Effluent Treatment Plant in Textile Industry & Violation of Environmental Provisions: A Legal Overview

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Abstract

Bangladesh has achieved a lot in terms of economic growth in the last few decades. A large part of this credit goes to our ready-made garments or textile industry. Nonetheless, a continuing culture of environmental degradation intended to earn a better profit is palpable in this industry. The adverse environmental consequences have started to stand out among all the economic achievements. Pollution of water bodies by industrial effluent presents itself as a drawback which can be resolved with "Effluent Treatment Plants." It is a great measure to stop the drainage of toxic untreated wastewater into the rivers. But, the ETP installation process is constrained by barriers like our lack of financial capacity, inefficacy, disregard of existing laws, lack of engineering practice, poor performance by responsible agencies, etc. The tannery industry in Bangladesh is already undergoing an economic backlash due to environmental non-compliance. The textile industry will soon follow through the same misfortune if immediate actions are not undertaken. To resolve non-compliance in the textile industry, all the industry stakeholders necessitate reforms of their efforts and offer their utmost co-operation.

1. Introduction

Our Ready-made garments industry ostensibly projects a story of success, being the world's second-leading clothing exporter after China. However, owing to the unsustainable development of this industry, our environment undergoes devastating pollution. This gigantic industry works as the backbone of our economy. It covers 84% of total export revenue and employs 20 million of our population, being the highest source in both cases.[1] Bangladesh RMG sector currently is a 34-billion-dollar export industry covering 7% of the total apparel export of the world market.[2] Our textile industry is a favorite of many global fashion brands because of the availability of water, natural gas, and, most importantly, labor at a very low price. Such brands and factory owners follow the low-cost formula, spending the bare minimum on wages, work conditions, safety, and environmental protection. Textile factories are mostly situated along river banks to ensure easy transportation of raw materials and finished products.

The garment export industry in Bangladesh consumes extremely high volumes of water for fabric processing. As a result, textile and dyeing industries produce wastewater, or effluent, as the product's bi-product. Industrial units drain residue wastewater or effluents directly into the

[1] Maeen Md. Khairul Akter, '*Review and Outlook, 2020 Bangladesh Garments and Textile Industry*', Textile Focus, 22 February, 2020; available at: <https://textilefocus.com/review-outlook-2020-bangladesh-garments-textile-industry/> accessed on 15 April 2021
[2] *ibid*

water bodies, in most cases rivers, without any purification or after purifying through a conventional wastewater treatment plant. Traditional wastewater treatment plants are not enough for the job because textile effluent contains various toxic substances which remain in the environment for a long time because of their high thermal & photostability.[3] On the other hand, Effluent Treatment Plant eliminates debris, dirt, pollution, organic compounds, toxic, non-toxic materials, polymers, etc., from industrial effluent. ETP uses various methods such as evaporation, drying, centrifuging, filtration, incineration for chemical processing and effluent treatment. It ensures that any contaminant will be expelled from the wastewater, making it reusable and is mostly used in pharmaceuticals, textiles, tanneries, and chemical industries where there is a chance of extreme water contamination.[4]

According to Bangladesh Textile Mills Association (BTMA), Bangladesh has around 450 spinning mills, 1,200 weaving mills, and 5,000 export-oriented dyeing factories.[5] Researchers estimate that by 2021, textile industries in Bangladesh will produce about 2.91 million metric tons of fabrics generating around 349 million m^3 (cubic meters) of wastewater.[6] This huge amount of sewage with its toxicity poses a great threat to our environment, ecology, agriculture, aquaculture, and public health.

