

**Environmental and Social Impact Assessment  
(ESIA)  
of  
Paramount Textile PLC  
at  
Sreepur, Gazipur**

**Prepared by:  
Paramount Textile PLC**



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## ABBREVIATION

AECL	Adroit Environment Consultants Limited
AOI	Area of Influence
BBS	Bangladesh Bureau of Statistics
BMD	Bangladesh Meteorological Department
BNBC	Bangladesh National Building Code
BOD	Biochemical Oxygen Demand
BRAC	Bangladesh Rural Advancement Committee
BWDB	Bangladesh Water Development Board
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
COD	Chemical Oxygen Demand
DO	Dissolve Oxygen
DOE	Department of Environment
ECA	Environment Conservation Act 1995
ECC	Environmental Clearance Certificate
ECR	Environment Conservation Rules 2023
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
ESIA	Environmental and Social Impact Assessment
MBBR	Moving Bed Biofilm Reactor
KfW	Kreditanstalt für Wiederaufbau
GOB	Government of Bangladesh
IE2	High Efficiency
IE3	Premium Efficiency
IEE	Initial Environmental Examination
IUCN	International Union for Conservation of Nature
LC	Least Concern
MOEFCC	Ministry of Environment, Forest and Climate Change
MOWR	Ministry of Water Resources
NEMAP	National Environmental Management Action Plan
NGO	Non-Government Organization
NO <sub>x</sub>	Oxides of Nitrogen
PM <sub>2.5</sub>	Particulate Matter < 2.5µm
PM <sub>10</sub>	Particulate Matter < 10µm
PPM	Parts Per Million
PTPLC	Paramount Textile PLC
SO <sub>2</sub>	Oxides of Sulfur
SPM	Suspended Particulate Matter
TDS	Total Dissolve Solid
TSS	Total Suspended Solids
VFD	Variable Frequency Drive

## GLOSSARY

**Adverse impact:** An impact that is considered undesirable.

**Ambient air:** Surrounding air.

**Aquatic:** Growing or living in or near water.

**Bangla:** Bengali language.

**Baseline (or existing) conditions:** The 'baseline' essentially comprises the factual understanding and interpretation of existing environmental, social and health conditions of where the business activity is proposed. Understanding the baseline shall also include those trends present within it, and especially how changes could occur regardless of the presence of the project, i.e., the 'No-development Option'.

**Beneficial impacts:** Impacts, which are considered to be desirable and useful.

**Biological diversity:** The variety of life forms, the different plants, animals and microorganisms, genes they contain and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecological diversity.

**Ecosystem:** A dynamic complex of plant, animal, fungal and microorganism communities and associated non-living environment interacting as an ecological unit.

**Emission:** The total amount of solid, liquid or gaseous pollutant emitted into the atmosphere from a given source within a given time, as indicated, for e.g., in grams per cubic meter of gas or by a relative measure, upon discharge from the source.

**Endangered species:** Species in danger of extinction and whose survival is unlikely if the existing conditions continue to operate. Included among those are species whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to suffer from immediate danger of extinction.

**Environmental effects:** The measurable changes, in the natural system of productivity and environmental quality, resulting from a development activity.

**Environmental Impact:** An estimate or judgment of the significance and value of environmental effects for natural, socio-economic and human receptors.

**Environment Management Plan (EMP):** A Plan to undertake an array of follow-up activities which provide for the sound environmental management of a project/ intervention so that adverse environmental impacts are minimized and mitigated; beneficial environmental effects are maximized; and sustainable development is ensured.

**Environmental Management:** Managing the productive use of natural resources without reducing their productivity and quality.

**Erosion:** Process in which wind and water removes materials from their original place; for instance, soil washed away from an agricultural field.

**Evaluation:** The process of looking back at what has been really done or accomplished.

**Fauna:** A collective term denoting the animals occurring in a particular region or period.

**Flora:** All of the plants found in a given area.

**Habitat:** The natural home or environment for a plant or animal.

**Household:** A household is identified as a dwelling unit where one or more persons live and eat together with common cooking arrangement. Persons living in the same dwelling unit having separate cooking arrangements constitute separate household.

**Literacy:** It denotes ability to write a letter in any language. Literacy status assessment is made for population 7 years and over.

**Mitigation:** An action, which may prevent or minimize adverse impacts and enhance beneficial impacts.

**Mauza:** A Bangla word for the smallest government administrative area corresponding to village revenue unit.

**Mahalla:** Lowest urban geographic unit having identifiable boundaries.

**Negative Impact:** Negative change from the existing situation due to the project.

**Taka:** Unit of Bangladeshi currency.

**Terrestrial:** Living on land like forests, grasslands, deserts, shorelines, and wetlands.

**Union:** Smallest unit of local self-government comprising several villages.

**Upazila:** Sub-district name. Upazila introduced in 1982.

**Village:** Lowest rural geographic unit either equivalent to a mauza or part of a mauza.

**Ward:** Smallest administrative urban geographic unit comprising of mahallas and having ward council institution.

**Zila:** Bengali word of district.

## EXECUTIVE SUMMARY

### 1. INTRODUCTION

The importance of the textile industry in the economy of Bangladesh is very high. Textiles have been an extremely important part of Bangladesh's economy for a very long time as it contributes 41.8% of the total GDP. Bangladesh is the world's second biggest exporter of clothing after China. Industrialization is a major reason for the economic development of a country. Bangladesh's textile and garment industry is a continuous growing market, and this market will account for more than 10% of the global market by 2025.

Paramount Textile PLC (PTPLC) is located at Gilarchala, Sreepur Upazila in Gazipur District beside the Dhaka-Mymensingh Highway. The authority of Paramount Textile PLC has intended to increase the existing capacity of Yarn dyeing and printing and at the same time, addition of soft flow dyeing with solid dyeing. The existing capacity of Yarn dyeing and Printing was 26 ton/day and 12 ton/day respectively which will be increased 32 ton/day and 18 ton/day respectively and the capacity proposed solid and soft flow dyeing is 20 ton/day and 15 ton/day. The capacity of ETP will also be increased by establishing a new ETP with additional capacity of 4800 m<sup>3</sup>/day.

Under this project, Adroit Environment Consultants Limited (AECL) has been appointed for providing consultancy service for conducting Environmental & Social Impact Assessment (ESIA) study to fulfill the requirement of BIFFL to get funding for the capacity enhancement and adding soft flow dyeing with solid dyeing project and at the same time propose mitigation measures to overcome the adverse impact due to capacity enhancement to make the project an environmentally sound one. Also, the report follows the guidelines given in ESMF of BIFFL.

### 2. LEGISLATIVE REQUIREMENTS

According to the ESMF of BIFFL this project needs to follow two guidelines of ESMF i.e., World Bank (WB) Environment and Social Framework (ESF) and Bangladesh rules and regulations. World Bank's ESF consists of ten Environmental and Social Standards (ESSs), which set out the requirements that apply to Borrowers. The Environmental and Social Due Diligence (ESDD) prepared by BIFFL, assessed project compliance against the ESMF of BIFFL and stated that PTPLC needs to prepare a detailed ESIA report to meet the requirement of ESMF of BIFFL as well as the ESS1 of ESF. This proposed project also needs to follow all the applicable Bangladesh rules and regulation and according to ECR 2023, Dyeing & Printing factory (production capacity more than 15 ton/day) is enlisted in '**Red Category**' (serial no.17 under '**Red Category**' in Schedule-1) which requires to take Environmental Clearance certificate (ECC) from Department of Environment (DoE) for project operation. PTPLC has already obtained ECC (Certificate no: 24-115927) from DoE for the proposed enhancement project which is attached in **Annexure 1**

The prevailing national policies, strategies, laws, rules and World Banks ESSs are followed for the preparation of this ESIA study which are briefly discussed in **Chapter 2**.

### 3. DESCRIPTIONS OF THE PROJECT

The project is located at Gilarchala, Sreepur Upazila in Gazipur District (24°11'29.39"N, 90°25'28.59"E). Total land area of the project is 1487188.5 sft. (34.14 acres). It has 3 main units (Yarn Dyeing, Solid Dyeing, & Printing) and utility area where other facilities (dining area, parking area, generator room, etc.) are located. The main production of this industry is Dyed and Printed Finished Fabric. The basic data is shown in table below:

**Table 1: The basic data of Paramount Textile PLC**

Name of the Project	Capacity enhancement by adding soft flow dyeing with solid dyeing of Paramount Textile PLC (Factory).
Project Proponent	Md. Shakhawat Hossain
Project Location	Gilarchala, Sreepur Upazila, Gazipur District
Total Land Area	1487188.5 sft. (34.14 acres)
Buildup Area	1474791 sft. (33.86 acres)
Manufacturing Products	Dyed and Printed Finished Fabric
Production Capacity	<b>Existing</b> Yarn Dyeing = 26 Ton/Day Printing = 12 Ton/Day <b>Proposed</b> Yarn Dyeing = 32 Ton/Day (total) Printing = 18 Ton/Day (total) Solid Dyeing = 20 Ton/Day (total) Soft flow Dyeing = 15 Ton/Day
Electricity	<b>Existing requirement:</b> 8.852 MW/h <b>Proposed:</b> 15.9MW/h (total) <b>Supplier:</b> Captive Generator [existing 7 nos, Capacity 1064 KW (3 nos), 1415 KW (4 nos) and proposed 4 nos (1501KW) and 1nos 1067KW]
Backup Electricity Supply	Existing Capacity: 3.2 MW/h line from Rural Electrification Board (REB) Proposed Capacity: 7.2 MW/h line from REB
Boiler	8 nos, B1 = 10000 Kg/hr, B2 = 10000 Kg/hr, B3 = 8000 Kg/hr, B4 = 6000 Kg/hr, B5 = 10000 Kg/hr, B6 = 8000 Kg/hr, B7 (EGB) = 1960 Kg/hr, B8 (EGB) = 4200 Kg/hr
Fuel Supply	<b>Existing requirement:</b> 5097 m <sup>3</sup> /hr <b>Proposed:</b> 9024 m <sup>3</sup> /hr (total) <b>Supplier:</b> Titas Gas Transmission and Distribution Company (Natural Gas)
Water Requirement	<b>Existing requirements:</b> 3924 m <sup>3</sup> /day for production, drinking, sanitation and other purpose. <b>Proposed requirements:</b> 7850 m <sup>3</sup> /day (total) for production, drinking, sanitation and other purpose.
Source of Water	Ground Water
Total Manpower	<b>Existing:</b> 3010 <b>Proposed:</b> 4000

At present this capacity enhancement project is ongoing and the extension work is almost finished as per site visits. Only the ETP completion and some minor civil works are remaining to complete. In this project, PTPLC will use more energy-efficient machineries which is expected to reduce the energy consumption and associated CO<sub>2</sub> emissions but due to capacity increase huge demand on water will be generated.

- **Location of the Project**

The project site is located at Gilarchala, Sreepur Upazila in Gazipur District. Dhaka-Mymensingh Highway is just beside the project site. The distance between Dhaka to the project site is 34.40 km and 23.5 km away from Gazipur Chowrasta. Gorgoria Master Bari Bazar is located 0.43 km (South-East) and Mouna Chowrasta is 0.9 km (North) from the project site. The project area is surrounded by many garments and textile industries.

- **Other Project Details**

**Table 2: Project Other Details**

Sl No.	Objectives	Existing	Proposed
1	Buildings and sheds	17 multipurpose buildings and 16 sheds	additional printing and dyeing unit
2	ETP	1 (4800 m <sup>3</sup> /day)	1 (4800 m <sup>3</sup> /day)
3	WTP	2 (each 200 m <sup>3</sup> /hr)	1 (200 m <sup>3</sup> /hr)
4	Septic Tanks	9 (total volume 228.6 m <sup>3</sup> /day)	-
5	STP	-	9 (total volume 131.2 m <sup>3</sup> /day)

## 4. BASELINE ENVIRONMENT

According to the Climate map, the project area falls in **South-central zone (G)**. According to Bangladesh Meteorological Department, the monthly average Dry Bulb Temperature (maximum) is 30.4°C in April. Average Monthly Relative Humidity (maximum) for an average year is recorded as 85 % in July. The maximum Monthly Average Rainfall is recorded as 623 mm in July.

### ❖ Ambient Air Quality

Air monitoring has been conducted at 5 different locations. The baseline levels for criteria pollutants i.e., PM<sub>2.5</sub>, PM<sub>10</sub>, SPM, SO<sub>2</sub> and NO<sub>2</sub> are compliant with DoE standard. Among the locations, the maximum values of PM<sub>2.5</sub>, PM<sub>10</sub>, SPM, SO<sub>2</sub>, NO<sub>x</sub> were found to be 39 µg/m<sup>3</sup> (location 4), 38 µg/m<sup>3</sup> (location 2), 78 µg/m<sup>3</sup> (location 5), 4.01 µg/m<sup>3</sup> (location 4) and 4.2 µg/m<sup>3</sup> (location 2) respectively. These maximum values are well within the permissible limits of the DOE and IFC standards. All the stack emission results are also within the DoE and WB guideline value. Details of ambient air quality analysis and sampling photographs is discussed in **section 4.3.11**.

### ❖ Ambient Noise

The ambient noise level data were collected from different sides (5 locations) of the project. noise level of the all the selective location area within the Doe and IFC standard value. The maximum value

is found at the entrance gate near the Dhaka Mymensingh highway, which is 65.6 (LAeq) dBA. Details of noise level monitoring and sampling photographs is discussed in **section 4.3.12**.

#### ❖ Ground water Quality

Ground water samples has been collected and analyzed in the laboratory to check the result of important parameters. The result shows that all the parameters remain within the allowable limit of drinking water value as per as DoE Standards for Bangladesh and WHO standard. Details of ground water quality analysis is discussed in **section 4.3.8**.

#### ❖ Drinking water Quality

Drinking water samples has been collected and analyzed in the laboratory to check the result of important parameters. The result shows that all the parameters remain within the allowable limit of drinking water value as per as DoE Standards for Bangladesh and WHO standard. Details of drinking water quality analysis is discussed in **section 4.3.9**.

#### ❖ ETP water Quality

ETP water samples has been collected from the intel and outlet and analyzed in the laboratory to check the result of important parameters. The result shows that all the parameters remain within the allowable limit of ETP value as per as DoE Standards for Bangladesh. Details of waste water quality analysis is discussed in **section 4.3.10**.

#### ❖ Seismicity

On the basis of distribution of earthquake epicenters and morpho-tectonic behavior of different tectonic blocks Bangladesh has been divided into three generalized seismic zones. This essentially means that Zone I is the most severe and Zone III is the least severe in seismic hazard. According to the Earthquake Zoning Map of Bangladesh (2017), the project area falls in seismic **Zone III**, where seismic intensity is Severe and seismic zone coefficient (Z) is 0.28.

#### ❖ Terrestrial Ecology & Aquatic Ecology (flora & fauna)

During the field visit Different kinds of flora such as Aam (*Mangifera indica*), Kathal (*Artocarpus heterophyllus*), Jam (*Syzygium cumini*), Pepe (*Carica papaya*), Kala (*Musa Sepientum*), Narikel (*Cocos nucifera*), Kachuripana (*Eichhornia crassipes*), Helencha (*Enhydra fluctuans*) etc. were found during the AECL field visit.

Common Toad (*Bufo melanostictus*), House Lizard (*Hemidactylus brookii*), Common Kingfisher (*Alcedo atthis*), Common Myna (*Acridotheres tristis*), House Sparrow (*Passer domesticus*), House mouse (*Mus musculus*), Shol (*Channa striatus*), Shing (*Heteropneustes fossilis*), Rui (*Labeo rohita*) etc. faunal species were found during AECL field survey. Detail discussed in **section 4.4**.



Any endangered, vulnerable or threatened faunal species were not found during the field visit around the project area.

#### ❖ Socio-economic Baseline

Paramount Textile PLC is at Sreepur Upazila in Gazipur District. Area of this Upazila is about area 462.94 sq km. It is located between 24°01' and 24°21' north latitudes and in between 90°18' and 90°33' east longitudes. It is bounded by bhaluka and gaffargaon upazilas on the north, gazipur sadar and kaliganj upazilas on the south, kapasia upazila on the east, kaliakair and sakhipur upazilas on the west. Notable main Rivers are turag, bangshi, Salda; Boali, Hawla, Ujan and Markaj beels and Goala and Betjuri canals. But none of the water body is located near the project site. The Demographic characteristic of the Sreepur Upazila is presented in **Table 3**.

**Table 3: Demographic Characteristics of the Kaliakoir Upazila**

Upazila	Sreepur Upazila
Total Area (Sq. km)	462.94
Total Household	249845
Total population	855204
Male	444800
Female	410404
Literacy rate (%)	78.15%

(Population And Housing Census, 2022)

During the household survey, 43 HHs comprises of 165 people has been surveyed. It is interesting that 25 HHs have only 3-4 members. HH size of within 7 to 8 members was minimal in the area. According to the age band, the most prominent group is 30-60. At project area total of 165 populations will be surveyed where 92 are male and 73 are female, which represents that percentage of female population in the project area is less compared to the male population. It is found that 68.39 % people are married against 31.61% unmarried. Primary and secondary level education entrance is high in the area. A variety of occupational choices have been found in the project location, and majority are factory workers/labours. In addition to agriculture, the other significant occupations are involvement with business, service, doctor and mason etc. Details discussed in Section 4.5.

## 5. IDENTIFICATION AND EVALUATION OF POTENTIAL IMPACT

Major impact during construction phase of the proposed project may include air pollution due to constructional activity and movement of vehicles. Noise generated from moving and idling vehicles, construction activity and movement of heavy machinery may cause hearing problem and create sudden panic to the adjacent people. Soil and ground water may be polluted by accidental spillage of waste lubricants from machineries. Possibility of occurring accidents due to lack of safety and security, not using proper PPE, spread of several contagious and infectious diseases. Sewage and solid waste can degrade the soil quality if not managed properly. Susceptibility of unconventional relations between the migrant laborers and local vulnerable women may lead to the risk of gender oriented/sexually transmitted diseases like HIV/ AIDS and STI and gender-based violence (GBV). Beneficial impact is employment opportunity will be generated during construction.

The major negative impacts during operation phase of the existing and the proposed project may include: noise and air pollutant emission from generator and boiler, generation of effluent from project operation, ground water extraction, incidents related to occupational health & safety, fire outbreak, scarcity of proper sanitation and safe drinking water etc. Possibility of occurring accidents due to lack of safety and security, not using proper PPE, spread of several contagious and infectious diseases. In contrast to that this project has beneficial impacts i.e., employment generation, improvement in living standard of the workers, contribute in national economy. A detailed scoping list is discussed in **Table 5.1** of **Chapter 5**.

## **6. PROJECT IMPACTS AND THEIR MITIGATION MEASURES**

After evaluating the impacts and their effects on the surroundings, mitigation measures should be taken thoroughly to keep the environment less harmful and hazard free.

Important mitigation measures suggested for construction phase includes regular water sprinkling to minimize fugitive dust emission; Noisy construction works to be limited to daytime hours and all employees likely to be exposed to ear noise to be provide with ear protectors; Collection and segregation of wastes and safe storage should be done; Supply good quality drinking water and adequate standard toilet facilities must be available at the construction site to the labors; people working in the site must wear PPEs that should also be maintained by the contractor or the project proponent. The proposed project is suggested to implement STP and ETP to treat the sewage waste and waste water from the project activity before disposed them off.

Suggested mitigation measures for operation phase are maintenance of all equipment regularly and reducing idling time to avoid the additional emission of NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub> from machinery. Sprinkling the water inside the project area where the possibility of flying dust particles, exhaust gas silencers should be introduced in the stack to reduce noise level. Workers must wear ear plug during working any noisy place especially in weaving section, generator and boiler room, monthly training program should be arranged for the workers on using fire equipment properly, understating of fire evacuation plan and fire safety policy of the factory to avoid the fire hazard. The chemical storage of the project (fresh and used) should be constructed on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity. Waste management registrar should be maintained. Proper medical facility should be provided by the authority in case of any accident or incident and ensure that all the workers wear proper PPEs. Discharge waste water from production unit must be treated by existing ETP and discharge water quality should be regular monitored to avoid the water pollution of nearest waterbody. STPs must be installed for treatment of sewage waste. The proponent should implement ZLD plan to reduce pressure on ground water intake.

In **Chapter 6**, detail mitigation measures and several plans such as (Occupational Health and Safety Management Plan, Labour Management Plan, Community Health and Safety Management Plan, Waste Management Plan, Safety Management System, Stakeholder Engagement Plan, Zero Liquid discharge plan) are suggested for the project proponent and contractor to ensure safety and security to the environment and social surroundings.

## 7. EMERGENCY RESPONSE AND DISASTER MANAGEMENT PLAN

### ➤ Emergency response plan

Under the supervision of the 'Environment Management and the EMS team, all project personnel will have responsibilities assigned to them during emergency. There should be trained emergency response teams, specific contingency plans and specific equipment packages in place to cope with these types of emergencies. The existing project have an emergency response plan for chemical spill, fire hazards and fire evacuation plan with supportive emergency resource. There is an ETP emergency response plan if any machineries failure or accidental discharge happens during project operation then the details provided in **section 9.7** will be followed. In case of an emergency incident occur, immediate action must be taken to mitigate the impacts. Details discussed in **Chapter 7**.

### ➤ Disaster management plan

Appropriate management plan should have to be taken by the project operator to prevent any unwanted disasters (earthquake, fire accident, flooding, terrorist attack, etc.) in the project area as per the suggestion made in **Chapter 7**.

## 8. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

In the context of a project, Environmental and Social Management Plan (ESMP) is concerned with the implementation of the measures necessary to minimize and offset the adverse impacts and to enhance beneficial impacts. Details Management plan for each Impact has been presented along with required monitoring details and responsible person for implementing them in Table 8.1.

Monitoring programs have been proposed for this project, during both construction and operation phase. Suggested analytical monitoring during construction phase are monitoring of ambient air, noise drinking water parameter. Suggested analytical monitoring during operation phase includes ETP, ambient air, noise, drinking water, ground water parameter parameters. Some visual monitoring has also been suggested. Detail Monitoring plans are described below in **Chapter 8** in detail. The total estimated cost of monitoring would be around BDT 6,14,800.00 yearly during construction and BDT 7,09,600.00 yearly during operation respectively.

Organization of EMP implementation team, Cost of EMP implementation, Contingency plan, has been discussed in detail in **Chapter 8**. The total EMP implementation cost will be around BDT 26,66,840.00 yearly.

## 9. ALTERNATIVE ANALYSIS

Assessments of alternatives involve evaluating different options related to project concept, design and site selection. This helps in finalizing the best option that is techno-commercially viable having minimum impact on the local environmental and social conditions.

Paramount textile is planning to expand their project on their own land near the existing project. The project land is owned by Paramount textile PLC and enough to set with all equipment and machineries. The land has no resettlement issues and have well connected internal road connectivity. Also, this project has all required permission like ground water withdrawal permission. So, location alternative of the proposed project is not acceptable.

In addition, the proposed project involves the introduction of best technologies which is energy and time efficient. Moreover, this project is an environmental incentive-based project which is using the waste heat from generators as a source of fuel for operating 2 EGB boilers. This proposed project will reduce the consumption of energy and will give higher production. So, alternative of project technology is not required.

## **10. STAKEHOLDER CONSULTATION**

Stakeholder consultations are very important and sensitive issues for setting up a new project in any area of Bangladesh. Two types of consultation were carried out which are Focus Group Discussion and Key Informant Interviews during 9<sup>th</sup> – 15<sup>th</sup> November, 2023 respectively. Local people, fishermen, farmers, women, children and vulnerable groups were communicated during the focus group discussion and they request the project proponent to not dump any waste water without treated, not deteriorate the air quality and asked for compensations if any unanticipated situation occur due to the project implementation. Govt. offices of Gazipur District, such as, DoE, UNO Office and Upazila Parishad of Sreepur, NGOs was reached during the key informant interviews. The KII participants are in support with this project, if all the environmental rules and regulation regarding this project followed properly. During these meetings a simple, non-technical, description of the project was given, with an overview of the project's likely human and environmental impact.

## **11. GRIEVANCE REDRESS MECHANISM**

The Project Management will establish a procedure to answer to project-related queries and address complaints and grievances. The complaints related to project operation that may create inconveniences to agency/individual should be addressed based on consensus, the procedure will help to resolve issues/conflicts amicably and quickly without resorting to expensive, time-consuming legal actions. To ensure impartiality and transparency, hearings on complaints will remain open to the public. A Grievance Redress Committee (GRC) will be created and the GRC will record the details of the complaints and the reasons that led to acceptance or rejection of the particular cases. The GRC will keep records of all resolved and unresolved complaints and grievances and make them available for review as and when asked for by appropriate authority and any organizations known to be working with urban development issues. However, it should be noted that the GRC process will not pre-empt and aggrieved person's right to seek redress in the courts of law. There is an External GRM system and a committee to address complaint from the community and solve the issue. The proponent has a grievance policy mechanism for their factory workers and GRC team is described in **Chapter 11**.

