



The Economics and Implications of the Padma Bridge

Faizul Islam*

Adjunct Professor, University of Maryland Global Campus

Received Date: February 09, 2023; **Accepted Date:** March 08, 2023; **Published Date:** March 14, 2023;

***Corresponding author:** Faizul Islam. Adjunct Professor, University of Maryland Global Campus. Email: Muhammad.islam@faculty.umgc.edu

Introduction

Dubbed as "... a symbol of Bangladesh's pride, honor and ability" Bangladesh Prime Minister Sheikh Hasina finally opened the Padma Bridge on June 25, 2022, after the completion of eight years of construction work.

i) The Padma Bridge is the *world's 122nd largest multipurpose bridge* over the country's Padma River. ii) The bridge's *underwater pilings extend 122 meters deep, a world record*, and it required 41 support pillars. iii) At some points in the river *the water flow volume ranks second globally* only after the Amazon River. iv) The Padma Bridge is *one of the largest projects* Bangladesh has ever undertaken. v) Built with the state-of-the art technology, the construction of the bridge involved more than 4,000 engineers. Of which, *one-third were Bangladeshi engineers*, a major technical achievement.

By connecting the capital city, Dhaka, with 21 southwestern districts, the Padma Bridge will work as a direct gateway to the country's economically backward southwestern region, and will significantly reduce travel time. The **sea-like** Padma River separates the southwest from Dhaka and people are forced to travel on ferries or launches that make slow journeys. Perishable goods transported by truck often rot because of the long trip. Recent newspaper articles have reported that fresh fish and other *perishable goods now reach Dhaka in just 6 hours, cutting the travel time in half*.

Built by a consortium of Bangladeshi and international engineers, led by China's Major Bridge Engineering Company, Ltd., the two-level steel truss bridge is 6.15 km long and 18.10 m wide. It has a four-lane highway on the upper level and a

single-track railway on the lower level. The entire \$3.9 billion four-lane highway has been financed by the Government of Bangladesh with the country's own resources. [The lower-level single-track railway, which is still under construction, is a separate \$4.6 billion project of the Bangladesh Railways. Most of the financing for this project is being done with the help of Chinese supplier's credit].

The Economics of the Padma Bridge

1) Cost: Was the \$3.9 billion cost too high?

Arguments in Favor:

- i) The World Bank said that Bangladesh has the highest infrastructure costs in the world, owing to relatively high land acquisition cost and shortfalls in the bidding process in the award of many public sector infrastructure projects like the Padma Bridge. For instance, Bangladesh awarded the contract to a single bidder, that is, China Major Bridge Engineering Company, Ltd., when other bidders refrained from submitting full quotation (project bids).
- ii) India's 9.0 km Bhupen Hazarika's Bridge cost only \$156 million. At this rate, it could be possible to build 30 Bhupen Hazarika bridges in India at the cost of one Padma Bridge. The Crimean Bridge, built in three years at a cost of \$3.69 billion across the Kerch Strait, with a similar pile depth (to the Padma Bridge) but three times as long (18.1 kilometers).

Arguments Against:

- i) No two bridges in the world are the same, so cost comparisons between bridges would often be misleading.
- ii) There are bigger bridges in the world other than the Padma Bridge, but there is no bridge over a **sea-like** Padma River. For river training alone, Bangladesh had to spend more than \$1 billion, which added to the cost.
- iii) The bridge's construction budget increased threefold from its initial \$1.2 billion. This was due to delays in the construction work that led to a substantial cost overrun of the project scheme. The construction of the bridge was planned to commence by early 2011 and be completed by 2015; in reality, the construction work began in November 2015 and the bridge was opened to traffic in June 2022. Undoubtedly, the cost overrun was *inherent* in the *delay* with the *starting* and *completion* of the construction work.

