

The Role of Padma Multipurpose Bridge in the National Sustainable Development in Bangladesh

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ABSTRACT

Bangladesh is a riverine country and most of the public transport and business depends on the river. Padma is one of the vital rivers to influence the country's economy as well as GDP. Realising the fact, Bangladesh is constructing the Padma Multipurpose Bridge over the Padma river with associated facilities are of great importance for the sustainable development of Bangladesh. This project has significant impacts on the whole country and contributes to the socio-economic and industrial development on southwest region in Bangladesh. In this regard, this study focuses on the impacts of Padma Multipurpose Bridge on the sustainable development of Bangladesh in terms of social, cultural, economical, environmental and industrial issues. Qualitative research method has been applied in this research to collect data from secondary sources. The study finds a number of massive positive impacts on the socio-economic development in Bangladesh with extreme GDP growth rate. In addition, in achieving the Sustainable Development Goals (SDGs) by 2030, the Padma Multipurpose Bridge will contribute enormously in the national economy and the

overall development of Bangladesh.

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INTRODUCTION

There are 213 rivers in Bangladesh, of which 20 important bridges have been constructed (Islam et al., 2020). Padma is a large river in Bangladesh, which separates the southwestern region from the capital Dhaka. The Padma Multipurpose Bridge will provide direct availability between the key areas of the region and the southwest through a fixed connection on the Padma River at the focal point of Mawa-Jajira. Almost all important objections at this location will reduce the distance from Dhaka by 100 kilometers or more, and the vehicle towing season for each trip will be reduced by more than 3 hours, which will save a lot of fuel and reduce the time (Sharmin et al., 2017).

Air volume and travel efficiency to implement the project. Five other bridges are currently under construction, of which the Padma Multipurpose Bridge is the largest and fully tested bridge. This will be the initially fixed river crossing that will be used for street traffic. It will connect Louhajong, Munshiganj with Shariatpur and Madaripur, and connect the southwestern part of the country with the northern and eastern regions. It is distanced the absolute length that each span has a range of 150 m, while a full length of 6150 m, and a width of 18.10 m (Vasquez et al., 2012). It will become the largest bridge in the country on the Padma-Brahmaputra-Meghna river bowl (Islam et al., 2020). Padma Bridge will build an indispensable connection within the framework of Bangladesh. The bridge will erect part of the A-1 line of the Asian Highway and open up southwestern Bangladesh for adventure and development. The bridge can lead to not only an important highway, but also arrange a railway line, which is essential for connecting India's freight transport.

The accessibility study conducted by the Japan International Cooperation Agency (JICA) predicts that after the completion of the Padma Bridge, the daily traffic volume will reach 21,300 vehicles and 41,600 vehicles per day by 2025 (Vasquez et al., 2012). The bridge will save approximately 681,600 liters of fuel within a day while the project includes the construction of a basic bridge of approximately 6.15 km in the Mawa-Jajira Corridor, of which 6 km at the Mawa site and 12 km at the Jajira site (Sharmin et al., 2017). The length of the River Training Works (RTWs) at the Mawa site is 0.273 km and at the Mawa site. The Jajira site with a length of 12km, bridge end facilities (BEF) on both sides, 5 immigration destinations, railway lines with stations and docking offices, high pressure and high pressure factor gas transmission lines, optical fiber links, and important applicable exercises (Tapley et al., 2010).

Padma Bridge will comprehensively help improve the entire economic field. Capital inflows will promote the development of industrial and commercial activities, and increase economic and job opportunities for residents in the neighborhood. Since Padma becomes a fast-flowing

river during a storm and the bridge is located in a dynamic earthquake zone, it is extremely difficult to build the bridge. The Padma Multipurpose Bridge is a multipurpose street railway bridge across the Padma River under construction in Bangladesh. The Padma Bridge is the most difficult construction project in the entire Bangladesh. The two-story steel pallet bridge will transport a four-way highway on the upper level and a separate track railway route on the lower level (Islam et al., 2020). With key utilities such as cables at intersections, natural gas pipelines and broadcast communication links, the bridge can truly be described as a multipurpose bridge, and it will be the foundation to provide interference-free activities for different partners. In order to ensure the smooth movement of the bridge in the future, so as to carry out a controllable event transition, the design consultant AECOM has established detailed activities and support methods for the bridge.

The construction of the proposed Padma multipurpose bridge is an extensive work and requires a huge scope of advancement works. To supplement the construction of the Padma Multipurpose Bridge, the Bangladesh government intends to establish roads, railways, transmission and telecommunications organisations to establish links with the southwestern part of the country. Under the consideration of the government, some major foreseeable improvements in the affected areas of the project include: the widening of the Dhaka-Mawa highway (N8), the bypass of Rajak Group B, the development of the railway network, the development of the primary natural gas network, High-voltage transmission network development (Bormudoi et al.), as well as telecommunications network development.

