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The nexus between Environmentalism and Development: The case of Rampal Power Plant Project in Bangladesh

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Abstract

Environment and development have complex multidimensional nexus. In many circumstances, the struggle to ensure development and environmental protection together in the development projects has been identified. The construction of the Rampal Power Plant in Bangladesh, a coal-based power plant has created a massive academic ripple in the case of the protection of environment and ensuring development. Despite the fact that the Rampal power plant project's goals are to foster the development of the country, it has substantial environmental concerns. Therefore, this research uses environmentalism and development as an analytical tool to explain the justification of the development aspects of Rampal power plant project and its environmental impacts. The article reveals that the Rampal power plant project has considerable environmental costs and implications, and the environmental issues should be integrated in any development project in order to ensure sustainable development in Bangladesh.

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Introduction

Since its independence, Bangladesh has made considerable progress in a liberal economy. Acknowledging the contemporary issues of accelerated urbanization, economic escalation, population growth, energy demand; the Bangladesh government has taken several development programs in recent decades. The Rampal Power Plant project is the important one that has received huge praise and criticism in terms of development and its environmental impacts. The Rampal power station is located at the Rampal Upazila of Bagerhat District in the Khulna Division of Bangladesh. The Bangladesh Power Development Board (BPDB) and India's state-owned National Thermal Power Corporation (NTPC) have formed a joint venture agreement on Jan. 29, 2012, known as Bangladesh India Friendship Power Company (BIFPC) (Chowdhury, 2017). To deal with power trading between Bangladesh and India, three major deals were signed under the Bangladesh-India Friendship Company and the Rampal power plant is one of them. The planned project covers a total of 1834 acres of land. It will be 14 kilometers north of the Sundarban (Mookerjea and Misra, 2017). The plant requires 3.8 million tons per annum of coal to operate and the water needs will be met from the Pasur River. The first unit of the Rampal power plant has already constructed a 24km Mongla-Khulna 230kv transmission line to evacuate electricity. The Gopalganj-Maowa transmission line will be ready by the end of 2022 for the second unit (Sajid, 2021). According to a statement released by the Bangladesh-India Friendship Power Company (Pvt.) Limited, this power plant would accelerate the country's growth by fortifying electricity for the masses and speeding up the urbanization process (Rasel, 2015). Seldom can we deny the fact that the power plant project and Sundarbans are fraught with controversy? The plant would utilize 4.72 million tons of coal per year, which will be delivered to the project site via the Sundarbans' waterways, posing major risks such as coal spills, wastewater discharge, trash, and so on. Furthermore, the Pasur River's biodiversity would be harmed because of the water withdrawal. Additionally, the harmful compounds released by the coal-power plant have the potential to contaminate the Sundarbans' biodiversity (Muhammad, 2018; Khan, et al., 2020). The livelihood of an estimated 3.5 million people in the Sundarban's buffer zone is heavily reliant on the Sundarban. It provides individuals with subsistence and a means of living, aids in poverty reduction, and directly contributes to global sustainable development (Dudley et al., 2010; Mulongoy & Gidda 2008). The forest supports the local population with a variety of resources, including fisheries and non-timber forest products. Natural resources such as honey, wax, wood, grass, shrimp, leaves, crab, wood, and so on are available to local inhabitants, allowing them to earn a livelihood and contribute to GDP. Natural resources are traded all around the world. As a result, they contribute to the economic growth of Bangladesh. Sundarban protects approximately 40 million people from the cyclones that ravage this corner of the world regularly. Sundarban, an internationally recognized protected area, provides a variety of mechanisms that are critical for ecological balance, including sediment trapping and land formation, oxygen production, cyclone habitation, serving as a nursery for fish and other aquatic life, waste recycling, timber production, food and building material supply, and carbon cycling (Biswas et al. 2007; Islam and Peterson, 2008). However, the Sundarban has already become a vulnerable zone for itself and its surrounding population as a result of two big cyclones, Sidor (2007) and Aila (2009) (Siddique, 2015). Therefore, this paper critically explains the development versus environmental perspectives of the Rampal Power Plant project. The paper uses the nexus of environmentalism and development as an analytical framework to understand the environmental impacts of the Rampal Power Plant project. The paper argues that the Rampal power plant project has considerable environmental impacts and thus, the environmental issues should be integrated into any development project to ensure sustainable development in Bangladesh.