2. An Overview of Pollution

According to the Natural Resources Defence Council (NRDC) research, industrial pollution accounts for 60% of pollution in the Dhaka watershed, and the textile industry is the second-largest polluter.[7] During processing, textile dyeing industries produce a higher amount of wastewater, varying from 150-330 liter per kg of fabric.[8] Meanwhile, the recommended amount by Schedule-12 of Environment Conservation Rules, 1997 is 100 liter per kg of fabric. According to local estimates, the supply of such a huge amount of water goes from our resources, which contributes to the depletion of groundwater levels at up to 2-3 metres per year.[9] In 2019, the government declared four rivers as "Biologically Dead" due to pollution caused by the effluent from surrounding garment factories. While Buriganga, Turag, Shitalakkhya, Balu, and Bangshi rivers are in the throes of death with no dissolved oxygen left in the water to support

[3] Jim Yardley, '*Bangladesh Pollution, Told in Colors and Smells*', The New York Times, U.S. 14 July 2013; available at: <https://www.nytimes.com/2013/07/15/world/asia/bangladesh-pollution-told-in-colors-and-smells.html> accessed on 15 April 2021

[4] '*Effluent Treatment Plant- ETP*', Envisol; available at: <https://www.arvindenvisol.com/effluent-treatment-plant-etp/> accessed on 15 April 2021

[5] Mohammad Al-Masum Molla, Refayet Ullah Mirdha, '*Worries Over Wastewater*', The Daily Star, Bangladesh, 12 February, 2019; available at: <https://www.thedailystar.net/frontpage/news/worries-over-waste-water-1700863> accessed on 15 April, 2021

[6] Laila Hossain, Sumit Kanti Sarker, Mohidus Samad Khan, '*Evaluation of Present and Future Wastewater Impacts of Textile Dyeing Industries in Bangladesh*', 2018, 26 Environmental Development; available at: <https://doi.org/10.1016/j.envdev.2018.03.005> accessed on 15 April 2021

[7] Standout Practices at High-Performing Bangladeshi Textile Mills; available at: <https://www.nrdc.org/sites/default/files/cbd-textile-mills-standout-practices-bangladesh.pdf> accessed on 15 April, 2021

[8] Zakia Sultana, Md. Ershad Ali, Md. Sala Uddin, Md. Mominul Haque, '*Implementation of Effluent Treatment Plants for Waste Water Treatment*', 2013, 4(3), Journal of Environmental Protection; available at: <http://www.scirp.org/journal/PaperInformation.aspx?PaperID=28740> accessed on 15 April 2021

[9] *Supra note* 6

the underwater ecosystem. The High Court Division has termed this major destruction of rivers as "Collective Suicide."[10]

Industrial effluent from textile contains vanadium, molybdenum, zinc, nickel, mercury, lead, copper, chromium, cadmium, arsenic, etc. These substances have high water solubility, which later degrades into water and creates highly toxic and carcinogenic elements. Contaminated river water is being used for irrigation and cultivation purposes in nearby industrial areas, thus passing toxic substances into the food chain. This flow of harmful substances affects the health of individuals who live along the polluted rivers. The incidence of illness among people living near industrial areas is reported higher than in non-industrial areas.[11] Groundwater is being contaminated too with seeping toxic substances and creating a serious health hazard for city-dwellers.[12]

The polluted water can cause cumbersome skin diseases, short-term gastronomical problems, food poisoning, or diarrhoea. It can also cause serious health implications such as respiratory problems and cancer if accumulated in the body for a long time. The situation is deteriorating day by day, and toxic substances are piling up in our environment. The main reasons behind this aggravation are inefficacy of environmental regulations and non-enforcement of existing laws. Pollution control techniques are not yet fully developed in Bangladesh, and the textile industry owners pay the least attention to environmental protection.

3. Laws Regarding Environmental Compliance in Bangladesh

Incorporating environmental provision in the Constitution is a much recent phenomenon in Bangladesh, made possible through a long period of legal and judicial activism. Article 18A inserted in 2011 via the 15th amendment of the Constitution states, "The state shall endeavour to protect and improve the environment and preserve and safeguard the natural resources, biodiversity, wetlands, forests, and wildlife for the present and future citizens." This article harbors progressive notions and values regarding the environment, but it does not guarantee an unconditional right to a cleaner environment but rather a directive principle lacking justiciability. In the case, *Dr Mohiuddin Farooque et al. vs Bangladesh (Ministry of Communication)*, the High Court Division of Supreme Court has resorted to Fundamental Rights of the Constitution, declaring that the 'right to life in our constitution includes right to sound environment.[13] The same technique has been observed to be followed in different developing countries with no environmental constitutional provision.

