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**Bangladesh: Education for improved implementation of agricultural research and fight against hunger.**

While addressing the golden jubilee of the alumni of Bangladesh Agricultural University recently, the Prime Minister of Bangladesh, Shekh Hasina was quoted as saying “Among all advancements of Bangladesh in different sectors, the success in the area of agriculture is mostly remarkable and evident.” And although Bangladesh has made some necessary adjustments in agricultural policies and techniques, there remains one main problem that keeps the vast majority of Bangladeshi from overcoming common agricultural challenges. I believe that problem is wide spread lack of education, especially in rural areas. In this paper I am going to talk about education as the one factor which can help Bangladesh the most to ensure food security and fight against hunger at the same time helping to develop a successful, growing, modern nation.

Bangladesh is in the northern coast of the Bay of Bengal surrounded by India, with a small common border with Myanmar. It is a small country with an area of 147,570 sq. km in South Asia. Ever since its founding, it has been known as one of the world’s poorest countries for its challenging living conditions, overcrowding, floods, deforestation, and erosion, among other economic and environmental challenges. Bangladesh is one of the most densely populated countries with its 160 million people.

Bangladesh is primarily an agricultural country. Most Bangladeshi earn their living from agriculture. Rice is the staple food of Bangladesh. It grows in abundance all over the country and 80% of its land is cultivated for rice. Besides rice, jute, potato, pulses, wheat, tea, sugarcane, tobacco, different kinds of vegetables and fruits are also growing in plenty. Tea is grown mainly in the northeast and is a main export crop. The main fruits of Bangladesh are mango, litchi, jack fruit, watermelon, banana, and pineapple.

Almost 80% of Bangladesh’s population lives in rural areas and 60% of them are employed in agriculture. Rural farming remains the main staple in terms of livelihood and employment. The agricultural sector is the main source of food and nutrition. Although poverty in Bangladesh is found anywhere, it is primarily a rural phenomenon, with an estimated 36% of rural population living below the poverty line ([http://en.wikipedia.org/wiki/Poverty\\_in\\_Bangladesh](http://en.wikipedia.org/wiki/Poverty_in_Bangladesh)). They suffer from persistent food insecurity, own no land and assets, are often uneducated and may also suffer serious illness and disabilities. Although Bangladesh is a small country, it has a vast population. For this reason 45% of the rural population is landless, owning less than 0.05 acre of land on average. Many people live in remote areas that lack advanced services such as education, health, clinics, and adequate roads, particularly road links to the market. Most people living in rural areas suffer from malnutrition.

A typical Bangladeshi eats three meals per day of mainly rice. Each rice meal can be served with lentils, fish, or vegetable. Maybe once a week, they could incorporate meat into the meal. In the cities, meat is much more prevalent and people could eat meat many times per week.

For its population of 160 million people, there are few hospitals and doctors that are accessible to most people. Although there are private facilities, the cost of such care puts them out of reach of most Bangladeshi. Public hospitals are much less expensive but are very hard to get to see. The process is long and many people could wait in line for up to a whole day before seeing a doctor. In the district I am from, for example, there are 2 million people but only one public hospital.

Women are poorest among the rural people, especially when they are the sole heads of their households. They suffer from discrimination and have few earning opportunities, and their nutritional intake is often

inadequate. People living in urban areas like Dhaka, Chittagong, Khulna, and Rajshahi enjoy a better standard of living with electricity and gas service. In affluent homes, clean water can be found; however even in the cities it is common to lack a clean water supply. Indeed, most of the people in Bangladesh have limited access to health care and clean drinking water.

A typical poor farm family in Bangladesh has six members or more and they live in a dilapidated thatched house with earth floor. Their water comes from a well or tube-well shared with about 100 other people. There is no sewage disposal, forcing families to share pit latrines or use the water ways. In the average year, the family grows two rice crops a year on a tiny 0.1 hectare plot and the meager harvest meets only about half of the family's food needs. Members of the family must work on neighboring farms to earn money to buy the rest. Nearly 90% of the family's spending on food, what little remains is used for clothing, medicines and schooling. With the passage of time their wages have bought less and less rice. On average, the poor, rural family members eat approximately 1700 calories each per day (<http://www.fao.org/docrep/u8480e/U8480E09.htm>). As a result they are well below normal weight and height. Many children die before reaching their second birthdays. Most of the children don't go to school. They start helping in the family's farming after 7 or 8 years old. For this reason, most of the families have a tendency to have 5 or 6 children, so that they can help in the family's farming.

Bangladeshi farmers repeatedly adopt the old methods of cultivation passed down from generation to generation. They rarely attempt new or more modern methods of farming. In rural farming, almost everything is done manually. They use cows to plow their land using a single blade and gather the harvest by hand. They are not familiar with the use the modern methods of cultivation for growing more crops. A farmer who grows rice will grow the same variety of rice from the same seeds year after year. This leads to very little diversity in crops and reduced harvest.

Most of the people are not aware about their standard of living. As they do not have any education, they do not have any idea about family planning, nutrition, cleanliness or how to improve their standard of living. This led them into deep poverty. Bangladesh has three major stages in their education system; primary, secondary, and higher secondary. Primary education is the first five years of schooling (from class 1 to 5), while secondary is the following 7 years with three sub stages; 3 years of junior secondary (from class 6 to 8), two years of secondary (from class 9 to 10) and two years of higher secondary (from class 11 to 12). Higher education of between three to five years is provided through universities. There are 34 public and 60 private and affiliated colleges under supervision of University Grants Commission. Most of the children in rural areas stop schooling after primary level with very few going to the secondary level. Many who do go to the secondary school will stop schooling at the junior secondary level and not continue on for their secondary education. Very few children go up to 10<sup>th</sup> grade. But in urban areas comparatively more children go up to higher secondary level or university.