2) The Alleged Corruption and the Cost of the Padma Bridge

The World Bank had initially intended to finance the Padma Bridge project with a US\$1.2 billion concessional credit. However, the bank pulled out in June 2012 citing corruption concerns. In particular, pointing to a Canadian construction company, SNC-Lavalin, which had bribed a Bangladeshi official in exchange for a construction contract. Two SNC-Lavalin executives were charged in Canada, but after the court excluded wiretap evidence the prosecution was withdrawn and the case was dismissed by the court.

Economic theory argues that corruption or bribes adds to the cost of production, which is then reflected in the price or the capital budget. However, if the corruption is unpredictable, the added costs and prices would also become unpredictable. If corruption is unpredictable, price fails to serve as a signaling mechanism in a market economy. That is, economic resources are *mis-allocated*.

Assuming corruption took place and bribes changed hands in the construction of the Padma Bridge, two factors would have likely ensued. a) Instead of *mis-allocation* of economic resources, there was *transfer* of economic resources from the government sector to the private sector. b) Unwanted costs were *added* to the project.

Again, assuming bribes exchanged hands whose monetary value was built into the *cost* of the Padma Bridge, we have to also consider the *revenue* and *income* generating potential of the Padma Bridge. As analyzed and demonstrated in the next two sections, economic or monetary gains from the construction of the Padma Bridge outweigh the \$3.9 billion project cost.

3) Asian Development Bank's 2009 Benefit-Cost Analysis Determined the Padma Bridge Project to be Economically Viable

The Asian Development Bank (ADB) did a benefit-cost analysis in 2009 over a 30-year period (2011-2014) of the bridge.

In essence, their economic analysis took into account benefits accruing from annual savings in vehicle operating cost (VOC) and travel time to existing passengers and freight crossing the Padma River.

A real discount rate of 12% was used, reflecting the economic opportunity cost of capital in Bangladesh. The resultant economic internal rate of return (EIRR) for the proposed project investment is estimated at 20.0%. *Since 20% EIRR exceeded the 12% real interest discount rate*, consistent with the economics textbook theory, the ADB posited the proposed Padma Bridge to be *economically viable*.

4) The Padma Bridge's \$3.9 Billion in Costs Can Be Fully Recouped Sooner than Later

The commissioning of the Padma Bridge is expected to increase the gross domestic product (GDP) of the economically distressed south-west region of Bangladesh by up to 2.5 percent, and the national GDP is projected to rise by 1.2 percent.

The World Bank reported Bangladesh's GDP was \$416 billion in 2021. As such, the estimate suggests the Padma Bridge would be to generate \$4.9 billion (=1.2 percent of \$416 billion) annually such that the full amount of the cost of the project can be fully recouped sooner than later.

5) The Public Finance and the Financing of the Bridge

The upper-level of the Padma Bridge which cost around \$4 billion has been funded entirely through mobilisation of domestic resources. The project is a demonstration of how a low-income economy can successfully mobilise domestic resources to finance large-scale critical infrastructure projects.

6) Decentralization of Dhaka and the Industrialization of the South western Districts

The capital city, Dhaka, has become heavily centralized in terms of the public administration, and other business purposes. In search of livelihood and other needs, people from all over the country apparently have made the capital city, their abode. Dhaka has experienced a mammoth rural-urban migration.

The UN's Habitat data indicate with a density of 44,500 people per sq km, Dhaka is the densest city on earth. The commissioning of the Padma is expected to decentralize Dhaka's central command and reverse the rural-urban migration.

Industrialization of south-western parts of the country would likely occur and tourism would also flourish in the region.

7) The Benefits Accruing to the Opening of the Padma Bridge Are Analogous to the Benefits Emanating from the Opening of Free International Trade

Economic theory posits that when nations open up their borders to free international trade, the inflation rate goes down, production and employment increase, which finally leads to a higher standard of living.