[10] '*Only PM's direct intervention can save the rivers of Bangladesh*', The Daily Star, Bangladesh, 7 February, 2020; available at: <https://www.thedailystar.net/supplements/save-our-rivers/news/save-rivers-save-sonar-bangla-1864648> accessed on 15 April, 2021

[11] Maiko Sakamoto, Tofayel Ahmed, Salma Begum, Hamidul Huq, '*Water Pollution and the Textile Industry in Bangladesh: Flawed Corporate Practices or Restrictive Opportunities?*', 2019, 11(7), Sustainability, <https://www.mdpi.com/2071-1050/11/7/1951#> accessed on 15 April, 2021

[12] *Ibid*

[13] *Dr Mohiuddin Farooque and others* v. *Bangladesh (Ministry of Communication)* 22 BLD (HCD) 2002 345

A study into the statutory laws prevailing in Bangladesh would disclose that there are about 180 laws, which deal with or have relevance to the environment.[14] At present, the *Department of Environment* (DoE), created under the Environment Conservation Act, 1995, regulates the environmental situation of Bangladesh. Section 12 of the Environment Conservation Act makes it compulsory for every industrial unit or project to obtain *Environmental Clearance Certificate* (ECC) before its establishment, in the manner prescribed in Environment Conservation Rules,1997. Section 7 of Environment Conservation Rules,1997 classifies industries into four categories for issuing Environmental Clearance Certificate – Green, Orange A, Orange B, and Red, considering their impact on the environment. Textile industries fall into the Red category for their adverse impact on the environment. This section further illustrates, to apply for ECC, red categorized industries need to attain a *Location Clearance Certificate,* for that they have to submit the Layout Plan (showing the location of Effluent Treatment Plant), Process Flow Diagram, design, and schedule of the Effluent Treatment Plant of the unit for the approval of DoE. Submission of *Environmental Impact Assessment* report prepared based on terms of references previously approved by the DoE and emergency plan relating adverse environmental impact and plan for mitigation of the effect is also necessary for LCC application. After issuing LCC and the approval of the ETP layout, design, and time schedule by DoE, the entrepreneur must install ETP to apply for Environmental Clearance Certificate, without which he cannot have gas line connection or start trial production in the industry. According to section 8 of Environment Conservation Rules, 1997, "validity of ECC of red zone areas expires after one year from the date of its issuance and has to be renewed at least thirty days before the expiry of its validity period." These provisions make installation and operation of installed ETPs a compulsory measure for textile industries in Bangladesh throughout the year.

Furthermore, there are provisions of penalty, compensation, and fine for non-compliance. Under Environment Conservation Act, the highest penalty for non-compliance is imprisonment not exceeding ten years or a fine not exceeding 10 lac taka or both. In section 7 lies the provision of compensation for injury to the ecosystem or a person or group of persons determined by the Director-General of DoE.

4. Viability and Significance of ETP in Pollutive Industries

If we look into the extremely pollutive tannery industry, the biggest obstacle the industry is undergoing right now is environmental non-compliance. The leather sector has dropped from the second position to the third in terms of contributions to national export earnings.[15] Its earnings have plummeted by 21.79% to $798 million from $1.01 billion in the 2020 fiscal year.[16] Bangladeshi exporters are currently exporting products at rates 40% lower than the global market because of non-LWG compliance certificates.[17] Leather Working Group (LWG) is a multi-stakeholder organization involving brands, suppliers, manufacturers, end-users responsible for

[14] Syeda Rizwana Hasan, '*Application and Reform Needs of the Environmental Laws in Bangladesh*', 2005, 9 Bangladesh Journal of Law 85

[15] Ibrahim Hossain Ovi, 'Leather, Leather Goods Slip from 2nd Highest Export Earner to 3rd' *Dhaka Tribune*, Dhaka 6 July, 2020; available at: <https://www.dhakatribune.com/business/economy/2020/07/06/leather-leather-goods-slip-from-2nd-highest-export-earner-to-3rd> accessed on 12 April, 2021

