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# The Economic Development of Bangladesh

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# The Economic Development of Bangladesh

## **Abstract**

In general, Bangladesh's economic performance has been impressive with a fast-growing economy and astounding achievements accomplished in many areas, from encouraging private investment to accelerating the process of urbanization and industrialization while keeping unemployment rate and income inequality under control. However, the country is still struggling with a broad spectrum of complicated issues, most of which have to do with its low skilled labor force, persistent poverty, and the lack of resources to support the rapid economic growth and urbanization. Those issues have restrained the country from making the leap to the next stage of development. With an aim to provide an in-depth analysis of how the government of Bangladesh has tackled those problems, the following parts of this report will discuss two development initiatives: one made education more affordable for children from poor Bangladeshi families and the other "lit up" the country.

# The Economic Development of Bangladesh

*Bob Ladd, Jenny Le, Amber Gauthier, David Werner*

## I . AN OVERVIEW OF THE POLITICAL AND ECONOMIC HISTORY OF BANGLADESH

### A. Political and Economic History of Bangladesh

In 1947, what is now Pakistan was established as a country free from British rule. At that time, Pakistan included modern Pakistan called Western Pakistan and East Pakistan where modern Bangladesh is. The two parts of Pakistan were separated by a considerable land area of India and Western Pakistan was considerably wealthier, more powerful, and less populous than its Eastern counterpart; this caused resentment. This resentment led to a civil war in 1971 which ended with Bangladesh establishing itself as an independent state (The Commonwealth, 2018).

While under the Pakistani government, priority was given to industries using raw materials produced in the country. The government supported free enterprise but also invested in infrastructure with positive externalities like roads, forestry services, and sewer management to benefit industry. The Pakistani government also established a number of mills to process jute, a rough fiber used to make ropes, as Bangladesh was and is one of the world's leading suppliers of jute, but processed jute is more lucrative to export (Encyclopedia Britannica, 2018).

A lack of mineral resources has been detrimental to Bangladesh's development. Some deposits of coal and limestone have been found, but overall the

country has fewer mineral resources than it needs. Petroleum has not been found in marketable quantities anywhere in Bangladesh. Additionally, some of the resources it does have are under water for large portions of the year, making extraction difficult (Encyclopedia Britannica, 2018).

After Bangladesh established itself as a country, the new government nationalized a number of corporations and established new corporations to manage these enterprises. This quick change, along with inexperienced economic leaders, resulted in significant disruptions in Bangladesh's industries. Starting in 1973, a 5-year development plan was instituted to improve economic conditions in Bangladesh. This program, and ones like it that followed, were responsible for a return to efficiency. The government also returned many of the state-owned businesses to the private sector (Encyclopedia Britannica, 2018).

Also, after achieving independence, a string of floods, famines, and the assassination of the president led to civil unrest. After a military coup installed a new president in 1975, the country experienced a period of economic and political stability lasting until 1981. For the next ten years, a series of coups and contentious elections returned Bangladesh to a state of political turmoil. In the early 1990s the political parties that had ruled through military control were challenged by a series of riots and protests, and eventually conceded control to a democratic process. After these elections, the country became divided by partisan politics with quick turnover between the Awami League and the Bangladesh Natio-

nalist Party (the two main political parties in Bangladesh), but democratic elections continued (The Commonwealth, 2018).

In the last two decades the political turnover has decreased. Sheikh Hasina Wazed has been Prime Minister of Bangladesh since 2009 and in 2018 began another 5-year term. The President, Mohammad Abdul Hamid has been in office since 2013 and also was re-elected to serve a second term in 2018. The system of government (unitary parliamentary republic) to this day is similar to western democracy and has close ties to the structure of the British government.

### **B. An Analysis of Bangladesh's Current Economic Situation**

With GNI per capita for 2017 being 1,470 U.S. dollars, Bangladesh is classified by the World Bank as a lower-middle-income economy. But it is also one of the fastest-growing economies in the world with an average annual GDP growth rate of 5.78 percent over the past two decades. In 2017, the total GDP of Bangladesh reached an all-time high of 249.724 billion U.S. dollars. In terms of the components of GDP, between 1997 and 2017, the contribution of household consumption expenditure to GDP shrank from 82.86 percent to 74.67 percent. On the contrary, investment as a percentage of GDP steadily rose from only 21.82 percent in 1997 to 30.5 percent in 2017. This remarkable growth of investment share was attributed to investment friendly policies having been promoted by the government since the early 1990s (Bangladesh Bank, 2016). The industrial policies introduced in 1991 and 1992 were important milestones toward the process of investment liberalization since they abolished license requirement for private investment and made various resources, such as telecommunications, power generation, and domestic air transport, become more accessible to