Environmentalism and Development Nexus

Development is regarded as a means that advances a country's population's prosperity through greater economic, social, cultural, and political growth (Inamder, 1989; Cullet and Koonan, 2019). However, in order to achieve economic accomplishment, we often have to make trade-offs with other aspects of our life, such as the environment. Thus, the term 'Sustainable Development' has been introduced to fulfill current demands without jeopardizing future generations' capacity to meet their own needs (Ahsan, 2012). The phenomenon of environmentalism is intriguing. As a result of our cultural and socioeconomic expansion, we comprehend and interact with the natural world in different ways. The environment is defined as "the aggregate of all external situations and factors impacting the existence and growth of a thing." Environmentalism, on the other hand, is a social science concept that focuses on the search for environmental impacts on the evolution of culture and society (Inamder, 1989). Environmentalism may be split into two parties, known as Environmentalism of the Rich (EOR) and Environmentalism of the Poor (EOP). Environmentalism was once thought to be a preserve of the wealthy or northern countries which is known as Environmentalism of the Rich. Furthermore, developing countries are far more sensitive to environmental deterioration than the developed world, because the bulk of people live in rural regions and are disproportionately impoverished. While the south may be better at detecting and responding to environmental and social issues, they have lost sight of the environment as a source of subsistence (Cullet and Koonan, 2019). The poor and primarily rural populations of the South, on the other hand, are more linked to the environment and hence have a better sense of what is at stake if it is not protected (Davey, 2009). People today recognize that they have no choice but to protect the environment since all living forms on Earth, including them, would perish if they did not. This comprises air, water, food, energy, light, heat, and other basic elements required for a living creature's life. Regrettably, human actions have been identified as the principal source of environmental hazards (Ahsan, 2012). Environmental public opposition against India's Tipaimukh Dam is an example of EOP concentrating on the dam's possible social and ecological impacts. Indian and Bangladeshi citizens believe that the project, which is ostensibly about development and assisting local people by supplying free electricity, would ultimately end in environmental and social injustice (Islam, and Islam, 2016). The conflicting relationship between economic development and environmental protection may be shown vividly here. Both the north and the south must make big adjustments to address the key issues at stake if they are to overcome their acrimonious relationship. The debate mounts on the other side, especially the policymaker claim that those development initiatives reflect the improvement of livelihood conditions of mass people while environmental researchers and civil society groups oppose this view (Karim, et al., 2019). It can be argued that there is a difference between growth and development; growth can be measured in terms of economic variables while development is a holistic concept that accommodates broader social and environmental wellbeing.

Bangladesh's steady growth with a yearly 6% additionally Gross Domestic Product (GDP) for more than the last two decades and accomplishments in other socio-economic measurements in later times is amazing and recognized by different worldwide definitive bodies (Amin & Islam, 2018). The country is now on the cusp of graduating from an LDC to a developing nation. The degree of overwhelming financial wanders within the private division coupled with the commitments of the government clearly illustrates the change of the nation from a fundamentally agro-based economy to one affected by the manufacturing and service divisions (Peng, et al., 2017). The country is blessed to have fossil fuel reserves on a constrained scale, even though these are not sufficient to run the progressing enormous scale improvement exercises, both in private and open sectors. In this way, the steady and continuous supply of

