

Emily Hansen, Student Participant  
ADM High School  
Adel, Iowa

### **Education: Fundamental to Successful Eradication of World Hunger**

“Give a man a fish and you feed him for a day. Teach a man to fish and you will feed him for a lifetime.” This ancient Chinese proverb was first uttered many years ago, but it is still in a sense applicable today. Providing food to people in third world countries only provides a temporary solution to the immediate need. A long-term strategy to keep people well nourished is required. Educating family farmers will be crucial in solving food security problems; developing new, higher yielding technology will not be enough. Without implementation, these agricultural improvements are inconsequential to poverty-stricken people. Therefore, it is up to those educated in agriculture technology to teach third-world farmers how to better use the land they already have. Agricultural extension programs must be built to educate and advise family farmers on improvements in agricultural practices. If the land already owned by subsistence farmers can be outfitted to better suit their needs, there is no reason for them to expand and plow under new land. Keeping our land resources safe from overuse is another issue we must combat when tackling the food security crisis. Not only will agricultural efficiency improve our food supply, but it will keep our natural resources from being overused as well. The single greatest obstacle we face in combating hunger is getting the food to those who need it most. Educating farmers on techniques to increase the yield of their harvest is a great way to solve this problem. It causes transportation to no longer be a major issue, as the food is being grown where the demand exists. Some economically growing countries are increasing their demand for nutritional food, but many other poor regions are trying to get by with less. They cannot afford the higher cost due to the greater demand. If nothing is done, it will only exacerbate the current problems. This is why the World Food Prize is working to help third-world countries like India eliminate food security issues. With extra demand inflating already astronomical food prices, the latest techniques and developments are critical to feeding the increasing global population.

India is growing rapidly, but food suppliers are struggling to keep up with the pace of the population increase. Almost sixty-six percent of the one billion people in India are raised outside the major cities, and close to 170 million of them are chronically poor. The structured caste systems of India hinder rural farm progress. 34.7% of the Indian population is living on less than one U.S. dollar a day, and about 80% of people live on less than two U.S. dollars a day. Agriculture comprises 22% of India’s total Gross Domestic Product, but this percentage could increase if farmers are given the tools to promote their goods in various markets. The rural poor are greatly affected by the lack of access to resources, which leads to increasing worse living conditions. Rural Indians view housing as their number one concern. Without it, children’s education and health are at risk. Due to the poor lighting and lack of electricity, some kids are unable to study. The air pollutants people face in their housing can and do lead to respiratory conditions. A majority of homes do not have restrooms, and over 80% live in what the Indian government considers “weak” houses, which are made of mud and thatched straw roofs. They are very small, usually about 150-200 sq. ft. On average, the families are about 4.9 people to a hut. The diets of rural Indian families are mostly non-vegetarian, but do consist mainly of cereal grains, with rice being the grain most Indians eat in the largest quantities. Not surprisingly, the percentage of those underweight was much greater than the number of people overweight. The imbalanced diets of rural Indians are partially due to the lack of dietary education they receive. Less than 6% of rural dwellers knew some of the basic requirements for nutrition.

Rural Indians encounter many difficulties trying to get an education, especially women. The school facilities they have are rudimentary at best, with only a couple restrooms for hundreds of students. This is especially a problem for female students, who are often uncomfortable in unisex restrooms. Parents often decide that girls will benefit the family most by staying home, so that is what tends to happen. Governments often impose unaffordable school fees on poverty-stricken families that want to send their children to get an education, which leads the families to decide to only send their oldest male children, in the hope of them coming back to provide for their families once they get home. The problem with this line of thinking is that usually the girls are more inclined to come back and help their families than the elder sons would be. Girls are also more likely to use the knowledge they gained at school, and educated women tend to have fewer children. Most rural families have incomes below one U.S. dollar a day, and would gladly accept the extra money that educated children could earn. However, the cost of sending children to school makes it difficult for most rural families to consider education as an option.

The family farms found in India are completely different than what can be found here in the United States. These farms are, on average, shrinking, a move that goes in the opposite direction of what India needs. If the population continues to grow while the farm size keeps getting smaller, India will need to import more of its food. If more food is imported, then the cost will increase and put more goods out of reach for subsistence farmers. India's natural resources are already strained with the pressure of feeding the world's second most populous country. They cannot take much more growth without some kind of change. While the number of farms has actually increased from forty million to one hundred and five million over the past 30 years, the size of the farms have reduced from 2.7 hectares to 1.6 hectares. With another generation coming up, India will face more breaking up of land area unless something is done. India needs to adjust its government spending, focusing more on the Indian people's health and food issues. The yield performance of Indian crops, such as rice, wheat, sorghum, and sugar cane, has been scattered and varied. It would be in India's interest to develop a consistent level of output, so no one is forced to go hungry as a result of a lean year.