## **12. CONCLUSION AND RECOMMENDATIONS**

The present ESIA report finds that though there are certain environmental and social impacts associated with the industrial unit under consideration but these are manageable. The proposed capacity enhancement project is an energy efficient project as PTPLC will use more energy-efficient machineries which is expected to reduce the energy consumption and associated CO<sub>2</sub> emissions, contributing to an overall more economical, ecological and socially sustainable use of energy in Bangladesh.

As the project is ongoing and the extension work is almost finished and only the ETP completion and some minor civil works are remaining to complete so the impact during construction stage is limited for a very short period of time and can be managed if suggested management plans are followed during construction phase.

During operation phase, fire hazard, air and noise emission, sanitation, health and safety issues and generation of liquid wastes are the major anticipated impacts. Given the mitigation measures, management plans and monitoring commitments by the PTPLC for the project, environmental and social impacts during operation phase of the project will be manageable.

The project has been designed to comply with the WB's ESF and country's environmental laws and regulations especially on, air emissions, ambient air quality, wastewater effluent, and noise. The project management has taken steps to ensure that the project will also meet the social compliance guideline. In short, the possible negative impacts are not severe, and the adverse impacts if duly addressed could be minimized without much effort, though they would require attention and positive commitment from the Project Management.

## **1. INTRODUCTION**

### **1.1 Background**

The textile and clothing industries provide a single source of growth in Bangladesh's rapidly developing economy. Exports of textiles and garments are the principal source of foreign exchange earnings in Bangladesh. In 2021-2022, Bangladesh RMG exports reached \$42.613 billion. Emerging as the world's second-largest exporter of ready-made garment (RMG) products, Bangladesh significantly bolstered employment within the manufacturing sector.

Paramount Group of companies was established in 1983 and embraced the idea of the textile in 2004. Later Paramount Textile PLC (PTPLC) was established in 2006 which is one of the most renowned and largest textile industries in Bangladesh. The journey started from the year 2006 and within 2 years, commercial production was in full swing. Paramount Textile has produced and exported close to billion yards of fabrics all over the world. Paramount Textile has emerged as one of the leading manufacturers in Bangladesh with the help of latest machinery and equipment, efficient workforce and 39 years of extensive experience. It focuses on environment-friendly methods and promotes safe working conditions for the workers. It continues to minimize production hazards for the employees and always looks to create employment opportunities. This phenomenon is clearly visible in each and every sector of the company. Paramount has implemented economic and environmentally friendly measures in every part of the organization.

The existing Paramount Textile PLC (PTPLC) is located at Gilarchala, Sreepur Upazila in Gazipur District beside the Dhaka-Mymensingh Highway. The authority of PTPLC has intended to increase the existing capacity of yarn dyeing and printing by adding soft flow dyeing with solid dyeing. The existing capacity of yarn dyeing and printing is 26 ton/day and 12 ton/day respectively which will be increased 32 ton/day and 18 ton/day respectively and the capacity proposed solid and soft flow dyeing is 20 ton/day and 15 ton/day. Capacity of ETP will also be increased. A new ETP has been proposed whose capacity is 4800m<sup>3</sup>/day. Under this project, Adroit Environment Consultants Limited (AECL) has been appointed for providing consultancy service for conducting Environmental & Social Impact Assessment (ESIA) study to fulfill the requirement of Bangladesh Infrastructure Finance Fund Limited (BIFFL) to get funding for the capacity enhancement and adding soft flow dyeing with solid dyeing project and at the same time propose mitigation measures to overcome the adverse impact due to capacity enhancement to make the project an environmentally sound one. Also, the report follows the guidelines given in ESMF of BIFFL. This ESIA report describes the anticipated environmental and social impacts of the industrial unit for the capacity enhancement and adding soft flow dyeing with solid dyeing and at the same time proposes mitigation measures to overcome the adverse impact to an extent to make the project an environmentally sound one.

### **1.2 Objective of the Study**

The specific objectives of ESIA study are as follows:

- ✓ To identify environmental and social regulatory requirements for the project;

- ✓ Present a general description of the proposed and existing project and the process;
- ✓ To assess the existing environmental baseline condition;
- ✓ To identify the potential environmental and social impact of the project;
- ✓ To identify possible mitigation measures and propose an Environmental and Social Management Plan for ensuring environmental safeguard;
- ✓ To prepare an Environmental and Social Monitoring Plan;
- ✓ To identify the risks associated with major accidents, natural disasters and external threats and recommendations for measures to be taken for reduction of these risks.

### **1.3 Scope of Study**

According to the ESMF of BIFFL this project needs to follow two guidelines of ESMF i.e., World Bank (WB) Environment and Social Framework (ESF) and Bangladesh rules and regulations. According to the ESMF, PTPLC requires to conduct ESIA study for this enhancement project. This The scopes of this study include but not limited to the following:

- ✓ Study of the relevant documents on Policy, Legal and Administrative framework and their review, particularly on environmental aspects, health and safety requirements etc.;
- ✓ Carrying out an Environmental baseline survey covering the project site i.e., study areas;
- ✓ Identification of environmental impacts of project activities on the surrounding environment;
- ✓ Identification of the Important Environmental Components (IEC);
- ✓ Identification of the most significant Environmental and Social impacts and suggestions for mitigation measures in order to eliminate negative impacts and to enhance positive impacts;
- ✓ Development of Environmental and Social Management Plan (ESMP) and monitoring plan;
- ✓ Identification of environmental and health risks associated with major accidents, natural disasters and external threats and recommendations for measures to be taken for reduction of these risks.

### **1.4 ESIA Approach**

The ESIA study will be conducted to comply with WB's ESF and ECR 2023. The tasks that will be undertaken to complete the study are stated below:

- Task 1: Review of the Scopes of ESIA & Environment & Social Related Regulatory Requirements
- Task 2: Project Description
- Task 3: Environmental and Social Baseline Conditions
  - a) Primary Baseline Data Collection
  - b) Secondary Baseline Data Collection
  - c) Geographical Information Systems (GIS)
- Task 4: Impact Assessment and Mitigation Measures
- Task 5: Environmental Management Plan (EMP)
- Task 6: Monitoring Evaluation
- Task 7: Emergency Response & Disaster Management Plan
- Task 8: Stakeholder Consultation

- Task 9: Grievance Redress Mechanism
- Tasks 10: Reporting

## 1.5 ESIA Methodology

The main focus of the ESIA will be to collect primary and secondary baseline data and to anticipate environmental and social effects, both positive and negative that may result from the project as well as their potential magnitude, reversibility, period of occurrence, nature, etc. suggested appropriate ESMP and monitoring plan to reduce the identified social and environmental impacts. Details of methodology is provided in **Annexure 2**.

## 1.6 The ESIA Team

**Adroit Environment Consultants Ltd. (AECL)** has prepared this report under the guidance and supervision of Dr. Nasir Uddin Khan. The total team composition and their expertise have been given in the table below:

**Table 1.1: ESIA Team**

Professional	Name	Expected Expertise
Environmental Expert	<b>Dr. Nasir Uddin Khan</b> B.Sc. Eng. (Civil), M.Sc. Eng. (Environment), PhD (USA)	Environmental & Social Impact Assessment (IEE, EMP/ESIA), Environment monitoring, Solid waste management, Climate Change, Environmental Management System, Occupational Health & safety, Cleaner Production and Energy efficiency, Air & Noise modeling, environmental education & awareness.
Environmental Specialist	<b>Md Saiful Islam</b> B. Sc. Engineering (Civil, RUET), M. Sc. Eng. (Civil & Environment)	Engineering survey, site plan, Preparation of IEE, EMP & ESIA, Environmental Monitoring and Industrial wastewater Treatment.
Environmental Specialist	<b>Shanjana Haider</b> B. Sc. Engineering (Civil, BUET), M. Sc. Eng. (Civil & Environment)	Engineering survey, site plan, Preparation of IEE, EMP & ESIA, Environmental Monitoring and Industrial wastewater Treatment.
Socio-Economist	<b>Md. Jahangir Hossain</b> MSS in Economics, DU & BSS (Hons) in Economics, DU	Social Impact Assessment (SIA), Resettlement Action Plan (RAP), Project Complaint Mechanism (PCM), Management of Resettled Inhabitants, Implementation of Resettlement Action Plan (RAP).
Fisheries Expert	<b>Dr. Md. Baki Billah</b> M.Sc. Zoology (Fisheries), JnU Ph.D. in Biology	Ecological survey on the Aquatic fauna (macro and micro invertebrates, fishes, birds) of the project area, Primary Aquatic and Ecological



Professional	Name	Expected Expertise
		survey details analysis, Establishing baseline condition fisheries and aquatic resources.
GIS Analyst	<b>Md. Golam Rasul</b> B. Sc. Engineering (RUET)	Analyzing spatial data through mapping software and preparing digital maps with geographic data and various other data sets.
Senior Chemist	<b>Md. Faisal Bin Mahmud</b>	Environmental Monitoring, Laboratory analysis for different environmental parameters.
Field Investigator/ Coordinator	<b>Md. Kamal Uddin</b>	Base line data collection, secondary data collection, sample collection and site survey.
	<b>Md. Rubel</b>	Base line data collection, sample collection from site, sample preservation and laboratory analysis.

## 1.7 Limitations of the Study

Services performed by the consultant are conducted in a manner consistent with level of care and skill generally exercised by members of the engineering and consulting profession. The report may not exhaustively cover an investigation of all possible aspects and circumstances that may exist due to time constraints. However, an effort is made to discover all meaningful areas under the stipulated time available.

In evaluating subject site, consultant relies in good faith on information provided by client's management or Employees. The Consultant assume that the information provided is factual and accurate. However, the consultant notifies the contradictions and errors in the data, where it seems appropriate.

It should be recognized that the information given in the report is time specific and with the passage of time the relevancy of data and analysis may suffer. Specific circumstances and condition of site can change due to which conclusion and opinions may also change.

## 1.8 Acknowledgement

The ESIA Report has been prepared basically with the support from Paramount Textile PLC and also from various government agencies and NGOs including Department of Environment (DOE), UNO office, Upazila Parishad, Palli development bank, Bangladesh Meteorological Department (BMD), Bangladesh Bureau of Statistics (BBS), Bangladesh Water Development Board (BWDB) etc. We would like to express our gratitude to each organization and its employees for their contribution and kind co-operation in conducting the study.

## **2 LAW AND LEGISLATION**

### **2.1 Introduction**

The emerging environmental scenario calls for attention on conservation and judicious use of natural resources. As an institutional arrangement, Government of Bangladesh (GoB) has designated the "Department of Environment" (DOE) with the responsibility for the regulatory functions to enforce of the provisions of environmental laws, rules and regulations to prevent environmental degradation in the country. Under these legal provisions, the industrial entrepreneurs/ project owner must take mitigation measures to protect the environment from pollution and adverse impacts and must get "Environmental Clearance" from DOE before setting up and running their industries/project.

PTPLC is committed to environmental protection in accordance with the existing environmental laws, rules and regulations of Bangladesh. For compliance against the ESMF of BIFFL this proposed project needs to follow WB's ESF and Bangladesh rules and regulations. World Bank's ESF consists of ten Environmental and Social Standards (ESSs) which are discussed in subsequent sections.

### **2.2 World Bank's Environmental and Social Standard (ESS)**

The Environmental and Social Framework (ESF) enhances the World Bank's commitment to sustainable development through ten Environmental and Social Standards (ESS) that are designed to support Borrowers' environmental and social (E&S) risk management. The ESF uses a risk-based approach that applies increased oversight and resources to complex projects and promotes increased responsiveness to changes in project circumstances through adaptive risk management and stakeholder engagement.

**Table 2.1: Environmental and Social Standard (ESS) relevant to the Project**

Standards	Objectives	Applicable Status	Co-relation with Project
<b>Environmental and Social Standard (ESS)-01</b>  <b>Assessment and Management of Environmental and Social Risks and Impacts</b>	<ul style="list-style-type: none"> <li>To identify and evaluate environmental and social risks and impacts of the project;</li> <li>To adopt a mitigation hierarchy to anticipate and avoid risk, or where avoidance is not possible, minimize or reduce risk and, where residual impacts remain, compensate for or offset them, where technically and financially feasible;</li> <li>To promote improved environmental and social performance;</li> <li>To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project.</li> </ul>	Applicable	<ul style="list-style-type: none"> <li>The project work will involve some Environmental and Social risks and adverse impacts on natural environment, water, human health and safety from project activity;</li> <li>ESS-1 is triggered as the project activity can cause negative impacts on vulnerable groups around the project area.</li> <li>ESS-1 triggered as the project activity will generate air, noise pollution and will generate waste water from production unit.</li> </ul>
<b>Environmental and Social Standard (ESS)-02</b>  <b>Labor and Working Conditions</b>	<ul style="list-style-type: none"> <li>To promote safety and health at work;</li> <li>To promote the fair treatment, non-discrimination and equal opportunity of project workers;</li> <li>To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate;</li> <li>To prevent the use of all forms of forced labor and child labor;</li> <li>To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law;</li> </ul>	Applicable	<ul style="list-style-type: none"> <li>ESS-2 triggered as the existing project have 3010 workers and staffs for the project operation and after the project expansion the manpower number will be increased to 4000;</li> <li>A lot of skilled, semi- skilled workers will be engaged during the project different phases, so it is the responsibility of project proponent to ensure the safe working environment and facility of sanitation and safe drinking water;</li> </ul>

Standards	Objectives	Applicable Status	Co-relation with Project
	<ul style="list-style-type: none"> <li>To provide project workers with accessible means to raise workplace concerns.</li> </ul>		<ul style="list-style-type: none"> <li>ESS-2 allow to promote nondiscrimination, fair treatment and prohibited child labor in the project area.</li> </ul>
<b>Environmental and Social Standard (ESS)-03</b>  <b>Resource Efficiency and Pollution Prevention</b>	<ul style="list-style-type: none"> <li>To promote the sustainable use of resources, including energy, water and raw materials;</li> <li>To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities;</li> <li>To avoid or minimize project-related emissions of short and long-lived climate pollutants;</li> <li>To avoid or minimize generation of hazardous and non-hazardous waste.</li> </ul>	Applicable	<ul style="list-style-type: none"> <li>The existing project is generating stack emission, noise pollution from machineries and liquid waste from production unit. A lot of fuel, electricity and manpower is using during the existing project operation;</li> <li>ESS-3 triggered as after the project expansion, production capacity will be increased, which will involve the increase in use of several resources (i.e., manpower, electricity, machineries etc.) and the rate of pollution generation may also increase.</li> </ul>
<b>Environmental and Social Standard (ESS)-04</b>  <b>Community Health and Safety</b>	<ul style="list-style-type: none"> <li>To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and non-routine circumstances;</li> <li>To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams;</li> <li>To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials;</li> </ul>	Applicable	<ul style="list-style-type: none"> <li>The existing and the expanded project will increase the traffic volume, solid and hazardous waste generation, etc. and can pose risk on the communities around the project sites;</li> <li>The expanded project requires more workers in the project activity and Influx of migrant workers may lead to outbreak of contagious disease;</li> </ul>

Standards	Objectives	Applicable Status	Co-relation with Project
	<ul style="list-style-type: none"> <li>To have in place effective measures to address emergency events;</li> <li>To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.</li> </ul>		<ul style="list-style-type: none"> <li>providing security to the vulnerable groups and project affected person is one of the major concerns of ESS-4.</li> </ul>
<b>Environmental and Social Standard (ESS)-05</b>  <b>Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</b>	<ul style="list-style-type: none"> <li>To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives;</li> <li>To avoid forced eviction;</li> <li>To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement.</li> </ul>	Not Applicable	<ul style="list-style-type: none"> <li>There is no land acquisition issue as the project land is owned by Paramount textile and the project expansion will be implemented on the vacant land, which is inside the existing project boundary.</li> </ul>
<b>Environmental and Social Standard (ESS)-06</b>  <b>Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>	<ul style="list-style-type: none"> <li>To protect and conserve biodiversity and habitats;</li> <li>To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity;</li> <li>To promote the sustainable management of living natural resources;</li> <li>To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.</li> </ul>	Applicable	<ul style="list-style-type: none"> <li>ESS-5 triggered as the environmental pollution from existing and proposed project activity may put negative impact on biodiversity;</li> <li>ESS-5 ensures the protection of local biodiversity, endangered and vulnerable species and avoid any kind of trapping, killing or nest destruction within and around the project influence area.</li> </ul>
<b>Environmental and Social Standard (ESS)-07</b>	<ul style="list-style-type: none"> <li>To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-</li> </ul>	Not Applicable	<ul style="list-style-type: none"> <li>No indigenous people were found within and around the project influence area.</li> </ul>

Standards	Objectives	Applicable Status	Co-relation with Project
<b>Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</b>	<p>Saharan African Historically Underserved Traditional Local Communities;</p> <ul style="list-style-type: none"> <li>To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize and/or compensate for such impacts;</li> <li>To promote sustainable development benefits and opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in a culturally appropriate manner;</li> <li>To obtain Free, Prior, and Informed Consent (FPIC) of the Affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in the three circumstances described in this ESS.</li> </ul>		
<b>Environmental and Social Standard (ESS)-08</b>  <b>Cultural Heritage</b>	<ul style="list-style-type: none"> <li>To protect cultural heritage from the adverse impacts of project activities and support its preservation;</li> <li>To address cultural heritage as an integral aspect of sustainable development;</li> <li>To promote meaningful consultation with stakeholders regarding cultural heritage;</li> <li>To promote the equitable sharing of benefits from the use of cultural heritage.</li> </ul>	Not Applicable	<ul style="list-style-type: none"> <li>No historical, archaeological and cultural heritages were observed within the vicinity of the project area but some school, mosque, were identified within the 5km of project area during the social survey.</li> </ul>
<b>Environmental and Social Standard (ESS)-09</b>	<ul style="list-style-type: none"> <li>To set out how the FI will assess and manage environmental and social risks and impacts associated with the subprojects it finances;</li> </ul>	Applicable	<ul style="list-style-type: none"> <li>International Financial Institutions (FIIs) are required to monitor and manage the</li> </ul>

Standards	Objectives	Applicable Status	Co-relation with Project
<b>Financial Intermediaries</b>	<ul style="list-style-type: none"> <li>To promote good environmental and social management practices in the subprojects the FI finances;</li> <li>To promote good environmental and sound human resources management within the FI.</li> </ul>		environmental and social risks and impacts of the project.
<b>Environmental and Social Standard (ESS)-10</b>  <b>Stakeholder Engagement and Information Disclosure</b>	<ul style="list-style-type: none"> <li>To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties;</li> <li>To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them;</li> <li>To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format;</li> <li>To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances.</li> </ul>	Applicable	<ul style="list-style-type: none"> <li>Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation;</li> <li>During the social survey, KII and FGDs were conducted to identify their valuable comments about this project and all the information about the project activity were disclosed to them.</li> </ul>

## 2.3 KfW Environmental and Social Categorization

According to the relevance of potentially adverse environmental and social impacts and risks, KfW classifies industries/projects into four categories “A” (high risk), “B+” (substantial risk), “B” (moderate risk), or “C” (low risk). **Table 2.2** shows the proposed project applicability status as per KfW categorization.

**Table 2.2: KfW categorization of proposed project**

SL No.	Category Type	Category Status	Applicability
1	Category A	High Risk	Not Applicable
2	Category B+	Substantial Risk	Applicable
3	Category B	Moderate Risk	Not Applicable
4	Category C	Low Risk	Not Applicable

Based on the type, location, scale, sensitivity, magnitude, and the availability of mitigation measures the project is classified as **category B+** project having substantial risks.

## 2.4 National Rules and Regulation

As per requirements of BIFFL, this proposed project also need to comply with the applicable environmental and social related regulatory of Bangladesh. This proposed project also needs to follow all the applicable Bangladesh rules and regulation and according to Environment Conservation Rules, 2023 (ECR 2023), Dyeing & Printing factory (production capacity more than 15 ton/day) is enlisted in ‘**Red Category**’ (serial no.17 under ‘**Red Category**’ in Schedule-1) which requires to take Environmental Clearance Certificate (ECC) from DoE for project operation. PTPLC has already obtained ECC (Certificate no: 24-115927) from DoE for the proposed enhancement project which is attached in **Annexure 1**.

### 2.4.1 Implications of National Policies and Regulations on the Project

**Table 2.3** below presents an outline of other National legal instruments that will have relevance to the Project with respect to the social and environmental considerations.



**Table 2.3: National Legal Instruments relevant to the Project**

Act/ Rule/ Law/ Ordinance	Enforcement Agency - Ministry/ Authority	Key Features	Applicability to the Project
<b>Environment Related Laws and Regulation</b>			
<b>National Environmental Policy, 2018</b>	Department of Environment (DoE)  Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>To identify and control all types of environmental pollution and degradation activities;</li> <li>To ensure environmental development in all fields;</li> <li>To ensure sustainable, long-term and environmentally friendly use of all natural resources;</li> <li>To explore and expand the areas of mutual cooperation in regional and international arenas for the development of global environment;</li> <li>To maintain and streamline the environmental policies and strategies among other policy strategies in the interest of sustainable development.</li> </ul>	Applicable as the project activity associated with environmental issues and this policy aims at prevention of pollution and degradation of resources.
<b>National Conservation Strategy, 1992</b>	Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>To use minimum possible area of land in exploration sites;</li> <li>Rehabilitate site when abandoned;</li> <li>To take precautionary measures against Environmental Pollution from liquid effluents, condensate recovery and dehydration Plants; and</li> <li>Technology assessment for selection of appropriate technologies.</li> </ul>	Applicable as the project authority needs to meet all the requirements effectively.
<b>National Environmental Management Action Plan (NEMAP), 1995</b>	Department of Environment (DoE)  Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>To identify the key environmental issues affecting Bangladesh;</li> <li>To identify the actions necessary to halt or reduce the rate of environmental degradation;</li> <li>To improve the natural and built environment;</li> <li>To conserve the habitats and biodiversity;</li> <li>To promote the sustainable development;</li> <li>To improve the quality of life of the people.</li> </ul>	Applicable as the project can cause environmental issues and this plan is required to reduce the rate of environmental degradation

Act/ Rule/ Law/ Ordinance	Enforcement Agency - Ministry/ Authority	Key Features	Applicability to the Project
<b>Environment Court Act, 2010</b>	Ministry of Environment and Forests and judiciary	<ul style="list-style-type: none"> <li>The 2010 Environmental Court Act supports the Environmental Conservation Act (1995) and the Environmental Conservation Rules (2023) by providing for the establishment of environmental courts for the trial of offences relating to environmental pollution;</li> <li>It includes protocols for the establishment of the court, and defines the court's jurisdiction, appropriate penalties, powers of search and entry, and procedures for investigation, trial and appeal.</li> </ul>	Applicable as the project authority needs to meet all the requirements effectively and according to this act, the government can take legal actions if any environmental problem occurs due to project interventions.
<b>The Environment Conservation Act, 1995 and subsequent amendments in 2000 2002 and 2010</b>	Department of Environment  Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>Define Applicability of environmental clearance;</li> <li>Regulation of development activities from environmental perspective;</li> <li>Framing applicable limits for emissions and effluents;</li> <li>Framing of standards for air, water, and noise quality;</li> <li>Formulation of guidelines relating to control and mitigation of environmental pollution, conservation, and improvement of environment;</li> <li>Declaration of Ecologically critical areas.</li> </ul>	Applicable as the project activity associated with environmental issues. This project needs to follow all prescribed rules for obtaining an Environmental Clearance Certificate/site clearance from the Department of Environment.
<b>Environmental Conservation Rules, 2023</b>	Department of Environment  Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>Declaration of Ecologically critical areas;</li> <li>Requirement of environmental clearance certificate for various categories of projects;</li> <li>Requirement of EIA/ESIA as per category;</li> <li>Provides standards for quality of air, water and sound and acceptable limits for emissions/discharges from industries, vehicles and other sources.</li> </ul>	Applicable as the Project falls under Red Category and the project needs to conduct EIA study for getting ECC/SCC from DoE.
<b>Bangladesh Water Act, 2013</b>	Ministry of Water Resources (MOWR)	<ul style="list-style-type: none"> <li>All forms of water (e.g., surface water, ground water, sea water, rain water and atmospheric water) within the territory of Bangladesh belong to the government on behalf of the people;</li> <li>The private landowners will be able to use the surface water inside their property for all purposes;</li> </ul>	Applicable as the project is using groundwater for production, drinking and sanitation purposes and after the project expansion it will be 3840 m <sup>3</sup> /day.

