

RAMPAL POWER PLANT AND THE SUNDARBANS

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Abstract: *In August 2016 Bangladesh Government has the capacity to generate 12185 megawatts (MW) of electricity per day, which are only the three-fourths of the total demand. To fulfill the demand for the electricity the government has planned a 1320 MW coal-fired power station at Rampal, near the Sundarbans mangrove forest. But the environmentalists, civil society organizations, major political parties, and freethinkers indicated that this plant would face environmental issues and destroy the forest area. However, the government is trying to prove them wrong and considering the environmentalists as political opponents. Hence, this paper will explore the major causes of the opposition against the power plant project.*

Key words: Energy Politics, Environment, Civil Society, Development, Forest

Introduction

Rampal is a small village in the southern part of Bangladesh. It is just 14km from the world's largest mangrove forest, the Sundarbans where government planned a coal-fired power station (South Asians for Human Rights, 2015). The environmental experts, major political parties, civil society organizations, and activists in Bangladesh are demonstrating against the decision to establish the plant, fearing consequences for the Sundarbans (Mustafa, 2013). On the other hand, the energy-dependent Bangladesh economy requires power plant like this and government is trying to meet the demand and trying to portray the project will have no harm on the forest (Islam, 2016; CEGIS, 2013). In addition, the government claims that opponents of the power plant are the enemy of the development of the country (Rahman, 2016). This paper will discuss the major arguments against the power plant in Bangladesh.

Research Methodology

The empirical data for the study is collected from research papers, books, policy briefs, published government decisions, newspapers, documentaries, leaflets, and brochures. Environment related data is gathered from previous research on Sundarbans and the impact of the Power Plant on Sundarbans related data is collected from recent studies by the civil society organizations. Personal observation and insights have been added to bring a different dimension to this paper. The hypothesis of this paper is the coal-fired power plant near the Sundarbans will destroy the bio-diversity of the forest area. To define the core concepts- by coal-fired power plant we meant the proposed plant near Sundarbans; Sundarbans is the largest mangrove forest in the world; forest area means the area of the Sundarbans determined by the government; bio-diversity is the eco-system of the forest; and destroy means the interruption of the regular patter of the forest.

The question I will try to answer is what are the impacts of the proposed coal-fired power plant on bio-diversity of the forest? Since the Sundarbans is an UN Heritage Site and the project is a product of a bilateral agreement between two South Asian countries, it is important to see

the impact on the people and the environment of both countries. The major objectives are the following:

- Examine the consequences of the proposed power plant on bio-diversity;
- Assess the impact of the power plant on the lives of the people;
- Evaluate the geographical challenges of the power plant; and
- Examine all the other information relevant to this paper.

Literature Review

“To enhance the traditional ties of friendship between the two countries through the development and cooperation for mutual benefit of both the countries”¹ People in and outside of Bangladesh, activists are exploiting traditional and social media to express their anger about the power plant. In addition, UNESCO has articulated its concern and asked to stop the project (Group of NGO, 2015). Mangrove forests are a topological piece of the intertidal region that connects land and marine environments, and the Sundarbans, situated in the southwest of Bangladesh (Figure 1), is the largest of its kind in the world which is also a UNESCO Natural World Heritage Site since 1997 (Council of Ethics, 2014; Banu, 2016). Due to the water’s salinity, the trees in this forest have a different adaptive capability (CEGIS, 2013). This area includes the drainage basins of the Ganges, Brahmaputra, and Meghna rivers, and is crisscrossed by a complex network of other rivers and waterways (Council of Ethics, 2014; Agrawala, etl. 2003). On the other hand, over 200,000 people’s diverse livelihoods depend on the Sundarbans. These three identities of the Sundarbans make it a phenomenon in the international discourse of ‘energy politics’.