With the completion of the Padma Bridge and the completion of the related proposed parts, within the scope of the project, especially along the highway and railway corridors, there is a need for rapid uncontrolled improvised urbanisation. In addition to this urbanisation, inflammatory and supportive development exercises will also be conducted in the southwest of these regions. After completion, the government believes that the new bridge will increase the Gross Domestic Product in Bangladesh by 1.2%. These improvements have imposed a combination of nature and energy on the mission-affected area (Islam et al., 2010).

Generally, the Padma Bridge will conduct a more extensive assessment of the impacts of the bridge on the region, the use of household wages, the geotechnical and the territorial needs (De Silva and Kamruzzaman, 2010). The objective of this research is to assess the significant impacts of the Multipurpose Padma Bridge on the whole country and the special contribution towards the agricultural, socio-economic and industrial development on the southwestern region in Bangladesh.

THE ROLE OF PADMA MULTIPURPOSE BRIDGE ON SUSTAINABLE DEVELOPMENT

Bangladesh is a riverine country and the river in the country is the main means of transportation in the country's communications and businesses

and plays a vital role in public life. In fact, all the huge urban communities, towns and commercial centers of the country have experienced childhood on their river banks. Located in the eastern part of India in the Bay of Bengal, Bangladesh is a South Asian country separated by dense greenery and numerous streams with the Padma River, the Megna River and the Jamuna River Narita where it is normal to travel by boat.

The proposed Padma Multipurpose Bridge will be a multipurpose street railway bridge across the Padma River. It will be the largest bridge in Bangladesh and the original fixed river that leads to street traffic. According to different investigations and audits of the main economic impact of the bridge project, the Padma Multipurpose Bridge will change the lives of nearly 30 million people living in the southwestern region of the country, promote modern and commercial activities, and expand economic and job opportunities. A survey by the World Bank shows that in any case, among 30 million people, about one-fifth of all civilians in the country, will directly benefit from this bridge (Islam et al., 2020). The Padma multipurpose bridge will fundamentally contribute to wide and partial improvements in different areas of the economy. Through this bridge, capital inflows will increase, thereby promoting mechanical and commercial actions, expanding the economy, and providing jobs for nearby people (Islam et al., 2020).

The activities of Padma Bridge will bring huge economic changes to the Southwest. In addition to transportation areas, the overall cost of creating goods and businesses, the conduct of economic activities, and the age of new activities will change. It is expected that modern development will be improved due to bridges, but these will have an impact on long-term improvement. In the short term, there may be a small amount of additional cargo transportation due to the easier access of existing companies to the organisation of customers and providers. In any case, from a longer-term perspective, reducing the total cost of transportation will benefit neighboring companies, which may lead to an increase in the interest held, thereby making people interested in the expansion of the limit and the increased revenue, thereby making the region's expansion of economic activities which is leading to lower costs of nearby companies and resulting in lower costs and increased production. It is also encouraging monetary institutions to increase loans to companies in the southwest region, because improved communication methods (reduce time and effort) reduce the need for organisational cooperation cost of establishing new companies in the region by: (a) Using cheaper tools to increase the strength of the region as a commercial area; (b) It is necessary to support the expansion of passenger transportation to/from Dhaka and cargo transportation to/from India (Sharmin et al., 2017). The company can also move to the local area to reduce vehicle expenses, time, and avoid the negative impact (blocking, pollution) caused by the gathering in Dhaka.

Economic impact

The construction of the Padma multipurpose bridge will provide government assistance to individuals in Bangladesh and the vast majority of individuals in the southwest. The advantage needs to be gained from the more significant involvement of the province's commercial sector in Bangladesh's public economy. In addition, given the dependence on economic activities/regions, the direct impact of the Padma Bridge on individual regions and factor markets may prompt a series of changes in other economic sectors. Taking into account the dependence of economic activities/regions, the direct impact of the Padma Bridge on individual regions and factor markets may prompt a series of economic changes in other regions. Therefore, it depends on the resulting input impact.

Compared with the total output value of the basic territory, the total economic output value of the southwestern districts will increase by 73.4%. Indeed, the largest increase of 159.69% was formed, which was caused by construction activities (for example, due to the expansion of interest in construction products), and these activities were caused by affiliated companies (such as different companies (135.95%), forest rangers) (107.45%), public utilities (102.19)) followed and equipment (90.87%) (Raihan and Khondker, 2010). Compared with the basic GDP of southwestern Bangladesh, the total value or gross domestic product of southwestern Bangladesh will increase by more than 71% between 2014 and 2044, the annual selection of the southwestern GDP for more than 31 years (Raihan and Khondker, 2010). About 2.3%, contrary to the public case, the largest return will be accumulated in unqualified work (74.11%), followed by the capital factor (73.98%), which reflects the local creative design, salary age and wage level (Raihan and Khondker, 2010). The final dissemination takes place in a clearly representative family gathering in the area.