vitality at a reasonable cost remains a genuine concern for policymakers. Hence, this issue of supply of consistent vitality has turned out to be an imperative portion of the national development plan. Other than that, the nation is one of the most noticeably awful countries of the obliterating impacts of global climate change (Karim, et al. 2019). The coal-fired Matarbari power station, for instance, generates a substantial quantity of CO2 and SO2, which can destroy the whole biodiversity of the Sonadia Island, which has been designated as an Ecologically Critical Area (ECA). For a long time, local people have complained that mining has compromised their soil fertility (Chowdhury et al., 2020). Similarly, the Rampal Power Plan Project was also criticized as a threatening project from an environmental and social perspective. The Environmental Impact Assessment (EIA) report indicates the negative impact from physical, biological, social, and economic perspectives (Islam, 2018). Nevertheless, the topic of how to reduce energy consumption while still implementing sustainable solutions is a crucial one. While praising its many development initiatives, the government frequently refers to the experiences of two Southeast Asian countries: Malaysia and Singapore. They are role models for us in terms of progress. Let's set aside the debate over whether the Malaysian and Singaporean improvement models may be linked here. Even though Malaysia's fast industrialization and urbanization have influenced the environment; the government has taken environmental preservation very seriously (Tithi, 2019). Several legislations for river preservation, forest conservation, and air quality improvement have been enacted throughout the nation. Bangladesh has the least environmental compliance that appeared differently from Malaysia. Pollution and grabbing have resulted in the crossing of countless rivers as a result of unplanned development and industry (Tithi, 2019). Accordingly, China and Australia are presently the world's two most economically powerful countries. Both countries rely heavily on coal for electricity generation (Dave, et al., 2011; Peng, et al., 2018; Blondeel & Van de Graaf, 2018). Supporting a substantial part of China's manufacturing economy and providing a relatively inexpensive source of energy in Australia, coal is an important economic resource in both nations (Dave, et al., 2011). Similarly, In the United States, coal accounts for 48% of domestic electrical output (Bilgen, 2014; Blondeel & Van de Graaf, 2018). However, the fact that coal-based businesses are responsible for serious environmental devastation in these nations is a source of tremendous concern. Climate change and growing greenhouse gas emissions are issues of concern today due to rising CO2 and other Greenhouse Gases (GHG) levels in the atmosphere. CO2 and other climate-altering chemicals are to blame for global warming across the world (Bilgen, 2014; Peng, et al., 2018). In a carbon-constrained environment, both Australia and China maintain the effective development of CO2 capture and storage technologies to mitigate environmental degradation (Dave, et al., 2011). On the contrary, climate change will undoubtedly have a big impact on Australia's electricity generation. Even though the risk appears to be lower in 2030, it might become a severe issue in 2050 (Khan, et al., 2013). As well, China has just adopted a climate target of becoming carbon neutral by 2060. China confronts significant obstacles in achieving a quick coal phaseout in the next several decades, despite having the world's leading coal-based power industries. A diverse variety of substitute technologies, led by solar and other renewables, will be implemented to replace traditional coal facilities in China (Peng, et al., 2018). China, the US, Australia, and India are the world's largest coal producers, accounting for nearly two-thirds of global coal reserves and producing over 72% of global coal. Climate change concerns have yet to be included in coal production plans in these countries. Largely due to internal economic concerns, Australia and India have high intentions to increase coal output. Climate concerns have taken a back seat even in China and the United States, which have or have had temporary prohibitions on new coal mines. Along with this, there is little evidence that normative ideas regarding coal extraction have improved, leading to the development of a global anti-coal mining norm (Dave, et al., 2011; Blondeel & Van de Graaf, 2018).