Figure 1: Location of the Sundarbans Mangrove Forest

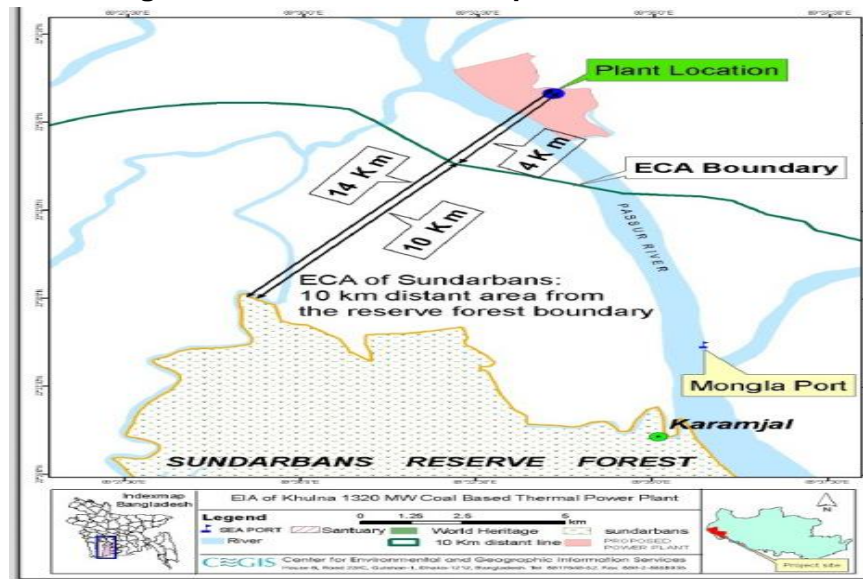


The Proponents and the Rampal Power Plant Project

The former ‘Maitree Super Thermal Power Project’ is coal-based thermal power plant owned by the government of Bangladesh and India. The 30 percent of its cost will be financed by both countries and the rest will be from loans (Banu, 2016). The government of Bangladesh acquired 1,832 acres of agriculture and fish farming land which is 14km away from the Sundarbans and 70km away from the border of the world heritage site (Figure-2) (Mustafa, 2013).

¹ Brochure, Bangladesh-India Friendship Power Company (Pvt.) Limited (A joint venture for NTPC Ltd and BPDB), “Mautree Super Thermal Power Project 1320 (2 x 660) MW, Rampal, Bagerhat

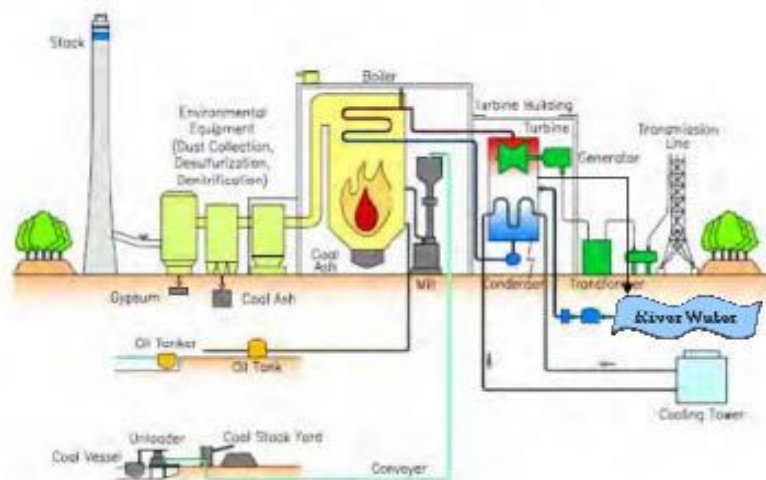
Figure 2: Location of the Proposed Power Plant



Working Process of Coal-Based Power Plant

A coal-based power plant burns coal to manufacture steam to spin a generator to produce electricity. A typical model of a coal-fired power plant is shown in Figure 3. In a regular year, a typical coal plant with capacity produces around 3,700,000 tons of carbon dioxide (CO₂)—the equivalent of cutting down 161 million trees; 10,000 tons of sulfur dioxide (SO₂)—which contributes to the formation of acid rain; 500 tons of small airborne particles; 10,200 tons of nitrogen oxide (NO_x)—equal to the discharge from half a million old cars; 720 tons of carbon monoxide (CO); 220 tons of hydrocarbons; 170 pounds of mercury; 225 pounds of arsenic; 114 pounds of lead; 4 pounds of cadmium; other toxic heavy metals; and trace amounts of uranium (Banu, 2016).