There are many obstacles preventing India from increasing their agricultural productivity, but an ineffective extension program has led India to the crisis it faces today. Urban India has experienced rapid growth in non-agricultural areas, but the lack of technology and knowledge of advanced practices has severely strained India's food resources. This lack of awareness has fettered growth in the agriculture sector, while the demand placed upon it only increases. There have been some structural changes made by the Indian government in order to meet some of these challenges; however, a more dramatic change needs to take place for a longer lasting effect. The modifications that India has experienced are decentralization of extension, to better meet individualized needs and training farmers to express their needs from the extension programs. These changes were implemented based on the concern that an increase in productivity will begin with farmers if the help they receive is specific to their own needs and issues.

Currently, it is difficult for subsistence farmers to expand their farms because of the additional costs associated with owning more land. Therefore, the best way for farmers to expand their output is to use better cultivation practices on the land that they already have at their disposal. If agricultural extension programs helped teach farmers better methods of production, they would be better equipped to handle the ever-growing burden placed on them by a hungry country. With only basic methods to grow crops, India's farmers are at a loss as to how they can continue to support their families and neighbors. If subsistence farmers are taught a few different methods of increasing their yield or if they are exposed to new technology, they will be able to increase their productivity and have more nutritional food to offer to poverty-stricken families. Independence is important, and so we must strive to intervene only when necessary, and not so

much as to foster dependence on foreign aid. If the poor can grow their own food, they will no longer require outside help to receive nourishment. "For a country of India's size and population, importing huge quantities of grains is not feasible. The increased demand has to be primarily met through increase in productivity gained through increased application of knowledge by the farmers" (Sulaiman and Van Den Ban). They suggest using agricultural extension programs as a means of self-sufficiency for Indian subsistence farmers, as that is the only way to make a sustainable difference in these peoples' lives. The main form of agricultural extension used in India is still public sector extension. This is a good attempt, but the lack of funding and qualified candidates able to teach extension programs makes creating change nearly impossible. The quality of resources in India has been decreasing due to the overuse and misuse of the land. Yield and productivity of the land could be greatly improved if extension workers could educate farmers about proper management and use of natural resources. Instead, resources are used until the minerals are depleted and the soil is exhausted, and then farmers just use a different area to grow their crops. The option we should pursue in land cultivation is a more intensive use of land resources, but also using the land in a way supported by the scientific community as more sustainable.

Women are especially affected by the poverty in India. When households are poorer, they rely more heavily on women to help them survive. The contribution by women is substantial to the welfare of people below the poverty line in India, as women put more of their earnings towards taking care of their family than men do. The men will tend to keep their money, while women sacrifice for their families and donate their income to those who need it most. When women are the ones earning the money for their family, it is more directly positive for their dependent children. Unfortunately, working women are undervalued in traditional Indian culture and men are viewed as the people who should be in the work force. As a result, a majority of women are illiterate and receive less education than male counterparts. 90% of rural women and 70% of urban women that work are unskilled laborers, nothing more. There are many social rules that inhibit women from working, and limit the jobs she can have. There is also an Indian cultural association of women with being inside, caring for the house and children, while men are thought of as working outside, earning a living for the family.

The steps the Indian government has taken to improve agricultural extension are going in the right direction. There are still many problems to solve, but the work they are doing will help to relieve some of the pressure producers are struggling with. Through the resolution of the education issue for smaller family farms, the development of local food resources can be supported. If a greater volume of food can be grown with less damage to India's land resources, it will be instrumental in solving India's agricultural dilemma. The education of farming families will benefit women as well, because they would be given the same opportunities to learn about cultivation as their husbands and others in the farming community. The subsistence farmers would have more goods to sell as a result of the increased yield, and make more money so they can improve the health and nutrition of their children and those that live around them. The extension programs would not have to be huge; families, once they have mastered the concepts, could help to spread their knowledge to other family members and local people. Indians who live in urban areas would most likely benefit through lower food prices from an increased supply.