the private sector (Bangladesh Bank, 2016). In recent years, the government has strongly encouraged the establishment of economic zones with incentive packages for local and foreign investors. As of 2018, 79 economic zones have gained approvals from the government to be built, and 21 more have been set to be built in the next 15 years. The government has also focused on infrastructure development, rapid electrification, and energy diversification (Ministry of Finance, 2017).

Bangladesh is clearly on the road to industrialization and urbanization. Over the past two decades, the sectoral shares of GDP have been in favor of industry and services while the portion of agriculture has shrunk significantly. In 2017, industry and services accounted for 27.75 percent and 51.5 percent, respectively, of the economy's total output value. In the same year, agriculture, forestry, and fishing together made up only 13.41 percent of Bangladesh's GDP. Noticeably, that number was 23.35 percent just twenty years ago and nearly 50 percent forty years ago. The rapid expansion of industrial and service sectors has created plenty of job opportunities in cities that have drawn people away from agricultural jobs and rural areas. Between 1997 and 2017, the number of people living in urban areas as a percentage of total population increased from 22.44 percent to 35.86 percent. Urbanization has posed various challenges to the local government regarding its capability to provide water supply, healthcare, housing facilities and other living necessities for the urban settlers. The World Bank estimated that until 2014, 55.1 percent of the urban population in Bangladesh was still living in slums and poor-quality housing. That percentage was nearly half (24 percent) for India, a neighboring country with the level of urbanization approximates to that of Bangladesh (33.6 percent of India's total population lived in cities as of

2017). These figures somewhat reflect the Bangladeshi government's failure in tackling the challenges of urbanization.

The rise of industrial and service sectors, however, has not reduced unemployment in Bangladesh. In fact, the unemployment rate went up from 2.71 percent in 1997 to 4.37 percent in 2017. But overall, the Bangladeshi government has done a very good job at keeping the unemployment rate from exceeding 5 percent. The highest level in this time was recorded in 2009, right after the global financial crisis happened. On the one hand, such moderate unemployment levels of Bangladesh are desirable, because if unemployment falls below 4 percent and becomes closer to zero, necessary movements in the labor markets will be restricted. When there is too little mobility, it is harder for workers to quit unsatisfying jobs and obtain new jobs of their desire. That said, the current employment rate in Bangladesh can be seen as being within the optimal range for lower-middle-income countries. On the other hand, when gender discrepancies, informal sector employment, and workers' skill levels are taken into account, the condition of Bangladesh's labor force becomes much more alarming. The average female unemployment rate between 2007 and 2017 was 6.33 percent, almost twice as high as the average of 3.38 percent for male workers. It is important to note that this difference is not necessarily driven by the disparities in skill levels between the two genders. According to the 2015-2016 Quarterly Labour Force Survey by Bangladesh Bureau of Statistics, female college graduates were 2.5 times more likely to be unemployed than their male counterparts of the same education level (16.8 percent and 6.9 percent). Though the government has made efforts to empower women through policies, such as applying a 10 percent quota for female employees in public

services, the gap has yet to close (Ferdous, 2014).

Like many other developing countries, the informal sector plays an important role in Bangladesh's economy both in terms of employment and the economy's total output. According to the 2010 Labor Force survey by the International Labor Organization, 87 percent of jobs in Bangladesh were provided by employers in the informal sector. The majority (51.5 percent) of these informal jobs were elementary, such as rickshaw pullers, van drivers, and street vendors, which can be carried out by unskilled and low skilled workers. Another considerable portion (29.7 percent) of informal employment included wholesale and retail traders, hotel, restaurant, construction, and manufacturing workers. Agricultural jobs, such as farming, fishing, hunting, and forestry, accounted for 15.8 percent of total informal employment in Bangladesh (Asian Development Bank, 2010). The dominance of the informal sector in the labor market is disturbing because this sector is poorly regulated and its laborers are generally not protected. A 2010 report by the Asian Development Bank reveals that only 24.4 percent of workers in the informal sector received sick leave, 4.8 percent were given maternity leave, and 7.4 percent were noticed before being laid off. In the formal sector, the percentages were 87.6, 29.7, and 72.7, respectively. One of the most important reasons for the prevailing presence of informal employment in Bangladesh is the relatively low skill and education levels of the workforce. More than 20 percent of Bangladesh's workforce has no formal education whatsoever, and only 6.3 percent has a college degree (Asian Development Bank, 2016). The government, with support from NGOs, has made efforts to provide workers with vocational and technical training; however, most of the training facilities are located in cities and therefore not accessible to those who live in rural ar-