Act/ Rule/ Law/ Ordinance	Enforcement Agency - Ministry/ Authority	Key Features	Applicability to the Project
		<ul style="list-style-type: none"> <li>As per this act WARPO issues permits/licenses for large scale water withdrawal by individuals and organizations beyond domestic use. Without prior permission issued by the Executive Committee, no individuals or organizations will be allowed to extract, distribute, use, develop, protect, and conserve water resources.</li> </ul>	
<b>National Water Policy, 1999</b>	Ministry of Water Resources (MOWR)	<ul style="list-style-type: none"> <li>To address issues related to the harnessing and development of all forms of surface water and ground water and management of these resources in an efficient and equitable manner;</li> <li>To ensure the availability of water to all elements of the society including the poor and the underprivileged, and to take into account the particular needs of women and children;</li> <li>To accelerate the development of sustainable public and private water delivery systems with appropriate legal and financial measures and incentives, including delineation of water rights and water pricing;</li> <li>To bring institutional changes that will help decentralize the management of water resources and enhance the role of women in water management.</li> </ul>	Applicable for the protection of nearby waterbody and sources. PTPLC will use ground water for project activity and a manmade pond is there inside the project boundary for beautification of the project area.
<b>Noise Pollution (Control) Rules 2006</b>	Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>Prevention of Noise pollution;</li> <li>Standards for noise level.</li> </ul>	Applicable as noise can be generated from project construction work, generators and machineries operation.
<b>Air Pollution (Control) Rules 2022</b>	Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>Prevention of Air pollution;</li> <li>Standards for Ambient Air Quality.</li> </ul>	Applicable as ambient air quality can be affected due to the project activity. Stack emission during operation phase can degrade the air quality
<b>Solid Waste Management Rules 2021</b>	Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>In the case of resource recovery from waste, taking into account the waste hierarchy, all steps of waste generation, rejection, waste reduction, reuse, recycling, recovery, purification, residue management must be followed in sequence before final disposal. The</li> </ul>	Applicable as different kinds of solid waste will be generated during construction of the extended project and from project

Act/ Rule/ Law/ Ordinance	Enforcement Agency - Ministry/ Authority	Key Features	Applicability to the Project
		waste generated from the construction should be kept separately until it is handed over to the local government authorities so that the dust does not spread into the air or fall into the drains through rainwater.	operation. Around 55 ton/month waste will be generated from the proposed project.
<b>Hazardous Waste (E-waste) Management Rules, 2021</b>	Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>Applicable to persons/organization engaged in manufacture, marketing, purchase, sale, import, export, storage, stocking for research in laboratories, disposal, repair, processing and transportation or all related activities of electrical and electronic products.</li> </ul>	Applicable as different kinds of hazardous waste (chemicals, lubricants, used oil, solvents) will be generated during the project construction and operation phase
<b>Forest Act 1927, (Amendment 2000)</b>	Ministry of Environment, Forest and Climate Change (MOEFCC)	<ul style="list-style-type: none"> <li>Conservation and protection of government forests, and limited powers for private forests.</li> </ul>	Applicable as there is forest land within the 5km of the project area but it is 3.5km away from the project area. There will be no project impact on this forest land.
<b>Social Related Laws and Regulation</b>			
<b>Bangladesh Labor Act, 2006 and Labour Rules, 2015 (amendment in 2022)</b>	Ministry of Labor and Employment	<ul style="list-style-type: none"> <li>Provides health, safety, and well-being of workforce during project life cycle. In addition, it also stipulated that, children under 18 years are not allowed to be employed during project life cycle and therefore, this law requires to be complied with.</li> </ul>	Applicable as the extended project requires a greater number of skilled, semi-skilled and day labors at the project area, whom will be engaged in different activities of the project.
<b>National Occupational Health and Safety Policy, 2013</b>	The Ministry of Labor and Employment	<ul style="list-style-type: none"> <li>addresses national commitment as per Constitution for continual improvement of occupational health and safety management system of the establishment to prevent or reduce workplace fatalities and work-related diseases.</li> <li>The National OSH Policy also ensures safety in transportation, maintenance and use of chemicals used in the production process.</li> </ul>	Applicable as the extended project have the risk of different occupational hazard and accidents and proponents need to ensure the safety of the workers
<b>National Child Labour</b>	The Ministry of Labor and Employment	<ul style="list-style-type: none"> <li>Sets a policy to eliminate child labour exploitation through enactment of pragmatic laws, implementation of plans and programs, etc.</li> </ul>	Applicable as the project contractor should not recruit any worker aged less than 18 years

Act/ Rule/ Law/ Ordinance	Enforcement Agency - Ministry/ Authority	Key Features	Applicability to the Project
<b>Elimination Policy 2010</b>			
<b>Bangladesh National Building Code (BNBC) 2020</b>	Ministry of Housing and Public Works	<ul style="list-style-type: none"> <li>This code is followed in Bangladesh to build safe houses and buildings;</li> <li>Earthquakes and wind effect of different building systems are incorporated in this code.</li> </ul>	Applicable as some structure will be built in the extended project.
<b>Industrial Policy, 1999</b>	Ministry of Industries	<ul style="list-style-type: none"> <li>Industrial Policy, 1999 the most comprehensive policy, which sought to give the private sector a dominant role in accelerating the pace of industrial development. To enhance the role of the private sector, the industries reserved for public sector investment were brought down to four.</li> </ul>	Applicable as the project type is an industrial development which may have impacts on ecology and may pollute the environment.
<b>Water Supply and Sanitation Act, 1998</b>	Ministry of Local Government, Rural Development and Cooperatives	<ul style="list-style-type: none"> <li>Water Supply and Sanitation Act, 1998 to establish the National Water Supply and Sanitation Council and define its functions; to provide for the establishment, by local authorities, of water supply and sanitation utilities; to provide for the efficient and sustainable supply of water and sanitation services under the general regulation of the National Water Supply and Sanitation Council.</li> </ul>	Applicable for maintaining the proper supply of drinking water and sanitation for staffs and workers within the project site.
<b>Boiler Act, 1923</b>	Ministry of Industries	<ul style="list-style-type: none"> <li>Prohibition of use of unregistered or uncertificated boiler;</li> <li>Renewal of boiler certificate upon the expiry, accidents, moved, structural alteration, or any dangerous condition;</li> <li>Regulating the inspection and examination of boilers and steam-pipes;</li> <li>Prescribing the duties of the owner at the examination, and production and transfer of certificates;</li> <li>Exclusion of any specified area from the boiler operation.</li> </ul>	Applicable as the project already uses 8 boilers
<b>Fire Prevention and Extinction Act, 2003</b>	Fire Service and Civil Defense	<ul style="list-style-type: none"> <li>Fire Prevention and Extinction Act 2003 provides that if any person wants to use any building as warehouse or workshop, he shall have to take license from the Directorate General of Fire Service and Civil Defense.</li> </ul>	Applicable for the safety of workers and employee from any fire accidents.

Act/ Rule/ Law/ Ordinance	Enforcement Agency - Ministry/ Authority	Key Features	Applicability to the Project
<b>Fire Prevention and Extinction Rules, 2014</b>	Fire Service and Civil Defense	<ul style="list-style-type: none"> <li>Fire Prevention and Extinction Rules 2014 enumerates that owner of the building shall have to apply for occupancy certificate of the building at the end of the construction (Rule 22).</li> </ul>	Applicable for the safety of workers and employee from any fire accidents.
<b>Factories Act, 1965</b>	Ministry of Industries	<ul style="list-style-type: none"> <li>Factories Act, 1965 was adopted with the objective of regulating the appointment of workers, their wages and the working conditions in factories, including health and hygiene, safety, welfare, working hours, leave and holidays, and punishments and penalties for both the owners and workers for non-compliance of the requirements.</li> </ul>	Applicable as 3782 no. of staffs and workers will working in the factory during project implementation and there is an issue of safety and security of workers involved in the project.

## 2.5 Gaps between the Government laws and World Bank's Environmental and Social Standard (ESS)

The gaps between the Government laws and ESS standard along with the summary of gaps is discussed in **Table 2.4**.

**Table 2.4: Gap Analysis among World Bank's ESS and National Regulations**

SL No.	ESS Standards	Bangladesh National Laws	Summary of Gaps
1.	ESS-1 Assessment and Management of Environmental and Social Risks and Impacts	<ul style="list-style-type: none"> <li>ECA 1995 (Amendment in 2000, 2002 &amp; 2010) and</li> <li>Environmental Conservation Rules, 2023</li> </ul>	As per the ESS-1, this type of project requires Environmental and social Assessment (ESIA) study, while as per the ECR, 2023 the proposed project falls under 'Red' category which requires an EIA study. An ESIA study covers both environment and social impacts, whereas in a EIA study identification of the environmental impacts are the main concern.

SL No.	ESS Standards	Bangladesh National Laws	Summary of Gaps
2.	ESS-2 Labor and Working Conditions	<ul style="list-style-type: none"> <li>Bangladesh Labor Act, 2006 (amended in 2013, 2015 and 2018)</li> <li>Bangladesh Labour policy, 2013</li> <li>Bangladesh labour Rules, 2015 (amended in 2022)</li> <li>National Occupational Health and Safety Policy, 2013</li> <li>National Child Labour Elimination Policy 2010</li> <li>Water Supply and Sanitation Act, 1998</li> </ul>	<p>The National legal provisions almost cover all requirements in ESS-2 except the protection of community workers <sup>1</sup>and functional GRM for different types of workers.</p> <p>Hence, under this project, an occupational health and safety Plan, Employment Policy and Health &amp; Safety Plan have been prepared to regulate working conditions for worker. Management of worker relations including specific GRM for workers, terms and conditions of employment, nondiscrimination and equal opportunity, protection of work force, prohibition is included in the OHS plan</p>

<sup>1</sup> Community workers: Projects may include the use of community workers in a number of different circumstances, including where labor is provided by the community as a contribution to the project, or where projects are designed and conducted for the purpose of fostering community-driven development, providing a social safety net or providing targeted assistance in fragile and conflict-affected situations.

SL No.	ESS Standards	Bangladesh National Laws	Summary of Gaps
3.	ESS-3 Resource Efficiency and Pollution Prevention and Management	<ul style="list-style-type: none"> <li>• Environmental Conservation Rules, 2023</li> <li>• Environmental Conservation Act (ECA) 1995;</li> <li>• Renewable Energy Policy, 2008</li> <li>• Energy Efficiency and Conservation Master Plan up to 2030</li> <li>• Solid Waste Management Rules 2021, and</li> <li>• Hazardous Waste (E-waste) Management Rules, 2021.</li> <li>• Bangladesh Water Act, 2013</li> <li>• Noise Pollution</li> </ul>	<p>The majority of ESS3 requirements regarding pollution prevention are addressed in existing regulations and indirectly for resource efficiency and climate change aspects.</p> <p>The Environmental Conservation Rules, 2023 covers the standard for environmental parameters and there are some specific laws and regulations for preventions of specific pollutions such as air, noise and hazardous waste management. National policies are mentioned in the following sections.</p> <p>Renewable Energy Policy, 2008 and Energy Efficiency and Conservation Master Plan up to 2030 are the Resource Efficiency policies in Bangladesh. The main objectives of this policies is reduce the dependency on fossil fuel and introduce renewable energies such as solar, wind, etc. for electricity production.</p> <p>So, there is no gap identified.</p>



SL No.	ESS Standards	Bangladesh National Laws	Summary of Gaps
		Rules (2006) and <ul style="list-style-type: none"> <li>Air Pollution Control Rules, 2022</li> </ul>	
4.	ESS-4 Community Health and Safety	<ul style="list-style-type: none"> <li>Environmental Conservation Rules (ECR) 2023;</li> <li>Disaster Management Act, 2012</li> <li>National Health Policy, 2011.</li> </ul>	<p>While other national act covers all the ESS-4 requirements but there are no national act/rules about the protection of community health.</p> <p>However, PTPLC has developed a waste management policy and procedure (<b>Annexure 31</b>) but the objectives didn't covers all the requirements of ESS-4. So, a suitable EMP is suggested that includes traffic management plan, Occupational health safety.</p>
5.	ESS-5 Land Acquisition Restrictions on Land Use and Involuntary Resettlement	<ul style="list-style-type: none"> <li>Acquisition and Requisition of Immovable Properties Act 2017</li> </ul>	No gap is addressed as no land acquisition is required. The project will not cause any physical and economic displacement.
6.	ESS- 06 Biodiversity Conservation and Sustainable Management of Living	<ul style="list-style-type: none"> <li>Bangladesh Biodiversity Act, 2017</li> <li>Forest Act 1927, (Amendment 2000)</li> </ul>	<p>This national act covers all the requirements of ESS-06 including the sustainable use of its resources, biota and the fair and equitable share of the benefits derived from their use of and other matters.</p> <p>Protection of local biodiversity, endangered species, vulnerable species and avoid any kind of trapping, killing or nest destruction.</p>

SL No.	ESS Standards	Bangladesh National Laws	Summary of Gaps
	Natural Resources		
7.	ESS- 07 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities		Not relevant
8.	ESS- 08 Cultural Heritage		Not relevant
9.	ESS-09 Financial Intermediaries		There is no national rules and laws in Bangladesh related to financial intermediaries but as per the ESS standards International Financial Institutions (FIIs) are involved in this project to monitor and manage the environmental and social risks and impacts of the project.
10.	ESS-10 Stakeholder Engagement and Information Disclosure	<ul style="list-style-type: none"> <li>Right to Information Act, 2009;</li> <li>Environmental Conservation Rules (ECR) 2023.</li> </ul>	<p>It has been considered in both legislations but the continuation of Stakeholder consultation throughout the project life is not considered in national legislation.</p> <p>A FGDs and a KII is conducted for the proposed project and all the valuable comments from the participants are noted down.</p>

### 3 DESCRIPTIONS OF THE PROJECT

#### 3.1 The Project

##### 3.1.1 Project Proponent

Paramount Textile PLC is a textile industry of Paramount Group. Paramount group of companies which was established in 1983 has always been praised for their professionalism, code of conduct and quality products. The idea of the textile was embraced in 2004 and its inception was possible in 2006.

Paramount Textile PLC is located at Gilarchala, Sreepur Upazila in Gazipur District beside the Dhaka-Mymensingh Highway. The authority of PTPLC has intended to increase the existing capacity of yarn dyeing and printing and at the same time by adding soft flow dyeing with solid dyeing. In addition, PTPLC also wants to increase its ETP capacity for the proposed project.

##### 3.1.2 Project Background

Total land area of the project is 1487188.5 sft. (34.14 acres). It has 3 main units (Yarn Dyeing, Solid Dyeing, & Printing) and a utility area where other facilities (dining area, parking area, generator room, etc.) are located. The main production of this industry is dyed and printed finished fabric. The basic data of the project is given below:

**Table 3.1: The basic data of Paramount Textile PLC**

Name of the Project	Capacity enhancement by adding soft flow dyeing with solid dyeing of Paramount Textile PLC (Factory).
Project Proponent	Md. Shakhawat Hossain
Project Location	Gilarchala, Sreepur Upazila, Gazipur District
Total Land Area	1487188.5 sft. (34.14 acres)
Buildup Area	1474791 sft. (33.86 acres)
Manufacturing Products	Dyed and Printed Finished Fabric
Production Capacity	<b>Existing</b> Yarn Dyeing = 26 Ton/Day Printing = 12 Ton/Day <b>Proposed</b> Yarn Dyeing = 32 Ton/Day (total) Printing = 18 Ton/Day (total) Solid Dyeing = 20 Ton/Day (total) Soft flow Dyeing = 15 Ton/Day
Electricity	<b>Existing requirement:</b> 8.852 MW/h <b>Proposed:</b> 15.9MW/h (total) <b>Supplier:</b> Captive Generator [existing 7 nos, Capacity 1064 KW (3 nos), 1415 KW (4 nos) and proposed 4 nos (1501KW) and 1nos 1067KW]

Backup Electricity Supply	Existing Capacity: 3.2 MW/h line from Rural Electrification Board (REB) Proposed Capacity: 7.2 MW/h line from REB
Boiler	8 nos, B1 = 10000 Kg/hr, B2 = 10000 Kg/hr, B3 = 8000 Kg/hr, B4 = 6000 Kg/hr, B5 = 10000 Kg/hr, B6 = 8000 Kg/hr, B7 (EGB) = 1960 Kg/hr, B8 (EGB) = 4200 Kg/hr
Fuel Supply	<b>Existing requirement:</b> 5097 m <sup>3</sup> /hr <b>Proposed:</b> 9024 m <sup>3</sup> /hr (total) <b>Supplier:</b> Titas Gas Transmission and Distribution Company (Natural Gas)
Water Requirement	<b>Existing requirements:</b> 3924 m <sup>3</sup> /day for production, drinking, sanitation and other purpose. <b>Proposed requirements:</b> 7850 m <sup>3</sup> /day (total) for production, drinking, sanitation and other purpose.
Source of Water	Ground Water
Total Manpower	<b>Exiting:</b> 3010 <b>Proposed:</b> 4000

### 3.2 Location of the project

The project is located at Gilarchala union, Sreepur Upazila in Gazipur District (24°11'29.39"N, 90°25'28.59"E). Dhaka-Mymensingh Highway is just beside the project site. The distance from Dhaka and Gazipur Chowrasta to the project site is 34.40 km and 23.5 km, respectively.

The project area is surrounded by many garments and Textile industries. Gorgoria Master Bari Bazar is located 0.43 km (South-East) and Moana Chowrasta is 0.9 km (North) from the project site. The project location map is presented in **Figure 3.1**. Project location and layout map is attached as **Annexure 3**.

### 3.3 Accessibility to Project Site

The project site is located at Gilarchala, Sreepur Upazila in Gazipur District. Dhaka-Mymensingh highway is passing beside (east side) the project site. The project has a well road connectivity from both Dhaka and Gazipur Sadar. Transport especially bus is always available. The project site is well accessible from all the corners of Bangladesh.

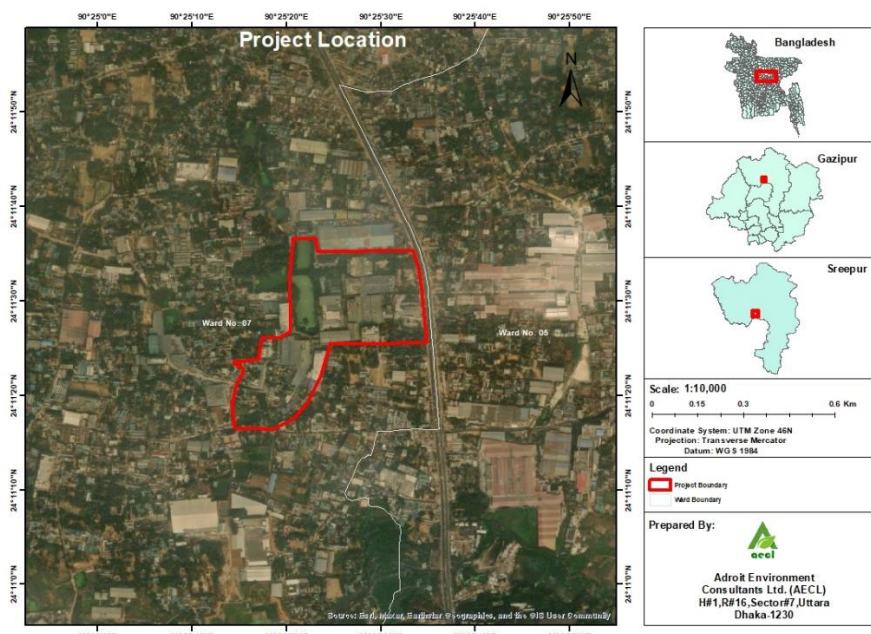


Figure 3.1: Project Boundary of the site

### 3.4 Present Site Condition

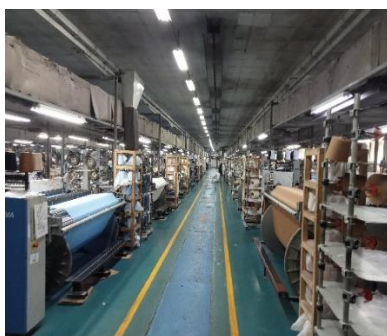
The total area of the project site is 1487188.5 sft. (34.14 acres) among them 1474791 sft (33.86 acres) is buildup area and 12397.5 sft (0.28 acres) is vacant land. The whole project area is bounded by a brick wall. Internal road and drainage facility are well planned. The main production of this industry is Dyed and Printed Finished Fabric. There are 17 multipurpose buildings (including ETP and Utility area) and 16 shed within the project area. Different types of trees are available at the project site. Existing site condition of the factory is shown in **Figure 3.3**.







**Dyeing Section**



**Weaving Section**



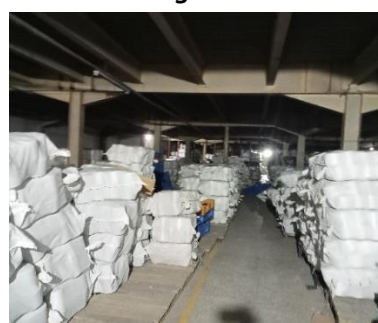
**Printing Section**



**Yarn Dyeing Lab**



**Chemical Sub-Store**



**Storage Area**



**Captive Generator Room**



**Boiler Room**



**WTP Room**



**Existing ETP Area**



**Proposed ETP Area**



**Mosque**



**Proposed Building (Under Construction)**

**Figure 3.2: Existing Condition of the Project Site**

## 3.5 Project Details

### 3.5.1 Floor Description

There are 17 multipurpose buildings, and 16 sheds within the project area. In the proposed project 2 storied WTP-03, 2 storied REB building and Shed 14 (Finished Fabric store and RMS room, Generator & LPG storage) will be constructed and the area of the existed ETP building will be extended. Total 53710.0 sq.ft area will be increased after the project expansion. Floor wise description of all building and shed are described in **Annexure 4**.

### 3.5.2 Machineries/ Equipment

There are 65 nos. winding machine, 108 nos. yarn dyeing machine, 376 nos. weaving machine, 3 nos. solid dyeing machine and 9 nos. printing machines present in the existing project. For the proposed project PTPLC will add 3 nos. yarn dyeing machine, 46 nos. weaving machine, 4 nos. solid dyeing machine, 25nos. soft flow dyeing machine, 7 nos. printing machines, 3 nos. pre-treatment machine and 9 nos. finishing machine. This information is presented in **Table 3.2** and details provided in **Annexure 5**.

**Table 3.2: List of Machineries and Equipment For The Existing And Proposed Project**

SL no.	Machineries list	Existing quantity (nos.)	Proposed quantity (nos.)
1	Winding Machine	65	-
2	Yarn Dyeing Machine	108	3
3	Weaving Machine	376	46
4	Solid Dyeing Machine	3	4
5	Soft Flow Dyeing Machine	-	25
6	Printing Machines	9	7
7	Pretreatment Machine	-	3
8	Finishing Machine	-	9

### 3.5.3 Chemicals

88 types of chemicals are being used in the dyeing process. Name of those chemicals are Acetic Acid 99.85%, Croaks N, JingenST RS 200, Polytex 17, etc. Details list of chemicals are given in **Annexure 6**. Safety Data Sheets of Chemicals are attached in **Annexure 7** and Chemical Management Policy is attached in **Annexure 8**.

### 3.5.4 Process Flow of Dyeing

- ❖ **Existing Yarn Dyeing:** Paramount textile wants to expand their production capacity of yarn dyeing from 26 Ton/Day to 32 Ton/Day and they also want to introduce soft flow dyeing with solid dyeing in fabric dyeing process. The process of yarn dyeing is discussed in **Annexure 9** with block diagram.
- ❖ **Proposed Solid Dyeing:** Solid dyed fabrics are also called piece dyed. In this case, piece dyeing is used for solid fabric where the fabric is dyed after weaving or knitting. This process of dyeing involves several steps, including singeing, de-sizing, sourcing, bleaching, mercerizing, and dyeing.



Each of these steps plays a crucial role in the overall quality of the textile product. Paramount textile is planning to install the 20 Ton/Day (total) capacity of solid dyeing.

- ❖ **Proposed Soft Flow Dyeing:** In the soft flow dyeing water is used for keeping the fabric in circulation. The conception difference of this equipment from a conventional jet that operates with a hydraulic system is that the fabric rope is kept circulating during the whole processing cycle (right from loading to unloading). There is no stopping of liquor or fabric circulation for usual drain and fill up steps. There is a system for fresh water to enter the vessel via a heat exchanger to a special interchange zone. At the same time the contaminated liquor is allowed to channel out through a drain without any sort of contact with the fabric or for that matter the new bath in the machine.

Paramount textile wants to add 15 Ton/Day soft flow dyeing with solid dyeing in dyeing process. Key Features of Soft flow Dyeing Machine are:

- Significant savings in processing time.
- Savings in water that is around 50%.
- Excellent separation of different streams results in optimum heat recovery and a distinct possibility of further use or a dedicated treatment.

The description and flow chart of existing solid dyeing and proposed soft flow dyeing is provided in **Annexure 9**.



**Figure 3.3: Photograph of Various Section of Dyeing Unit**



**Figure 3.4: Photograph of Proposed Dyeing Unit**



### 3.5.5 Process Flow of Printing

In the proposed project, PTPLC will increase the printing capacity from 12 Ton/Day to 18 Ton/Day. Presently the process is using 2 types of printing methods one is pigment printing and another one is reactive printing. In the proposed printing section, the process will be using the existing printing method too. Details of the pigment printing and reactive printing is provided in **Annexure 10**.