It is generally accepted that unfamiliar and self-produced goods are defective substitutes. The standard armington suspects this kind of geological separation, with consistent replacement work flexibility between imported products and self-produced products. In terms of inventory, manufacturers can ideally convey their creativity in fares and local transactions based on the stable flexibility of change work. Moreover, accepted trade request work with limited flexibility regardless of whether it has accepted the worldwide exchange conditions, the small country hypothesis in Bangladesh has been rejected, and it is expected that the strange interest in Bangladesh fares is not completely unlimited. To increase fares, neighborhood manufacturers will reduce their free-to-ready costs.

In order to capture the impact of changes in vehicle margins on departmental costs and output, just like government assistance to households and poverty, the vehicle margin paid for each delivery activity is deducted from the exchange estimate calculated at the buyer's cost. Then, the determined departmental transportation side is added as part of the local transaction cost arrangement. Changes in the edge of the vehicle

will first affect the value of local transactions, so that, due to the relationship between local transactions, the changed local transaction costs will affect any remaining costs. It can be seen that the reduction of the vehicle edge velocity has a positive effect on the larger scale factor. By encouraging cross-river transportation. The Padma bridge is indispensable, leading to more prominent integration of the local business sector in Bangladesh's national economy (Raihan and Khondker, 2010).

Poverty Reduction

Before the 50th birthday celebration, Bangladesh relaxes with surprise and pride. The country has already made some achievements along the way, and will achieve even greater achievements in the coming years. With the rapid growth of GDP, the country's per capita income has greatly exceeded that of many neighbours, and the pace of need has been reduced. Bangladesh also ranks ahead of South Asia and other least developed countries (LDC) in some social indicators. This will help Bangladesh meet each of the three measures set by the United Nations, so that Bangladesh will be able to adjust the law for graduation from the least developed country in 2018. According to the World Bank's country order, Bangladesh has changed from a low-income country to a lower-middle income country in 2015. The country has made excellent resolutions in achieving the Millennium Development Goals (MDG) from 2000 to 2015. Currently, Bangladesh is striving to become a creative country by 2041. In addition, by 2024, Bangladesh must stand out from the least developed country classification. Since 2015, Bangladesh has been operating after achieving the Sustainable Development Goals (SDGs) by 2030. On December 10, 2020, the last Padma multi-purpose bridge span was installed and it was associated the two sides of the Padma bridge (Dhaka Tribune, 2020). Starting in December 2015, the bridge will be completed in 2021 and this highly anticipated bridge is of great significance to Bangladesh in some records for sustainable development (Khatun, 2020).

The absolute utilisation rate of households in southwestern Bangladesh will increase by 68.14%, and its basic utilisation rate will be compared with the envisaged basis (Amin, 2019). Between 2014 and 2044, the annual expansion of household unit utilisation rate over 31 years will be approximately 2.2%. In family gatherings, the number of people who lost land increased the most (69.78%), followed by low-indicating family gatherings in big cities (69.1%) and non-ranch helpless family gatherings (68.8%) (Amin, 2019). Changes in department costs will redistribute assets throughout the creation process and modify the factor wage age along these lines. As a result, personal income for gatherings in the family unit will also be revised. The inferred values, wages, and usage impacts will provide recommendations for family government assistance status and frequency of needs. The state of government assistance is estimated by the apparently same kind (Raihan and Khondker, 2010). For example, the family of Nur Mohammad Nuru (lost land) and their three children currently live in a house on 2.5 decimal places in Josholdia

Resettlement (RS). The house was created for people affected by the construction of the Padma Bridge. They obtained land and the necessary funds to establish a residence for them in an organised and safe community created by a public institution near Mawaghat under Louhajang in Munshiganj (Amin, 2019).

Human Resource Development

The economy of the Southwest Bangladesh depends on the water system framework. Unusable power limits the use of fuel-based irrigation siphons by nearby ranchers. Due to its limitations and fuel consumption, its use regularly becomes uneconomical. With power, the creation cost of agricultural projects will undoubtedly be caught, greatly increasing the creation. The major accident caused by insufficient bridges in the southwest is the industrialisation of the area. Except for those industries that rely on nearby assets, no other industries can be established because transportation and results promote the issuance of crude oil and finished products. At present, the Padma multipurpose bridge will bring ordinary people a vital force for industrialisation. Enterprises of various scales will prosper and develop in the region, and ultimately will promote the development of the national economy (Islam et al., 2020).