eas. Another concern with the training programs is whether or not their curriculum and quality are in line with employers' needs and the current trend of economic development (Asian Development Bank, 2016). The lack of basic skills and education has impeded Bangladeshi workers from moving from the informal sector to the formal sector and taking over jobs towards the top of the value-added chain. With regard to employment, Bangladesh's main challenges are to upgrade the skill levels of its labor force, mitigate the gap between female and male employability, and create opportunities for businesses in the informal sector to formalize, or at least impose more effective regulations on the informal sector to protect its workers' rights and enforce workplace safety standards.

According to the World Trade Organization, the total values of Bangladesh's merchandise exports and imports ranked 57th and 49th, respectively, in the world trade for 2017. Of Bangladesh's merchandise exports, 95.8 percent were comprised of manufactured goods, and this percentage has tended to increase slightly since 1997. Textiles and clothing have an utterly important position in Bangladesh's export basket, accounting for 85 percent of the total export earnings of Bangladesh (International Journal of Textile Science, 2016). The import basket, on the other hand, consists of a more diverse range of products including oil, raw materials (such as cotton, fabrics, and yarn), and high-technology products (such as computers, cars, and machines). In an effort to build an export-oriented economy, the Bangladeshi government has carried out extensive trade reforms, ranging from reducing tariffs barriers to subsidizing exports; however, the country's performance in trade has not met the government's expectations. A declining trend has been observed in export growth rates, from 20.30 percent during 1997-2007 to only

5.96 percent during 2007-2017. The Sixth Five-Year Plan (2011-2015) mapped out by the Bangladeshi government expected to see an increase of 7.7 percent in the share of exports in GDP. In reality, at the end of the 5-year period, the export-GDP ratio of Bangladesh was still at the level of 16 percent where it was in 2010 (Bangladesh Enterprise Institute, 2017). Meanwhile, trade balance as a percentage of GDP was the same for both 1997 and 2017 (negative 5.3 percent) and had barely shown any improvements throughout the twenty-year period. Bangladesh's net barter terms of trade (with 2000 being the base year) has been on the decline ever since it reached a record high of 162.26 in 1985. In 2017, Bangladesh's terms of trade was 68.3, much lower than 94.64 of China, 113.26 of India, and 136.62 of Vietnam, neighboring countries that also put emphasis on exporting ready-made garments. A higher terms of trade index is usually preferred to a lower one, because it means the country is receiving more from exporting than the amount it pays to import. Part of the reason why Bangladesh's terms of trade has been declining is that prices of ready-made garments and primary products, Bangladesh's main exports, have increased very little compared to steep increases in prices of oil, fertilizer, and raw materials (such as iron and steel), the main components of Bangladesh's imports (Bangladesh Bank, 2012). To improve the country's performance in terms of trade, it is essential that Bangladesh must soon reduce its dependence on garments exports. An ideal plan for Bangladesh is to shift its production from making primary, intermediate, labor-intensive, and low-value goods to producing final, manufacturing (other than textiles), and high-value products. In order to implement this plan, Bangladesh will need both advanced machinery and high skilled labor. Unfortunately, the latter condition, as we have dis-



cussed previously in this report, is what Bangladesh lacks the most at present.