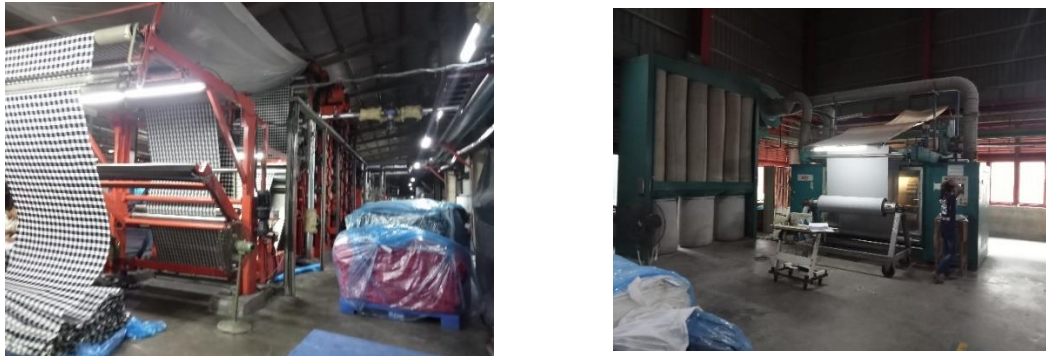


Figure 3.5: Photograph of Various Section of Printing Unit

## 3.6 Other Project Details

### 3.6.1 Effluent Treatment Plant (ETP)

#### 3.6.1.1 Description of Existing Effluent Treatment Plant (ETP)

Due to dyeing and printing, chemical wastewater is generated which is treated through existing ETP. The capacity of the existing ETP is 4800 m<sup>3</sup>/day. There is no water body around the project area. Treated water is collected through an outlet into a water collection tank. From this Collection Tank, treated water is pumped to Govt. municipal drainage line. The parameter of discharge water (outlet) is found to be well within the DoE guideline. The Existing ETP inlet and outlet water test report is provided in **Table 4.5** under section 4.3.10. Description of ETP and layout is shown in **Annexure 11**. Existing condition of ETP area and Flow diagram of ETP are shown in **Figure 3.6 and 3.7** respectively. Finally, the dried sludge is sent to the Cement Industry (Lafarge Holcim Bangladesh Limited) for reusing in Geo-Cycle Unit. Certificate of dried sludge dispatching to the Lafarge Holcim Bangladesh Limited is attached in **Annexure 12**.



Inlet

Treater Water Pumping  
Area

Outlet (Discharging into Drain)

Figure 3.6: Photographs of ETP Area

## **ETP Process Flow Diagram**

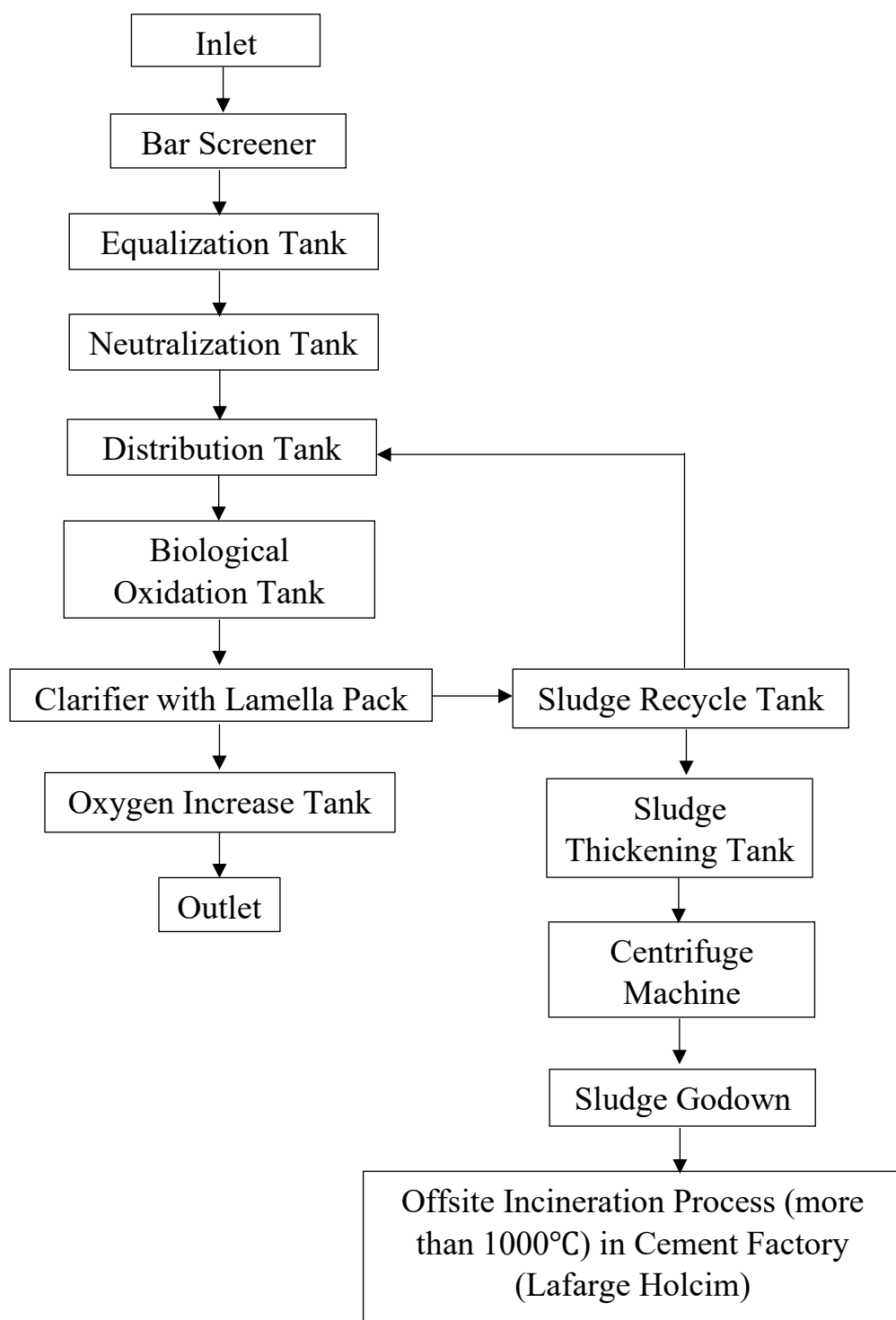


Figure 3.7: Process Flow Diagram of Existing ETP

### 3.6.1.2 Proposed Effluent Treatment Plant (ETP)

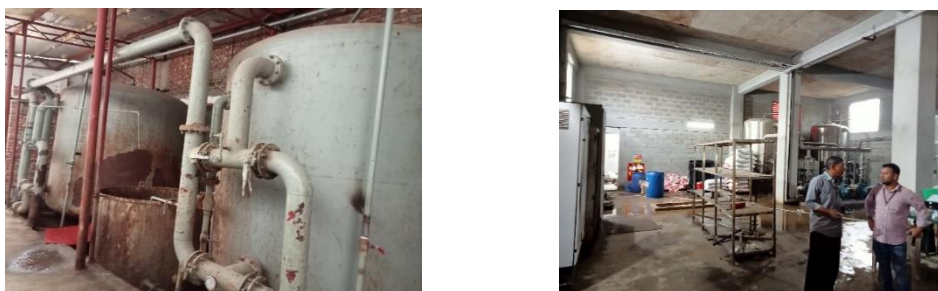
Due to the capacity enhancement and addition of soft flow dyeing with solid dyeing, more wastewater will be generated, that's why a new ETP (capacity 4800 m<sup>3</sup>/day) has been proposed beside the existing ETP area. The process flow of the new ETP will be same as the existing ETP, which is discussed in **Annexure 13**. Photographs and layout of proposed ETP are shown in **Figure 3.8** and **Annexure 13** respectively.



**Figure 3.8: Photographs of Proposed ETP**

### 3.6.2 Water Treatment Plant (WTP)

There are two WTP in the factory premises for removal of impurities and heavy metals i.e., Iron for the washing of clothes and other production purpose. The capacity of both WTP is 200 m<sup>3</sup>/h. There is an underground water tank to hold the soft water after treatment. Existing capacity of the underground water tank is 629m<sup>3</sup> but after the capacity enhancement the authority will extend the capacity of underground water storage tank, which will be 860 m<sup>3</sup>. Photographs of WTP are shown in **Figure 3.9**. Process flow of WTP is provided in **Annexure 13**.



**Figure 3.9: Photographs of WTP**

### 3.6.3 Sewage Treatment

The uncontrolled dumping of sewage into water bodies and open land due to a lack of sewage management legislation and the absence of treatment procedures in textile industries might pose risks to the environment and human health. The authority of PTPLC is aware about the proper sewage management within the project area.

**Existing Condition:** Septic tanks have already been constructed for proper sewage management. There are 9 septic tanks with soak pit is present within the project area. Dimention of each septic tanks is about 30ft\*10ft\*3ft. The toatal volume of 9 septic tank is 228.6 m<sup>3</sup>/day, which are sufficient for

sewage waste management for overall factory in construction phase of the proposed extension and existing factory. Yellow color box in **Figure 2 of Annexure 14** shows the location of septic tank.

**Proposed Condition:** The authority has proposed 9 Sewage Treatment Plant (STP) within the project area for proper sewage management. The capacity of those STPs is 18m<sup>3</sup>/day, 22 m<sup>3</sup>/day (2), 35 m<sup>3</sup>/day, 4.5 m<sup>3</sup>/day, 13.5 m<sup>3</sup>/day, 6.6 m<sup>3</sup>/day (2) and 3 m<sup>3</sup>/day respectively. The total capacity of STPs is 131.2 m<sup>3</sup>/day which is sufficient for 3280 people but there will 4000 workers and staffs during the proposed project operation phase. As per BNBC,2020 in any industrial project the wastewater generation rate for a non-residential worker is 40 L/capita/day and for 4000 people it should be 4000X40 L/capita/day = 160000 L/day or 160m<sup>3</sup>/day, which is greater than the proposed STP capacity. So, the capacity of the proposed STP should be increased from 131.2 m<sup>3</sup>/day to 160 m<sup>3</sup>/day. Layout of STP has been shown in **Figure 3 of Annexure 14**. Details of the STP process flow also provided in **Annexure 14**.

#### 3.6.4 Captive Generator

There are 7 sets of Natural Gas based Captive Generators in the factory at Utility Area. The capacity of those captive generator is 1064 KW (3 nos.) and 1415 KW (4 nos.). Stack height of each Generator is 80 ft. For operating generator natural gas is supplied by Titas Gas Transmission and Distribution Company. The proponent will add 1501KW (4nos) and 1067KW (1nos) capacity generator for the proposed project.



**Figure 3.10: Generator Room**

#### 3.6.5 Boiler

There are 8 nos. boilers (6 Nos Natural Gas, 2 nos EGB) in the factory. The capacity of those boilers is B1 = 10000 Kg/hr, B2 = 10000 Kg/hr, B3 = 8000 Kg/hr, B4 = 6000 Kg/hr, B5 = 10000 Kg/hr, B6 = 8000 Kg/hr, B7 (EGB) = 1960 Kg/hr, B8 (EGB) = 4200 Kg/hr. Stack height of these boilers are 80 ft. B1-B6 boilers run on natural gas, whereas the EGB boilers B7 and B8 run on exhaust gas from captive generators. The boilers are mainly used for steam production. Steam is used in a variety of processes, including dyeing, printing, and finishing.

The proponent will not add any additional boiler for the proposed project, existed boilers will be used for the proposed project.





Figure 3.11: Boiler Room

### 3.6.6 Fire Equipment

Paramount Textile PLC authority has already installed sufficient fire preventive equipment and tools at each section of the factory. List of fire equipment is given in **Annexure 15**.

## 3.7 Resources and Utilities Demand

### 3.7.1 Electricity

Current requirement of electricity is 8.852 W/h. After the capacity enhancement, proposed electricity requirement will be 15.9MW/h. Main Electricity is supplied by existing 7 nos and proposed 5 nos captive generators, whereas proposed 3 nos with Capacity of 1064 KW, 4 nos of 1415 KW capacity and proposed 4nos of 1501 KW capacity and 1nos of 1067KW capacity. For backup electricity supply there is 3.2 MW/h line from Rural Electrification Board (REB) and after project extension it will be increase to 7.2 MW/h line from REB.

Table 3.3: Electricity Demand and Supply

Objectives	Existing	Proposed
<b>Electricity Requirements</b>	8.852 W/h	15.9MW/h
<b>Captive Generator</b>	7 nos. (3 nos with capacity of 1064 KW, 4 nos of 1415 KW capacity)	5 nos (4nos of 1501 KW capacity and 1nos of 1067KW capacity)
<b>Backup Electricity Supply</b>	3.2 MW/h line BREB	7.2 MW/h line from BREB

### 3.7.2 Water

Currently the paramount textile is using total 3924 m<sup>3</sup>/day water for production, sanitation, drinking and other purpose. After expansion of the project, total required water for production is 7850 m<sup>3</sup>/day for sanitation, drinking and other purpose. The water consumption diagram of existing project and after extension is given in **Table 3.4**. The source of water will be ground water. The proponent has permission of ground water withdrawal from Sreepur Pourashava, and PTPLC has applied for NOC

from Water Resources Planning Organization (WARPO) as per the GoB policy which attached in Annexure 16.

**Table 3.4: Project Existing and After Expansion Water Consumption Diagram**

SL No.	Water uses purpose		Quantity of water used (m³/day)	
			Existing	After extension
1.	For production	Yarn Dyeing	2494	2986
		Fabric Dyeing		1200
		Printing	300	720
		washing, finishing & Others	310	1092
		Soft Flow Dyeing (Proposed)	-	802
		Total =	3104	6800
2.	Sanitation & Drinking		720	900
3.	Others Gardening, Road Cleaning and Car washing		100	150
Total consumption =			3924 m³/day	7850 m³/day

### 3.7.3 Fuel

PTPLC will require increased supply of fuel after project expansion. The supplier of the natural gas is Titas Gas Transmission and Distribution Company.

- **Present requirement:** Total 5097 m<sup>3</sup>/hr natural gas for the operation of existing project.
- **Proposed requirement** After the project extension the proposed natural gas requirement will be increased to 9024 m<sup>3</sup>/hr.

## **4 BASELINE ENVIRONMENT**

### **4.1 General Consideration**

Baseline condition of environment states the present status of different components of environment i.e., physical, biological, cultural, economic and social environmental characteristics in absence of the project. Environmental baseline study by examining the existing environment, serves as the basis of the project site against which potential impacts from development activities of the project can be compared. Mainly there are two principal objectives in examining and defining the existing environment:

- To recognize potential environmental impacts of the project and enable mitigation measures to be identified;
- To provide a baseline against which environmental conditions in the future project may be measured and to document conditions which were either existing or developing before the introduction of the project and not due to the project.

The baseline environmental quality is assessed through field studies within the impact zone for various components of the environment, viz. air, noise, water, ecology and socio-economic condition.

### **4.2 Objective and Methodology**

The primary objective of the environmental and social baseline condition study is to provide an environmental and social baseline against which potential impacts from the project can be compared.

The methodology adopted for collecting the baseline data was as follows:

- Study area of maximum 5 km radial zone from the middle point of the Project location was selected for the baseline studies;
- Primary data collection was conducted through environmental monitoring and field survey for water, air, noise and ecology;
- Social baseline of the study area was captured through primary and secondary data review;
- Secondary data was collected from government reports, academic institutes, websites, published literature etc.

### **4.3 Physical Environment**

#### **4.3.1 Physical Environment Surrounding Project Site & Study Area**

The land of the project is located at Gilarchala, Sreepur Upazila in Gazipur District. It is bounded on the north by Mymensingh and Kishoreganj Districts, on the east by Narshingdi District, on the south by Narayanganj and Dhaka Districts and on the west by the Tangail District. Primary and Secondary data has been generated and collected for conducting the Baseline Study.

The immediate surrounding extended area of about 5 km radius has been considered as “Area of Influence (AoI)” for this study. AOI of the project site is shown in **Figure 4.1**. Baseline sampling location is shown in **Figure 4.2**.

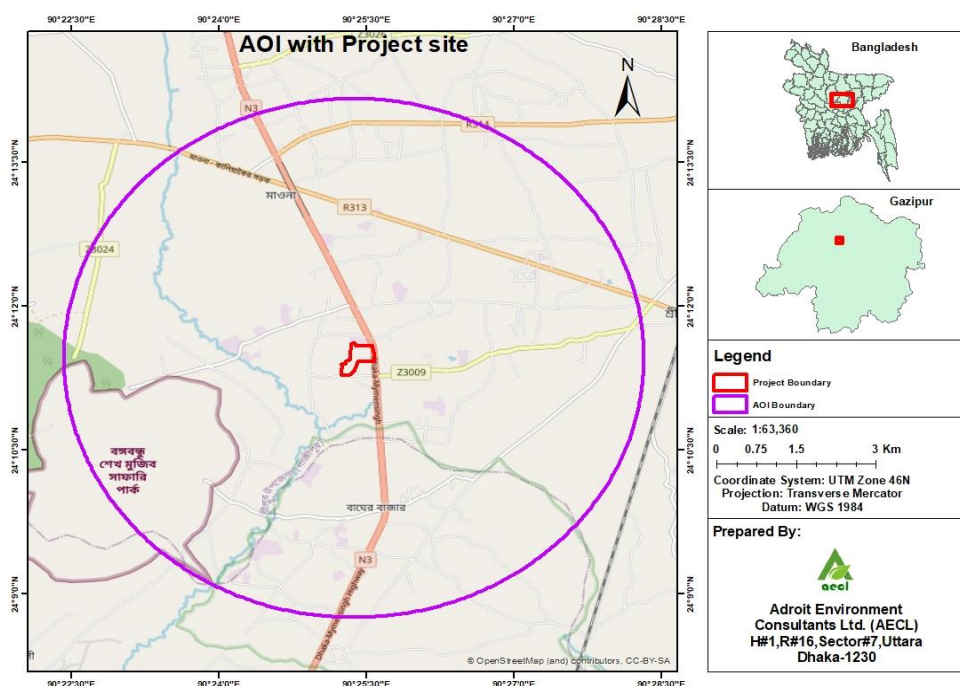


Figure 4.1: AOI of the Project Site

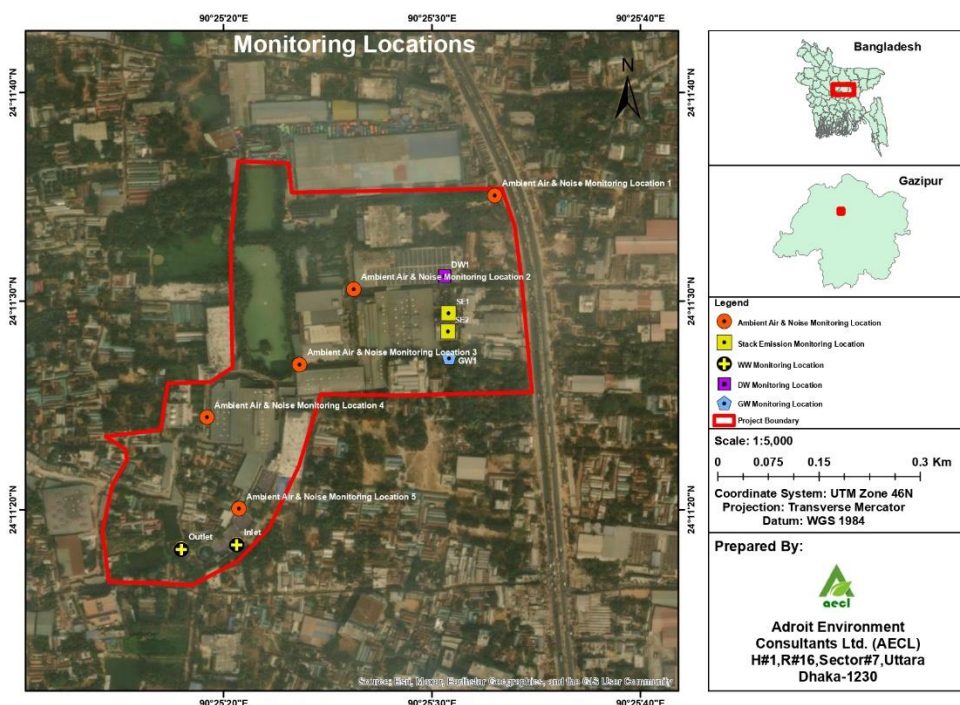


Figure 4.2: Monitoring Location of the Project Site

### 4.3.2 Scientific Approach for Baseline Study



#### 4.3.2.1 Particulate/Air Quality Monitoring

Particulate monitoring was accomplished with Respirable Dust sampler, which is a vacuum type device that draws air with particulate matter through a filter paper which was collected over a period of 24 hours. Details is provided in **Annexure 17**.

#### 4.3.2.2 Monitoring of Noise Level

Noise level monitoring is performed for 24 hours (day and night) using Noise Meter (CEM Sound Level Meter). Details is provided in **Annexure 17**.

#### 4.3.2.3 Stack Intensity

Stack intensity monitoring is performed by using Testo 350 meter. Picture of Testo 350 meter is attached in **Annexure 17**.

#### 4.3.2.4 Water Sampling Method

1. Select a cold-water faucet for sampling which is free of contaminating devices such as screens, aeration devices, hoses, purification devices or swiveled faucets. Check the faucet to be sure it is clean. If the faucet is in a state of disrepair, select another sampling location;
2. Open the faucet and thoroughly flush. Generally, 2 to 3 minutes will suffice;
3. Do not rinse or overfill container. Close the plastic bottle cap and store in the icebox.

#### 4.3.3 Project Land Marks

Land marks within the 5km radial zone of project location is shown in **Table 4.1** and **Figure 4.3**.

**Table 4.1: List of Land marks around the 5km buffer area of the project site**

Landmarks	Lat	Long	Distance (km)	Direction
Fakhruddin Textile Mills Ltd	24°11'28.23"N	90°26'5.41"E	1.23	North-east
Zubair Spinning Mills Ltd	24°11'36.58"N	90°25'26.65"E	0.20	North
Moulovi bari Baitul hamd jame mosque	24°11'42.43"N	90°25'20.31"E	0.20	North
Banggabandhu safari park Gazipur	24°10'11.41"N	90°23'29.60"E	3.88	South-West
Cotton Development Board	24°10'40.24"N	90°25'49.27"E	1.15	South-east
Beraiderchala Govt. primary school	24°11'45.31"N	90°25'0.88"E	0.77	North-West
Abed Ali Girls' School & College	24°12'1.63"N	90°25'18.73"E	1.08	North
Anser road jame mosque	24°11'53.45"N	90°25'20.03"E	0.81	North
Designtex Knitwear Ltd.	24°11'34.81"N	90°25'2.72"E	0.35	West
X Ceramics Ltd.	24°11'33.71"N	90°24'7.60"E	2.15	West

Landmarks	Lat	Long	Distance (km)	Direction
Blue Planet Knit Composite LTD.	24°12'24.26"N	90°23'14.91"E	4.01	North-West
Sheikh Mujib Safari Park	24°10'35.87"N	90°23'22.88"E	3.18	South-West
Formosa Poly Cotton Textile (BD) Ltd.	24° 9'47.61"N	90°25'56.91"E	2.90	South-East
CA Knitwear Ltd.	24° 8'51.75"N	90°25'21.37"E	4.45	South
Bhabanipur Forest Office	24°10'19.32"N	90°26'46.85"E	2.88	South-East
Evitex Dress Shirt Ltd.	24°10'13.81"N	90°26'34.75"E	2.76	South-East
Dhaka Garments & Washing Ltd.	24°11'32.99"N	90°27'26.47"E	3.17	East
Kewa Purbo Khondo Primary School	24°11'58.42"N	90°26'21.46"E	1.15	North-East
AIUB Research Center	24°12'16.34"N	90°27'7.86"E	2.90	North-East
North-East	24°13'36.21"N	90°25'24.61"E	3.7	North

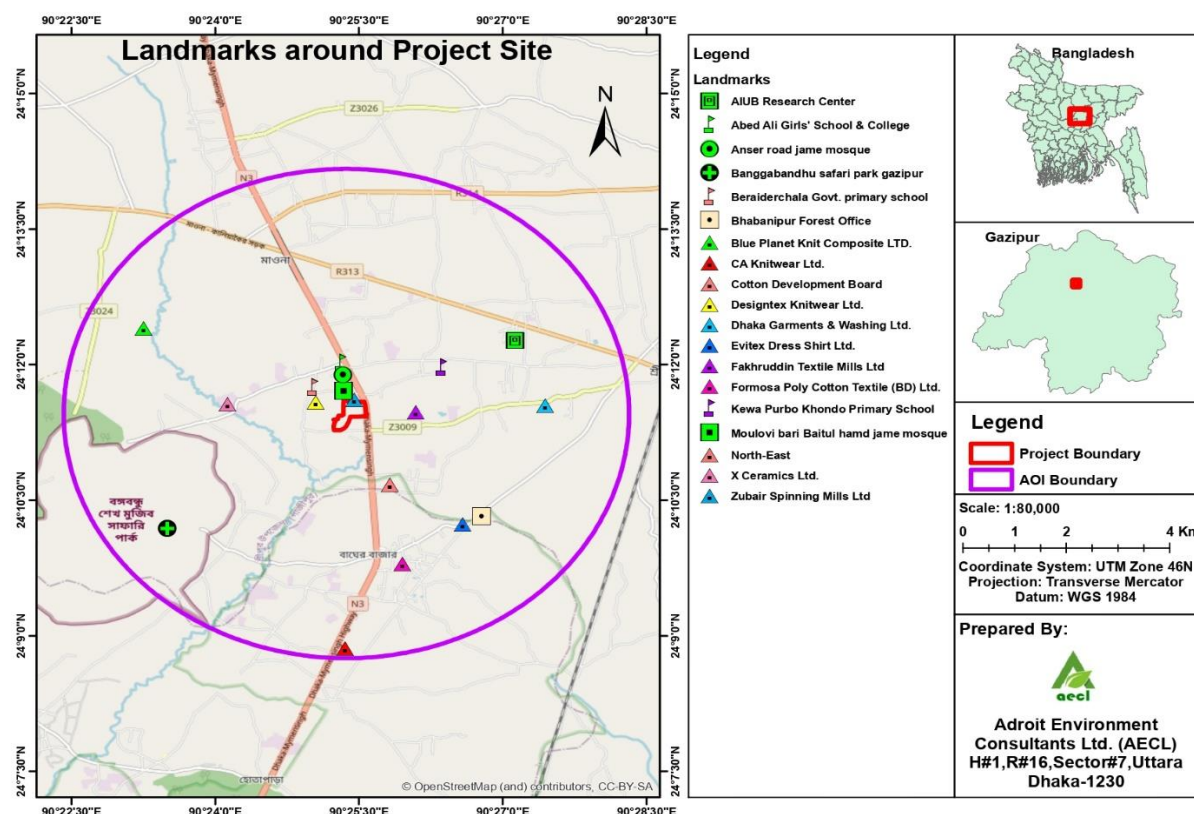


Figure 4.3: Landmarks Around The 5km Radius of The Project Area

#### 4.3.4 Land Use/ Land Cover

Land use/ land cover inventories are an essential component in land resource evaluation and environmental studies due to the changing nature of land use patterns. By proper analysis of Land use, existing land use pattern can be known easily. The land use study for the Paramount Textile PLC at Gazipur and its 5 km buffer is undertaken with the following objectives:

- To study the land use/cover in the 5 km area of the Paramount Textile PLC at Gazipur and provide inputs for environmental planning of the proposed project by analyzing the existing land use/land cover scenario;
- To establish the existing base line scenario using a GIS database for incorporation of thematic information on the different physical features including Agricultural Land, Water bodies, Settlement Area.

