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Bangladesh: Increased Sanitation and Education of Water Will Improve the Quality of Life for Millions

Westernized countries face many problems, access to clean, safe water is not one of those problems. However, in Bangladesh, many families ability to find sanitary water is a daily struggle. Bangladesh is a country full of fertile land, but numerous floods, water damage, and an overwhelming amount of poverty hinder its development. This is partly due to the fact that geographically the country straddles the fertile Ganges-Brahmaputra Delta and is subject to annual monsoon floods and cyclones. Similar to the rest of South Asia the poverty rate prevails, although the United Nations has praised Bangladesh for achieving tremendous progress in human development (Loyn). Currently, Bangladesh is a parliamentary democracy with an elected parliament called the Jatiyo Sangshad. They are a founding member of the South Asian Association for Regional Cooperation, the D-8 and BIMSTEC, and a member of the Commonwealth of Nations, the Organization of Islamic Cooperation and the Non-Aligned Movement. With the help of the Bangladesh government and local NGO groups, Bangladesh will be able increase the overall health and economy of its country by increasing the amount of sanitized, accessible water and increasing education regarding water and foodborne illnesses.

Out of the 135 million people who live there, 85 percent are living in rural areas (Rural Poverty Portal). Those who do live in the rural areas rely predominantly on the land. Although the land is highly fertile, it is at high risk for frequent floods and cyclones. The average household in rural Bangladesh has 4.59 house members; the average number fluctuates based on age of the first and last child, average monthly income, number of rooms in the house, persons living in the main dwelling houses, and the number of earning persons within the homes. Urban households tend to have high numbers regarding malnourishment and malnutrition and an estimated 10% to 15% of the population faces serious nutritional risk ("Background Note: Bangladesh"). These households eat large quantities of rice and vegetables, but foods with the most protein were consumed a minimal amount (Podymow, Turnball, Islam 5). Because Bangladesh is such a poor country, education is scare within the country, especially in rural areas. Three million children 6-10 years old are currently not enrolled in school, and at least 15% of primary school age children never enter the educational system. When this figure is combined with the 25% primary school dropout rate, 40% of Bangladeshi children never receive a full primary education (Ardt, Hastings, Hopkins, Knebel, Loh, Woods 5). Finally, the average rural family in Bangladesh does not have adequate access to health care. For example, for rural households, the closest hospital is 6 kilometers away. Diabetes and other preventable diseases run rampant because of the lack of primary care. Furthermore, newborns and mothers die during childbirth because of the lack of maternal care and adequately trained birth attendants ("Empowering the Socially Deprived"). Of the estimated 536,000 maternal deaths worldwide in 2005, developing countries accounted for more than 99 per cent, a third of them occurring in South Asia (187,000) ("Progress for Children"). As seen, Bangladesh's rural households have very little food, education, or availability of health care. The increase of these basic necessities would drastically improve the lives of people in Bangladesh.

Although Bangladesh is one of the world's poorest and most densely populated countries, it still works to meet its growing food needs by efficiently using farming. Most Bangladeshis earn their living from

farming and the land is devoted predominantly to rice and jute cultivation, yet wheat production has increased in recent years; the country is largely self-sufficient in rice production. Although rice and jute are the primary crops, maize and vegetables are assuming greater importance ("Background Note: Bangladesh"). As irrigation systems have expanded, some wheat producers have switched over to growing maize. Due to the importance of agriculture in the average rural Bangladesh household, the amount of community gardens within Bangladesh has increased. A community garden can be located in rural, urban, or suburban areas and commonly grows flowers and vegetables. As a result, support services for the farmers have effectively increased agriculture productivity (Khan). Farming in Bangladesh is held at great importance; farming is large part of their GDP and overall economy and is strengthened by the prevalence of community gardens.