Many studies, including the popular Kuznets hypothesis, have argued for the trade-off relationship between economic growth and income equality. This trade-off, however, has not been the case for Bangladesh. Though GNI per capita has been growing at an average rate of 4.33 percent over the past two decades, Bangladesh's Gini index, a measurement of income inequality, has remained fairly constant since 1995. Noticeably, throughout a period of strong economic growth between 2005 and 2010 (as proven by the average annual GNI per capita growth rate of 5.45 percent) income inequality in Bangladesh dropped from 33.2 to 32.1 index points. The most recent Gini index for 2016 posted a value of 32.4. Overall, the situation of income inequality in Bangladesh has been under control and much less problematic than that of Nepal or India, neighboring countries with similar socioeconomic conditions. However, Bangladesh is still facing tremendous challenges from persistent poverty. According to the World Bank, in 2016, 14.8 percent of the country's total population lived below the international poverty line of 1.9 PPP dollars per day. Although Bangladesh's GNI per capita in PPP dollars for 2010 was 1.32 times higher than that of Nepal, the latter country's headcount index for 2010 was only 4.5 percentage points lower than that of Bangladesh. The high level of Bangladesh's economic growth rate has yet to be matched by its slow rate of poverty alleviation.

In general, Bangladesh's economic performance has been impressive with a fast-growing economy and astounding achievements accomplished in many areas, from encouraging private investment to accelerating the process of urbanization and industrialization while keeping unemployment rate and income inequality under control. However, the coun-

try is still struggling with a broad spectrum of complicated issues, most of which have to do with its low skilled labor force, persistent poverty, and the lack of resources to support the rapid economic growth and urbanization. Those issues have restrained the country from making the leap to the next stage of development. With an aim to provide an in-depth analysis of how the government of Bangladesh has tackled those problems, the following parts of this report will discuss two development initiatives: one made education more affordable for children from poor Bangladeshi families and the other "lit up" the country.

## II. PRIMARY EDUCATION STIPEND PROJECT

Education has become one of the primary focuses of the government of Bangladesh as they work towards advancing the development of Bangladesh. Specifically, Bangladesh has been working to increase their literacy rates through implementing programs meant to increase enrollment in primary schools, as well as establishing an education policy within the nation. The current education policy emphasizes religion, science and technical education within the curriculum. The Ministry of Education also states how education may allow workers to be more qualified for skilled jobs as it is an essential quality for success in these fields. The education policy also acknowledges potential areas needing change, such as a better commitment to the success of students, improved testing standards, and including additional information about the history of the culture in curriculum - not just science and technology skills. Overall, the government of Bangladesh seems to have started to show a concern towards the importance of education (Ministry of Education of Government of the People's Republic of Bangladesh, 2010).

According to the Bangladesh Ministry of Education, a well-educated society where illiteracy is eliminated will help Bangladesh grow as a nation (Ministry of Education of Government of the People's Republic of Bangladesh, 2010). Literacy is an important part of development; literacy allows laborers in the working industry to be well informed, and it can potentially help them acquire skilled jobs. For example, when workers agree to work at a factory, they need to be able to read and understand their employment contract, as well as safety guidelines posted. Outside of work, literacy can help with the understanding of new information in many different fields, such as health, sanitation, and family planning. The citizens need to be able to understand and comprehend information given to them concerning these topics, especially if they are in the form of pamphlets and brochures, or if they need to sign any paperwork to receive a contraceptive used in family planning.

In many developing countries, including Bangladesh, it is common for families to use their children to help earn income. This common trend is most commonly found in rural areas, especially since agriculture is a large part of developing countries' GDP. In rural areas, families will have children work on the farm as a source of cheap or free labor to help harvest crops. Because the children are helping out at home, they are not attending school, therefore leading to low primary school enrollment. In addition, many families cannot afford to keep the crops they harvest for themselves and instead must sell them for income. This can lead to malnutrition and lack of food for children and their families as well. This presents a concern about the amount and the quality of education in Bangladesh and other developing countries. Children need to not only be attending school, but need food to ensure that they are learning well. Primary school is where basic infor-

mation including reading and writing are learned. If there is low enrollment and children are not learning as well, then there are most likely low literacy levels as well.

In order to achieve increased literacy rates, it is important that the government of a developing country, like Bangladesh, encourages primary school enrollment. As of December 2017, the government of Bangladesh is using the Primary Education Stipend Project as a way to encourage rural families to send their children to school; the previous Food for Education program, however, helped shape the new Primary Education Stipend Project. In 1993, the government of Bangladesh implemented the Food for Education Program. The focus of this program was to improve primary school enrollment, promote attendance, reduce dropout rates, and enhance the quality of education received by students. To attempt to achieve these goals, the government of Bangladesh gave low-income families who sent their children to primary school a free monthly food ration of either rice or wheat. This food ration was intended to supplement the lost income of poorer families sending their children to school instead of having them work at home (Ahmed & Ninno del, 2002).