The Nexus between Rampal Power plant and Development in Bangladesh

With an extensive population (163 million) and poverty (GDP per capita of $ 1,827), Bangladesh is a developing country maintaining a consistent GDP growth rate of 6% to almost 8% since 2010. In tandem with Bangladesh's steadfast development, the demand for energy and electricity has grown (Ichord, 2020). Besides, Bangladesh's residential and industrial fields seem to be crucial to the country's economy. These two industries account for 50.3% of Bangladesh's GDP, which is an important sign of progress. Both industries utilized almost 66 percent of total power in the year 2018 (Rashid and Sajjad, 2018). Being evidence of a rapidly growing energy requirement, Bangladesh's main energy use increased by 6.4% between 2007 and 2017. Whereas GDP climbed by 7.9% in 2018, utilization of electricity enhanced by 8.6% over 2017 (Ichord, 2020). According to the Bangladesh Power Development Board, 90 percent of Bangladesh's population had access to electricity in 2018, and this number is increasing at a rate of 10% every year. So, it is apparent that electricity plays a vital role in the economic growth, in a broader sense, in the development of Bangladesh. It is considered to be the most influential aspect for entering Bangladesh into a middle-income group in 2021 (Masuduzzaman, 2012). The government has adopted several initiatives to serve the energy demand and pave the path for Bangladesh's growth, owing to the necessity of electricity consumption by multiple industries. Among them, the installation of power generation plants is the prior one. Despite having its natural gas reserves to satisfy its energy needs, Bangladesh relies on overseas companies to generate and manufacture gas from the fields. Nonetheless, gas alone will not be able to provide the entire energy requirement. Besides this, oil is considered to be another major source of energy, even though it is not easily accessible domestically (Farabi, 2021). As a result, switching to coal as a source of energy is one of the Bangladesh's finest possibilities for generating power because coal is inexpensive and plentiful in Bangladesh. A coal-based power station can help Bangladesh wean itself off of its reliance on natural gas while simultaneously providing a significant boost to the country's economy (Amin & Islam, 2018). Thus, the Rampal power plant is one of these initiatives and the major long-term project that the government of Bangladesh has decided to embark upon.

We already know that the Rampal Power Plant is a "proposed 1,320-megawatt imported coal-fired power plant promoted by the Bangladesh-India Friendship Power Company Limited" (BIFPCL), a joint venture of the Bangladesh Power Development Board (BPDB) and India's largest power producer, NTPC Limited**.** According to the report by the IEEFA "Equity capital is proposed at 30% of the total, with 50% of the equity owned by the Bangladesh Power Development Board (BPDB) and 50% by NTPC Ltd of India. And the debt that will cover 70% of the total cost will be provided by the Indian Export-Import Bank, the report adds." (Sharda and Buckley, 2016). Also, as this power plant creates job opportunities for the local people, it will lessen their dependence on the Sundarbans. The Sundarbans will be preserved as a result of this. Furthermore, this power plant would meet Bangladesh's need for electricity for industrial purposes, putting the country on the road to growth and development. One of the most densely inhabited locations in the world is the Sundarbans. The Sundarbans, directly and indirectly, support 4.5 million people in India and 7.5 million people in Bangladesh. The local populace has an extremely low socioeconomic status. More than 40 % of the people live below the poverty line. The population of Sundarban is particularly susceptible since there is only one degree/technical college per 250 square kilometers, as well as food insecurity and a tumultuous healthcare system (Sadik, 2009). Hence, developing alternative work possibilities to relieve some of the biotic strain on the Sundarbans is a far-fetched ideal (Masum, 2012). In the Bay of Bengal, in the southern part of Bangladesh, there are several coastline-related islets and islands, such as Sandwip in Chittagong, Shahpari and St. Martin in Teknaf, Kutubdia, Moheshkhali and Sonadia in Cox's Bazar, and others. In these places, there are many

underprivileged and homeless individuals. (Mazumder, et al. 2006). Therefore, to develop Sundarban as well as the whole Bangladesh, The Bangladeshi government has signed on to the Rampal power plant project, which is being developed in conjunction with India. The Bangladesh government believes that if the Rampal power plant is built, it will contribute to the country's economic growth and prosperity. However, there is a counterargument that the location of the Rampal plant is quite close to the Sundarban mangrove forest. Although Bangladesh may benefit from the establishment of the Rampal plant in its intended location, the forest Sundarbans' ecosystem would be severely harmed. So, now the argument is which way we should go now, towards development or a safe environment?

Rampal Power Plant Project: Development or Environmental Protection?