##### 4.3.4.1 Land Use Interpretation of the Study Area

A landsat 8-9 image has been used to make the detail analysis of Existing land use Pattern. The Existing Land Use Map has been given bellow **Figure 4.4**:

##### 4.3.4.2 Land Use Analysis

A variety of urban and settlement area can be found within the entire 5 km land use area, which is approximately around 68.40% (13275.41 acres) of the entire 5 km project area. Among the 19407 acres (5 km around the project site) only 1628.47 acres (8.39 %) are agricultural land and 3726.69 acres are forest land. In addition, about 2.61% of the land occupies industrial area and a few amounts of water body is found, which is 175.08 acres. 43.86 acres. The project site covers only 34.15 acres, which is 0.17 % of the total 5km land use area. However, 60.71 acres of land occupies highway within the AOI. The project area mostly surrounded by urban and settlement area, which can be seen in **Figure 4.4**. Details of the land use is presented in Table below.

**Table 4.2: Area Calculation of Existing Land use for 5 km Buffer Area**

Land Use	Area (Acres)	Percentage
Agricultural land	1628.47	8.39
Water Body	175.08	0.90
Urban & Settlement Area	13275.41	68.40
Forest Land	3726.69	19.20
Industrial Area	506.49	2.61
Highway	60.71	0.31
Project Area	34.15	0.17
<b>Total</b>	<b>19407</b>	<b>100</b>

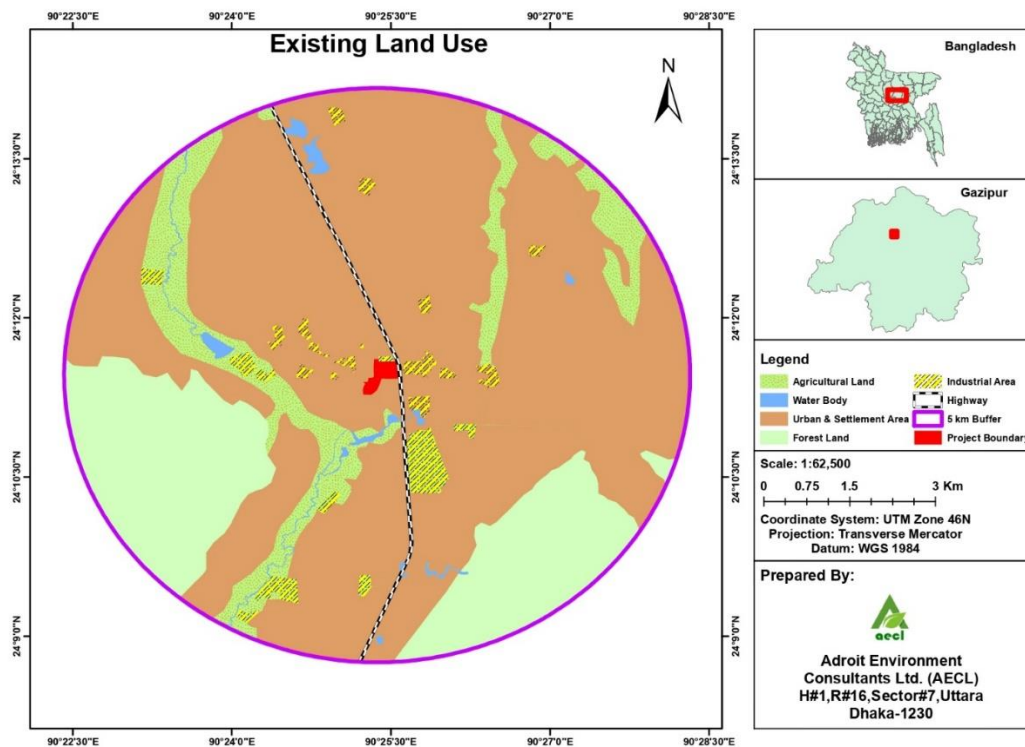


Figure 4.4: Existing Land Use Map for 5 km Buffer Area

#### 4.3.5 Infrastructure (Road, Drains)

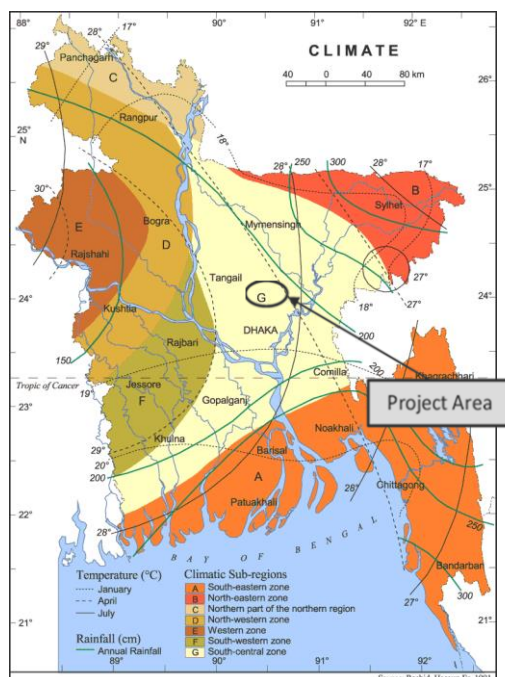
The project site is located just beside the Dhaka-Mymensingh Highway at Sreepur Upazila in Gazipur. The main access road from Dhaka to project site is pucca and four lens which is about 100-120ft wide. All kinds of vehicles like buses, trucks, motorcycles, easy bikes and CNG were seen in the project area during site visit. There is no traffic jam around the project area. The internal roads facility of the project site is satisfactory and well planned. The main entrance road is 20-25ft wide and internal are 50-60ft wide. The road around the project site is shown in **Figure 3.2**.

Well planned drainage system is available in and around the project site. The treated water from the ETP is discharged in the municipal drainage system and the septic tanks a soak pits for disposing of the sewage wastewater. Drainage layout of the project area is shown in **Annexure 18**.

#### 4.3.6 Meteorological Data

Bangladesh is located in the tropical monsoon region, and its climate is characterized by high temperature, heavy rainfall, often excessive humidity, and fairly marked seasonal variations. According to the Climate map (**Figure 4.5**), the project area falls in **South-central zone (G)**. In this zone rainfall is abundant, being above 1,900 mm. The range of temperature is, as can be expected, much less than to the west, but somewhat more than in South-eastern zone. This is a transitory zone between the South-eastern, North-western and South-western zones and most of the severe hail storms, nor'westers and tornadoes are recorded in this area. (Chowdhury, 2014). Since there is no meteorological station of BMD available in Gazipur, so meteorological data of the nearest available station, Dhaka meteorological station has been considered and presented in the following sections. Furthermore, weather condition of the project area is more similar to Mymensingh than Dhaka.

Mymensingh is another nearby station, and meteorological data of this station has also been discussed in the following section.



(Rashid, 1991)

Figure 4.5: Climate Map of Bangladesh

#### 4.3.6.1 Rainfall

The rainfall follows the general climate pattern with the highest rainfall in the summer month of June to September and minimum rainfall in the cooler and drier months of November to March. Total monthly rainfall values of Dhaka Station and Mymensingh station are given in **Figure 4.6** and **Figure 4.7 respectively**. Rainfall variability map of Bangladesh is presented in **Figure 4.8**. According to the map, the rainfall variability of the project area is 20.1~22%. The highest rainfall was experienced in Dhaka station in July, 2015 (623 mm) and in Mymensingh station in July, 2019 (603 mm) during monsoon period. Normally the minimum rainfall is experienced during the winter season from month November to March Which varies between 0 mm and 115 mm.

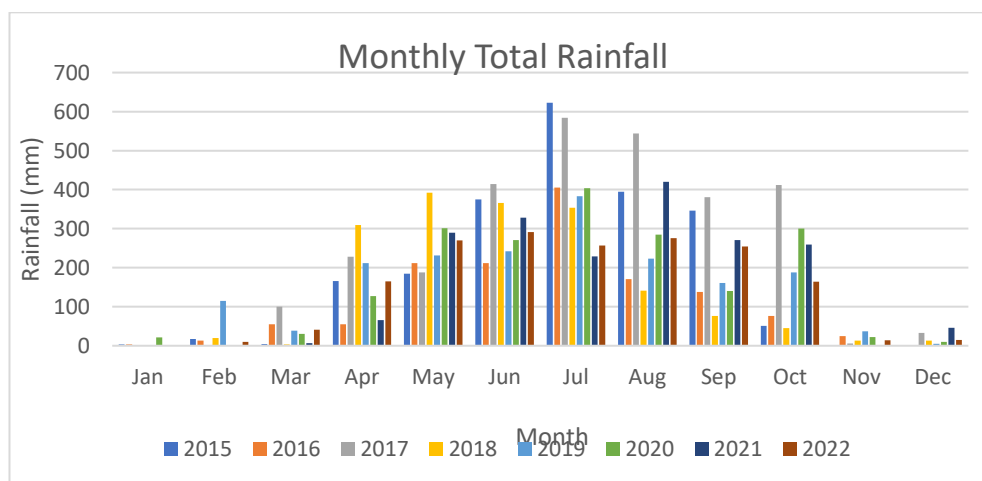


Figure 4.6: Monthly Total Rainfall data of Dhaka (2015- 2022)

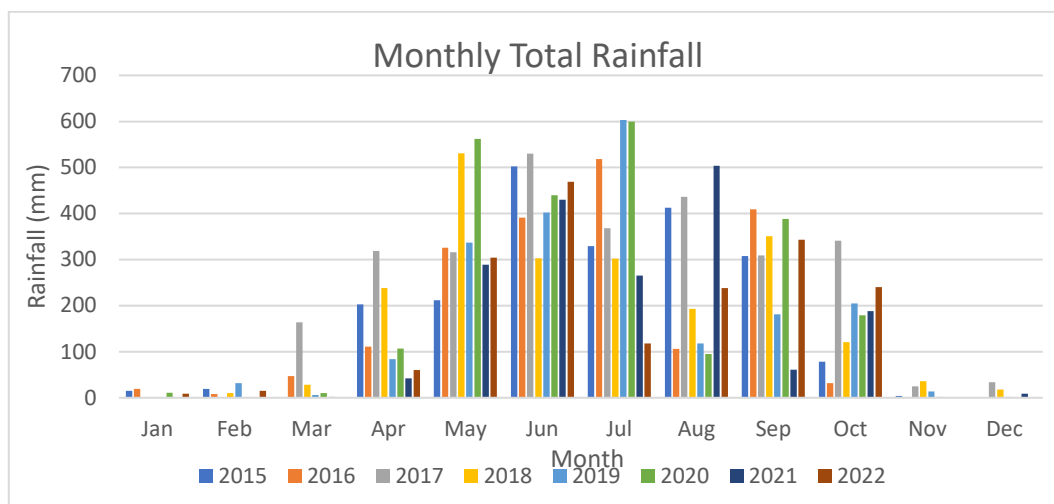
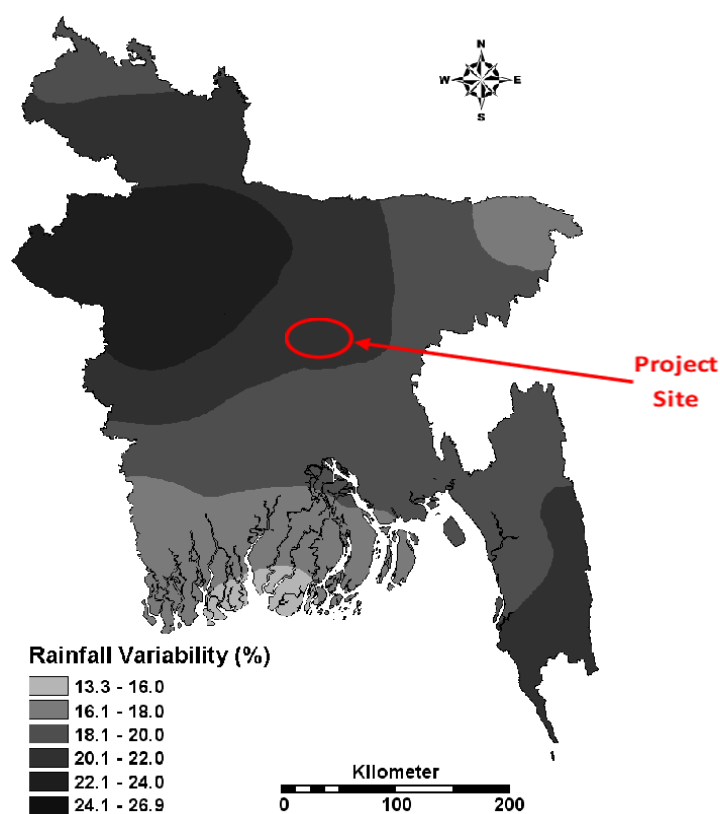


Figure 4.7: Monthly Total Rainfall data of Mymensingh (2015- 2022)



(Bangladesh Agricultural Research Council)

Figure 4.8: Rainfall variability map of Bangladesh

#### 4.3.6.2 Relative Humidity

Humidity during the wet season is naturally the highest compared to those occurring at other times of the year. The monthly average relative humidity from year 2015 to year 2022 of Dhaka Station and Mymensingh station are given in **Figure 4.9** and **Figure 4.10** respectively. The highest humidity was experienced in Dhaka station in July, 2020 (85 %) and in Mymensingh station

in August, 2015 (87%) and the lowest humidity in Dhaka station in March, 2022 (37 %) and in Mymensingh station in March, 2019 (72 %).

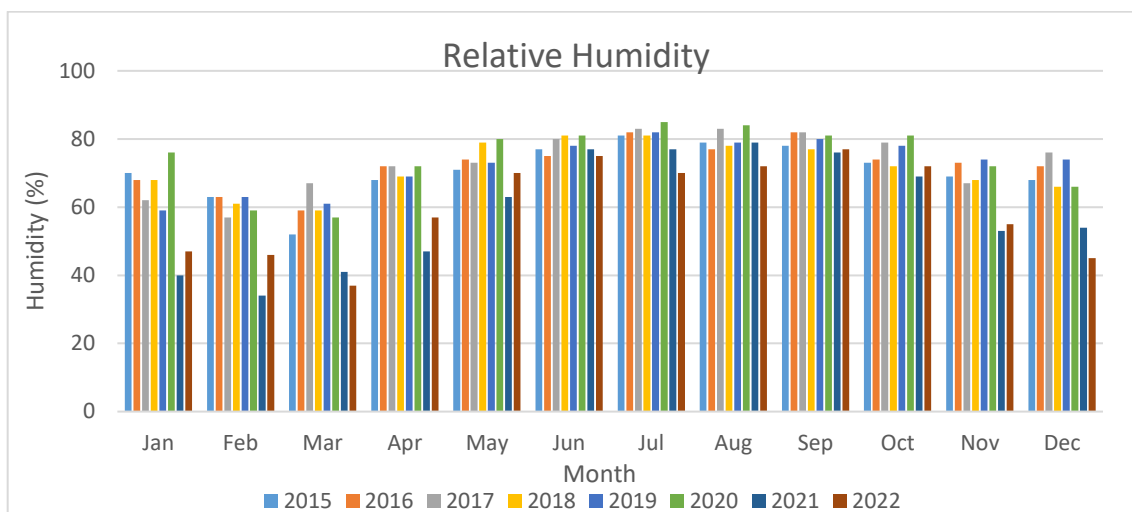


Figure 4.9: Average Monthly Relative Humidity of Dhaka (2015- 2022)

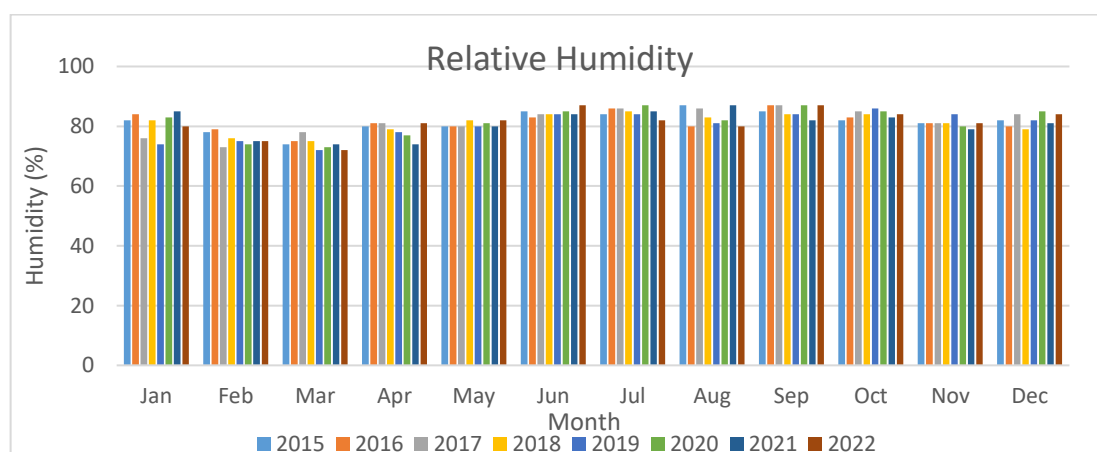


Figure 4.10: Average Monthly Relative Humidity of Mymensingh (2015- 2022)

#### 4.3.6.3 Wind Speed

According to Bangladesh Meteorological Department the average wind speed from 2015 to 2022 of Dhaka Station and Mymensingh station are shown in **Figure 4.11** and **Figure 4.12**. The wind speed was the highest in April, 2022 (8.1 km/h) in Dhaka station and in August, 2022 (6 km/h) in Mymensingh station. The data showed that humidity is lowest in the month of December in both stations. **Figure 4.13** shows the wind Rose direction of Gazipur district, the highest wind blows to the south -east direction and lowest at the south west direction.



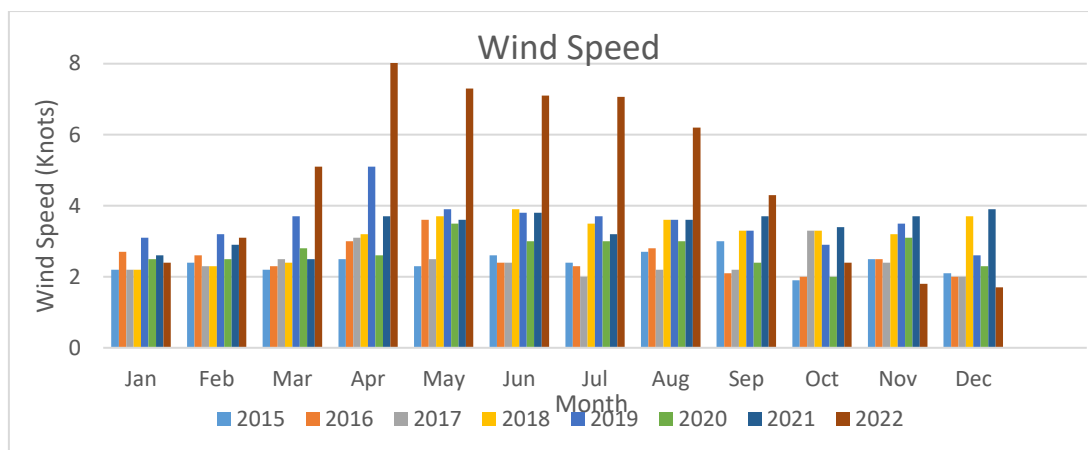


Figure 4.11: Monthly Prevailing Wind Speed of Dhaka (2015- 2022)

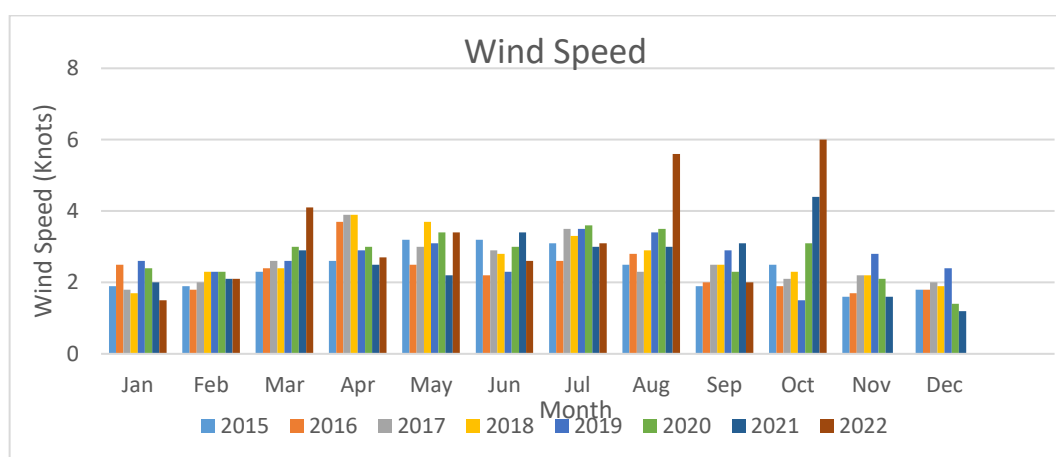


Figure 4.12: Monthly Prevailing Wind Speed of Mymensingh (2015- 2022)

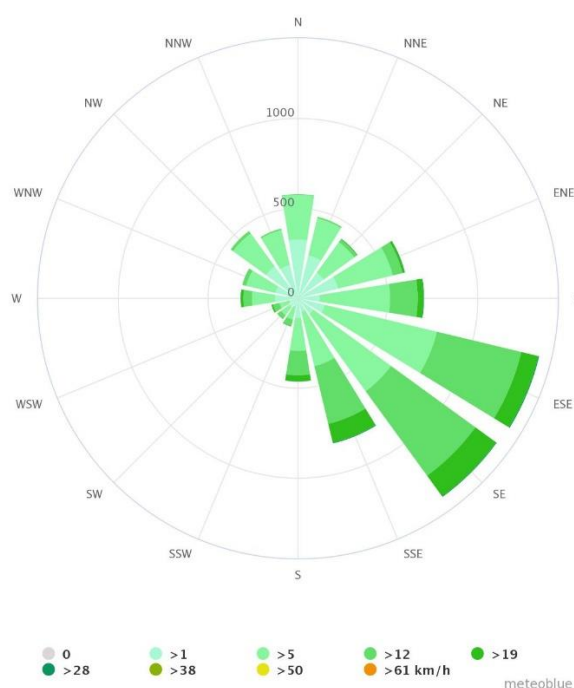
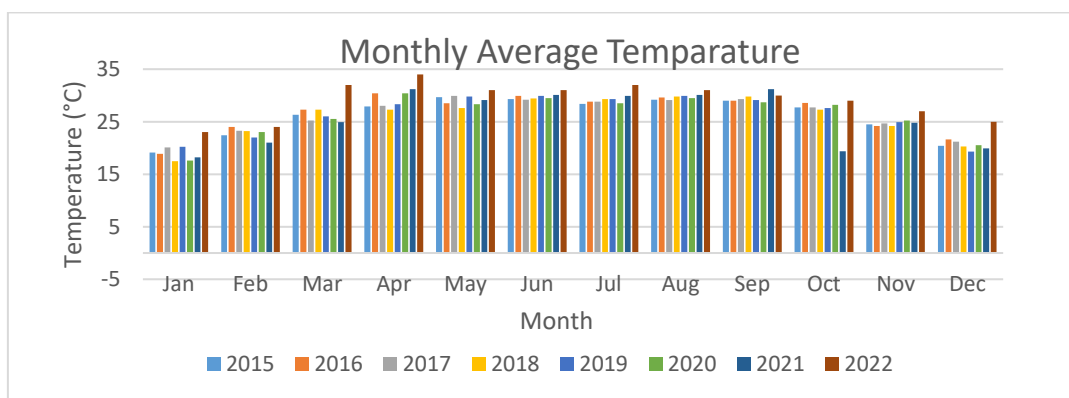