A reliable foundation plays a vital role in financial development. The study found that in many countries, there is a positive relationship between the framework and the currency rate of return. This is achieved through domestic total capital development, business, exchange and human resources. The great framework increases the benefit limit and increases the strength of a country. There is sufficient evidence that the framework and benefits are usually very valuable. That is, the framework helps to increase production, and higher production also promotes a better foundation. Therefore, the Padma Bridge was evaluated so that the country's GDP will grow by more than 1% and it will profit from approximately 30 million people in 21 southwestern districts of Bangladesh. These areas will be linked to development habitats through better availability (Khatun, 2020). They can be used as currency channels. This will open the door for business and payments. As personal development improves, the transportation framework will be improved. The supply chain within the country will be better connected. Commodities and joint ventures will easily start from one location and then move to the next location. People from the southwestern regions are also expected better services, medical care and different administrative management.

Not only can individuals effectively move to metropolitan areas, but they can also access rural areas. This will change the rural economy that is currently undergoing changes. With the rise of non-ranch operations in rural areas, the share of agribusiness in the gross national product has actually fallen. Several variables (including better correspondence and usability) encourage this situation. There is no doubt that the construction of this 6.15-kilometer-long double-deck bridge has improved the country's

certainty. This will enable decision makers to look forward to a larger foundation. Again, this will urge unfamiliar financial supporters to invest in different parts of Bangladesh. One of the prerequisites is to develop all areas, including rural areas, and open the door to individuals everywhere. The decentralisation of administrative departments and positions is the basis for reaping rewards from this framework. For example, establishing a business in the nearest relevant area will help prevent transfers from provincial areas to large urban areas for work. Better access to raise funds for small and medium-sized organisations, for example, agricultural operations, hard work and food companies will also help with careers. In addition, the continuous power supply of office spaces in cities and towns, the improvement of networks, school education and medical services will limit the influx of individuals into urban communities.

Once again, research from rural areas requires the arrival of students for higher studies. Serious patients must be taken to a vast urban area for treatment, regardless of whether there are facilities at the district and sub-regional level. Specialists do not want to live outside of Dhaka City. There are clinics and medical colleges in many areas. Due to the lack of other basic conveniences, these locations are still not ideal objects of alternatives. Since Dhaka is the focus of all financial, regulatory, social and economical activities, individuals cannot but live in and around this super city for management. This hinders the development of rural areas. In this way, when the bridge is fully useful, the inspection and evaluation of the framework will be the basis for obtaining normal returns. The construction of this bridge is a landmark achievement of the public authority. However, if there is no proficient administration, the pace of retreat from this super task will be very low. Finally, as Bangladesh is recovering its economy from the aftermath of the Covid-19 pandemic, the Padma Bridge can assist the country as a whole to complete this work. It can also contribute to the realisation of sustainable development (Khatun, 2020).

Social Transformation

For buildings, houses near the destination must be emptied, and countless nearby people must be transferred to the resettlement site. These neighbourhood residents who moved to the resettlement site will greatly improve the living environment because it will provide many community conveniences and social foundations. In Bangladesh, there are different languages, food tendencies and cultures everywhere. Individuals from one area sometimes find it difficult to understand the language of another area. In this regard, the bridge will become part of the driving force for the development of the country's culture and lifestyle. Such an overall mixed influence will make individual thoughts, opinions, cooperation and activities closer, and these thoughts, opinions, cooperation and activities may be more unified than they are currently (Islam et al., 2020).

The Padma Multipurpose Bridge needs to be built to provide government assistance to individuals in Bangladesh (especially individuals

in the southwest region). A more significant reconciliation between the commercial sectors within the territory of Bangladesh's national economy allows these advantages to be brought into play. In addition, in view of the dependence on financial activities/fields, the direct impact of the Padma Bridge on individual regions and factor markets may prompt a series of changes in other economic sectors (Raihan and Khondker, 2020). Nevertheless, the Padma multi-purpose bridge design project also includes another fixed intersection of the Padma river with a total length of approximately 6.15 kilometers. To complement the construction of the project, streets, railways, transmission and telecommunications organisations must be designed and created to establish connections with the southwestern region of the country. Relying on a wide range of framework projects has also produced positive monetary and social impacts on the affected nearby areas, and has become increasingly important to the entire country (Mahmood and Keast, 2016). Even so, these companies have caused some pessimistic effects, and in the current climate, due to forced population migration, these effects are especially comparable to the lives and occupations of the people affected by the project. More specifically, the misfortune suffered by these people who may be affected by their careers can absorb all or part of their tangible and non-physical resources, such as houses, networks, profitable terrain, assets (woodlands, pastures), fish and culture. Regional or important social destinations, commercial properties, occupancy rates, opportunities for income, and social and cultural organisation and exercises (Hong et al., 2009).

