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Bangladesh: A Country at Risk

Assalaamu alaikum. This is the typical Bangladeshi greeting, meaning “Peace be upon you.” Peace has not always been a part of Bangladeshi culture. Other countries have long ruled Bangladesh. In 1947, British rule ended and the region became part of Pakistan. Quite dissimilar from Pakistan in cultural make up, Bangladesh eventually separated from Pakistan in 1971. A tropical country, Bangladesh has a rich array of flora and fauna, including Bengal tigers, monkeys, gibbons, elephants, and over 600 species of birds and 100 species of reptiles. The country is plentiful in natural gas, timber, and fertile soil. The people have a history of artistic tradition, including literature, poetry, music, and dancing. Muslims, Hindus, and Christians live side-by-side in peace. Bangladesh is a beautiful country, but it has many problems. Major problems are overpopulation and overcrowding, poverty, and the loss of natural resources. Within a few years, the country of Bangladesh will need a second Green Revolution. Without another Green Revolution, the current situation will likely develop into a famine. Most families already do not raise enough food to eat, so a devastating famine is imminent. In this paper, I will outline the current situation for a typical family in Bangladesh and present possible solutions to the problems.

Bangladesh has many unique geographical features. Part of the South-Asia- Indian subcontinent, it is bordered by India and the Bay of Bengal. Roughly the size of Wisconsin, it covers 55,599 square miles. The country of Bangladesh is situated mainly on river deltas flowing from the Himalayas. The major rivers are the Brahmaputra, Ganges, and Meghna. The capital city is Dhaka. Bangladesh has an abundance of low-cost labor, a climate that allows crops to grow year round, and some of the most fertile soil in the world. Most soils in Bangladesh are alluvial, meaning they are good, arable land, but highly susceptible to flooding. The northwest part of the country is prone to water and wind erosion, while the center north is susceptible to severe seasonal flooding. The southern coastal zones have a problem with soil salinity. Bangladesh typically has three seasons: winter, summer, and fall. Bangladesh generally has a high annual rainfall, about 47 inches (119 centimeters) and the climate is classified as tropical monsoon. Weather threatens the country continually. Weather threats include cyclones, high seas, storms, and heavy flooding. Cyclones and tidal waves are a constant threat. If Bangladesh does not receive enough rain, it is declared a drought, while too much rain causes flooding. On average, a natural disaster that destroys 10 percent or more of the food supply occurs every 2-3 years. Bangladesh is a country with good land, but a problematic climate.

Bangladesh is one of the world’s most densely populated nations, and is the largest of the least-developed countries. The natural resources and agricultural system have to support an ever-growing population. Bangladesh became a food deficient country in the late 1950s, when population pressures took their toll. Land that could be used for farming crops or raising livestock is being used for living space. In 2003, the population density was 1060 people per square kilometer. The population in Bangladesh was 127.6 million in 1998, while a recent 2006 estimate is 141.3 million. At current rates of population growth, it is estimated that the total population could reach 175 million by about 2025. The large population in its relatively small area makes for a country facing poverty. Bangladesh ranks as third in the extent of poverty after China and India. At least 50 percent – over 55 million - of the people in Bangladesh are living below the country’s poverty level. Many Bangladeshis don’t have enough food to eat. The poorest third of people in Bangladesh eat 1,500 calories or fewer per day. The country has some of the highest malnutrition levels in the world; 84 percent of children under the age of five in Bangladesh are considered malnourished. Approximately half of all Bangladeshi children go without food one or more days each week.

Subsistence farmers make up the majority of the work force. About 85 percent of the population lives in rural areas, with nearly all of the rural residents making their living from agriculture. The main goal of farming households is to produce more food from the limited amount of land available to them. Farms are very small by American standards; the average size is 3 ½ acres. The livestock Bangladeshis raise is mostly cattle, and they are of very poor quality. Farmers often use outdated tools and methods. The rural housing in Bangladesh is very poor. Most of the homes have one or two rooms and are made of bamboo. Due to a government initiative that encourages families to have fewer, but healthier children, the average number of children per family has dropped from six in the 1970s to 3 or 4 today. The average household size is 6 people, with extended families often sharing the same home. Married sons generally live in their parents' household until their father's death. Some young people go to school for a few years. The literacy rate for men is at 50percent, and for women is 31percent. Many rural areas lack education and health resources. Also lacking are modern food and grain storage facilities and adequate roads leading to larger market areas. Only 19 percent of rural homes have electricity.

People in Bangladesh's rural areas live in extreme poverty. The rural poverty rate is approximately 53 percent. Of all rural households, 29 percent are considered moderately poor. These families may own a small plot of land, raise some livestock, and generally have enough to eat. Their diets, however, may lack protein and other nutritional elements. Another 20 percent of rural households live in extreme poverty. These households generally own no land, are illiterate, and are generally run by women or family members who have extreme illnesses or disabilities. The prevalence of extreme poverty is far higher among female-headed households, whose total population may exceed four million. More than 95 percent of female-run households fall below the poverty line, and their incomes are, on average, 40 percent less than those of male-run households. The children in these families do not have enough time to go to school, and even if they did, there are few schools to attend in some rural areas. The poverty seen in rural households is overwhelming.