According to an analysis by the World Bank, only forty-percent of the children enrolled in primary schools who attended regularly in these poor areas being targeted by the program received the monthly stipend of wheat or rice for their family (Tietjen, 2003). Overall, the Food for Education Program was only able to reach twenty seven percent of the primary schools in Bangladesh. In 2000, the program cost US\$0.10 per student per day, totaling US\$77 million, and ended in June 2002 as it was claimed to be too expensive due to increasing prices of food commodities (Ahmed & Ninno del, 2002).

It was reported in an analysis of the Primary Ed-



ucation Stipend Project that the Food for Education Program was successful in raising primary school enrollment and attendance rates. However, it did not effectively target the families who needed the stipend the most. For example, fifty percent of those receiving the monthly stipend came from families above the poverty line. In addition, there was a high amount of poorly allocated costs which resulted in the government of Bangladesh losing money. This can be seen by the fact that it cost 1.59 Bangladeshi taka (BDT) to transfer 1 BDT in benefits resulting in a loss of 0.59 BDT. Although the Food for Education program ended in 2002 partly due to these factors, the government of Bangladesh decided to continue to pursue their goals of improving education and implemented a similar program, the Primary Education Stipend Program, in 2003 that is currently in place as of December 2017 (Tietjen, 2003; Ministry of Finance of Government of the People's Republic of Bangladesh, 2017).

Because the Food for Education program was seen to improve primary school enrollment and attendance, the government of Bangladesh decided to implement another stipend program. The Primary Education Stipend Project, implemented in 2003, offers rural families cash assistance of 100 BDT in place of the food stipend received with the Food for Education program. The goals of the new project are to increase the enrollment rate among primary school-aged children from poor families, increase the attendance rate of primary school attendees, reduce the drop-out rate of primary school attendees, increase the cycle completion rate of primary school attendees, enhance the quality of primary education, ensure equity in the provision of cash assistance to primary school-age children, and alleviate poverty (Tietjen, 2003). The main way the government plans to achieve these goals is setting a minimum of 85

percent attendance requirement for children from families wanting to benefit from this program. Families with children who do not attend 85 percent of required school days will not be considered for the stipend (Ministry of Finance of Government of the People's Republic of Bangladesh, 2017).

According to a report by the Bangladeshi Ministry of Finance, the stipend programs have been effective in increasing primary school enrollment. The enrollment rate grew from 87.5 percent in 2005 to 97.96 percent in 2016 after seeing a high of 98.7 percent in the year 2011; the report from the Ministry of Finance is unclear, however, if these are net or gross primary enrollment rates. Attendance rates have also risen since the projects implementation. The attendance rate for primary school rose from 67 percent in 2005 to 83.5 percent in 2010 and is now stabilizing slowly to around 87 percent as of 2016. It is important to note that these enrollment rates have not been recorded on the World Bank's website. Primary school completion rates have also risen since from 52.8 percent in 2005 to 79.6 percent in 2016. Drop-out rates have fallen since the projects' implementation from 47.2 percent in 2005 to 19.2 percent in 2016 (Ministry of Finance of Government of the People's Republic of Bangladesh, 2017).

No literacy rates were recorded in the report, but data from the World Bank shows that literacy rates increased from 47.1 percent in 2011 to 72.8 percent in 2016 (World Bank, 2018). This increase in literacy rates may reflect the effectiveness of the increasing attendance and enrollment rates. With more people attending and enrolling in primary school as well as fewer dropping out within the years the Primary Education Stipend Project has been implemented, the data shows that this project has been effective in improving the education of the people of Bangladesh (Ministry of Finance of Government of the People's

Republic of Bangladesh, 2017).

There are, however, some negative aspects to this project. The report from the Bangladesh Ministry of Finance states that the stipend has been fixed at 100 BDT since the start of the project in the early 2000s. As a result, steadily increasing inflation in Bangladesh has caused the real value of that amount to decrease over the past years. This means that although families who receive the stipend are still receiving the 100 BDT, they cannot afford the same amount of food and other commodities as they could in prior years. According to the ministry of finance, 100 BDT is worth about half of what it was in 2010, or 50.83 BDT. In addition, many mothers and others in the households receiving these stipends reported that the 100 BDT is not enough to support their families. In addition, although most families are meeting the 85 percent attendance requirement, some reported it is difficult for them to achieve. Some families have even gone to pressure the schools into waiving the requirements if they are not met so that they can still have a chance at receiving the stipend. Another aspect of the program that has led to an unintended issue is that the database of beneficiaries is administered by the national bank instead of the administrators of the program. This has led to discrepancies of who should and should not be receiving stipends. Overall, although there are some positive improvements in education taking place, there are still some aspects of the Primary Education Stipend Project that need to be addressed (Ministry of Finance of Government of the People's Republic of Bangladesh, 2017).