An analogy and an economic analysis can be drawn between the North American Free Trade Area (NAFTA) and the Padma Bridge. Before NAFTA went into effect in 1994, Canada, Mexico and the United States did not have free trade. Although there were no “*natural barriers*”, like rugged mountains or turbulent rivers between these three juxtaposed countries, the existence of “*economic barriers*” like tariffs impeded free trade among these three countries. After 1994 when most of the tariffs were abolished, NAFTA members enjoyed low prices for their traded goods and a higher standard of living.

In the case of Bangladesh, the **sea-like** Padma River acted as a “*natural barrier*” impeding the free flow of people, goods and services. With the June 25, 2022 opening of the Padma Bridge, the country as a whole would be expected to enjoy lower prices of goods and services coupled with a higher standard of living.

8) The Padma Bridge is the Golden Goose That Has Already Started to Lay Golden Eggs

i) Vehicle Traffic & Tolls

According to the official statistics available on the Bangladesh Bridge Authority website, a total of 51,316 vehicles crossed the bridge in both directions on June 26, 2022, the first full day of its operation, which had far exceeded the ADB’s estimate of 24,000 vehicles daily crossings. And of course, the additional revenue streams would reduce the payback period of the capital project.

On August 7, 2022 the Times Business Standard reported that the Padma Bridge contributed Taka 101 crore (~US\$ 10 million) --in the first 42 days of its operation—in toll revenue to the government of Bangladesh.

In the absence of *alternative* means of communication and a preference to traverse the 6.15 km distance within the shortest time, the *demand* to commute over the Padma Bridge is *inelastic*. Economics textbook suggests if *tolls go higher*, given the *inelastic demand*, it will generate more revenue for the government.

ii) The Patuakhali Fishing Industry Gets a Boost

Located in the southern shores of the Bay of Bengal, Patuakhali, produces about 1.23 lakh tons of fish annually, of

which 36,000 tons are consumed locally while the remainder is sold in different parts of the country.

Before the Padma Bridge was build, local fishermen faced numerous difficulties in selling the perishable product. With the opening of the Padma Bridge, the direct and faster shipment of fishes to other places of the country including Dhaka, have become feasible. They are also expanding their farming capacities in anticipation of higher demand, prices and profits. [This is also expected to be true for other perishable goods produced in this region of the country].

iii) The Padma Bridge-Induced Economic Gains Can Be Distributed for All Purposes: A Reflection of the Government’s Good Policy and Good Economics

Some critics have argued that instead of investing crores of taka of Bangladeshi taxpayers’ money for the construction of the Padma Bridge, it should have been spent on other social programs, including pension and health.

This proposition would negate economists’ long held view that the investment in the physical infrastructure including roads, highways and ports generate forward and backward linkages thus ushering in a meaningful economic development. The investment in the construction of the Padma Bridge is one of *good economics*. The Padma Bridge-induced economic gains in the form of tolls and taxes can be utilized to finance necessary and additional social programs.

The Implications of the Padma Bridge

1) The Hasina Government Defiance of the World Bank in 2012 Echoes the Mahatir Government’s Rejection of the International Monetary Fund in 1997

As noted earlier, the World Bank canceled the \$1.2 billion on corruption allegations centering the Padma Bridge. Other donor agencies including the ADB and Japan International Cooperation Agency (JICA) followed suit.

Following the World Bank’s decision, the government of Bangladesh decided to fund the project from its very own fund. The Bangladesh government even rebuffed China’s proposal to build the bridge on a build-own-transfer (BOT) basis by investing \$2 billion or 70 percent of the project expense.

The Bangladesh’s decision to build the Padma Bridge highlights the most public and direct repudiation of the World Bank, in particular, and other donors in general.

2) Bangladesh’s Aid-Dependency Stigma Has Been Removed Forever; Creditors Are Now Proactively Considering to Loan Funds to Bangladesh

Bangladesh’s determination to build the Padma Bridge with its own domestic resources has removed forever the country’s “tarnished image of handouts dependency.”