Figure 3: A Traditional Coal-fired Power Plant



Previous Experiences of Coal-Fired Power Plants

In 1979 in Texas, the USA, the Environmental Impact Statement (EIS) for the Fayette plant had guaranteed that there would be no negative impacts on the nearby pecan orchards and other shrubberies. The 1230 MW later 1690 MW capacity power plant released 30 thousand tons of Sulfur Dioxide causing mass destruction to the region from airborne contact (Mustafa, 2013). The destruction has been observed along the 48km circle (Carman, 2010). In addition, I have reviewed literature related to South American countries and found similar results. Now it is

easily comprehensible the impact of a 1320 MW capacity coal-fired plant on the Sundarbans, which is just 14km away.

People against the Power Plant?

Local-global specialists and ecologists have raised concerns that the power plant could alter the critical water balance in the Sundarbans region, pollute the surrounding water and air, and increase the risk of oil and coal spills in the local rivers when they will transport those to the plan area (Council of Ethics, 2014). All of these could have an impact on the Sundarbans mangrove forest and threaten the well-being of the people and animals that call the area home. I have organized the concerned into three categories.

Environmental Concerns

Acute Pollution Threats

Given the rapid change of weather and coastal narrow waterways, the delivery to the power plant is vulnerable to water cargo accidents which might lead to greater environmental pollution (CEGIS, 2013). The table one I have provided the figures about the air temperature, water temperature, etc. for readers' better understanding about the situation. According to the experts, the elements in the environment (around the year) are not at an ideal level. And any disruption in the natural process will put the area into environmental danger.

Table 1: Physio-Chemical Conditions of Water of Rampal Area (10 Years' Average)

Air Tmp. (°C)	Water Tmp. (°C)	Transp. (cm)	Conductivity (ms/cm)	Salinity (ppt)	pH	CO2 (mg/l)	Silicate (mg/l)	TDS (g/l)
24-37.5	22-35	19-37	4-16.5	2-19	7.1-8.7	0-6	4.9-6.9	3-20

Source: Chowdhury, 2013

Waste: Fly Ash

How much waste will be created depends on what type of coal is being used? (Council of Ethics, 2014; CEGIS, 2013). In total, the power plant will burn 4.5 million tons of different types of coal will produce about 300,000 tons of ash and 500,000 tons of sludge and liquid waste per year. No final decision has been made on ash disposal (Mustafa, 2013). In the table number two we can see the average monthly and daily temperature (around the year); it is beyond question that this coal-fired power plant will have a drastic impact on the area.

Table 2: Yearly Average Temperature of the Respective Area (10 Years' Average)

Average Temperature Monthly (°C)		Average Temperature Daily (°C)	
Max	Min	Max	Min
32.25	22.93	34.9	19.9

Source: Chowdhury, 2013

The Impact Assessments

The EIA for the project has been prepared by the government itself, which created lots of controversies (Council of Ethics, 2014; Group of NGO, 2015). In general cases, EIA is prepared by an independent organization. And the EIA itself doesn't answer many significant questions. For instance- where the ashes will be kept or used? In the following, we can see the chemical properties of the soils of the project area and if the necessary measures are not taken adequately the environmental degradation is inevitable.

Table 03: Chemical Properties of the Soils of the Are (10 Years' Average)

pH	Salinity (ppt)	Org.Mat %	N %	P mg/g	S mg/g	Zn mg/g	Br mg/g	Mg mg/g
7.3-8.1	2.3-7.8	1.7-2.7	.07-.17	9-60	170-476	1.6-3.3	.76-2.08	3.1-6.33

Source: Chowdhury, 2013

Pollution

The emission from the power plant in the Sundarbans area will drastically change the climate characteristics of the ecology (CEGIS, 2013 p. 271–283). Likewise, the water discharge from the power plant will increase the temperature of the river water (South Asians for Human Rights, 2015). It goes without saying; there will be huge sound pollution during construction and even when the plant goes to electricity production (p. 284) (CEGIS, 2013). However, according to EIA, a 'green belt will be created to obstruct the sound pollution from spreading which is not proven to be efficient (Mustafa, 2013). In the following, I have shown the 10 years' average climatic characteristics of the concerned area which will be harshly affected by the power plant.

Table 04: Climatic Characteristics of the Project Area (10 Years' Average)

Tmp. Avg. Max. (°C)	Tmp. Avg. Min. (°C)	Tmp. Mean (°C)	Rltv. Humidity Mean %	Rainfall Mean (MM)	Sunshine (d/hr)	Wind Speed Avg. (Nautical mil/hr)
31.53	22.24	25.72	75.75	132.83	6.79	10.27

Source: Chowdhury, 2013

In addition to the above-mentioned pollution indicators the Sulfur, Nitrogen, the Flue-Gas Emission will increase in the area and for this, the air quality will decrease. Likewise, as we can see in the following table the current groundwater quality which will be extremely affected.