[16] *ibid*

[17] M Fakhrul Alam, '*When It All Comes Together*', Leather International, 22 October 2020; available at: <https://www.leathermag.com/features/featurewhen-it-all-comes-together-8190880/> accessed on 12 April, 2021

the world's leading environmental certification for the leather manufacturing industry. LWG refused to run audit inspection in Bangladesh until tanneries adopt cleaner technology, full treatment of tannery effluents, and proper solid waste and chrome management. Following the directives of the High Court Division, in 2003, the government undertook the project of building an industrial park with a Central Effluent Treatment Plant (CETP), chrome, and solid waste management in Savar. The purpose was to relocate tanneries from Hazaribagh, formerly polluting the Buriganga river and neighboring areas.

Nevertheless, the industrial park is still under construction with a partially functioning under construction CETP diminishing the purpose of relocation and creating new industrial pollution in Savar.[18] Without a fully functioning CETP, LWG refuses to certify the industrial park discouraging the foreign buyers from buying products from Bangladesh, thus resulting in huge economic loss.[19] Although the textile industry is in a better position in foreign interest, non-compliance leaves uncertainty and apprehension of repetition of the same misfortune as the leather sector. Therefore, the operation of ETP is significant to safeguard the environment and to survive in the competitive global market. Any project establishing CETP for the textile industry is yet to commence. However, the establishment of this partially functioning CETP for tanneries shows the ill-preparation, lack of knowledge and experience of the government in the execution of big scale projects. Bangladesh Small and Cottage Industries Corporation (BSCIC), responsible for the tannery cluster authority, could not differentiate between civil and leather engineering and appointed civil engineers as advisers for the project.[20] Civil engineers were not much of a help in adopting cleaner technology in an under-constructed tannery cluster. Furthermore, frequent change of project directors, fund constraint, legal problems, bureaucratic tangles, and delays plagued the project and kept it going for as long as18 years! So, the question of viability doesn't lie in the technical capability of ETP but the implementation and managing capability of our government.

5. Present Scenario of Non-compliance

Although installation and operation of ETP is a mandatory measure for all the textile dyeing units in Bangladesh, the present scenario depicts the inefficient enforcement of existing laws. There are 5000 functioning textile dyeing units across the country at present, whereas, only 1765 Effluent Treatment Plants have been installed in Bangladesh till March 2019, according to the database of DoE.[21] This number excludes the smaller units of subcontractors of the leading textile companies, most of which cannot afford ETP. The reluctance of companies to meet environmental compliance requirements, inadequate monitoring and institutional incapacity of DoE, lack of unambiguous and effective laws, lack of government initiatives and enforcement are working as dominant barriers to ETP installation.

[18] Editorial, '*Finish Setting Up CETP Fast*', Prothom Alo, Dhaka, 29 July, 2020; available at: <https://en.prothomalo.com/opinion/editorial/finish-setting-up-cetp-fast> accessed 12 April 2021
[19] *Supra note*, 17
[20] *ibid*
[21] Syed Nazmul Ahsan, '*State of Water Pollution from Industrial Effluents in Bangladesh*', United Nations Escap, 5 May, 2019; available at: <https://www.unescap.org/sites/default/files/State%20of%20Water%20Pollution%20from%20Industrial%20Effluents%20in%20BD.pdf > accessed on 15 April 2021