The roles of corporations, national governments, and other organizations is somewhat contested, but the best way to help is a donation of human resources. If young people traveled overseas to work in India to train locals in agricultural technology, they could work at the agricultural extension services. Public and private universities could offer credit to their students interested in spending a semester assisting the Indian people through extension services. Many corporations are already educating people through their own programs. Cargill, for example, has

created its farmer education programs to educate their workers around the world on safer farm practices. DuPont is another company with a global outreach. It has pledged \$1 million to the Global Crop Diversity Trust, which secures long-term funding for the support of crop diversity collections around the world. The Trust focuses on helping those in developing countries. If other companies followed their examples, a great deal of people could be reached through these efforts. The Indian government also has to be involved in advising the country's farmers on agricultural practices. Ensuring food security in India will be the responsibility of many people who want to improve the living conditions and nourishment issues of the impoverished. If those with a desire to help do nothing, than it will not be accomplished.

India faces a critical problem in keeping up with the demand for better and more affordable food for its growing population. There is a great need to help the rural subsistence farming communities of India. The assistance needed will be achieved through the extension system to develop skills and put into practice new and improved technologies and farming methods to increase their production and self-sufficiency. It is also absolutely necessary to develop farming methods that will protect natural resources from overuse. Producing food locally where there is high demand will assist in driving costs down because of lower transport costs. Another cost-reducing benefit of local food production is no longer needing to import food from other countries. Reduction of import costs can lead to increased resources for enticing qualified food production experts to work for India and funding agricultural extension programs. The role of the extension programs will be key to a long-term successful implementation plan of food independence. Agricultural extension programs must be built to educate and advise family farmers on improvements in agricultural practices. Education of these Indian farmers would address many problems faced in this country today. The problems to address include a lack of supply of reasonably priced and high quality food, the state of living conditions in these rural areas, especially housing and sanitary restroom facilities, and the virtually non-existent educational opportunities of young people, but particularly women. The education of young people is a necessary investment for the long-term success of any agriculture program because of the personal investment and stake the youth will have in their communities. It is critical for the international business and educational sectors to assist in this effort by investing in new technologies, and as importantly, to provide human resources to support the extension educational efforts to bring the Indian farming communities into the twenty-first century.

## Bibliography

Lipton, M. 2005. The family farm in a globalizing world: The role of crop science in alleviating poverty. 2020 Discussion Paper No. 40. Washington, D.C.: International Food Policy Research Institute.

“Rural Poverty Portal.” 2007. International Fund for Agricultural Development. <<http://www.ruralpovertyportal.org/english/regions/asia/ind/index.htm>>.

“2007 Cargill Corporate Citizenship Review.” 2007. Cargill. <[http://www.cargill.com/files/ca26169\\_cargill\\_citizenship\\_151.pdf](http://www.cargill.com/files/ca26169_cargill_citizenship_151.pdf)>.

Yuan, Elizabeth. “For a Girl in Rural India, Education is a Difficult Pursuit.” March 23, 2007. CNN.com <<http://edition.cnn.com/2007/WORLD/asiapcf/03/15/girl.education/index.html>>.

Alter, Jonathan. “It’s Not Just About the Boys. Get Girls Into School.” Newsweek. 29 September 2008: Vol. CLII, No. 13

Brown, Lester R. and Brian Halweil. “India Reaching 1 Billion on August 15: No Celebration Planned.” Worldwatch Institute. 13 August 1999. <<http://www.worldwatch.org/node/1656>>.

“Indian Crops.” Indian Child.com. 2000. <<http://www.indianchild.com./indiancrops.htm>>.

Sulaiman, Rasheed and A.W. van den Ban. “Agricultural Extension In India – The Next Step.” January 2000. <[http://www.ncap.res.in/upload\\_files/policy\\_brief/pb9.pdf](http://www.ncap.res.in/upload_files/policy_brief/pb9.pdf)>.

Raabe, Katharina. “Reforming the Agricultural Extension System in India.” International Food Policy Research Institute. July 2008. <<http://browser.grik.net/www.ifpri.org/pubs/dp/ifpridp00775.pdf>>.

“India’s Rural Poor: Why Housing Isn’t Enough to Create Sustainable Communities.” India Knowledge@Wharton. 23 August 2007. <<http://knowledge.wharton.upenn.edu/india/article.cfm?articleid=4219>>.