Some families, both urban and rural, resort to selling their children. Poverty and economic deprivation leads to child labor. In some families, child labor makes up about one third of the family income. Poor households badly need the money that the children earn. Since poor families spend the bulk of their income on food, the wages of working children are critical to the family's survival. This ties in with the Bangladeshi attitude that the family and its needs are more important than the individual. Many families sell their children virtually as slaves for food, land, or money. There is evidence that children are sold to the Middle East, India, Pakistan, and Southeast Asia. Child labor is a huge problem in Bangladesh, with around 5.4-7.9 million, about one-fifth, of all Bangladeshi children being classified as child workers. Some estimates place the figure at almost 10 million child laborers. Most of these children who are sold into labor contracts are between the ages of 5 and 14 years old. Poverty is single most important factor responsible for child labor in Bangladesh.

Agriculture is the single most important sector of Bangladesh's economy. Bangladesh is unique in the fact that it has more than one harvest per year. The agricultural year begins in late February, when the weather is dryer and warmer. Over a period of several weeks, each field is plowed 3 or 4 times with a wooden plow and two oxen. The dominant food crop of Bangladesh is rice. Rice production rates have increased every year, but the production rates have not kept up with the population growth. Food grains in Bangladesh are cultivated primarily for subsistence. Only a small percentage of those crops circulate through commercial channels. The largest rice harvest is the aman type, which occurs in November and December, and accounts for more than half of the annual production. The next harvest is the aus variety, which is harvested in the summer. There has been more focus recently on the boro rice variety, which is grown from October to March. In places where irrigation is feasible, it is common for fields to produce two harvests a year. Rice production currently occupies about 70 percent of the cultivated land, with Bangladesh producing 17.7 million tons in 1996. Still, this was not enough to feed their growing

population. Between rice growing seasons, farmers will do everything possible to prevent the land from lying fallow. They will grow vegetables, peanuts, and oilseeds. Other crops are grown mainly for the domestic market. These crops include potatoes, sweet potatoes, bananas, jackfruit, mangoes, and pineapples. Some crops are grown mainly for export. Tea is Bangladesh's second highest agricultural export. In 1996, 50,000 tons were shipped out of the country. Jute is the main cash crop. It has strong fibers, which are generally made into carpets, burlap bags, mats, and upholstery. In 1996, Bangladesh produced 980,000 tons of jute, which was one-fourth of the world's supply. However, the development of synthetic fibers has threatened the market for the country's jute. Agricultural problems in Bangladesh are becoming more apparent as technology in other countries improves.

Bangladesh is a country with an interesting problem: good fertile soils, but poor production. Bangladesh's land resources are showing signs of fatigue, which is a direct result of the lack of crop rotation. Planting rice every year causes the soil to lose the same types of nutrients needed by the rice for the next year. Another of the core problems facing Bangladesh is the scarcity of land. With an already high and increasing rural population, farm sizes are declining rapidly and landlessness is on the rise. Currently the poorest 60 percent of the rural population controls less than 25 percent of the country's land; almost half of the rural population is considered landless or nearly landless. Inheritance laws have left many families' land holdings fragmented. Smaller farms have less access to credit, machinery, and other productivity-increasing inputs. Land is being required for industrial uses, community services, residential areas, forestry, water reservoirs and ponds, and wildlife preserves.

While in some areas water has always been plentiful, many Bangladeshis are beginning to worry about the exploitation of their water resources. Many wells have begun to dry up due to drought. Much of the country's water is undrinkable. Sanitation is poor. Bodies of water are polluted by untreated industrial, urban, and human waste. Agricultural chemical runoff and seawater intrusion also pollute Bangladesh's water supply. The country's groundwater is also at risk. The groundwater is extensively polluted by arsenic. It is considered the world's largest case of groundwater pollution. Leaking sewers, septic tanks and pit latrines also contribute to groundwater pollution. Bangladesh needs major reform for the safety of its people.

The main objective of agricultural groups in Bangladesh is to achieve self-sufficiency in food production and decrease dependence on food aid from other countries. Because there is no more land to put into production in Bangladesh, the focus lies in raising productivity. Biotechnology may be a solution to some of Bangladesh's productivity problems. Biotechnology advances may help develop seed varieties that will ultimately produce more food. Some of these foods may become a cost-effective solution to vitamin and mineral deficiencies in the Bangladeshi diet as biotechnology may enhance the nutritional value of the food produced. Biotechnology could also help Bangladeshi farmers maximize their potential earnings by planting a variety of crops throughout their three growing seasons. More crop diversity in Bangladesh will allow farmers to maximize their income and rejuvenate the soil, which has been stressed by so much production of rice. Modern plant breeding technologies may also help improve plants' resistance to pests, diseases and blights, and may help minimize the extreme effects of the country's erratic climate. Further, the durability of crops during harvest or storage may be increased. Biotechnology can also enhance livestock production. It can control disease, produce better vaccines, and improve livestock genetics. Biotechnology has the potential to increase the quantity and quality of food in Bangladesh and save the country from famine.