Figure 4.13: Wind Rose of Gazipur District

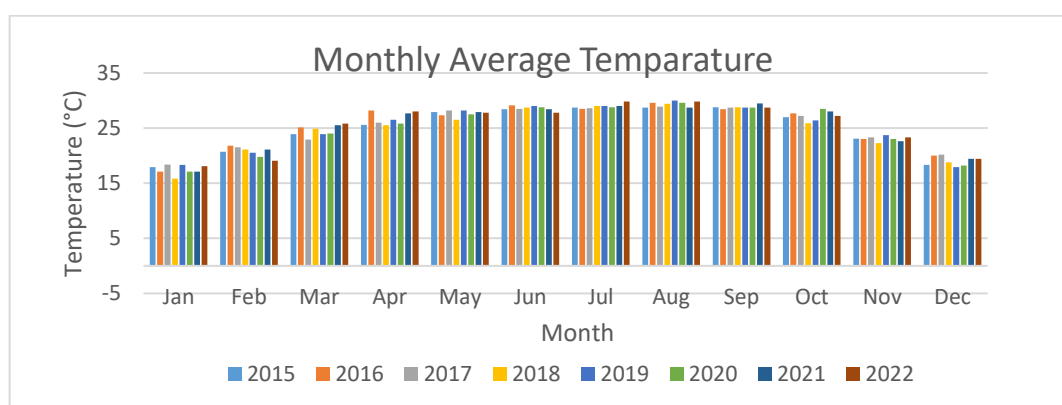


#### 4.3.6.4 Ambient Air Temperature

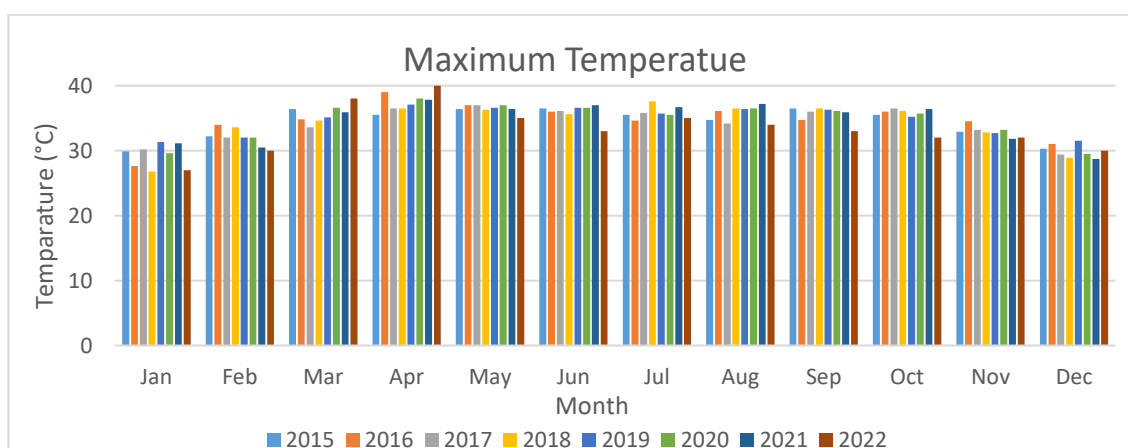
In general, cool seasons coincide with the period of lowest rainfall. **Figure 4.14 - Figure 4.19** shows the monthly average, maximum and minimum temperature in degree Celsius for the period 2015 to 2022 of Dhaka and Mymensingh Meteorological station. The maximum and minimum dry bulb Temperature was experienced in April, 2022 (34°C) and in January, 2018 (17.5 °C) respectively in Dhaka station. In Mymensingh station, the highest and lowest monthly dry bulb ambient average temperature was experienced in August, 2022 (29.8 °C) and January, 2018 (15.8 °C) respectively.



**Figure 4.14: Monthly Ambient Average Temperature of Dhaka (2015- 2022)**



**Figure 4.15: Monthly Ambient Average Temperature of Mymensingh (2015- 2022)**



**Figure 4.16: Monthly Maximum Temperature of Dhaka (2015- 2022)**

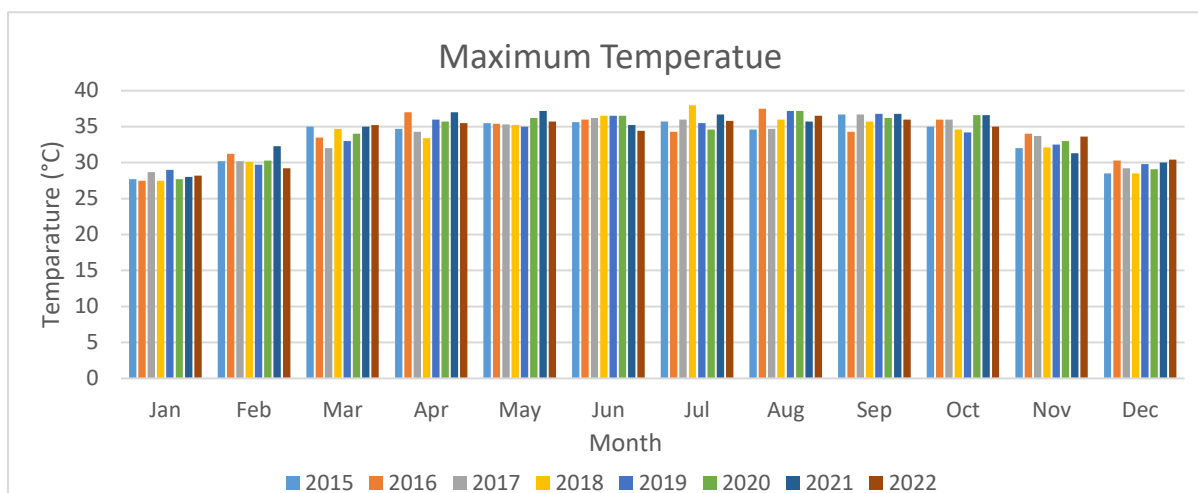


Figure 4.17: Monthly Maximum Temperature of Mymensingh (2015- 2022)

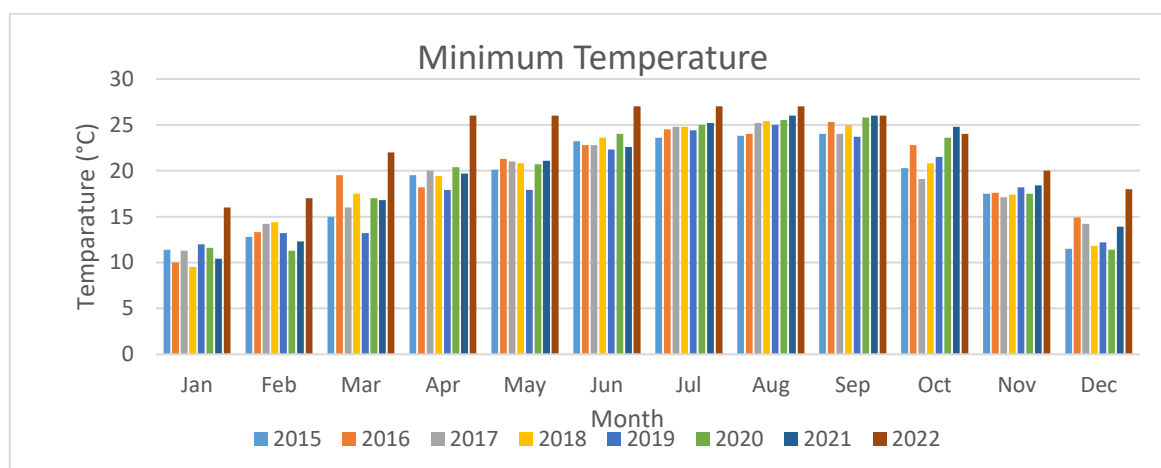


Figure 4.18: Monthly Minimum Temperature of Dhaka (2015- 2022)

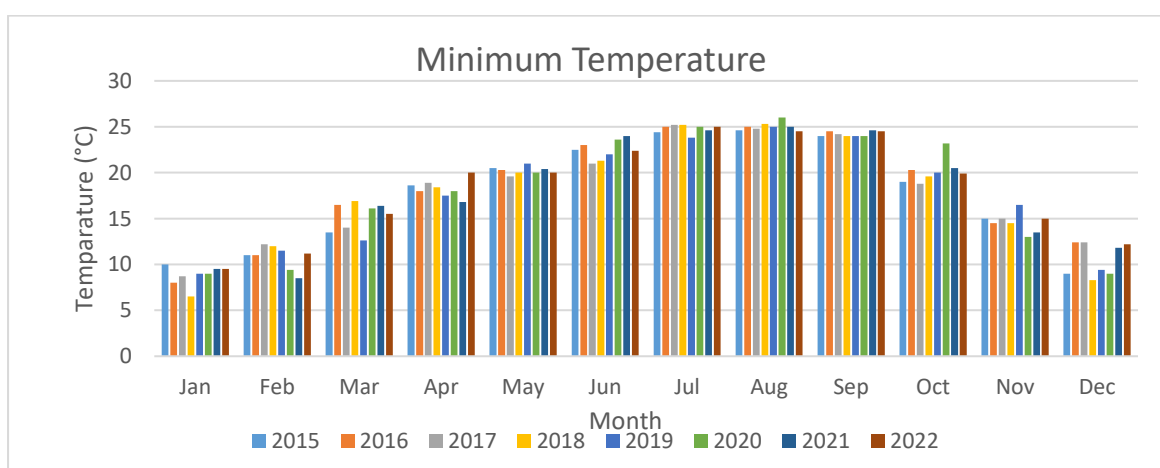
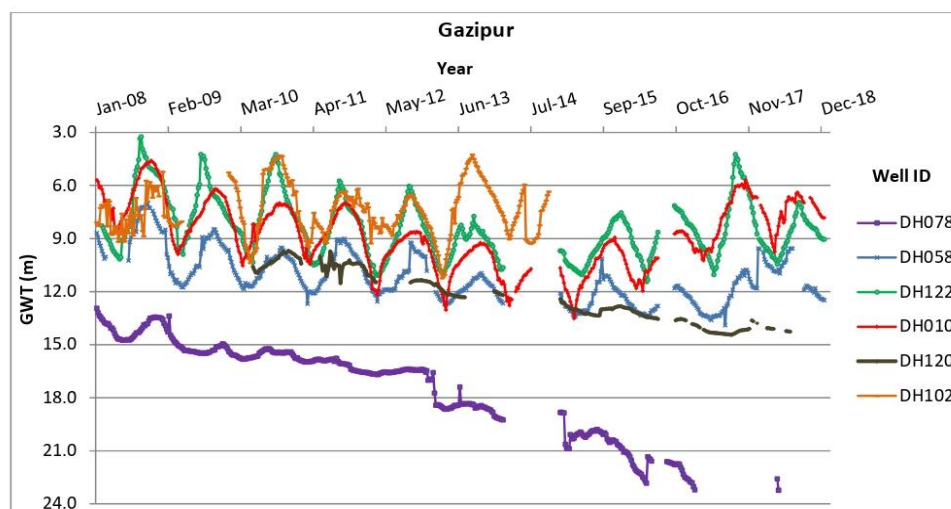


Figure 4.19: Monthly Minimum Temperature of Mymensingh (2015- 2022)

### 4.3.7 Hydrology

Groundwater is an important segment of the hydrologic cycle and constitutes about one third of world's fresh water reserves. It is the only source of water supply for drinking and main source of irrigation. As other parts of the country this area also receives sufficient amount of rainfall and there is a good availability of ground water, which is being used by hand pumps for drinking and domestic purposes. The source of groundwater is either precipitation or seepage from large water bodies like reservoirs, lakes, River.



(BWDB, 2020)

**Figure 4.20: Hydrographs of GWT of Gazipur District**

As per hydrograph report of Bangladesh Water Development Board, groundwater Table of Gazipur district shows quite different and abnormal trend. Among 6 wells the overall trends of hydrographs are almost similar in 4 wells namely DH058, DH122, DH010 and DH102 which situated in Kaliakair, Kaliakair sadar, Sreepur and Kapasia upazillas respectively. The hydrographs show decreasing trend in dry period (December-February) and these show lowest level in pre-monsoon period (March-May) followed by a rapid increasing trend in the monsoon period (June-August) and over again a gradual decrease in post monsoon period (September-November). The distance from the project site to the DH058, DH122, DH010 and DH102 is 24.92 km, 20.84 km, 5.83 km and 16.97 km respectively. Well no DH010 is the nearest from the project area. In well DH010 situated in Sreepur, GWT gradually decreases at the rate of around 0.45m to 0.86m per year. These declinations may be due to excessive extraction of ground water and the recharge don't reach that level.

PTPLC has installed 6 wells inside the project boundary. Depth of those wells are 380 ft, 380 ft, 280ft, 280ft, 280ft and 280ft respectively and bore diameter is 6-4 inch.

### 4.3.8 Groundwater Quality

Groundwater sample were collected on 13<sup>th</sup> February, 2024 from WTP Section of the PTPLC area and analyzed in the laboratory to check the result of important parameters. **Table 4.3** represents

groundwater quality of the samples collected from the site. Value of each parameter is well below the DoE standard and WHO guideline. Groundwater quality test report is attached as **Annexure 19**.

**Table 4.3: Ground Water Quality**

Parameter	Concentration present GW1 (24°19'17.82"N, 90°42'51.3"E)	Unit	ECR'2023 Drinking Water Standard	WHO Standard	Method of analysis
pH	7.9	-	6.5-8.5	6.5-8.5	pH meter
TDS	410	mg/l	1000	<1000	TDS Meter
Dissolved Oxygen (DO)	6.9	mg/l	-	6	DO meter
Turbidity	0.84	NTU	5	<5	Nephelometric
Calcium	46	mg/l	75	<75	AAS
Iron	0.57	mg/l	0.3-1.0	<0.3	Spectrophotometer
Arsenic	<0.05	ppb	0.05	10	AAS
Chloride	28.5	mg/l	250	<250	Potentiometric
Total Coliform	0	n/100 mL	0	0	Membrane filtration
Fecal Coliform	0	n/100 mL	0	0	Membrane filtration



**Figure 4.21: Photographs Of Ground Water Sampling**

#### 4.3.9 Drinking Water Quality

Drinking water sample has been collected on 9<sup>th</sup> November, 2023 from Drinking water Filter area of the PTPLC area and analyzed in the laboratory to check the result of important parameters. **Table 4.4** represents drinking water quality of the samples collected from the site. Value of each parameter is well below the DoE standard and WHO guideline. Drinking Water quality test report is attached as **Annexure 19**.

**Table 4.4: Drinking Water Quality**

Parameter	Concentration Present DW1 24°11'31.20" N 90°25'30.62"E	Unit	ECR'2023 Drinking Water Standard	WHO Standard	Method of analysis
pH	7.1	-	6.5-8.5	6.5-8.5	pH meter
TDS	96	mg/l	1000	<1000	TDS Meter

Dissolved Oxygen (DO)	7.9	mg/l	-	6	DO meter
Turbidity	0.30	NTU	5	<5	Nephelometric
Calcium	29	mg/l	75	<75	AAS
Iron	0.41	mg/l	0.3-1.0	<0.3	Spectrophotometer
Arsenic	<0.05	ppb	0.05	10	AAS
Chloride	16	mg/l	250	<250	Potentiometric
Total Coliform	0	n/100 mL	0	0	Membrane filtration
Fecal Coliform	0	n/100 mL	0	0	Membrane filtration



Figure 4.22: Photograph of Drinking Water Sampling

#### 4.3.10 Effluent Treatment Plant

Effluent sample has been collected on 9<sup>th</sup> November, 2023 from inlet and outlet of ETP and the test results are presented in **Table 4.5**. The result for effluent monitoring shows the pH, BOD<sub>5</sub>, COD, DO & TDS concentrations and the result of each parameter is well within the standard value. Wastewater quality test report is attached as **Annexure 19**.

Table 4.5: Wastewater Quality

Parameter	Location		As per ECR'2023 Bangladesh Standard for Wastewater from textile Industrial Units, discharging to inland surface Water	Water Resource and Environment: Technical Note D.1
	Inlet of ETP	Outlet of ETP		
pH	10.01	7.8	6-9	6-9
BOD <sub>5</sub> (20°C)	231	27	30	50
COD	685	165	200	250
DO	0.0	6.9	-	NF
TSS	136	38.5	100	50
TDS	890	820	2100	NF

NF=Not Found

#### 4.3.11 Air Quality

Air monitoring has been conducted at 5 different locations during 9<sup>th</sup>- 11<sup>th</sup> November, 2023. Two locations were measured each day using 2 Respirable Dust samplers for 24 hours following the standard monitoring method. The air quality data of the project site is given in **Table 4.6 (a)**. The result for ambient air quality monitoring shows the PM<sub>2.5</sub>, PM<sub>10</sub>, SPM, SO<sub>2</sub> & NO<sub>x</sub> concentrations of the

ambient air and the result of each parameter is well within the standard value. Air quality test report and picture is attached as **Annexure 19**. The periodic test results of PTPLC by a third-party monitoring team is provided in **Annexure 20**.

**Table 4.6 (a): Sampling locations ID and Name with Longitude-Latitude**

ID	Latitude	Longitude	Specific Location
AQ1	24°11'35.06"N	90°25'33.01"E	Entrance Gate near the Dhaka - Mymensingh highway
AQ2	24°11'30.58"N	90°25'26.24"E	Near Dyeing Unit
AQ3	24°11'26.95"N	90°25'23.65"E	Near Printing Section
AQ4	24°11'24.42"N	90°25'19.20"E	Near the settlement at west side of the project boundary
AQ5	24°11'20.04"N	90°25'20.74"E	Near the settlement at south -east side of the project

**Table 4.6 (b): Ambient Air Quality Analysis**

Parameter	PM <sub>2.5</sub>	PM <sub>10</sub>	SPM	SO <sub>2</sub>	NO <sub>x</sub>
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Duration (H)	24	24	8	24	1
Method	Gravimetric	Gravimetric	Gravimetric	West-Geake	Jacob and Hochheiser
AQ1	26	28	59	3.5	2.4
AQ2	33	38	75	3.8	4.2
AQ3	24	27	55	2.8	3.1
AQ4	39	32	68	4.01	3.5
AQ5	35	37	78	3.1	4.1
<b>DoE Standard</b>	<b>65</b>	<b>150</b>	<b>200</b>	<b>80</b>	<b>NF</b>
<b>IFC Standard</b>	<b>75</b>	<b>150</b>	<b>NF</b>	<b>125</b>	<b>200</b>

N.B.: NF – not found, DoE – Department of Environment)

1. Fine Particulate Matter (PM<sub>2.5</sub>).
2. Respirable Dust Content (PM<sub>10</sub>).
3. Suspended Particulate Matter (SPM).
4. Oxides of Nitrogen (NO<sub>x</sub>).
5. Oxides of Sulfur (SO<sub>2</sub>).



**Air monitoring (Day Time)**

**Air monitoring (Night Time)**

**Figure 4.23(a): Photographs of Air Quality Sampling**

#### 4.3.10.1 Stack Emission

Stack emission from the boilers which runs on natural gas has been analyzed to evaluate NO<sub>x</sub>, SO<sub>2</sub>, O<sub>2</sub>, SPM, CO & CO<sub>2</sub> emission level presented in **Table 4.6 (c)** and **Annexure 19**. There are 7 nos. of captive generator which are natural gas based and 8 nos. of Boiler (6 Gas based and 2 Exhaust Gas based). No exact guideline was found to evaluate the emission data. Nearest comparable DoE and IFC guideline

shows that emissions are within limit. The periodic test results of PTPLC by a third-party monitoring team is provided in **Annexure 20**.

**Table 4.6 (c): Stack exhaust contents of Generator & Boilers**

Description	O <sub>2</sub> %	CO	CO <sub>2</sub> %	NO <sub>x</sub>	SO <sub>x</sub>	SPM
<b>SE 1- Generator Room (Natural Gas Based)</b>						
Unit	(In mg/Nm <sup>3</sup> or as indicated)					
ECR' 2023 standards (in mg/Nm <sup>3</sup> or as indicated)	NYS	NYS	NYS	NYS	NYS	Gas 100 Oil 300
World Bank IFC Standard (mg/Nm <sup>3</sup> or as indicated)	Gas 15% Liquid 15%	NYS	NYS	Gas 1600 Liquid 1850	Gas NYS Liquid 2000	Gas NYS Liquid 50-100
Generator -01 (1064 KW)	7.2	210	6.10	60	0	21.4
Generator -02 (1064 KW)	7.8	240	6.50	58	0	24.3
Generator -03 (1415 KW)	7.5	230	7.00	65	0	23.9
Generator -04 (1415 KW)	7.1	252	6.21	54	0	26.1
Generator -05 (1415 KW)	6.8	222	7.10	70	0	20.01
Generator -06 (1064 KW)	6.9	228	6.8	55	0	21.5
Generator -07 (1415 KW)	8.1	220	6.5	61	0	25.1
<b>SE 2- Boiler Room</b>						
Unit	(In mg/Nm <sup>3</sup> or as indicated)					
ECR' 2023 standards (in mg/Nm <sup>3</sup> or as indicated)	NYS	NYS	NYS	NYS	NYS	Gas 100 Oil 300
World Bank IFC Standard (mg/Nm <sup>3</sup> or as indicated)	Gas 15% Liquid 15%	NYS	NYS	Gas 1600 Liquid 1850	Gas NYS Liquid 2000	Gas NYS Liquid 50-100
Boiler -01 (10000 Kg/hr)	6.9	200	4.5	60	0	18.3
Boiler -02 (10000 Kg/hr)	7.0	197	5.0	56	0	22.3
Boiler -03 (8000 Kg/hr)	6.1	220	4.8	71	0	24.9
Boiler -04 (6000 Kg/hr)	8.0	180	5.1	55	0	26.1
Boiler -05 (10000 Kg/hr)	6.8	166	5.5	62	0	23.5
Boiler -06 (8000 Kg/hr)	7.3	190	5.9	55	0	22.4
Boiler -07(EGB) (1960 Kg/hr)	7.5	205	4.2	101	0	14.2
Boiler -08 (EGB) (4200Kg/hr)	7.3	198	4.1	98	0	13.1

NYS – Not Yet Set, mg/Nm<sup>3</sup> – milligram per cubic meter



**Figure 4.23(b): Stack Emission Monitoring Location (Generator)**



**Figure 4.23 (c): Stack Emission Monitoring Location (Boiler)**



#### 4.3.12 Noise Level

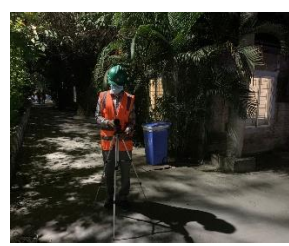
The ambient noise level data were collected from Five different locations in such a way so that it covers impact within the project area (2 locations), nearby settlement (2 location) and nearby Dhaka - Mymensingh highway (1 location) during 9<sup>th</sup> -11<sup>th</sup> November, 2023. Two locations were measured each day using 2 Noise level meter for 24 hours following the standard monitoring method. The monitoring data has been given below in **Table 4.7**. Noise quality test report with sampling picture is attached as **Annexure 19**. The periodic test results of PTPLC by a third-party monitoring team is provided in **Annexure 20**.

**Table 4.7: Ambient Noise level sampling locations ID and Name with data Analysis**

ID	Latitude	Longitude	Specific Location	Concentration present (LAeq) dBA.	
				Day Time	Night Time
NL1	24°11'35.06" N	90°25'33.01" E	Entrance Gate near the Dhaka -Mymensingh highway	65.6	52.4
NL2	24°11'30.58" N	90°25'26.24" E	Near Dyeing Unit	56.3	40.8
NL3	24°11'26.95" N	90°25'23.65" E	Near Printing Section	54.1	40.3
NL4	24°11'24.42" N	90°25'19.20" E	Near the settlement at west side of the project boundary	50.1	36.4
NL5	24°11'20.04" N	90°25'20.74" E	Near the settlement at south - east side of the project	57.2	36.1
DoE (Bangladesh) Standard for Industrial area				75	60
IFC/International Standard for Industrial/Commercial Zone				70	70
<b>Note:</b> This noise data was usually accomplished by – CEM Sound Level Meter (Model – DT 8850).					



