is about two and a half acres. Sadly, nearly sixty-percent of farmers fall into a marginal category, only farming less than four-tenths hectares of land. With central markets out of reach, this makes it hard for the farmer to make any money. The ability to buy food and crops not produced on their farms become even harder. Along with the purchase of medical needs, children's educational needs and other living expenses.

With no funds and little access to clean and usable water along with living in semi-arid region, only forty-eight percent of land is usable. Even less is able to produce an adequate crop. With these advances in technology, it's not helping them until we do. All of the stuff is new to them, and if we don't show them, they won't understand.

The worryment of small surplus and poor quality of crops have been researched from in town scientists up

to national and international companies and relief systems. Almost sixty percent of India's population are involved with some sort of agricultural activity. Their agricultural exports aren't big, thus making the market not big either. The poverty line in India holds almost twenty-five percent under it. Economic reforms have been put into place to try and help these farmers, but with the lack of technology and markets being gloomy, it's going to take more effort.

100,000 plus people die each year from waterborne diseases. The groundwater in one-third of India's six-hundred districts is not fit for drinking. From fluoride to iron and arsenic, this water is not suitable for plants and animals, even less humans. Seventy percent of India's water is seriously polluted. Things need to be done and fast. Soil, trees and the oxygen are all being threatened by the poor water supply. 1000+ turtles are found dead on the beach each year in India due to water pollution. Shrimp are dying off by the thousands, cattle are becoming sick from drinking. Eighty percent of diseases in developing countries are because of poor water quality.

Farmers can't afford vet bills, but they also can't afford to lose cattle and produce due to the fact that they have poor water. These measurements are valid points that the situation is changing, but for the worst. Because of potential changes in climate and that region of the world only getting hotter, the water is not coming anytime soon. Our rural and poor urban families are not doing better nor will they unless something changes.

If I could improve the quality of the water or the quantity they are able to access, I would install solar pumps and/or rain barrels all through the country. I believe that the solar pump would be a smart idea. They may be more expensive than the rain barrel, but twenty-one percent of communicable diseases in India are from unsafe water. Our earth now holds 1.2 billion people. Its expected to be 1.6 by 2050. Ninety-seven million lack safe water. If we don't do something about it, the economic development and poverty is not going to get any better.

Installing solar pumps would save about six million dollars a year in power and diesel bills. Thirty percent of people live in poverty, four thousand die a day from lack of clean water. Only fourteen percent of homes have access to a latrine. India relies on water for their crops. They pump 212 million megaliters a year from the ground, this isn't sustainable for the earth. Some governments in India are overlooking the costs of the solar pumps because it will help eliminate the millions of dollars in bills for diesel pumps.

Farmers and other small households in India should also consider rain barrels. They range from eighty-five to a hundred dollars. Home made ones can be made even easier and cheaper. It takes maybe an hour to build one. Buying all the necessary items, this homemade rain barrel will cost you roughly fifteen dollars. It may not be a huge plastic container that can hold thousands of gallons of water, but it will truly help India fifty-five gallons at a time. Taking time to consider how saving water and using more eco-friendly ways will benefit not only farmers, but their wives and children as well.

IDEI (International Development Enterprises India) has started focusing its attention to finding technology that is useable for these Indian farmers. It is not only available but also affordable. Their goal is to close the gap between the western civilization and modern technology. However, the efforts of only a few organizations is not enough. This is a big problem, which means it needs a big support group. Many

of those organizations are corporate, which makes them interested in business. They are looking at the farms for a profit and the farmer as a customer. This provides a brief fix, but come it's not building a foundation and establishing the future of subsistence farming in India. But, we need things happening for the good of our Earth, not how much money we can make.

India has rivers, ponds, and lakes. There are ways we can make the ponds quantities greater. In India, many people use silpaulin. It can be used as farm ponds, raw water sources and even fish ponds. They are also useable as community water tanks, along with portable water tanks. It can also be used as a roof for poultry barns, floors for housing and cattle barns. Along with the fumigation of tobacco leaves, food grains, and other agricultural products.

I truly believe if we work on saving water in India and being more eco-friendly. Using as much rainwater as possible, and using solar powered pumps instead of diesel powered would save money and damage done to the earth. Our earth is our support system, if we don't take care of it, we're doomed. Our climate is changing. Our Earth is getting hotter. The water on land is going to dry out faster. India is projected to get drier in dry areas and wetter in already wet ones. Studies show that India could be experiencing up to almost a fifty percent change in precipitation levels. Ground run-off, snow depth and even humidity is expected to change as well.

Since the 1950's, there has been a monsoon rainfall has been lessened. If this pattern continues, it could be a major crisis for India. More than sixty percent of India's farming and agricultural systems are rain-fed. Fifteen percent of India's groundwater resources have been abused and overburdened. We need to be able to store huge amounts of water incase Glaciers in the Indus and Brahmaptra start to melt. These would help with rainfall during monsoon season, but there would be huge amounts of water flow.

Promotion of these economic series of events would vastly help the lives of Indian farmers. Creating more central markets and increasing the availability and affordability of modern technology would help the farmers self-confidence, if not boost it along with self-sufficiency. Instead of over-looking the root of the problem, we need to look here and solve it. We want these farmers to be able to make a lasting change and not always have to rely on charity like institutions. With better availability of irrigation systems and technology, the farmers would be able to apply it to their farming style. Increasing the quality and the quantity of their crop, allowing them to take their produce to markets and be profitable. Not only will better irrigation systems allow the farmer to be better off, but it also helps the ground and our Earth. This is very essential due to India's ever expanding population. This new technology is also going to lessen the physical labor and improve the quality of the elder and children who are forced to work.

Governments both nationally and internationally could help by watching and regulating prices of irrigation systems and solar pumps. With occasionally funding by organizations, farmers could buy these things. Companies who produce the technology or the systems themselves could reduce the prices for these farmers, and help revitalize production. We could find civic organizations to help promise the safe and secure transportation of the families produce to and from markets. Bigger companies such as DuPont, John Deere, and Kemin could help provide educational courses to farmers and their families about farming and agricultural techniques. Farmers could also be allied with urban agricultural dealings. The urban groups could help finance technology to advance personal security. They then could buy the

farmers produce, allowing the the farmer to be placed under monetary protection. This would allow the farmer to succeed and the urban company to always have the produce they need for retail. If we improve the water scarcity factor, it's going to help with food security in the long run. Plants and animals need water, clean water, to survive.

If we start installing these solar pumps and having rain barrels available and using silipaun ponds, things could change for the better. More than just one small town high school student and few big companies need to care. This needs to be a global concern, and if it's not, nothing's going to happen. This is our Earth and we have to be the ones to help provide for those who live on it and can't provide for themselves.