I think that there is one weapon which can help them to fight against poverty and that is education. This basic human need can help Bangladeshis to overcome their poverty. The light of education can eradicate the darkness of their life.

Education improves productivity in all spheres of activities including agriculture. A positive return to education can arise in agriculture. For example educated farmers are better managers, adopt more modern farm inputs and prefer high production. Educated people are concerned about their living standard. Population problems in Bangladesh are playing an important role in poverty. Education can help people to learn about the harmful effect of vast population and thus encourage them to adopt family planning or not to have more than 2 children which can help to alleviate poverty.

Bangladesh has a huge population in proportion to its land. If they want to overcome poverty they have to see every single person as an asset. Every single person has to be active or fruitful, contributing to the

economy. Education can help to do that. Education can turn every single person into an asset and make them more powerful to fight against poverty.

Agricultural education can help farmers to know about modern methods of cultivation. They can know how to grow more crops by adopting modern method of cultivation. It may be noted that agricultural development could not be achieved without the proper application of agricultural inputs in form of HYV seeds, fertilizers, irrigation water either individually or in their suitable combination. The suitable combination of HYV seeds, fertilizer, pesticides, and water irrigation can increase agricultural output considerably. So the application of modern technology in agriculture can increase the productivity and thus can help to overcome food insecurity. The greater farming productivity will then lead to increased household incomes and better standard of living.

Currently the lack of education keeps Bangladeshis from gaining knowledge in the advancements in farming techniques and seed sciences. A reliance on old farming methods keeps the harvests at consistently low yield rates. And the lack of knowledge about seed varieties and genetics prevents the use of them, adding to the challenge of increasing yields.

Recently the Bangladeshi government has attempted to encourage further education through funding in agricultural sciences, and scholarships have been made available in the primary levels for advancing education among rural populations, in particular in agriculture. The early effects of this effort seem to be resulting in more rural people staying in school and becoming educated.

By using modern farming methods, our foods can be more nutritional, and at the same time, we can increase the amount of food we grow. Since the vast majority of household income comes from the crops we grow, this will have a direct positive impact on income. By combining modern techniques with advances in seed genetics, we can discover annual cycles and rotations that will lead to better sustainability. Combined with increased yields, this will lead to tremendous opportunities for increased economic development in the rural areas.

Without good education, we have no chance of modifying our habits to quell the effects of global warming, increased demand for energy, and excessive pollution caused by bad farming practices. However, with good education in these areas, we are at least given the chance to consider such effects and attempt to apply our knowledge to decreasing their effects.

It is noteworthy to report that the government of Bangladesh took various measures to provide agro-inputs assistance, which includes reduction of price of non-urea chemical fertilizers and cash incentives for diesel. Moreover introduction and adoption of non-urea fertilizer ensured use of balanced fertilizers. In recent years, the agricultural sector is much more diversified than three decades ago. The last three decades have witnessed vital changes in the agricultural sector including changes in its resource base, technology, structure and production process. The growth of the agricultural sector has been spectacular at the end of 1990s. There is an agricultural university in Bangladesh which works on agricultural development and many students in Bangladesh are now receiving education on agricultural technology. Bangladesh Agricultural Research Institute (BARI), Bangladesh Institute of Nuclear Agriculture (BINA), Bangladesh Rice Research Institute (BRRI), Bangladesh livestock Research Institute (BLRI), and Bangladesh Jute Research Institute are some organizations that are working on agricultural development.

Bangladesh Agricultural Research Institute is an autonomous organization under the ministry of agriculture that conducts research on all crops except rice, jute, sugarcane and tea for which separate institutes. The research compound of the central station is spread over 176 hectares of land of which 126 hectares are experimental fields. The institute has established six regional research stations in six regions of Bangladesh to develop new technologies.

Bangladesh Rice Research Institute is a major component of the national agricultural research system (NARS) of Bangladesh dealing with research and development in relation to rice production. The institute operates with 18 research divisions, 3 support service divisions and 8 sections, with a total manpower of 676, of them 238 are scientists. About one third of the scientists are highly trained professionals with Ms and PhD degrees. Bangladesh Institute of Nuclear Agriculture started functioning as a small radio-tracer laboratory during 1961, today stands on a solid infrastructure. It is now prepared to face current and future challenges in crop production sector using nuclear and other advanced technologies. Using radiation technique the institute has already developed 37 improved mutant varieties of different crops have been released by the national seed board of Bangladesh for large-scale cultivation in the farmers field. After the liberation of Bangladesh in 1971, jute sector was taken up with special and realistic approach. It works to promote technological and economic research on jute and allied fibers and their manufactures and dissemination of results. To organize production, testing, and supply of improved pedigree of jute seeds and multiplication.

I think education is the key for a better life for rural Bangladeshi. Only the light of education can remove the darkness of poverty and it also will help our farmers become better people in general. At the same time it improves the quality of our lives in many ways. In every sphere of life, we need education for understanding our surroundings so we may best apply this knowledge to master our environment. With education, people can be inspired to improve their lives and the lives of the people around them.

Although now-a-days many more people are willing to receive education, the rate of receiving education is not sufficient enough. The effort of government to promote education is also praiseworthy. But I think that every educated person in Bangladesh can contribute by encouraging people to receive education. Eventually, a large portion of the population must become aware of common agricultural issues. Through more common higher education, more and more people can become learned in things like nutrition, food security, and how to grow more crops by adopting modern ways of cultivation. As the culture of education advances, the chances of great improvements in these areas will be great. As more and more people make an effort, I think it is going to be possible to ensure food security in Bangladesh.

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