**Day Time Monitoring**



**Night Time Monitoring**

**Figure 4.24: Photograph of Noise Level Data Collection**

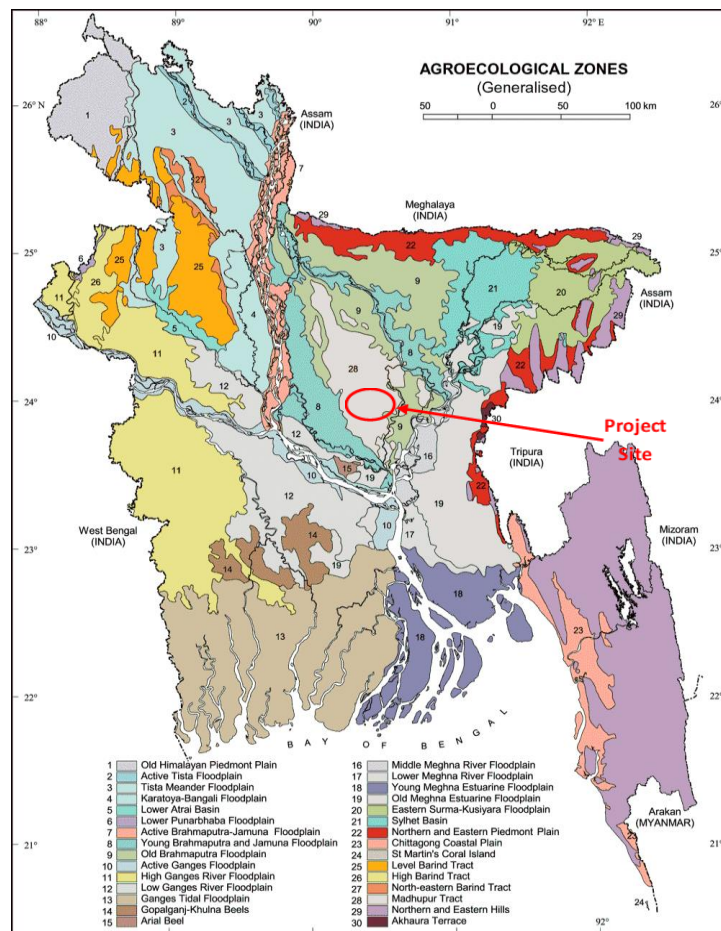
#### 4.3.13 Geology

Most of the area of Bangladesh is a vast, low-lying alluvial plain, sloping gently to the south and southeast. According to Bangladesh Agricultural research council's Agro-Ecological Zoning map (**Figure 4.25**) the project area falls in **Madhupur Track**.

This is a region of complex relief and soils developed over the Madhupur Clay. The landscape comprises level upland, closely or broadly dissected terraces associated with either shallow or broad, deep valleys. Eleven general soil types exist in the area of which deep red brown terrace, shallow red



brown terrace soils and acid basin clays are the major ones. Soils in the valleys are dark grey heavy clays. They are strongly acidic in reaction with low status of organic matter, low moisture holding capacity and low fertility level.



(Islam et al, 2020)

**Figure 4.25: Agro-ecological zones Map of Bangladesh**

#### 4.3.14 Natural Disaster

Bangladesh is one of the most vulnerable countries, who is facing problems on climate change due to global warming. Low-lying coastal regions like Bangladesh are vulnerable to sea level rise and increased occurrence of intense, extreme weather conditions such as the cyclones from 2007 and 2009. It is necessary to identify all present vulnerabilities and future opportunities, adjusting priorities, at times even changing commodity and trade policies in the agricultural sector while promoting training and education throughout the masses in all possible spheres.

##### 4.3.14.1 Seismicity

Earthquakes are closely related to plate tectonics. Bangladesh is located in a tectonically active region close to the plate boundaries of the Indian plate and the Eurasian plate.

The project area falls in seismic zone III according to the [Figure 4.26] Revised Seismic Zonation of Bangladesh (2017) and BNBC 2020. According to Revised Seismic Zonation of Bangladesh (2017) and BNBC 2020, the country is divided into four seismic zones with different expected levels of intensity

of ground motion. Each zone has a seismic zone coefficient (Z) which represents the maximum considered peak ground acceleration (PGA) on very stiff soil/rock (site class SA) in units of g (acceleration due to gravity). The zone III consists of Upper Central and Northwestern part including Brahmanbaria, Sirajganj, Rangpur in where seismic intensity is Severe and seismic zone coefficient (Z) is 0.28 [Table 4.8].

**Table 4.8: Seismic Zonation of Bangladesh, 2017**

Seismic Zone	Location	Seismic Intensity	Seismic Zone Coefficient, Z
1	Southwestern part including Barisal, Khulna, Jessore, Rajshahi	Low	0.12
2	Lower Central and Northwestern part including Noakhali, Dhaka, Pabna, Dinajpur, as well as Southwestern corner including Sundarbans	Moderate	0.20
3	Upper Central and Northwestern part including Brahmanbaria, Sirajganj, Rangpur	Severe	0.28
4	Northeastern part including Sylhet, Mymensingh, Kurigram	Very Severe	0.36

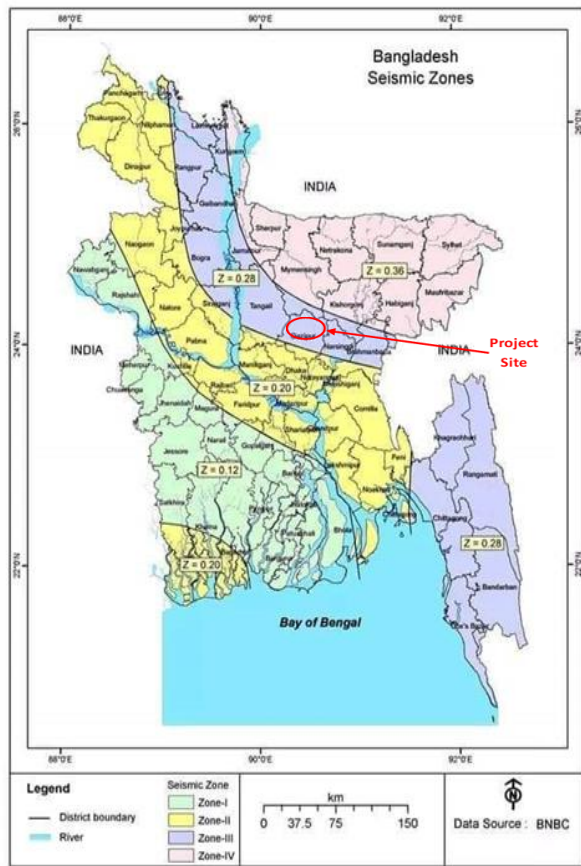
(BNBC, 2020)

#### 4.3.14.2 Floods

Bangladesh is a land of rivers. It is prone to flooding due to being situated on the Brahmaputra River Delta (also known as the Ganges Delta) and the many distributaries flowing into the Bay of Bengal. Each year in Bangladesh about 26,000 square kilometers (10,000 Sq meter) (around 18% of the country) is flooded, killing over 5,000 people and destroying more than seven million homes. The project area is not flooding prone area as the map of Flood Prone Areas of Bangladesh shown in **Figure 4.27**.

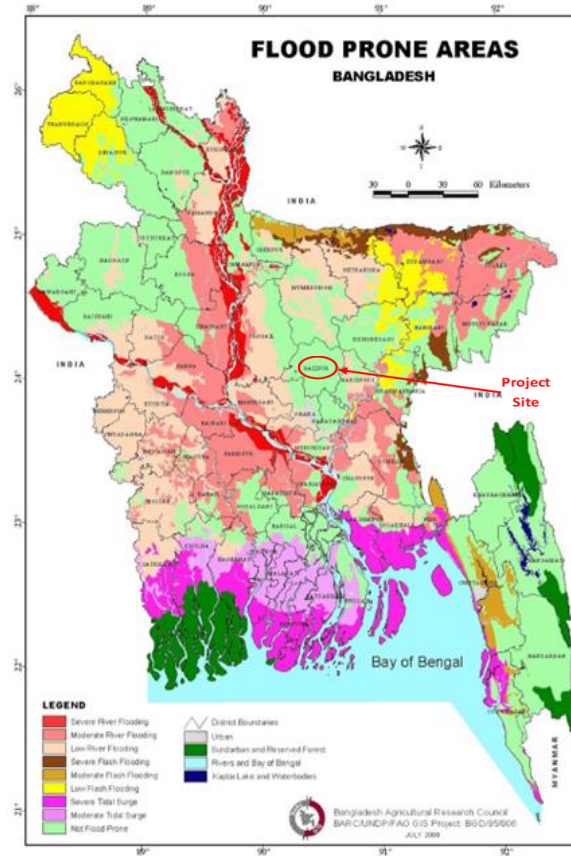
#### 4.3.14.3 Cyclones

Bangladesh is one of the most cyclone prone areas on the earth. Devastating cyclones hit the coastal zones almost every year and are usually accompanied by high-speed winds, sometimes reaching 250 km/hr. or more and with 3 m to 10m high waves, causing extensive damage to life, property and livestock. These cyclones usually occur in two seasons, April-May and October November – i.e., before and after the monsoon season. As per Cyclone Affected Area Map of Bangladesh shown in **Figure 4.28**, the project site is not situated in cyclone prone area.



(BNBC, 2020)

Figure 4.26: Earthquake Zoning Map of Bangladesh



Bangladesh Agricultural Research Council  
(BARC)

Figure 4.27: Flood Prone Area Map of Bangladesh



(SPARSO)

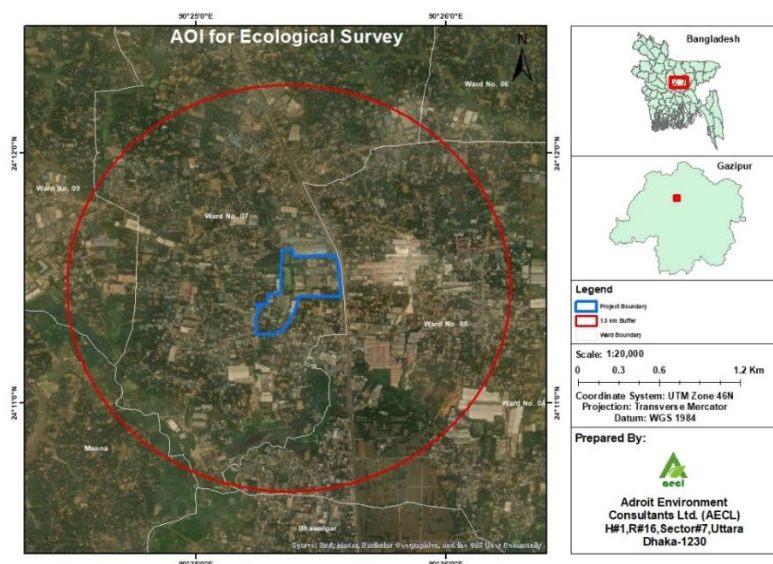
Figure 4.28: Cyclone Affected Area Map of Bangladesh

## 4.4 Ecology (Flora & Fauna)

A comprehensive survey was conducted at the vicinity of the project area. The baseline ecological data was collected during primary field survey to get an idea about the status of the diversity of Flora and Fauna in that area. The basic methodological approaches which were followed for the present baseline work are:

- Field survey,
- Visual observations,
- Review of literature,
- Secondary available data,
- By interviewing local people,
- Data analysis and interpretation.

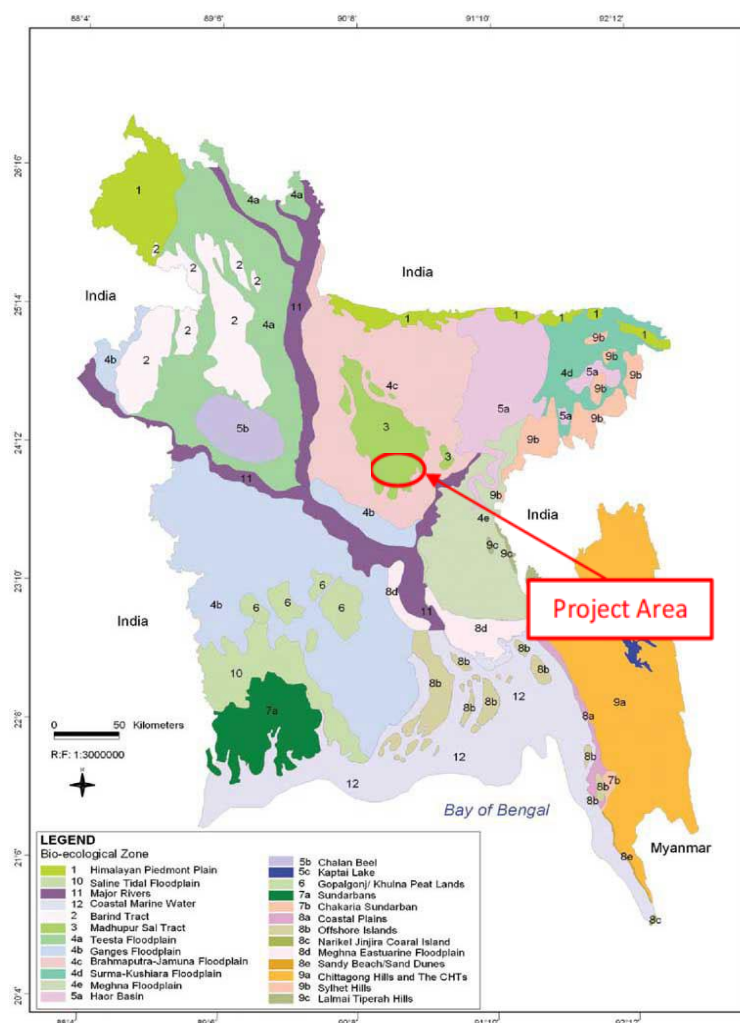
The immediate surrounding extended area of about 1.5 km radius has been considered as “Area of Influence (AoI)” for the ecological survey. AOI for the ecological survey of the project site is shown in **Figure 4.29**.



**Figure 4.29: AOI for Ecological Survey**

As per the bio ecological map in **Figure 4.30** the proposed project site is falls under Madhupur Sal Tract.





(IUCN 2002)

**Figure 4.30: Bio-ecological zoning map of Bangladesh**

#### 4.4.1 Ecologically Critical Area

Bangladesh Government declared 8 areas as Ecologically Critical area (ECAs) in Bangladesh (1999), i.e., Cox's Bazar, Teknaf Peninsula, St. Martin's Island, Sonadia Island, Hakaluki Haor, Tanguar Haor and Marjat Baor, Gulshan-Baridhara Lake and Sundarbans. The nearest ecological critical area with distance from the project area is shown in **Table 4.9** and there is no ecologically critical area within 5 km of the project site.

**Table 4.9: Nearest (ECA) of Bangladesh and their distance from project site**

No.	Name of the ECA	Type of Ecosystem	Distance from Project site
	Gulshan-Baridhara Lake	Urban Wetland	33.77 km
	Turag	River	13.32 km
	Sitalakhya	River	33.18 km
	Balu including Tongi canal	River	32.27 km

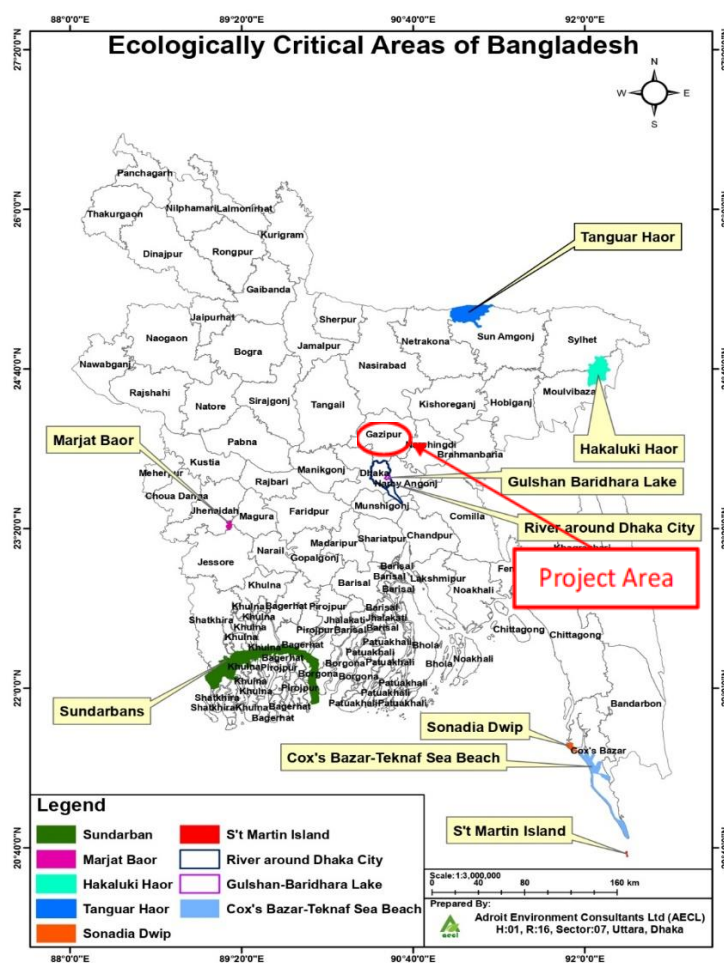


Figure 4.31: Ecologically Critical Areas of Bangladesh

#### 4.4.2 Flora

##### 4.4.2.1 Terrestrial Flora

The field surveys involve the preparation of an inventory of different species of plants including trees, shrubs, economic plants in the plant community of the area. According to the field survey, there is no critical and modified habitat in and around the project area. All existing flora and fauna fall under least concern category according to IUCN. In the 1.5 km radius of the project boundary, there is no reserve or designated forest around the project area. Some homestead forest and road side plantation area are present there. Several wooden trees, fruit trees, Bamboo are densely planted there. Few types of crop species are present within the 2km radius of the project boundary. Detail lists of Terrestrial Flora found during our field visit is presented in **Annexure 21**.

Table 4.10: Terrestrial Flora around the Study Area

SL No.	Local Name	Scientific name	English Name	Family	Conservation I Status (IUCN Global Status)
1.	Amra	<i>Spondias pinnata</i>	Hog plum	Anacardiaceae	NE

SL No.	Local Name	Scientific name	English Name	Family	Conservation I Status (IUCN Global Status)
2.	Aam	<i>Mangifera indica</i>	Mango	Anacardiaceae	DD
3.	Kathal	<i>Artocarpus heterophyllus</i>	Jackfruit	Moraceae	NE
4.	Boroi	<i>Ziziphus mauritiana</i>	Indian jujube	Rhamnaceae	LC
5.	Peyara	<i>Psidium guajava</i>	Guava	Myrtaceae	LC
6.	Kala	<i>Musa Sepientum</i>	Banana	Musaceae	LC
7.	Narikel	<i>Cocos nucifera</i>	Coconut	Arecaceae	NE
8.	Jam	<i>Syzygium cumini</i>	Black berry	Myrtaceae	LC
9.	Pepe	<i>Carica papaya</i>	Papaya	Caricaceae	DD

\*Not Evaluated (NE), Data Deficient (DD), Least Concern (LC)

Source: Field survey of AECL team



*Ziziphus mauritiana*



*Cocos nucifera*



*Mangifera indica*



*Ixora coccinea*

Figure 4.32: Terrestrial Flora around the project area

#### 4.4.2.2 Aquatic Flora

Common aquatic floral species in the study areas include Kalmi Shak (*Ipomoea aquatica*), Shapla (*Nymphaea nouchali*), Helencha (*Enhydra fluctuans*), Kuchuripana (*Eichhornia crassipes*), Khudipana (*Lemnapaucicos tata*) are also seen.



*Ipomoea aquatica**Eichhornia crassipes*

Figure 4.33: Aquatic Flora around the project area

### 4.4.3 Fauna

#### 4.4.3.1 Terrestrial Fauna

The study was based on field survey methods for collecting data from local people and Government offices. During collection of data, both primary and secondary sources were considered to interpret the results. Any endangered, vulnerable or threatened faunal species were not found during the field visit around the project area. For Fish fauna primary data were collected from fishermen and the local fish markets. List of fauna identified in and around the project area is mentioned below **Table 4.11** and details is given in **Annexure 21**.

**Table 4.11: List of Terrestrial Fauna Identified in and around the Project Area**

				Conservational status	
Sl. No.	English name	Scientific name	Local Name	IUCN Bangladesh status	IUCN Global status
Amphibians					
1.	Skipper Frog	<i>Rana cyanophlyctis</i>	Kotkoti Bang	NT	LC
2.	Bull Frog	<i>Rana tigrina</i>	Sona Bang, Kola Bang	NT	LC
3.	Common Toad	<i>Bufo melanostictus</i>	Kuno Bang	NT	LC
Reptiles					
1.	House Lizard	<i>Hemidactylus brookii</i>	Goda Tiktiki	NT	LC
2.	Common House Gecko	<i>Hemidactylus frenatus</i>	Mosrin Tiktiki	NT	LC
Birds					
1.	Common Myna	<i>Acridotheres tristis</i>	Bhat Shalik	NT	LC
2.	Jungle Myna	<i>Acridotheres fuscus</i>	Jhuti Shalik	NT	LC
Mammalian					
1.	Field Mouse	<i>Mus booduga</i>	Metho Idur	NT	LC
2.	House mouse	<i>Mus musculus</i>	Nengti Indur	NT	LC
3.	Large bandicoot	<i>Bandicota indica</i>	Dhari Indur	NT	LC
*Not Evaluated (NE), Data Deficient (DD), Least Concern (LC), Not Threatened (NT), Vulnerable (VU), Endangered (EN), Critically Endangered (CR), Not Added (N/A)					

Source: Field survey of AECL team

## 4.4.4.1 Aquatic Fauna

There are different types of fishes in the project area. Some of the commonly available fishes in the project influence area are mentioned below in **Table 4.12**.