Whenever it is developed, the Padma Multipurpose Bridge will be the longest bridge in Bangladesh. The bridge will connect the southwest and east regions of Bangladesh. After evaluating four potential construction locations, the final area of the bridge is located between the eastern end of Mawa (Munshiganj area) and the western end of Zajira (Shariatpur area). This bridge needs to have a positive impact, not only in the upgraded correspondence between regions, but also in improving the financial situation of the neighborhood, because more companies and organisations have been opened in the southwest region, and more door to career opening. At the same time, if it is not properly quantified, the bridge may also have a pessimistic effect on the nearby individuals and climate, causing a large number of individuals to be lost from their property and affecting their livelihoods, including commerce, gardening, fishery and different administrative departments. The long-term acquisition and short-term requirements together led to a saving of 918.45 hectares of land for the construction of the enterprises as well as the withdrawal of its family unit and business risk organisation affected approximately 20,000 people (Mahmood and Keast, 2016).

Environmental Impact

The Padma River in the key area of Bangladesh is about 100 kilometers long. It flows from the confluence of the Jamuna (or Brahmaputra) and the

Ganges to the southeast and merges into the upper Meghna River. Below the river is called Downstream of Meghna. The Padma Bridge will be located in Mawa, approximately 66% of the Padma route, about 35 kilometers southwest of the capital Dhaka. The river improvement project plan of Padma Bridge raises serious problems in waterway design, which is comparative in nature, but compared with other large-scale bridge projects in Bangladesh, its importance is more worthy of attention (Neill et al., 2010). These problems include huge range and occasional movement of streams, very fine non-hard extreme materials, incredible expected scour strength, potential rock and soil fragility, and huge costs of inertial collapse insurance materials (such as rock and gravel) must be imported from abroad (Neill et al., 2010).

In the case of each large-scale construction project, in each case, it will have a certain ecological impact on the surrounding environment of the site. The ecological, the physical and energetic impact of the Padma bridge has been studied, and it can be clearly seen that it plays an important role in generating the climate, and in some cases it can be redesigned (Sharmin et al., 2017). Through the implementation of these valuable arrangements and plans, a climate-friendly foundation can be built, biodiversity and vegetation can be protected, and the economy, agribusiness, transportation and land can be further appropriately controlled. Flooding, the collapse of the river bank, the uprooting of settlements and firm work issues will be restricted and stabilise the island on the correct bank of the Padma River. In addition to improving the climate, it will also save a lot of energy, for example, due to the minimised distance, the vehicle's fuel usage is large. Bridges may be a source of energy, of which the sun and wind are important components. This will help the country in an era of lack of power. Obviously, the development of the Padma Bridge will save energy and improve ecology.

The Padma Multipurpose Bridge will be a landmark building in Bangladesh and one of the extraordinary river intersections in the world. The plan for the bridge has become an important test. During the rainy season, the stream naturally undergoes tremendous changes. At that time, significant changes in stream speed and waterway beds have taken measures to damage any bridge piers. The bridge is still in an area with obvious seismic activity. In order to plan the bridge, advanced computational research and design schemes have been used, all of which make the bridge actually hope to solve the natural problems in its long life (Islam et al., 2020). In order to manage the huge water flow, the creator chose a tilted pile. Plan the heap according to the ratio of 1H:6V. Therefore, it can oppose more parallel power supplies, which also helps fight earthquakes. As the high water level of the Padma River rises due to the construction of the bridge, the impact of the bridge on the territorial hydrology and flood design is not critical, but a detailed assessment is still required. The Padma River is an important transitional route for the hilsha fish. The unfortunate annual fish formation of about 11 tons may be compensated by fish farming in the new lake in the new pit (Islam et al.,

2020). Due to the increase in traffic flow, the overall impact on air and traffic pollution is critical, especially along streets and railway corridors. Roads and railway organisations will continue to increase the smell of clams, and the air quality will also decline (Sharmin et al., 2017). Nevertheless, due to the suspension of ship management, the air and commuting quality levels contained in Padma will be improved.

Easy and Safe Communication

The construction of the Padma bridge will solve the communication problem in southwestern Bangladesh, which involves 25% of the entire land. The introduction of streets and railways will help transport crude oil from Chittagong Port at a lower price. By building bridges, currency development in the Southwest will promote mechanical and commercial actions, and increase financial and job opportunities for residents in the neighborhood. There is an urgent need to replace dangerous ships and dispatch activities between Dhaka and the Southwest through safer and stronger ground transportation when passing the violent transition between the Padma and Magna rivers, overwhelmed ships sink into the river from time to time (Islam et al., 2020).