Even though agriculture is extraordinarily important to Bangladeshis, many issues and challenges have arisen. Bangladesh agriculture faces low productivity, poor input and output markets, weak rural institutes, and vulnerability to natural disasters. First, agriculture faces low productivity rates. Although Bangladesh's population is growing at the rate of 1.6 percent per year, demographic pressures and increased urbanization have caused cultivated areas to decline at a rate of 1 percent per year ("Bangladesh: Priorities"). Secondly, agriculture faces the challenge of poor input and output markets. Worldbank.org states, "The lack of easily accessible markets and collusion by the traders pose significant constraints in both agricultural input and output markets. Marketing margins are high relative to services provided. Lack of market information and infrastructure, the poor law and order situation, the existence of syndicates, and collection of illegal tolls further aggravate the situation." The low qualities of markets harm the overall agriculture selling ability within Bangladesh. The third challenge agriculture faces is weak rural institutes. NGO presence in agriculture is large and quite successful in Bangladesh. Consequently, the Bangladesh government is not heavily involved. On all levels, their government has a lack of coordination, low skill levels and incentives, and lack of responsiveness, increased by an urban bias ("Bangladesh: Priorities"). The final challenge Bangladesh agriculture faces is a vulnerability to natural disasters. Natural disasters frequently cause damage, destroy crops, and cause deaths in Bangladesh. Three large rivers the Ganges, Brahmaputra and Meghna cause the land to be frequently flooded. As a result, every year about 20 to 30 percent, and every few years about 40 percent, of the country is flooded, causing serious damage to infrastructure, crops and the overall economy. Although the government has made large investments to protect against floods and cyclones, crops are still frequently lost at the hands of these natural disasters ("Bangladesh: Priorities for Agriculture and Rural Development"). In order to improve agricultural outputs in Bangladesh; low productivity, poor input and output markets, weak rural institutes, and vulnerability to natural disasters all need to be addressed.

Increasing agricultural productivity heavily depends on the availability of water, as water is necessary for all socio-economic development and for maintaining healthy ecosystems. Unfortunately, water scarcity is a major issue that most countries, including Bangladesh, face today. The UN defines water scarcity as the point at which the aggregate impact of all users impinges on the supply or quality of water under prevailing institutional arrangements to the extent that the demand by all sectors, including the environment, cannot be satisfied fully. Water use has been growing at more than twice the rate of population increase in the last century, and currently, around 700 million people in 43 countries suffer from water scarcity. Most alarmingly, by 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world's population could be living under water stressed conditions ("Water for Life: Water Scarcity"). Without further action to end water scarcity, agriculture will be diminished to an extreme extent.

Agriculture is also affected by water and food borne illnesses. The World Health Organization defines foodborne illnesses as diseases, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food or water. Common foodborne diseases are: cholera, salmonella, enterohaemorrhagic (E. coli), and campylobacteriosis (World Health Organization). Foodborne and

waterborne diseases affect both developing and developed nations alike. Developing countries make up a majority the problem due to the presence of a wide range of foodborne diseases, including those caused by parasites. The high prevalence of diarrhoeal diseases in many developing countries suggests major underlying food safety problems. Diarrhea can lead to severe malnutrition, which contributes to six million child deaths every year – more than half the global toll of child mortality ("Progress for Children"). Dr. Issam A.W. Mohamed explains the many ways agriculture can be impacted by these diseases, but the most demanding of them is the idea that water and foodborne illnesses take farmers away from their work. While farmers are sick or dead, they cannot tend to their works which decreases their crop output. Specifically, he found that when it came to malaria, an average farmer would decrease their productivity by 50% (Mohamed). Without a policy implantation of prevention of water and foodborne illnesses, agriculture will be negatively affected.

Urban areas in Bangladesh are highly affected by waterborne and food borne illnesses and water scarcity. Latrine usage is very poor, averaging only 16% in the urban areas, and diarrheal diseases constitute a major health problem in Bangladesh, killing over 100,000 children each year ("The Water and Sanitation Crisis"). Water.org reports,

> "In Bangladesh, many wells containing arsenic were closed without considering the possible immediate adverse effects of such interventions, particularly the increase in diarrheal illnesses. Once a well is painted red, signifying the water contains arsenic concentrations above the national standard, community members are no longer supposed to use it. However, when a well is closed, the community must seek other sources for drinking water, usually returning to the traditional unprotected water sources such as ponds or ditches, or walking to distant wells that do not contain arsenic."