Table 5: Physio-Chemical Conditions of the Groundwater (10 Years' Average)

Depth (m)	pH	TDS (ppm)	Salinity (ppt)	Arsenic (mg/l)	Total Iron (mg/l)	HCO ₃ (mg/l)
25-115	7.5-8.2	635-2610	5-16	.01-.19	.18-3.29	229-645

Source: Chowdhury, 2013

Likewise, the project will change the air quality of the region. In the following table, I have prepared the current air quality of the area. And when the power plant will be in full production and huge amount coal will be burnt in the area will significantly change the air quality of the region and will lead to the destruction of the forest.

Table 06: Air Quality (10 Years' Average)

SPM (mg/m ³)		NO _x (µg/m ³)		SO _x (µg/m ³)	
Working Day	Holiday	Working Day	Holiday	Working Day	Holiday
172-292	268	53-85	72	37-52	45

Source: Chowdhury, 2013

Human Rights Assessment

Land Acquisition

A study by South Asians for Human Rights documented several irregularities in the land acquisition process (South Asians for Human Rights, 2015). Transparency International Bangladesh claimed the final contract, site clearing, and evacuating the dwellers started almost three months before the EIA was finally approved (Transparency International Bangladesh,

2015). In addition, the compensation price was not arranged according to the actual market price and without consultation with the landowners (Mustafa, 2013; Transparency International Bangladesh, 2015). No alternative livelihood was arranged, no relocation assistance was provided even though some people lose their homes, and no employment at the power plant since it will require certain technical knowledge (Group of NGO, 2015; Transparency International Bangladesh, 2015).

Harassment of Dissenting Voices and EIA

Lawful protests were demolished by the law enforcers, local gangsters (Transparency International Bangladesh, 2015). To discourage protesters 144 Section was invoked, they were illegally harassed, and finally using violent tactics and pressure on them (Mustafa, 2013). The EIA prepared by CEGIS was rejected by the international and national community and its scientific base was questioned (South Asians for Human Rights, 2015, p. 16). Also for preparing EIA for most of the data was collected before 2010 and used mostly secondary data of the parameters (Islam, 2016). So, there is no real-time data in the EIA including both terrestrial and aquatic (South Asians for Human Rights, 2015). It also says, 'if Mongla Port can be approved under the environmental laws, no damage will be done' (p. 268) (CEGIS, 2013).

Violation of the Conditions of Site Clearance

The site for power plant needed to be cleared, developed, and filling according to the DoE conditions. But no public participation was ensured in the process, expert opinions were ignored, the public hearing was useless, rigged EIA report, and local political leaders took control over the process (Mustafa, 2013). Most of the stakeholder meetings were pre-arranged in controlled environments by the applying organization (Transparency International Bangladesh, 2015). Also, the EIA didn't include the people's opposition; no opinion was attached to it, and the project's socioeconomic risks (CEGIS, 2013). In addition, according to national law, no environmentally concerned shall not be approved within 15-25km of the reserve forests, national parks, and human settlements (Council of Ethics, 2014). According to EIA, Flue Gas Desulfurization (FGD) should be used to control sulfur but there was not FGD in the equipment list (Rahman, 2016).

Limitations in Land Acquisition Act of Bangladesh

The existing land acquisition law didn't provide enough support to the property owners to get better compensation (The Acquisition and Requisition of Immovable Property Ordinance, 1982; Transparency International Bangladesh, 2015). Due to the loss of land hundreds of families lost their home and livelihood and they had to move to an unknown destination. The evictions from the land, insufficient compensation, procedural complications in the compensation delivery process, illegal payments to get compensation, the insensitive behavior of the individual authority towards the affected people, and incidences of threats and physical torment, anti-project sentiment in the project areas also lead to strong protest against the project. (Transparency International Bangladesh, 2015).