The Padma River constitutes a practical barrier to the neighborhood associations between Dhaka City and the southwest and south-central regions of Bangladesh (home to about a quarter of Bangladesh's population). On the ghats, ventilation and air quality are another issue, and the air quality level has exceeded public guidelines (Sarker et al., 2014). The numbers of ships, dispatches, speedboats and autoboats are 11, 50, 220 and 1100 respectively (Sharmin et al., 2027). Approximately 20,000 people are directly or implicitly dependent on the unique financial activities in and around the Ghats. After each storm, the Bangladesh Inland Water Transport Company (IWTC) will dig route channels to maintain the normal operation of the vessel channels. During mists and high floods, ship management was blocked here and there for a long time. Some of these ships are outdated and are often overloaded and continue to have accidents (Sharmin et al., 2027). After the Padma Bridge, all water transportation will stop. Therefore, the use of fuel will be reduced and surprising accidents will be prevented. Moreover, the distance from Dhaka to almost all major opposition groups in the southwest will be reduced by 100 kilometers (km) or more. The Japan International Cooperation Agency (JICA) expects to save approximately 681,600 litres of garbage a day. After the project starts, the ship will be shut down. The bridge will allow the stream to meet safely with the border between the southwest of the country and the rest of the country. The street organisation and railroad network in the southwestern regions will be improved. The speedboat administrator can continue to work and transport passengers from Dhaka and other nearby areas (Sharmin et al., 2027).

The Padma Bridge will be used to establish street and rail links between the less developed Southwest region of the country and the more established eastern regions (including the capital Dhaka and Chittagong

City). By encouraging cross-river transportation, bridges need to promote more noteworthy coordination between territorial business units within the Bangladesh public economy (Raihan and Khondker, 2010). Uncommitted future conditions will greatly reduce the financial development potential of the entire southwest region, where about a quarter of Bangladeshis live there (Schmuck-Widmann, 2001). The deteriorating local economy will affect livelihoods and increase the number of people living below the poverty line, especially in major metropolitan communities such as Khulna and Barisal. Due to high transportation costs, the opportunity to increase exports through the Mongla Sea Port and Benapole Dry Port will decrease. The current unsafe and inconsistent ship management department will continue to provide assistance, regularly bringing trucks and vehicles (2 hours) with long-term tension in the air. The consisting of fleets, dispatchers and speedboats will regularly carry out routine commuting, oil pollution and commercial route blockages.

Electricity, Gas and Telecommunications Connection

The Padma multipurpose bridge project involves a 6.1-kilometer main bridge spanning the Padma River, involving waterway preparations, streets and railway lines on embankments or viaducts, toll plaza, support offices and workplaces. The Padma Bridge includes forty 150 m long-distance steel supports, which are supported on 41 piers in the waterway, and there are 2 changing piers on each river bank. The purpose of the bridge is to transport a dual 2-step highway on the upper deck, and to lay a separate railway line on the lower deck, alongside various utilities such as gas mains, cables and communication links. The waterway wharf is supported by a long and wide driven cylindrical pile, which is introduced in 1 horizontal to 6 vertical rakes, while the arrival wharf is supported in a huge width of vertical empty pile (De Silva et al, 2010). The construction of the Padma bridge is the solution to this (electricity, gas and telecommunications) problem. The construction of the Padma multipurpose bridge will connect the southwestern part of the country with the public forces network. The circuit will connect these two parts. Therefore, this huge supply of power will create the current economy and rapid industrialisation (Islam et al., 2020). Padma Bridge will not only provide a way for vehicles to cross streams, in any case, it will combine railway routes and channels for broadcast communications, electricity and LPG transmission (Sabet, 2012). The bridge will also have provincial-level exchange benefits, thus shortening the transportation distance between Dhaka and Kolkata. The construction of the bridge may also enhance the contours of the port of Mongla in the southwest, which functions within part of its expected limits. This can benefit the Northwestern parts and provide an elective port for Dhaka (Jalil, 2020).

CHALLENGES OF PADMA MULTIPURPOSE BRIDGE

Due to the unexpected development of currency in the Southwest, many people's business and lifestyle will change. With this change, there will be many other social and political variables that may pose a danger to the later realisation of Padma Bridge. The company has obtained 755 hectares of land for the construction of bridges and related foundations, including the development of five relocation places. Similarly, in approximately 6 years, approximately 163 hectares of land were temporarily needed for construction sites where approximately 5,500 households with 26,500 people will be affected (Islam et al., 2020). All people affected (direct and bypass) may encounter Mawa-70,000-80,000 and Paturia-40,000-45,000 (Islam et al., 2020). Due to this part, a total of approximately 507,000 plots of land in Munshiganj, Shariatpur and Madaripur will be affected. Among the absolute land affected, most of the affected land is located on the Jajira side, accounting for 83% of the total land acquired, although the remaining affected land is on the Mawa side (Islam et al., 2020). Due to the shortage of rural land, about 30,000 people in 10,000 family units will lose wages and jobs. 25,000 people will be adversely affected by the affected fisheries, administrative management, exchange and transportation, and compensation work (Islam et al., 2020). Some of these people will be affected by the bridge leading to the traffic.