Water contamination in Bangladesh is extremely wide spread, and although measures have been taken to reduce the amounts of contamination, it has only lead to more consumption of contaminated water. The abundance of available water that Bangladeshis have can be quite misleading. While it is true during the wet season they have lots of water, during their dry season they do not have enough to maintain crop production. Frequently during the dry years the rainfall is so low and the flow of the rivers is so reduced that in certain areas the economic life is severely disrupted ("Bangladesh"). This lack of water interrupts the growing seasons and occasionally reduces the amount of crops produced. Consequently, the dry season is not the only time when Bangladeshis are deprived of water, especially clean water. Water pollution runs rampant in Bangladesh and there have been minimal policies regulating the monitoring of quality water ("Bangladesh"). The only current governing water policy was enacted in 1999. An improvement to that that is being considered now is known as the National Water Management Plan. The goals of this legislation are to carry out the policies laid out in the previous legislation. These action would include; disaggregating the capital assets called upon in production processes, identifying the range and depth of barriers to access, establishing the factors involved in households decision making within community- and national-level processes and; linking these decisions to macro-level policy and internal and external institutional environments ("Chadwick"). Water pollution, like water deprivation, negatively affects farmers and the farming season.

The benefits of improving usable amounts of clean water and improving education on waterborne and food borne illnesses are numerous. Like any living being, crops require an abundant supply of water. For vegetative growth and development plants require water in adequate quantity and at the right time. Crops have very specific water requirements, and these vary depending on local climate conditions ("Use of Water in Food and Agriculture"). Increasing the amount of access and availability of water to Bangladesh urban communities will improve agricultural output. These benefits are a result of having plenty of water to nourish their crops in dry seasons. As a result of increased agricultural output, the economic security of Bangladesh will increase exponentially. Secondly, there are also benefits to improving education on waterborne and foodborne illnesses. When education regarding waterborne and foodborne illnesses is

increased, the amount of illnesses will decrease. When decreased, Bangladesh will have to allocate less money curing the diseases. Also, people in Bangladesh will be healthier due to increased access and knowledge on clean drinking water. Dr. Lee Jong-Wook argued, "Access to basic sanitation and adequate drinking water makes people healthier and more economically and socially productive." UNICEF Executive Director Ann M. Veneman goes on to assert, “An investment in safe water and sanitation for homes and schools can be a key factor in reducing child mortality.” Not only improving amounts of water and improving education on water and foodborne illnesses will increase agriculture output, they will reduce child mortality and improve the quality of life in Bangladesh.

It is hard for rural communities in Bangladesh, and across the developing world, to comprehend why clean water is important. This lack of comprehension makes education of clean water a necessity. The UN World Water Development Report states that, “the only way to break the continued transmission of water-borne diseases is to improve the people’s hygiene behavior is education”. Health education should not be focused on only health workers, but the whole community. The education received on water borne illnesses should focus on four key points; the causative agents, the mode of transportation, the preventative measures, and the importance of early treatment (Demena). UNICEF’s educational program in Bangladesh is known as SHEWA-B. This program hopes their message will reach 30 million people. Their community hygiene initiative promotes work in 10,000 communities across 19 districts in Bangladesh. For this project, young men and women who reside in these communities are trained to educate their neighbors on good hygiene, waste disposal, and the benefits of proper sanitation. A second project implemented in 2008 by SHEWA-B focused on hygiene and was broadcasted across television and the radio. In 2010, they launched a second mass communication campaign focused on the importance of hand washing, this campaign hoped to reach up to 10 million people. UNICEF presents an effective method to educate rural communites. Having local young men and women who are educated on the importance of hygiene allows various people in numerous communities, including farmers, to hear necessary information by word of mouth if they do not have access to television or the radio. In order for more people to receive this education, UNICEF should expand their programs. With the backing of the Bangladesh government, this program could hopefully educate all of Bangladesh and be the antidote to the rapid spread of water borne illnesses.