The development of a stipend program targeted at increasing the quality of education by focusing on factors such as enrollment rates, drop-out rates, completion rates, and attendance rates shows that the government of Bangladesh has recognized edu-

cation as an important aspect of further developing their country. They have also recognized the struggle that poorer rural families face and the difficult decisions that must be made when they decided to send their children to school or not by attempting to supplement the lost income of having a child not work if they are able to attend school. Although the government still needs to work on finding an appropriate stipend amount and making the delivery process easier, the program has been effective in achieving most of its goals. If it is continued throughout upcoming years, it should continue to be improved upon for future generations.

### **III. DEVELOPMENT PROJECTS FOR GREATER ACCESS TO ELECTRICITY**

Of the many development issues facing the Bangladeshi populous, access to electricity is one of the more pressing problems that the government is currently addressing. Access to electricity, taken mostly for granted by Western countries that have consistent, cheap access to it, is a core aspect of development. According to Malik et al., (2016), "Energy, particularly electricity, is considered one of the prerequisites for technological improvement, economic stability, and poverty eradication in any community." It is no wonder that both the left-leaning Awami League and the right-leaning Bangladesh Nationalist Party include "supply of electricity" as a priority in their respective election manifestos. Over the past several years, the Bangladeshi government, international organizations, neighboring foreign states, and private corporations have all taken an interest in providing electricity access to all and have made significant strides towards universal coverage in Bangladesh.

When Bangladesh declared its independence in 1971, electricity access was very limited and con-

centrated in only a few urban areas. In response, the government created the Bangladesh Power Development Board (BPDB) in 1972 to boost the Bangladesh power sector (Bangladesh Power Development Board, 2011). Throughout the early 1970s, the government began to focus on rural access to electricity and created the Rural Electrification Board (REB) in 1972 to work as the rural counterpart to the BPDB. Both boards sought to expand the existing power grid throughout the country, though a series of political coups and military takeovers of the government delayed electrification so that by the 1990s, less than 35 percent of the total population had access to electricity (World Bank, 2018).

This access, however, is unevenly distributed throughout the country. The difference between rural and urban access has been consistently large. In 2009, when Sheikh Hasina – the current Prime Minister – was appointed to office, there was only 40 percent access to electricity in rural areas, compared to 85 percent in urban areas (World Bank, 2018). This has remained an issue to this day, mostly because villages are remote and grid extension is expensive and difficult (Teheruzzamen & Janik, 2016). As a result, off grid systems have been implemented in these remote areas, mostly in the form of Solar Home Systems (SHSs). SHSs, as defined by Energy-pedia (2018), are “stand-alone photovoltaic systems that offer a cost-effective mode of supplying amenity power for lighting and appliances to remote off-grid households.” In a country with an average of about 300 clear, sunny days a year, there is enormous potential for harnessing solar power (Teheruzzamen & Janik, 2016). As of 2016, there are about 2 million SHSs throughout the country, concentrated heavily in remote rural areas. The domestic manufacture of SHSs has led to the creation of more than 100,000 green jobs, and low down-payments on SHSs cou-

pled with monthly fees have enabled this technology to be highly accessible to rural populations (Garcia, 2016). Although SHSs are not the exclusive provider of electricity to villages, this particular technology accounts for about 80 percent of all off-grid technologies present (Teheruzzamen & Janik, 2016). As of 2016, there is about 69 percent rural access to electricity, so progress has undeniably been made (World Bank, 2018).