Bangladesh has never reneged in its own loan payments to foreign debtors and international financial institutions. As such, Bangladesh's international credit rating has been laudable. In addition, the "Do-It-Alone" Bangladesh's strategy to fund the Padma River has *reversed* creditors' perspective of Bangladesh. Creditors have now expressed interest to proactively extend loan to Bangladesh, instead of the other-way round.

3) The Padma Bridge is Yet Another Milestone as it Continues Gains Its Status in the World

At the time of its birth in 1971, the Bangladesh economy was totally devastated. The newly-born country became heavily dependent on foreign aid that led then-US Secretary of State Henry Kissinger to characterize Bangladesh as a "bottom-less basket."

Bangladesh began to overcome this stigma at the international level in the mid-1970s in stages:

- The genesis in the inflow of *foreign remittances* by non-resident Bangladeshis boosting the country's much-needed foreign exchange reserves.
- The emergence of the promising *readymade garments industry* (RMG).
- The rejection by Bangladesh to accept any foreign assistance to aid its victims during the devastating floods in 1990.
- The participation of the Bangladesh military in the United Nation Peace Keeping Force. [Currently, Bangladesh is the largest contributor in the UN peacekeeping missions].
- The initial survival and the subsequent stellar success of Bangladesh's RMG after the 1974 Multi-Fiber Agreement (MFA) was abolished in 1995. [Bangladesh now ranks second in the world, after China, in garment exports].
- Bangladesh was upgraded from a low-income to a low-middle income country on July 1, 2015, according to the World Bank.
- Development researchers consider today's Bangladesh as a 'role model for development' in South Asia.
- The construction and completion of the \$3.9 billion Padma Bridge with domestic funds in defiance of the *mighty* World Bank.

4) Potential Exists for Employment of Bangladeshi Engineers Overseas

As noted earlier, a *third* of 4,000 engineers who were engaged in all elements of the Padma Bridge. were Bangladeshis. They were able to acquire the highly and necessary technical skills from the state-of-the-art technology applied in the construction of the Padma Bridge.

Newspaper accounts reveal that there are potentials for these Bangladeshi engineers to find employment abroad.

5) Will the Economic Benefits of the Padma Bridge Deliver its Due Political Dividends?

The Padma Bridge is a *public good* which was built following a *public policy*. The people of Bangladesh, more or less, are expected to reap the economic benefits from the commissioning of the Padma Bridge. When the government delivers a public good or service to its citizens, the voters express their satisfaction or dissatisfaction in the ballot boxes.

Whether the Padma Bridge-induced economic benefits will yield *political dividends* to the current government/administration *may likely* be reflected in the ensuing parliamentary election next year, assuming the election is free, fair and transparent.

6) The Padma Bridge: An Integration into the Asian Highway Connectivity

In August 2009, Bangladesh joined the network conceived by the United Nations with a view to setting up regional connectivity among Asian countries via a highway system of over 145,000 km roads passing through 32 countries.

The Asian Highway-1, connecting Assam with West Bengal of India via Sylhet-Dhaka-Narail-Jessore, had two missing links: the Padma Bridge and the Kalna Bridge in Narail. The commissioning of the Padma Bridge will now work as a key component of the boosting economic growth of Asia and improving the country's standing in the continent.

The Padma Bridge, will also pave the way for putting in place a new route for the Trans-Asian Railway (TAR) network, another UN initiative aimed at creating an integrated railway network across Asia.

7) Capacity Utilization of Existing Physical Infrastructures

Expanded connectivity outcome of the Padma Bridge would facilitate expanded utilization of existing infrastructures in the country. For instance, Payra, Mongla and Benapole ports would be used with increased economic activities in the industrially lagging south-west.

8) The Padma Bridge and China's Belt and Road Infrastructure – An Example of Altruist Gesture or Hidden Motive?

The Padma bridge was built by the state-owned China Major Bridge Engineering Company, Ltd. and is seen by Beijing as a milestone for the China-Bangladesh cooperation. The Chinese state media portrayed it to be a part of the Belt and Road Infrastructure (BRI).