The Padma multipurpose bridge was originally intended to have a history of 100 years. The precondition of the plan does not mean that the bridge will remain in normal operation for a long time without maintenance. In order to avoid grooving as much as possible, it is important to establish a strong connection between the surface and the water seal. Specially, in high-temperature and high-humidity areas such as Bangladesh, high-temperature and high-humidity make the application particularly burdensome. It is also important to provide the underground passage with any water that collects between the layer and the pavement. Face to face is divided into two layers: a 60 mm thick base layer and a 40 mm thick wear layer. The strong and robust plan for this bridge will ensure that the bridge can be used for both street traffic and rail traffic in harsh weather conditions. For severe weather conditions, measures will be taken to restrict traffic and close bridges when important. The Padma bridge is designed to bear abnormal loads of up to 45 HB load levels in accordance with BS 5400 Part 2 and the development of strange loads will be arranged with the bridge authorities in advance (Tapley et al., 2010). The development of abnormal burdens is usually coordinated when traffic is low and when freight trains with large cargo capacity are not expected to cross the bridge. The railway enclosure in the lower deck can accommodate a separate track railway across the bridge. If the railway route is monorail, a strict system regarding the condition of the train passing the bridge should be followed. In order to expand the utilisation rate of the bridge by train, a fixed-term train will be arranged for each route. It is proposed to use this bridge to reduce the basic burden of

streaming. The dock has been designed to withstand the impact of 4000DWT ships (Tapley et al., 2010). This ship is larger than all ships recorded in the ship's register. In addition, the future coal will have to take care of ships that may sail along the river.

The foreseeable position of the Bangladesh government is that there is no derogatory behavior in this task, the withdrawal of the World Bank is inappropriate, and if the World Bank has such complain, the World Bank should provide evidence of corruption. The idea that file corruption cannot occur before the World Bank allocates finances basically contradicts the construction costs and the legislative response has disappointed many people, and the residents have insufficient data assess the authenticity of the explanations by both parties (Sabet, 2012). The World Bank submitted two reports, claiming that they belittle Bangladesh's public authorities, but the World Bank does not have the right to conduct criminal reviews, and its implementing regulations do not allow them to report publicly. Despite its prudent attitude, it still does not provide reports. At present, the idea it puts forward is that a calm leader may win in the Bangladesh government, which is meeting the conditions of the World Bank. In any case, an arrangement is not actually reached, and whether an arrangement is reached or not, a helpless relationship may hinder the inevitable implementation (Sabet, 2012). In addition, the public authority's obligation to provide derogation actually gives people the impression that it is absolutely not the same as its obligation to protect its authority.

CONCLUSION

The Padma multipurpose bridge will continue to maintain the milestone structure of Bangladesh and achieve essential communication, but at the same time it also marks another achievement design plan in an extremely ecologically risky area. The Padma bridge will provide a fundamentally missing link for Bangladesh's transportation. The bridge will also provide a large amount of travel time reserve funds, especially between the Dhaka and southeastern Bangladesh, and even between India. The bridge will be a protected and simple fixed-flow crossing point to replace conventional dangerous and inconsistent ships. In any case, the predictable plan effects studied before have proved the value of building this bridge. All individuals in Bangladesh can trust that the construction of this multifunctional bridge will have been completed. The plan for the bridge has become an important test. During the stormy season, the water flow has naturally undergone tremendous changes. At that time, significant changes in the speed of the water flow and the water level of the river bed have taken measures to damage any bridge pier. Bridges were also developed in areas subject to strong earthquakes, and when combined with strong erosion, it would lead to extremely difficult planning conditions. The Padma multipurpose bridge will continue to be a landmark structure in Bangladesh, providing essential communication links. In addition, it also marks another achievement designed to deal with the particularly dangerous ecological environment. The combination of strong erosion and

usual seismic action requires the planning consultant AECOM to use the most advanced bridge technology to enthusiastically combine bridge planning and construction to ensure that the bridge not only serves the Bangladeshi people today, but also has many eras. It is then crucial that the bridge can work for a long time on the basis of long-term maintenance. For this reason, the bridge plan uses only the strongest part, which can be inspected and maintained effortlessly. The operating method of the bridge was created to ensure negligible interference to traffic during maintenance and harsh weather conditions.