1. *The low willingness of companies:* Environmental compliance rarely gets the same attention as workplace conditions or fire safety in Bangladesh by company owners and global buyers. However, they are acutely aware of the pollution. Companies are unwilling mainly because of the following reasons. Installation of ETP requires expensive machinery which is not available in our local market, and companies have to import those by paying a hefty sum of import tax. Furthermore, industries have to go through procedural difficulties for importation. There is a high additional cost of engineering, civil construction, human resources, maintenance, electricity, and chemical refills for the operation of ETP throughout the year. Such additional costs would increase the price of industrial products, which may ultimately discourage foreign buyers' and harm our industries.
2. An effluent treatment plant requires a large area for its operation, making land scarcity an issue for our dingy and clustered industries. These factors discourage the companies from installing ETP, and even if companies are willing, many small industries lack the capability of affording ETP. The industries find it more economical to pay fines for non-compliance than installing and running ETP.[22] Currently, the highest fine for non-compliance is 10 lac BDT under Environment Conservation Act, 1995. While on average, annually, an ETP with around 50m3/hour capacity cost 13.3 million BDT for operational purposes.[23] Even if DoE fines a company twice a year, it would still be economical to pay the fine instead of running an ETP. Thus, companies take the easy way out, disregarding the environmental regulations.
3. *Inadequate monitoring and institutional incapacity:* The culture of regular and proper |monitoring is absent in Bangladesh, allowing industries to evade the environmental provisions with little to zero consequences. Many textile industrial units operate without ETP, whereas laws ambiguously state that fabric dyeing industries cannot start trial production without installing EP. Some companies build up infrastructure but only operate ETP occasionally before the inspection of DoE or foreign buyers. They resort to deceiving techniques and are unlikely to get caught because of the poor monitoring system. Only 0.04% of all fines are levied based on laboratory reports after verifying the effluent standards of taken samples.[24] This is a severe problem because existing ETPs could be underperforming by not meeting effluent standards. However, there seems to be no monitoring and enforcement for such hidden violations. Often DoE faces political pressure on monitoring operations which hampers its natural way of working. The operations are not transparent as there is a practice of bribes hinting towards corruption in the department. The already lengthy process of obtaining an Environment Clearance Certificate gets further delayed because of the mismanagement of DoE, and companies have to experience unnecessary difficulties throughout the process. DoE does not have a proper database regarding registered textile factories, records of inspection, or issued penalties rendering it hard to properly evaluate the situation for policymaking, enforcement of laws, or research. The department's capacity is constrained by a shortage of workforce and inept subsisting human resources who often lack expertise and technical

[22] *Supra note*, 11
[23] Nabil Haque, '*Exploratory analysis of fines for water pollution in Bangladesh*' 2017, 18 Water Resources and Industry; available at: <https://doi.org/10.1016/j.wri.2017.05.001> accessed on 15 April 2021
[24] *ibid*

know-how regarding various aspects of ETP. The situation is further exacerbated by non-cooperation among DoE and other agencies and outdated laboratories of the department.[25]

4. *Ineffective laws and lack of initiative by the government:* Even if we achieve the benchmark where all pollutive industries operate ETPs for discharging wastewater, our rivers will keep being polluted because the standard for discharge of wastewater set by Environment Conservation Rules,1997 is not up to the mark. While the average Biological Oxygen demand (BOD) is around 5mg per liter, industries are allowed to discharge wastewater up to 50 mg per liter as per rules.[26] The fine for violating any provisions of the Environment Conservation Act is so low that payment is rather advantageous than compliance. The provisions for compensation to aggrieved parties are unambiguous with no defined structure and are determined by the Director-General of DoE. There have been instances of the fine being reduced or cancelled through an appeal by the Ministry of Environment and Forests (MoEF) intervention, sometimes even under political pressure.[27] The government took no initiative to subsidize small industries on financial fetters that cannot afford ETPs, or to bring them under a CETP project, or to mitigate land scarcity and affordability issues of such industries. Steps are yet to be taken to create a local ETP manufacturing market and generate skilled human resources to deal with various aspects of installation and maintenance of ETP. These initiatives potentially would make the whole process facile and encourage industries to comply with environmental regulations.

6. Role of Environment Court

Section 4 and 5 of The Environment Act, 2010 respectively direct for the establishment of Environment Court and Special Magistrate's Court in every district headed by a Joint District Judge and Metropolitan Magistrate or First-Class Judicial Magistrate to deal with environment-related cases in addition to their general duties. However, the harsh reality is that only three Environmental Courts exist in Bangladesh alongside an Environment Appellate Court in Dhaka.[28] On average, 100 cases get filed on these courts every year,[29] very low compared to the extravagant violations of environmental provisions. According to section 12, a prior written report of an inspector of the Department of Environment is necessary for the court before taking cognizance of a cause. It gives preference to the executive over the judiciary in judicial matters and subjects environmental justice to the bureaucratic clutches. The courts further lack *suo moto* or epistolary jurisdiction to take actions on their own. Section 14 states that a case must be