The wooing of Bangladesh by China is part of a bigger tussle over regional and maritime security. From India's perspective, the building of Chinese relationships—and the ports and other physical infrastructures that come with it—among key countries along the maritime route is a threat.

Viewed from this perspective, China's BRI is: a) a *neocolonialism* strategy to augment its foothold in South Asia by creating economic dependence, as it did in Sri Lanka, and b) a part of the same game to undermine India's security and strategic interests.

Conclusion

Many poems have been composed and songs sung centering River Padma's many facets. Today, a monumental bridge sits over a sea-like river. Many aspects of pre-Padma River days will not be repeated. As Prime Minister Sheikh Hasina who oversaw and determined the construction of the \$3.9 billion project from the beginning to its end, aptly said the Padma Bridge is, "Bangladesh's pride, honor and ability" during its commissioning on June 25, 2022. The Padma Bridge now joins the ranks of Savar's National Martyrs' Memorial as monuments of our national consciousness.

As discussed in the paper, the Padma Bridge will not only be able to generate enough revenue to recoup its costs but transform the economic landscape of the southwest region in particular and the country in general. Neighboring countries will also reap the benefits of the Padma Bridge.

Fifty years since its inception, Bangladesh has successfully transitioned from "*Bottomless Basket to South Asian Economic Miracle*" where the Padma Bridge has been a *major* building block.

References

1. Paper prepared to be presented at the American Association of Architects & Engineers (AABEA) Biennial Convention Oct 7-9, 2022 to be held at the Gaylord National Convention & Resorts, Greater Washington DC.
2. I am very grateful to four experts, including three former economists from the World Bank, the United Nations Development Program and the Asian Bank, who had reviewed the draft of this paper and have provided me with their helpful comments.
3. Imagine what would happen if a traffic light in a four-way intersection fails to function. Traffic accidents would occur.
4. Corruption and/or bribery are in no way being condoned or rationalized here. Instead, the issue is being analyzed purely from an economics perspective.
5. Overview of The Padma Multipurpose Bridge Project | SIMEX Bangladesh.
6. Investment in physical infrastructure, ex. roads, highways, etc. is more productive from an economic perspective than investing in shopping malls or stadiums.
7. The Hasina government's defiance of the World Bank echoes Malaysia's Prime Minister Mohammed Mahatir rejection of the International Monetary Fund's (IMF) call to abolish capital controls during the 1997-1998 Asian Financial Crisis, in exchange for an economic bailout. Ten years later, the IMF, which houses more than 1,000 economists from top-notch universities of the world, admitted (physician) Dr Mahatir was correct and the international monetary agency was wrong!
8. On January 1, 1995, the World Trade Organization replaced the MFA with the Agreement on Textiles and Clothing (ATC). According to the ATC, by 2005, the RMG sector had to be fully integrated into GATT rules and the existing quotas had to come to an end.
9. Kalna Bridge is expected inaugurated soon, as a result, those two missing links will disappear.
10. The BRI is a global infrastructure developed by the Chinese government in 2013 to invest in nearly 150 countries and international organizations. Proponents applaud the BRI for its potential to boost the global GDP, particularly in developing countries. However, there has also been criticism over human rights violations and environmental impact, as well as concerns of debt-trap diplomacy resulting in neocolonialism and economic imperialism.
11. China is expected to invest more than \$50 billion in the next 10 to 15 years in Bangladesh in such sectors as energy and power, transport and communications. Bangladesh, perhaps, is the second-biggest recipient of Chinese money in South Asia behind Pakistan, which has received a pledge of \$60 billion.
12. The Padma Bridge will also have impact on other aspects including social, cultural and political, issues whose discussions were outside the scope of this paper.

Citation: Islam F (2023) *The Economics and Implications of the Padma Bridge*. *Enviro Sci Poll Res and Mang: ESPRM-126*.