Although increasing both clean drinking water and water for agriculture are beneficial ideas, Bangladeshis still face difficulties in doing so. The clean drinking water within Bangladesh is threatened by pollution and arsenic poisoning. Pollution of the water is caused by inadequate draining facilities, dumping of solid wastes, discharge from sugar mills and sewage disposal. This severe degradation of fresh water and marine ecosystem has led to further decline of fishing in Bangladesh (“Water Scarcity”). Furthermore, The World Health Organization described the arsenic contamination in Bangladesh as “the largest mass poisoning of a population in history”. A 10 year study showed the link between arsenic contamination and deaths in Bangladesh. Half of Bangladeshis, up to 77 million people, have been exposed to the toxic arsenic (“Water Scarcity”). Arsenic poisoning and pollution of water negatively affect the quality of water within Bangladesh. Relatively low cost well-to-well testing would eradicate the consumption of arsenic poisoned wells. Without further measures, the quality and availability of water in Bangladesh will decrease. Also, the availability of water in Bangladesh is decreased by population growth. As the population of Bangladesh has increased, the water supply has decreased. There is a direct correlation between the amount of people in a country and the amount of water that is available based on the fact that as populations grow, they will consume more water. As Bangladesh continues to grow, water supplies will become scarcer. In order to eliminate the problems that occur when trying to increase clean drinking water new goals, policies, technologies, and practices need to be implemented.

To effectively increase the availability of clean, quality drinking water in Bangladesh, numerous things need to be done. NGOs and local programs are highly effective in increasing the quality of water, but the Bangladesh government needs to set ground rules for water use and conservation through policy and legal

framework and a monitoring system that ensures the safety and availability of water. In order to ensure further availability of quality drinking water the government needs to establish a national water policy. The water policy is needed to set the ground rules for allocation to different users, setting rights, pricing, and environmentally safe utilization. This policy should come in the form of the National Water Plan Management. This would be the most preferable solution because it builds upon pre-existing legislation. Furthermore, it aims to create more accessible water which is key to improving agricultural output. Along with policy, they also need to establish the regulatory and monitoring system to ensure safety of supply and responsible use of water (Farouque, Hiroyuki 7). The water strategy of Bangladesh should start with a national water policy that includes key objectives like focused use of critical sectors of the economy, water pricing and cost recovery for development, and the public and private sector management. If the government does those things the water situation in Bangladesh would be much better. The Bangladesh government formed the Water Resource Planning Organization and should continue improving the work of this organization. The organization focuses on developing infrastructure like dams, embankments, canals, and is the best organization for design and implementation of major water projects under the overall water plan (Farouque, Hiroyuki 8). Even though the government has implemented an organization, more policies with stricter restrictions with water usage are still needed. The United Nations Millennium Development Goals increased awareness of contaminated water and as a result numerous people have been reaching to achieve these goals by 2015. Lastly, NGO's and local programs are a key factor in alleviating water scarcity and reaching the Millennium Development Goals. One local program that helps Bangladeshis is The Munshi Atar Ali Welfare Society (MAAWS). This program works to assist the Bangladeshi people in uplifting themselves out of poverty. This includes increasing water sanitation. MAAWS plans to install 25 tube wells thus increasing the accessibility to safe drinking water to 2,500 people in the village of Earpur in Senbagh, Noakhali Bangladesh. They have also distributed sanitary latrines in order to foster the growth of hygienic practices The MAAWS program and programs like it are key factors in increasing access to clean, sanitary water. In order to reach the Millennium Development Goals set by the UN, the Bangladesh government needs to continue to establish policies for water and NGOs, and local programs need to increase their involvements in water and sanitation.

The numerous benefits that are reaped by improving sanitation and accessibility of water and increasing education on waterborne and foodborne illnesses absolutely outweigh the work that will have to be put forth. First, there will be an increase in the economy of Bangladesh. As accessibly and education of water increases, water will be healthier to drink and farmers will be healthier. As farmers get healthier, they will be able to devote more time to the fields and community gardens therefore, increasing agricultural output and the economic status of Bangladesh. Second, there will be a noticeable expansion in the overall health status of Bangladesh citizens. As the sanitation and accessibility of water is increased, the prevalence of foodborne and waterborne diseases will decrease. Also, by investing in safe drinking water, the infant mortality rate will decrease. The combined benefits of economic growth and improved life quality of Bangladeshis will help make Bangladesh and the world a healthier place to live. As local NGO's and the Bangladesh government take control over their water sanitization and waterborne and foodborne illness prevalence problem, other countries will take example from their lead and the Millennium Development Goals will be attainable.

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