REFERENCES

- Bormudoi, A., Fowze, J. S. M., Hazarika, M. K., Samarakoon, L., Gunasekara, K., Kabir, S. M. H., & Mustafa, S. A. (2011, January). Rapid flood damage estimation: A case study at Chandpur, Bangladesh. In Proceedings of the 3rd International Conference on Water and Flood Management,(WFM'11), At Dhaka, Bangladesh.
- De Silva, S., Wightman, N. R., & Kamruzzaman, M. (2010, August). Geotechnical ground investigation for Padma Main Bridge. In Proc. IABSE-JSCE Conference, Dhaka (pp. 10-12).
- Dhaka Tribune, (2020). Last Padma Bridge Span to be Installed Thursday. Retrieved From <https://www.dhakatribune.com/bangladesh/nation/2020/12/08/last-span-of-padma-bridge-to-be-installed-on-dec-10>
- Fahmida Khatun, (2020). Padma Bridge and the pursuit of inclusive growth, <https://www.thedailystar.net/opinion/macro-mirror/news/padma-bridge-and-the-pursuit-inclusive-growth-2010893>
- Islam, M. M., Hossain, A. F., Abbas, S. M., Silvy, S., & Hasan, M. S. (2020). A STUDY ON IMPACTS, CONSTRUCTION CHALLENGES AND OVERCOMES OF PADMA MULTIPURPOSE BRIDGE, BANGLADESH.
- Islam, M. Z., & Anzum, R. (2019). Internet governance: present situation of Bangladesh and Malaysia. *International Journal of Recent Technology and Engineering*, 7, 176-180.
- Islam, S. N., Singh, S., Shaheed, H., & Wei, S. (2010). Settlement relocations in the char-lands of Padma River basin in Ganges delta, Bangladesh. *Frontiers of Earth Science in China*, 4(4), 393-402.
- Jalil, M. A., Islam, M. Z., & Islam, M. A. (2020). RISKS AND OPPORTUNITIES OF GLOBALIZATION: BANGLADESH PERSPECTIVE. *Journal of Asian and African Social Science and Humanities*, 6(4), 13-22.
- Jalil, M. A., Islam, M. Z., & Islam, M. A. (2020). RISKS AND OPPORTUNITIES OF GLOBALIZATION: BANGLADESH PERSPECTIVE. *Journal of Asian and African Social Science and Humanities*, 6(4), 13-22.
- Mahmood, M. N., & Keast, R. (2016). Bridging the gaps between impact assessments and resettlement planning: a case study of Padma Multipurpose Bridge Project, Bangladesh. *Planning Practice & Research*, 31(1), 41-64.
- Mohammad Monirul Amin, (2019). Socio-economic impact of Padma Bridge : A new lease of life for many. <https://www.dhakatribune.com/business/2019/08/17/socio-economic-impact-of-padma-bridge-a-new-lease-of-life-for-many>

- Neill, C. R., Oberhagemann, K., McLean, D., & Ferdous, Q. M. (2010, August). River training works for Padma multipurpose bridge, Bangladesh. In IABSE-JSCE joint conference on advances in bridge engineering-II (pp. 441-448).
- Raihan, S., & Khondker, B. H. (2010). Estimating the economic impacts of the Padma bridge in Bangladesh.
- Sabet, D. (2012). Understanding the Padma Bridge Controversy. Monthly Current Events Analysis Series, prepared for the Center for Enterprise and Society, University of Liberal Arts, Bangladesh.
- Sarker, M. H., Thorne, C. R., Aktar, M. N., & Ferdous, M. R. (2014). Morphodynamics of the Brahmaputra–Jamuna River, Bangladesh. *Geomorphology*, 215, 45-59.
- Schmuck-Widmann, H. (2001). Facing the Jamuna River: Indigenous and engineering knowledge in Bangladesh. Bangladesh Resource Centre for Indigenous Knowledge.
- Selim Raihan and Bazlul Haque Khondker, (2020). Estimating the economic impacts of Padma Bridge, <https://www.thefinancialexpress.com.bd/views/estimating-the-economic-impacts-of-padma-bridge-1607955441>
- Sham, S. H. R., & Tapley, M. J. (2010, August). The design of Padma Multipurpose Bridge—challenges and solutions in design of the river spans. In Proc. IABSE-JSCE Conference, Dhaka, 10-12 August 2010.
- Sharmin, R., Rashid, M. M., Ferdous, M. M., & Ahamed, R. (2017). Energy and Environmental Impact for Development of Multipurpose Padma Bridge. *International Journal of Renewable Energy Resources*, 4(1), 18-27.
- Tapley, M., Sham, S., & Holmberg, R. (2010). Developing the operation and maintenance strategy for the Padma Multipurpose Bridge. In Proc. IABSE-JSCE Conference, Dhaka (pp. 10-12).