Financial

Loss of Project Affected Persons (PAP)

The compensation price was set below the actual market price of the land because of the lack of the documentation of the poor price. Due to the administrative difficulty, lack of necessary information, documents, the process of the compensation got delayed (Transparency International Bangladesh, 2015). People living in the area were not given the information about the power plant, but the evacuation notice. Additionally, there were ten stakeholders meeting where nobody opposed the project because of the threat from the political leaders. After

providing the notice the land and shrimp field owners were not given enough time as required in the law (South Asians for Human Rights, 2015). Similarly, the affected people faced nuisances from the appointment of a lawyer, repeated changes in the trial date, the absence of a magistrate, misuse of arbitration; dishonest officials took advantage of the situation and claimed undue payment (Transparency International Bangladesh, 2015).

The Plant Will Lead to Higher Electricity Rates in Bangladesh

The project's tariff levels are 32 percent higher and will cause an upsurge in electricity rates in the country. Without the subsidy, the cost would go up to 62 percent. Considering the tax exemptions, conservation dredging, and the true cost of the project is being hidden (Bank Track, 2015). Other countries are dropping such projects and there is no guarantee the money spent on the project will be net beneficial to the capital (Mustafa, 2013). The global coal prices are low; however, any unexpected increase in the price will create complexity in the process (Bank Trak, 2015). In addition, the project's reliance on imported coal is another big demerit of the project (Mustafa, 2013).

Government Responses

The DoE has formally placed its opposition about the project initially, however, at a certain point they issue site permission, passed the EIA, and stipulated 59 conditions to be met (GoB, 2013; CEGIS, 2013). The Prime Minister's Energy Advisor, Dr. Tawfiq-e-Elahi Chowdhury, informed the media that the Rampal project was part of a complete plan to make the country power-efficient but he emphasized on the 'safe' distance from the Sundarbans (South Asians for Human Rights, 2015). Similarly, Hon. Talukder Abdul Khaleque, MP of Bagerhat 3 (Rampal-Mongla areas) stated that the Rampal power plant would be a major step towards developing the region and creating jobs for thousands of people. According to him, as agricultural manufacture and fisheries are decreasing in the region, industrialization is the only way that the region can prosper, and its people can lead dignified lives (South Asians for Human Rights, 2015).

NTPC - A Poor Track Record

The Center for Science and Environment in India, in its report titled 'Heat on Power', delivered an objective performance rating for 47 Indian coal-fired power plants. Notably, NTPC received a very low ranking (Mustafa, 2013). For this, various civil society groups raised their concerns about the responsibility of the NTPC, Bangladesh Government, and Indian Government about the project (CEGIS, 2013; Mustafa, 2013). The National Committee for Saving the Sundarbans (NCSS) and the National Committee for the preservation the country's oil, gas, minerals, power, and ports have powerfully campaigned against this project and shown in detail the impact it will have on the Sundarbans and Bangladesh at large. In addition, a writ was filed in High Court in Bangladesh challenging the legality of the project and a ruling on the matter was provided. But eventually in the name of keeping the bilateral relation safe between Bangladesh and India during Indian Prime Minister's visit high court removed the ruling (Group of NGO, 2015). Along with the Bangladeshi activists, many Indian activists are raising their voice against the NTPC, the project, and the location of the project (South Asians for Human Rights, 2015).

Validating the Hypothesis

From the above discussion, it is now evident that there are environmental, human rights, and financial issues with the proposed Rampal Thermal Coal-Fired Power Plant Project. Considering the serious hazards, stakeholders are justified in opposing the coal-fired power plant near the Sundarbans. This paper has gathered data from previous studies and attempted to validate its

proposed hypothesis that this proposed power plant will hamper the bio-diversity of the Sundarbans.

Conclusion

I have had the advantage of understanding the native context in formulating this paper. In addition, I tried to be objective while designing the ground for this paper. This paper highlights the background data of the region. Likewise, the demonstration against the decision of the government to establish a coal-fired power plant near the Sundarbans has been included in the initial parts of the paper. The major analysis has been done regarding the environmental issues of the proposed project. This paper has attempted to combine all the possible hazards that could happen or have already happened due to the proposed project. It has also found the inconsistencies between the government document and the private documents regarding the outcome of the project. This paper has attempted to illuminate the environmental, social, livelihood, and economic issues of the power plant. However, due to the higher demand for electricity, Bangladesh needs to establish more and more power plants. However, now it is time for the government to invest in renewable energy. At this current paper leaves space for doing research on cost-benefit analysis of the renewable energy.

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