The Rampal station violates the Ramsar Convention as the plant is built in a forest and vulnerable wetland region. The Ramsar Convention is the only international environmental pact that addresses wetland's protection. Bangladesh became a signatory to the treaty in 1992 (Bashar, 2012). The plant will require an annual coal import of 4.72 million tons. This large consignment will require 59 ships, each with an 80,000 tons capacity, to be transported to the port on the banks of the Pasur River, which is 40 kilometers from the port to the facility and includes the river flow path (Muhammad, 2017). Environmentalists allege that these coal-transporting vehicles will not be coated since they will produce enormous volumes of fly ash, coal dust, sulfur, and other harmful pollutants over the project's lifespan. According to environmental and ecological specialists, the plant would produce a variety of hazardous chemicals like carbon monoxide, nitrogen oxides, and sulfur dioxide, endangering the neighboring lands and, most crucially, Sundarban (Sarker, 2009). As a result, the coal plant poses a danger to the Sundarbans' ecosystem and its surrounding communities. Furthermore, in terms of pollution, the Rampal facility will move 12,000 tons of coal through the forest every day, equivalent to 500 ships, for a total of 47 lakh tons annually. The claim that there is no danger of an accident or contamination is misleading. Then there is the matter of coal burning, which will produce 47 lakh tons per year and will be 14 kilometers (really 4 kilometers) from the forest (Islam, 2018). The Sundarbans' buffer zone is designated as an Ecologically Critical Area (ECA). The plant is about 4 kilometers away from the ECA. Therefore, 47 lakh tons of coal burnt there would produce more than nine lakh tons of ash, with dry fly ash accounting for 80% and bottom ash accounting for 20%. The Sundarbans will face numerous environmental issues if the plant is constructed, including air pollution, biodiversity loss, desertification, drought, floods, food insecurity, crop damage, global warming, landscape loss, noise pollution, soil contamination, soil erosion, waste overflow, groundwater pollution or depletion, and so on (Mazumder, et al., 2016). However, the government claims that by employing cutting-edge technologies, pollution will be decreased. According to the EIA study, supercritical technology would be introduced in the Rampal plant to lessen pollutants (Mazumder, et al., 2016). However, if we look at other nations like India or Australia, we can see that such technology can only cut pollution by 5% to 10%. As a result, 90% of the pollutants will be prevalent. Currently, the government is talking about ultra-supercritical technology (Khan, et al., 2013; Blondeel and Graaf, 2018). The EIA has already picked which technology will be deployed. The construction company and others who would supply financing will adhere to the agreements already made. They will not allow the price to rise. The project's cost has already been determined (Amin & Islam, 2018). If not, how will they employ eco-friendly technology if their budget is limited? However, if we consider the development side, at one point we can argue that the Rampal power plant will bring development as the plant will generate more electricity. Thus, more electricity promotes more industry, which will drive economic growth. Likewise, with greater industry, more individuals will be able to find employment. Therefore, Bangladesh's GDP per capita will rise significantly and the country's economy will expand

rapidly (Ahsan, 2012). Another argument in favor of the Rampal plant as a development project is that it will introduce new technology to the people of Bangladesh. In addition, new infrastructure will be created because of this project, such as new roads, markets, and hotels, all of which will aid in the development (Chattopadhyay, et al., 2016). However, many people have become homeless and are going to be homeless due to the plant (Masum, 2012). The landowners accuse the government of not consulting them before choosing the site for the power plant. It has a significant influence on their way of life as there are a lot of underprivileged individuals there, and some of them are Hindus from the lower castes (Mookerjea and Misra, 2017). The government might argue that the citizens would be properly compensated or relocated. Furthermore, people will be exposed to a variety of diseases because of environmental contamination, which will threaten public death (Jolles, et al., 2006). Conversely, the Rampal Power Plant will have an impact not just on humans in the Sundarbans, but also on animals' lives (Sarker, 2009; Chowdhury, 2017). The Sundarbans are home to 375 bird species, 55 animal species, 83 reptile, and amphibian species. There are also more than 150 fish species, 50 shrimp species, and other invertebrates that reside there (UNESCO, 1997; Choudhury, et al., 2011). It is home to the Royal Bengal tiger, saltwater crocodile, leatherback sea turtle, python, king cobra, and spotted deer, all of which are critically endangered (Gopal and Chauhan, 2006). The nocturnal creatures may be disturbed by the Rampal Power plant station. The Sundarbans' biodiversity, ecology would be under huge threat (Sarker, 2009; Muhammad, 2013).