Another solution to Bangladesh's food scarcity may be to increase its livestock production. Muslims, who make up about 80 percent of the population, cannot eat pork. Hindus, who make about 20 percent of the population, cannot eat beef. Therefore, poultry production may have a beneficial impact on Bangladesh. In Africa, more than 80 percent of rural farmers, even landless people, keep small flocks of poultry. These birds do not receive a regular feeding, but survive on scavenging. Though the total

production of these flocks is small, poultry production could have a positive impact. Poultry digestive systems are very efficient, requiring less feed for growth than cattle or other livestock. Sustainability of poultry production should fulfill the following role: production of output so as to provide sufficient products and income for farmers. Poultry flocks could help with nutrition, both as eggs and meat, and also provide income for landless families, people with disabilities, and female-headed households. Poultry production can be rapidly expanded, and could replace red meat in countries with high population growth rates. The majority of the population generally accepts poultry and eggs as food. There are currently about 65 million chickens in Bangladesh. About 60 percent of landless people and 80 percent of rural households keep between 5-15 birds, which primarily scavenge. Current poultry keeping methods will need to be revised for this to have a positive long-term effect. The survival rate of chicks, which currently is about 50 percent due to disease and predators, needs to be increased. The Bangladesh government is currently working with small-capacity operations to improve poultry keeping methods. They are designating village health workers to vaccinate birds against Newcastle Disease. The government is also working with rural residents to improve protection for young chicks against predators. It is introducing improved genetic stock into rural areas by designating farms to produce day-old chicks of improved breeds, distributing these chicks to specialized chick raisers (mainly women) who raise chicks up to 2 months of age, and then distributing the chicks to rural households, which will keep flocks of about 10 improved hens for egg and meat production. The threat of avian flu may be the next critical issue to be addressed. Achieving sustainability, even in poultry production, is a continuous process.

Another bright spot in Bangladesh's agricultural output is its aquaculture. In 2005, Bangladesh was ranked as the sixth largest aquaculture-producing country in the world. The country produced an estimated 856,956 tons of marine delicacies in 2003. There are approximately 795 native species of fish and shrimp along with 12 exotic species that have been introduced to the country's waters. In addition, there are 10 species of bivalves, 12 species of tortoise and turtle, 15 species of crab and three species of lobster. Aquaculture employs 1.3 million people. The government is offering incentives to train more people in this field and develop hatcheries. It is also providing storage and marketing advice to the fishing industry.

Bangladesh needs a rise in agricultural productivity, increased personal incomes, and reduced poverty. Education of its citizens is one way to that end. The government is encouraging this with a Food for Education initiative, where poor families are given food when they send their children to school rather than to work. Other suggestions include training courses for rural residents on various aspects of farming, such as production of major crops, raising summer and winter vegetables, and homestead management. The government is also attempting to address overpopulation problems. The current birth rate is 3.7 children per woman. Their target birth rate is 2.2 children per woman; however, this goal will most likely not be reached for at least another decade. A system of rural health clinics is also addressing a need in the country. Other countries may need to assist Bangladesh by providing technology initiatives on crops, vegetables, poultry, dairy, nutrition, health, sanitation, and environmental protection and preservation. Workshops for rural men and women on sustainable agriculture topics, as well as health topics, may help with both agricultural productivity and quality of life.

Bangladesh is going need major reforms in order to keep the current situation from developing into a famine. Bangladesh has fertile soils and abundant water in its rivers. These rivers also pose threats and problems of their own. Bangladesh's population puts major strain on its agricultural system and on the land currently available. Child labor needs to be controlled- if not stopped, and new sources of income need to be found. Current housing and living situations need to be addressed. The population needs basic education and specific education on new farming techniques, healthy lifestyles, raising livestock, and crop management. Crops need to be studied to come up with varieties that well help rejuvenate Bangladesh's soils. The ultimate goal of Bangladesh, and of those countries offering aid, is to reach a point where food production at equals the population- if not surpassing it. The Bangladeshi government needs to look into

biotechnology, even if it comes in the form of help from other countries. Problems in health and nutrition also need to be addressed. Conferences, seminars, and workshops offered to the general public on these topics may be able to help boost production and reduce poverty. Bangladesh is going need a lot of help from other countries and the citizens also need to be willing to accept and adopt new ideas to change their dark future into a bright one.

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