[25] Khondaker Golam Moazzem, Mehruna Islam Chowdhury, '*Green Growth in Bangladesh- Improving Regulations, Monitoring and Enforcement in the Textile Sector, Policy Brief 96-16*', Sandee, January, 2016; available at: <http://www.sandeeonline.org/uploads/documents/publication/1080_PUB_Policy_Brief_96_Mehruna.pdf> accessed on 15 April, 2021

[26] '*Dhaka rivers under onslaught*', The Daily Star, Bangladesh, 7 February, 2020; available at: <https://www.thedailystar.net/supplements/save-our-rivers/news/dhaka-rivers-under-onslaught-1864618> accessed on 15 April, 2021

[27] *Supra note*, 23

[28] Md. Sefat Ullah, '*Greening Justice In Bangladesh: A Road to Successful Environmental Court*', 2017, 03 Green University Review of Social Sciences 101

[29] Md. Zakir Hossain, '*Revisiting Enforcement of Environment Court Act 2010*', Daily Sun, Dhaka 1 March, 2020; available at: <https://www.daily-sun.com/printversion/details/465878/Revisiting-Enforcement-of--Environment-Court-Act-2010> accessed on 12 April, 2021

disposed of within 180 days, which can be extended to additional 90 days by submitting a written explanation.

On the contrary, delay in disposing cases is a common scenario of Environment Courts. Environmental issues demand special knowledge and expertise of the judges, but there is no training on acquiring environmental education for the judges during their tenure. Scientific and technical experts are absent in courts to specially deal with such cases. The establishment, investigation of cases, and overall smooth functioning of Environment Courts depend on DoE, which is already worn out by its mismanagement and irregularities.

7. Way Forward Towards Mitigation

A traditional sanction-based approach will be inadequate to develop incentives for the industries to reduce untreated wastewater discharge. The government has to subsidize the industries to adopt environment friendly protection measures. Without any financial aid provided, strict enforcement of laws would affect the export earnings and employment generation of this sector. In the 1990s, India faced a similar issue with its tannery industry. Their Ministry of Environment and Forests in 1991 initiated a subsidiary scheme under which 25% of the cost was contributed by each of the central government and state government, 20% came from beneficiaries, and bank loans covered the rest. It was reported that around 150 CETPs were established all over India by 2015 under subsidy.[30] Bangladesh should opt for similar tactics to encourage the voluntary construction of ETPs and establish central effluent treatment plants in clustered textile industries. This tactic would save the enormous expenses of setting and maintaining ETP in each of the industries.

To take effective measures for future improvement, DoE must develop a nationwide wastewater impact tracking system. Reusing and recycling treated water can be another important measure to reduce the water supply in textiles from depleting groundwater. The government has to reduce import tax on ETP equipment and create a local market for manufacturing ETPs. Sound engineering practice can help to reduce our dependence on foreign countries. The inefficient penalty laws need reforms that include the increment of fines for repeated offenses, giving violators stronger incentives to comply. The standards for discharge of wastewater set by Environment Conservation Rules can be made more stringent to meet the present needs. The Environment Court Act needs reforms extending the scope of application and jurisdiction of the Environment Courts to lessen their dependence on DoE for conducting judicial functions. Most importantly, DoE has to review its monitoring mechanism and upgrade its technical capabilities to overlook and regulate present environmental non-compliance. To strengthen its monitoring system, DoE can adopt frequent and sudden inspection of companies without prior notice, end of corruption practices, upgrade of their outdated laboratories, the practice of levying fines only after analyzing treated effluent, the appointment of skilled human resources.

8. Conclusion

Environmental degradation in Bangladesh is a problem that requires immediate and urgent consideration. We currently stand at a low point in environmental compliance and sustainable development. If it continues further, we would be left with the ruined waterbodies of a once

[30] *Supra note*, 11

riverine country. The combined effort of all the stakeholders on this matter is necessary. However, foremost the government has to play its role by providing support to the industries and incentivizing them to comply with environmental regulations. Although the process would be difficult and lengthy, the goals would not be impossible to achieve once the concerned authorities start handling the issues appropriately.