Conclusions and Recommendations

The debate on the promotion of development and the environmental protection in the case of the Rampal power plant is explained in this article. The case is discussed based on environmentalism and development framework. The notion of poor environmentalism cannot be fully achieved in this project; however, it can be tied to it. The establishment of the project would not only jeopardize the lives of populations living near the power plant but will also add to the climate catastrophe and increase Bangladesh's susceptibility to climate change consequences. As a response, activists from the 'Save the Sundarbans Movement' and the 'Gana Shanghati Andolan' staged multiple anti-project demonstrations (Faruque, 2017). However, none of these protests were able to halt the project's completion. The truth is that we cannot ignore rapid progress, regardless of whether it is destructive to our future. Additionally, Bangladesh is already a country of high environmental risks. Extreme effects of the environment like a tornado, cyclones, river erosion, floods, etc. are common in the country. The environmental risks of the country will be more extreme in Bangladesh due to the unplanned development projects. Thus, achieving Sustainable Development Goals for the country will be difficult. As a result of technological and industrial growth, many underdeveloped countries throughout the world are today deemed developed. Bangladesh is a poor developing country with a vast population, as we all know (Hossain, n.d.). Bangladeshis like to see their country achieve progression in the economy as well. To boost the country's economic growth, we must concentrate on increasing industrial productivity, which might be accomplished through technological advancement. Increased electricity-powered equipment is required for escalating industrial production. Thus, for prosperity, we must generate more electricity. Consequently, the Rampal power plant is for achieving the country's electricity demands, which seems to be a positive aspect of the project, but it has a substantial environmental cost. Sundarbans, a magnificent and unique environment in the world, is facing an existential threat with the construction of a coal power station at Rampal. The issue of sustainable development is under threat and neglected in the case of Rampal Power Plant. From the development perspective, the Rampal power plant may contribute to the development of many sectors, but we cannot deny its consequences on the environment.

We acknowledge that modern technology is rapidly evolving, costs are decreasing, and Bangladesh has a huge amount of potential in this area. Hence, we should go for that kind environment friendly/less harmful way of development. Therefore, to safeguard the ecosystem, we would like to propose the Bangladesh Ministry of Environment and Forests establish a policy or law prohibiting the construction of such power plants within a 25-kilometer radius of any forest, including Sundarban, and environmentally sensitive locations. Because Bangladesh is extremely vulnerable to natural catastrophes, we must first preserve and maintain our country's forest area before adopting development initiatives. Besides this, existing environmental legislation must be reimagined from the standpoint of marginalized people. By stressing the possibility for finding a balance between economic gain and environmental sustainability, sustainable development seems to support the goal of environmental legislation (Cullet and Koonan, 2019). Furthermore, we would like to recommend to the Bangladesh government to take some steps to preserve UNESCO's Strategic Environment Assessment (SEA) to safeguard the Sundarbans' long-term sustainability and safety. The SEA has been investigating the actual and possible environmental and socioeconomic consequences of present and future development policies, plans, and programs (PPPs), as well as megaprojects since its inception. Several awareness activities on the relevance of Sundarbans should be held in the rural areas of the Sundarbans. Several scholars are also working on this topic of how to conserve the Sundarbans, and they are recommending measures to the government that would aid in the preservation of the Sundarban. Those policies should be implemented by the government as well. It is also possible that media might play an essential part in this situation. The media's basic function is to disseminate information; nevertheless, they also play a critical role in the development of public opinion by interpreting and distorting existing facts in ways that may or may not correspond to the interests of its readers or viewers. In order to guarantee the safety of the environment, the media may educate people on the appropriate implementation of environmental facilitated policies (Khan, et al., 2020). Finally, for Bangladesh's development, we would like to suggest the government of Bangladesh use sustainable energy, such as hydroelectricity, solar as well as other renewable energy sources, rather than coal-based power plants in the future. As Bangladesh is a river-oriented country, we can also use river flow to supply electricity. Furthermore, by utilizing modern technology, we can recycle our rubbish and use it to generate power. It will be beneficial in both ways, such as no environmental pollution by garbage. Also, we can produce electricity which will help the country's development. We should consider such ways that ensure environmental safety while still promoting growth.

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