Even with this increasing access, demand for electricity still exceeds supply, and blackouts are a frequent occurrence. In rural areas, it is typical to experience between 4 – 6 hours of daily power outage. This issue is not confined to rural areas. National daily peak demand is about 5,500 Megawatts (MW), but power generation systems supply only about 4,000 MW (Taheruzzamen & Janik, 2016). As Bangladesh’s economy continues to grow, this demand is predicted to increase substantially; by 2021, there will be a predicted 230 percent increase in consumers of electricity, raising the peak demand to around 9,000 MW (Rasel, 2017). The government, in turn, is addressing the issue of supply by raising total installed generation capacity to around 12,000 MW. (Xin, 2017). Generation capacity is different than actual electricity generation, as the former deals with the maximum electricity able to be produced while the latter is the actual electricity produced. As a result of the lack of electricity production, the government is turning to different sources of supply, both domestic and foreign, and attempting to expand current sources of energy.

Currently, over 60 percent of electricity is produced by domestic sources of natural gas (Taheruzzamen & Janik, 2016). Reserves of natural gas are predicted to plateau, which has led the government to increase energy imports from India totally around 500 MW (General Economics Division, 2015). With a

negative balance of trade already, importing energy is a dubious strategy. However, attempts to increase coal production and the construction of coal plants have been met with the unintended consequence of violent protests from villagers who would be displaced as a result of the plants (Vidal, 2016). Regardless, the Bangladeshi government stated in its 7th Five Year Plan that “most of the new [energy] generation would come from coal-based power plants...” (General Economics Division, 2015). Although these power plants could result in domestic job creation, according to Vidal (2016), “nearly half the electricity would be generated using imported coal.”

While the goal of economic development is the driving force behind expanding electricity access, there is a dual incentive for this urgency: health of villagers. Although a majority of villagers now have access to electricity, many utilize inefficient and dirty sources of fuel – such as wood, animal dung, and agricultural residue – for cooking, heating, and general fuel use within the home (Malik et al., 2016). Byproducts that result from burning these fuel sources are harmful and can result in a multitude of illnesses, such as tuberculosis, respiratory infections, chronic obstructive pulmonary disease (COPD), and cancer (Ezzati et al., 2005). In a comprehensive analysis of the effects of rural electrification of South Africa, Dinkelman (2011) found that electrification led to “shifts away from using wood at home, and toward electric cooking and lighting.” This in turn can drastically improve the health outcomes of rural populations, particularly Bangladeshi women who typically work within the household. With the majority (around 80%) of the Bangladeshi population living in rural areas, this positive externality that results from rural electrification is huge (Taheruzzamen & Janik, 2016).

Health improvements of their people is not the

only incentive that urges the Bangladeshi government forward with electrification – in fact, the current majority government (Alami League) ran on the goal of universal access to electricity by 2021 (Taheruzzamen & Janik, 2016). The government’s sense of urgency to achieve this is rooted in economic development and a goal to become a properly developed country, but its failure to achieve this goal could play into the hands of the Bangladesh Nationalist Party in future elections. Currently, there is 75 percent total electricity access in Bangladesh, though if universal accessibility is to be achieved, the primary focus must be on rural electrification (World Bank, 2018). According to Rasel (2017), the REB, out of 491 administrative regions, or upazilas, is aiming to power “488 upazilas, as 3 are islands and the cost would be high to connect them to the grid.” The REB is almost entirely focused on grid connectivity through its initiatives, even in remote areas where this may be difficult, and potentially infeasible.

A better strategy is most likely to focus on expanding off grid projects, something done remarkably well by the World Bank’s Second Electrification & Renewable Energy Development Project (RERED II). This \$235 million project seeks to expand off grid, renewable energy systems in Bangladesh, and by current estimates is responsible for installing about 20,000 SHSs per month in rural Bangladesh (World Bank, 2016). According to the World Bank (2016), this project has “contributed to a 14 percent increase in the number of Bangladeshis with access to electricity.” Despite its success, this project runs against the goal of the REB of expanding access to the main grid, and instead invests in off grid systems. This investment is also in the form of loans to the Bangladeshi government which they will eventually have to pay back to the World Bank, which may become an issue if their economy stalls. Howev-

er, in a country highly vulnerable to climate change, the implementation of renewable energy sources is in Bangladesh's best interest.

Modern day access to electricity in Bangladesh has significantly increased, with total coverage increasing by 20 percent from the time Sheikh Hasina came into power (World Bank, 2018). The various initiatives taken by both the government and the World Bank specifically have resulted in this increase, and the continuing pursuit of diverse energy sources and an increased reliance on solar power in rural areas are significant achievements. Access to electricity is beneficial across the board, from a macroeconomic perspective down to the health improvements of a rural villager. Continuing to prioritize access to electricity is important and nets countless positive externalities.

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