**Table 4.12: List of Aquatic fauna in the project area**

Sl. No.	Common English Name	Scientific Name	Local Name	Red List Category	
				IUCN Bangladesh status	IUCN Global status
Fish Fauna					
1.	Rohu	<i>Labeo Rohita</i>	Rui	NT	LC
2.	Catla	<i>Catla catla</i>	Katla	NT	LC
3.	Stinging Catfish	<i>Heteropneustes fossilis</i>	Shing	NT	LC
4.	Bleeker’s Mystus	<i>Mystus bleekeri</i>	Tengra	NT	LC
5.	Walking Catfish	<i>Clarias batrachus</i>	Magur	NT	LC
6.	Snakehead Murrel	<i>Channa striatus</i>	Shol	NT	LC
7.	Climbing Perch	<i>Anabas testudineus</i>	Koi	LC	LC
8.	Chola Barb	<i>Puntius chola</i>	Chola Punti	NT	LC
9.	Spotted Snakehead	<i>Channa punctatus</i>	Taki	NT	LC
10.	Fresh Water Goby	<i>Glossogobius giuris</i>	Baila	NT	LC
11.	Silver Carp	<i>Hypophthalmichthys molitrix</i>	Silver Carp	N/A	-

Source: Field survey of AECL team

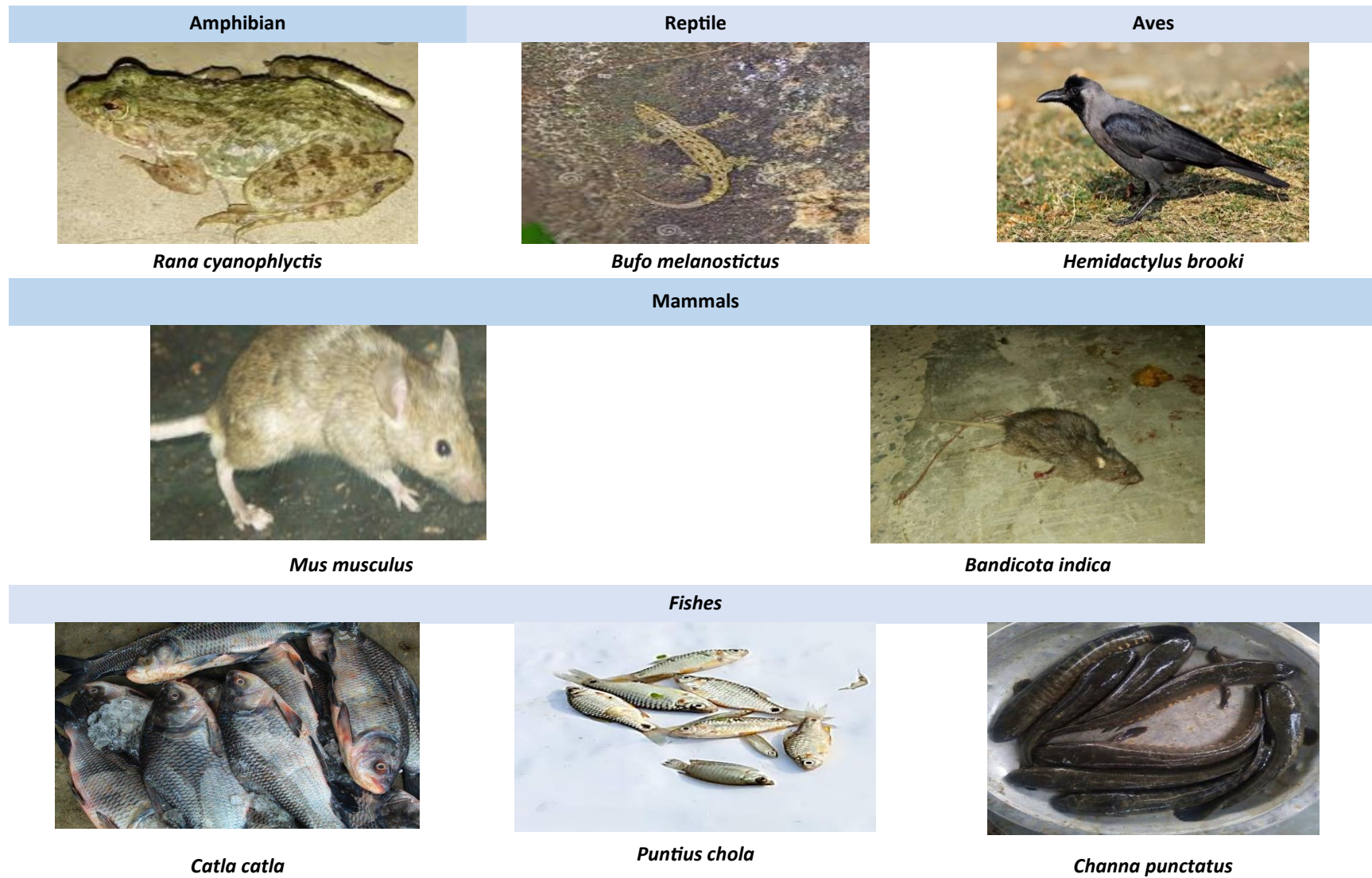
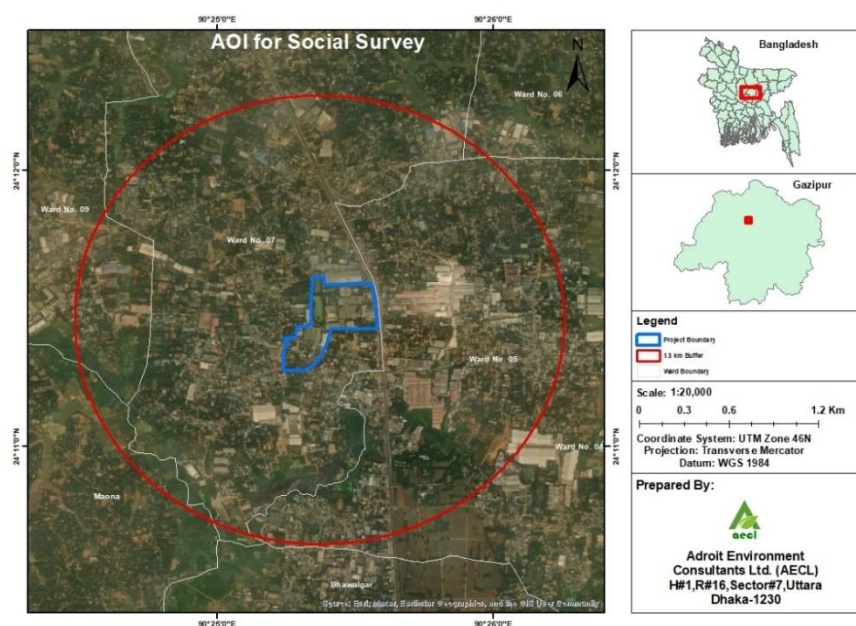


Figure 4.34: Terrestrial Fauna around the project area

## 4.5 Socio-Economic Conditions

The socio-economic baseline environment of the project area was captured to have a picture of the socio-economic scenario to allow comparison with that of any potential impact associated with the proposed project. The following sections present socio-economic profile of Sreepur Upazila and also for the project area of influence (AOI). The immediate surrounding extended area of about 2 km radius has been considered as “Area of Influence (AoI)” for the social survey. This AOI covers ward no 5 and 7. AOI for the social survey of the project site is shown in **Figure 4.35**.



**Figure 4.35: AOI for Social Survey**

### 4.5.1 Administrative Information

Paramount Textile PLC is at Sreepur Upazila in Gazipur District. Area of this Upazila is about area 462.94 sq km. It is located between 24°01' and 24°21' north latitudes and in between 90°18' and 90°33' east longitudes. Sreepur upazila is bounded by Bhaluka and Gaffargaon upazilas on the north, Gazipur Sadar and Kaliganj Upazilas on the south, Kapasia upazila on the east, Kaliakair and Sakhipur upazilas on the west. Main Rivers flow through sreepur upazila are Turag, Bangshi, Salda. But none of this river is located near the project site. Demographic Characteristics of Gazipur District and Sreepur Upazila are shown in **Table 4.13** and **4.14**.

**Table 4.13: Demographic Characteristics of Gazipur District**

District	Gazipur
Total Household	1579781
Total population	5263450
Male	2736940
Female	2526038
Literacy rate (%)	84.8 %
Sex ratio (M/F)	108.35
Population Density (Per Sq. km)	8126

District	Gazipur
Upazila	5
Union	43
Mouza	725
Village	1114
Paurashavas	5
Ward	48
Mahalla	132

(Population And Housing Census, 2022)

#### 4.5.2 Population and Social Structure

The project location is at Sreepur Upazila. The demographic characteristic of the Sreepur Upazila is presented in **Table 4.14**.

**Table 4.14: Demographic Characteristics of the Sreepur Upazila**

Upazila	Sreepur Upazila
Total Area (Sq. km)	462.94
Total Household	249845
Total population	855204
Male	444800
Female	410404
Literacy rate (%)	78.15%

(Population And Housing Census, 2022)

#### 4.5.3 Literacy

The average literacy rate in Sreepur upazila is 78.15%; male 80.58%, female 75.50%. (Source: Population and Housing Census, 2022)

#### 4.5.4 Primary Social/Household Survey

##### 4.5.4.1 Demographic Profile of Project Area Households

Socio-economic details of the project area households were collected during the social baseline survey. The socio-economic profile of the surveyed HHs is consequently presented following demographic profile of the HHs. A total of 43 HHs comprises of 165 people has been surveyed with average HH size 3.85 which is lower than the national average (4.35) according to BBS 2016, Bangladesh.

**Table 4.15: General Profile of Surveyed Population**

Category	Total
Number of total surveyed Households /Units	43
Number of total Population	165
Average HHs Size	3.85

Source: Field survey of AECL Team



#### 4.5.4.2 Distribution of Household Population

Distribution of HH population is presented in the Table below. It indicates that majority of the HHs have 3-4 members. It is interesting that 14 HHs have only 1-2 members. HH size of within 7 to 8 members was minimal in the area. Distribution of HH population is presented by area-wise in the illustration:

**Table 4.16: Distribution of HH population**

SL No.	Number of household members	Total	
		HH	%
1	1 to 2	14	32.55
2	3 to 4	25	58.15
3	5 to 6	3	6.98
4	7 to 8	1	2.32
5	9 to 10	0	0
6	10+	0	0
<b>Total</b>		<b>43</b>	<b>100</b>

*Source: Field Survey of AECL Team*

#### 4.5.4.3 Age and Sex Distribution of project area Population

Age-sex distribution of the surveyed 43 HHs was measured during the census and IOL survey. It was found that population density increases respectively from the age group of 1-60. According to the age band, the most prominent group is 30-60. The number of surveyed persons steadily decreases with increasing age limit above 60. It is the almost similar to the national scenario. Details see in **Table 4.17**.

**Table 4.17: Age Sex Distribution of Surveyed Population**

SL	Age Group (Years)	Male		Female		Total	Overall
			%		%		%
1	01 to 05	5	5.43	2	2.74	7	4.21
2	06 to 15	14	16.01	11	15.07	25	16.36
3	16-30	22	23.17	20	27.40	42	23.27
4	31-60	46	50	36	49.31	82	49.70
5	61-65	2	2.17	2	2.74	4	2.42
6	Above 65	3	3.26	2	2.74	5	3.03
<b>Total</b>		<b>92</b>	<b>100</b>	<b>73</b>	<b>100</b>	<b>165</b>	<b>100</b>

*Source: Field Survey of AECL Team*

#### 4.5.4.4 Sex Profile of Project Area Households

The percentage of male populations are greater than female in the project area. At project area total of 165 populations will be surveyed where 92 are male and 73 are female, which represents that percentage of female population in the project area is less compared to the male population.

#### 4.5.4.5 Marital Status

Among the 165 surveyed population around the project area, 131 people are above 18 years. Any person below 18 years are not legal to marry in Bangladesh. No people below the age of 18 are found married. It is found that 68.39 % people are married against 31.61 % unmarried. This means that child marriage is not that common in the project area and widows/widowers are not found in project survey areas.

#### 4.5.4.6 Education Level of Surveyed Population (6 Years and above)

Education level of the surveyed population is presented in the **Table 4.18** below. Among the surveyed 165 populations, 158 populations are at the age of above 5 years and 7 people are below the age of 5 years who has not started the school yet. The primary and secondary level education entrance is high in the area and considered the people above the age of 6 (158 population). But dropout rate is very high as the number of people sharply decreases from secondary certificate achievers. It also indicates that education rate is higher among male population than female. Also, illiteracy is higher among female population than male population.

**Table 4.18: Level of Education of Surveyed Population (5 Years and above)**

SL	Education Level	Male (%)	Female (%)
1	Up to class five	10.01	10.43
2	Class six to ten	24.09	20.09
3	SSC or equivalent	20.54	19.13
4	HSC or equivalent	12.68	10.05
5	BA or equivalent	4.23	3.48
6	MA or equivalent	0	0
7	Illiterate	12.68	20.63
8	Can sign only	13.38	11.32
9.	Not eligible to go school	3.29	2.87
<b>Total</b>		<b>100</b>	<b>100</b>

*Source: Field Survey of AECL Team*

#### 4.5.4.7 Occupation of the Population

There are varieties number of occupations have been identified during survey of the project. The population distribution according to gender engaged in various Primary Occupations is presented in tabular form below. A variety of occupational choices have been found in the project location, and majority is Day laborer/ factory worker. Female population are mostly unemployed. In addition to agriculture, the other significant occupations are involvement with business, service, day labour, service, doctor and mason etc. Apart from these, a minimal number of populations have been identified as unemployed in the form of retired person and aged persons.



**Table 4.19: Distribution of Surveyed People by occupation**

SL No.	Occupation	Male	Female	Total	%
1	Agriculture	13	8	21	12.72
2	Service holder	1	0	1	0.60
3	Housewife/Househusband	0	34	34	17.68
4	Business	8	0	8	7.27
5	Day labour/ Factory Worker	36	14	50	30.30
6	Driver	11	0	11	6.67
12	Student	16	12	28	15.15
13	Aged Person	1	3	4	2.42
14	Retired Person	1	0	1	0.60
15	Children aged below 5	5	2	7	4.21
<b>Total</b>		<b>92</b>	<b>73</b>	<b>165</b>	<b>100</b>

Source: Field Survey of AECL Team

**4.5.4.8 Drinking Water Facility**

In project area surrounding, 80.6% of general households have got the facility of drinking tube well water, 7.0% tap water and the remaining 9.03% household gets water from other sources.

**Table 4.20: Drinking Water Facility of surveyed HHS**

SL	Drinking Water source	Total	
		No.	%
1	Tube well	36	83.7
2	Tap water	3	6.98
3	Other sources	4	9.30
<b>Total</b>		<b>43</b>	<b>100</b>

Source: Field survey of AECL team

**4.5.4.9 Sanitation**

In the study area, 79.07 % of general household use sanitary facility, 13.95% non-sanitary latrine and 6.98% have no toilet facility.

**Table 4.21: Sanitation Facility of surveyed HHS**

SL	Sanitation Facility	Total	
		No.	%
1	Proper sanitary latrine	34	79.07
2	Non- sanitary latrine	6	13.95
3	No toilet facility	3	6.98
<b>Total</b>		<b>43</b>	<b>100</b>

Source: Field survey of AECL team

#### 4.5.4.10 Access to Electricity

The entire Sreepur Upazila have brought under the rural electrification program. However, a total of 89.6% of the survey households in project area reported to have electricity connection. (Source: Field survey of AECL team).



Figure 4.36: Household Survey

## IDENTIFICATION AND EVALUATION OF POTENTIAL IMPACT

### 5.1 General Consideration

In case for most projects, potential negative impacts sometime could be far more numerous than beneficial impacts. The regional and national economic benefits associated with the implementation of any development project are considered to fall outside the scope of an ESIA, and therefore not considered here. However, it is generally expected that these long-term benefits will ultimately trickle down to the local population and will make a contribution to an improvement in the quality of life. Likewise, the indirect benefits of strengthening of technical capabilities of local persons through association with foreign experts and other training elements that may form part of a project have been considered to fall outside the scope of ESIA.

### 5.2 Scoping of Impacts

Identification and scoping of potential impacts due to the construction and operation activity of the project has been done using Checklist.

#### 5.2.1 Checklist

**Table 5.1** represents the environmental and social impact identification and evaluation of the project. In this table impact magnitude was evaluate based on the duration, extent and scale of the impact. Detail matrix of identification of magnitude of the impact considering duration, extent and scale have been presented in **Annexure 22**. For better understanding of the evaluation of environmental and social impact, a two-dimensional Leopold matrix is presented in **Table 5.2**.

Table 5.1: Environmental and Social Impact Identification and Evaluation of the Project

Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
Construction Stage																	
Assessment and Management of Environmental and Social Risks and Impacts (ESS-1)																	
ESIA Study																	The project has some environmental and social impacts which requires an ESIA study according to ESS 1 and ESMF of BIFFL. The ESIA study is ongoing.
Labor and Working Condition (ESS-2)																	
Occupational Health, Safety and Security																	Irregular accidents, injury may occur in construction period
Labor and Working Condition																	Improper maintenance of standard salary, salary deductions; hours of work; overtime arrangements
Sanitation and drinking water																	Concentration of labor force may create un-hygienic condition and lack of safe drinking water may cause water borne diseases
Employment																	Major employment opportunity during construction
Resource Efficiency and Pollution Prevention and Management (ESS 3)																	

Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
Air Quality																	Dust emission will occur during different construction activity. Intermittent emissions of NOx, SOx, SPM and CO <sub>2</sub> resulting from machinery/heavy equipment, movement of vehicles will also pollute the air quality.
Noise Pollution																	Noise pollution is likely to result from a wide range of construction activities including the movement of vehicles carrying construction materials, equipment to and from the site, and different construction activities
Impact on Surface Water																	Discharge of different constructional waste, sanitation waste etc. into municipal drainage which finally connects with river may impact surface water quality
Impact on Ground Water																	Improper management of liquid waste and over extraction of ground water

Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
Impact on Soil																	Due to accidental spillage of different chemicals and hazardous substances during construction.
Impact due to Solid Waste Generation																	Generation of different kinds of solid waste from constructional work
Impact due to Hazardous Waste Generation																	Accidental spillage of liquid fuel, lubricants, other chemical and generation of e-waste may occur occasionally.
Community Health and Safety (ESS 4)																	
Traffic congestion																	Carrying of construction materials will create traffic congestion around the project area
Social acceptability of Construction workers to the host communities																	Acceptability problem may occur due to cultural difference with foreign officials/workers from outside the project area
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS- 05)																	
Land Acquisition and Involuntary Resettlement																	No impact anticipated as proposed land is owned by paramount textile



Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
																	ltd and the extension is occurring under their existing project boundary.
Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS 6)																	
Impact on Terrestrial Habitat																	Constructional work and trespassing would have negative impact.
Impact on Aquatic habitat																	Discharge of different constructional waste, sanitation waste etc. into municipal drainage which finally connects with river may impact aquatic habitat
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (ESS-7)																	
Indigenous people																	No impact anticipated
Cultural Heritage (ESS-8)																	
Cultural heritage site																	No impact anticipated
Financial Intermediaries (ESS 9)																	
Proponent should prepare all the Environment and social documents related to this project and disclose them on their websites.																	
Stakeholder Engagement and Information Disclosure (ESS 10)																	
GRM																	The project has an external GRM system for the community and an Internal GRM system for the factory labours.



Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
Continuous engagement of stakeholder																	KII and a FGDs were conducted to get their views about this project implementation.
Operation Stage																	
Assessment and Management of Environmental and Social Risks and Impacts (ESS-1)																	
Renewal of ECC & Implementation of the ESMP of the approved ESIA																	As this ESIA study also need to compliance with the national rules and regulation. So, the ECC should be renewed yearly from the DoE as well as follow the ESMP of the approved ESIA for funding from BIFFL.
Labor and Working Condition (ESS-2)																	
Occupational Health and Safety																	Improper work environment, faulty machineries may lead to accidents and health impact
Sanitation Hazard & Drinking Water																	Lack of safe drinking water, insufficient and unhygienic toilet may cause diseases
Labor and Working Condition																	Improper maintenance of standard salary, salary deductions; hours of work; overtime arrangements

Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
Employment																	Employment opportunity during operation of extended project
Resource Efficiency and Pollution Prevention and Management (ESS 3)																	
Air quality																	Project expansion increase the quantity and uses of boilers and generators, which may degrade the air quality
Noise hazard																	Noise may be generated from operation of newly added machineries
Impact on surface water																	Poor management and discharge of untreated liquid waste and sewage water from extended project may deteriorate surface water quality
Impact on Ground Water																	Over extraction of ground water, as water consumption for production and other purposes will be increased
Impact on Soil																	Improper storage of hazardous chemicals and their accidental spillage; Disposal of waste water and sewage wastes
Solid Waste Generation																	Improper management of solid waste and sludge waste may create problem

Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
Hazardous waste generation																	Improper management of chemical, lubricants, solvents may create problem
Liquid waste generation																	Liquid waste from extended dyeing and printing section can cause liquid waste generation
Community Health and Safety (ESS 4)																	
Traffic congestion																	Transportation of officials/ trainees may create traffic congestion
Social acceptability of officials and trainees to the host communities																	Acceptability problem may occur due to cultural difference with foreign officials/ trainees
Community Health, Safety and Security																	Possibility of occurring road accidents due to lack of safety, spread of several contagious and infectious diseases.
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS- 05)																	
Land Acquisition and Involuntary Resettlement																	None
Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS 6)																	

Action Affecting Environmental Resources & Values	Impact Duration			Impact Extent			Impact Scale				SEIs Magnitude w/o Mitigation Measures				Type		Rationale
	ST	MT	LT	L	R	N	NI	Sm	Med	Lar	Non	Min	Mod	Maj	Adv	Ben	
Impact on Terrestrial Habitat																	Terrestrial ecosystem may get disturbed due to project operation (i.e., air, noise, soil pollution)
Impact on Aquatic Habitat																	Discharge of waste water, leakage & accidental spillage of waste water and hazardous substances in to municipal drainage may impact aquatic habitat
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (ESS-7)																	
Indigenous people																	No impact anticipated
Cultural Heritage (ESS-8)																	
Cultural heritage site																	No impact on cultural heritage sites but nearby mosques, schools, madrasa and Eidgah may be affected due to project operation
Financial Intermediaries (ESS 9)																	
International Financial Institutions (FIIs) are involved in this project to monitor and manage the environmental and social risks and impacts of the project.																	
Stakeholder Engagement and Information Disclosure (ESS 10)																	
GRM																	PTPLC have an external GRM system for the community and an internal GRM system for the factory workers

**\*Notation**

ST	Short Term (Only during particular activities or a phase of the project lifecycle)		Med	Medium	
MT	Medium Term (Spread across several phases of the project lifecycle)		Lar	Large	
LT	Long Term (Spread over the lifecycle of the project)		Non	None	
L	Local (around the project area within 5 km radius)		Min	Minor	
R	Regional (District level)		Mod	Moderate	
N	National		Maj	Major	
NI	No Impact		Adv	Adverse	
Sm	Small		Ben	Beneficial	

Table 5.2: Two-Dimensional Leopold Matrix Impact Evaluation

Action Affecting Environmental Resources & Values	Risk rating		Rationale
	Construction Phase	Operation Phase	
Assessment and Management of Environmental and Social Risks and Impacts (ESS-1)			
ESIA study, ECC renewal and ESMP implementation	Moderate	High	In the construction phase the ESIA study is ongoing and after the approval of the ESIA study ESMP implementation needs to be properly executed and yearly renewal of the ECC from DoE is required during the lifecycle of the project.
Labor and Working Condition (ESS-2)			
Occupational Health, Safety and Security	Moderate	Moderate	Improper work environment, faulty machineries may lead to accidents and health impact
Labor and Working Condition	Low	Moderate	Improper maintenance of standard salary, salary deductions; hours of work; overtime arrangements
Sanitation and drinking water	Low	Moderate	Concentration of labor force during construction stage may create un-hygienic condition, lack of safe drinking water and insufficient and unhygienic toilet may cause water borne diseases

Action Affecting Environmental Resources & Values	Risk rating		Rationale
	Construction Phase	Operation Phase	
Employment	High	High	Employment opportunity during different stage of project implementation.
<b>Resource Efficiency and Pollution Prevention and Management (ESS 3)</b>			
Air quality	Low	Low	Proposed project will increase the quantity and uses of boilers and generators, which may degrade the air quality but they will implement emission efficient machineries which may generate less pollution.
Noise hazard	Low	Moderate	Noise may be generated from construction activity and from operation of newly added machineries in production unit.
Impact on surface water	Low	High	different constructional waste, untreated wastewater from production unit and sanitation waste etc. will be discharged into municipal drainage which finally connects with river may impact surface water quality
Impact on Ground Water	Low	Moderate	Over extraction of ground water, as ground water will be used for production and other purposes.
Impact on Soil	Low	Low	Improper storage of hazardous chemicals and their accidental spillage; Improper disposal of waste water and sewage wastes
Solid Waste Generation	Low	Moderate	Improper management of construction waste and sludge waste may create problem
Hazardous waste generation	Moderate	Moderate	Improper management of chemical, lubricants, solvents may create problem
Liquid waste generation	None	Moderate	Liquid waste from extended dyeing and printing section can cause liquid waste generation
<b>Community Health and Safety (ESS 4)</b>			

Action Affecting Environmental Resources & Values	Risk rating		Rationale
	Construction Phase	Operation Phase	
Traffic congestion	Low	Low	Transportation of officials/ trainees may create traffic congestion
Social acceptability of officials and trainees to the host communities	Low	Low	Acceptability problem may occur due to cultural difference with foreign officials/ trainees
<b>Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS- 05)</b>			
Land Acquisition and Involuntary Resettlement	None	None	No impact anticipated as proposed land is owned by paramount textile ltd and the extension is occurring under their existing project boundary.
<b>Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS 6)</b>			
Impact on Terrestrial Habitat	Low	Low	Constructional work, trespassing and operation activity would have negative impact.
Impact on Aquatic habitat	Low	Low	Discharge of waste water, leakage & accidental spillage of waste water and hazardous substances in to municipal drainage may impact aquatic habitat.
<b>Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (ESS-7)</b>			
Indigenous people	None	None	The surveys indicated no tribal or indigenous people within the project influence area
<b>Cultural Heritage (ESS-8)</b>			
Cultural Heritage Site	None	Low	The proposed project does not have any archaeological sites around the 5km radius of the project.
<b>Financial Intermediaries (ESS 9)</b>			
Involvement of FIs	Moderate	Moderate	International Financial Institutions (FIIs) are involved in this project to monitor and manage the environmental and social risks and impacts of the project.
<b>Stakeholder Engagement and Information Disclosure (ESS 10)</b>			



Action Affecting Environmental Resources & Values	Risk rating		Rationale
	Construction Phase	Operation Phase	
Continuous engagement of community	Moderate	Moderate	The project has a external GRM system for the community and a internal GRM system for the factory workers.

**Notation**

None		Moderate	
Low		High	

## 6 PROJECT IMPACTS AND THEIR MITIGATION MEASURES

### 6.1 General Considerations

This chapter defines the details of investigated environmental impacts of the existing project and impacts due to project location, design, construction and operations of the proposed extension of the project and measures for minimizing and / or off-setting adverse impacts identified. The Impacts, which are likely to be occurred in the different phases of the project, are classified and discussed as per the Environment and Social Standard (ESS) along with mitigation measures in the following sections.

### 6.2 Construction Phase Impacts

At present the proposed project is ongoing and the extension work is almost finished as per site visits. Only the ETP completion and some minor civil works are remaining to complete. So, the impacts is of limited nature during construction phase.

#### 6.2.1 Impacts related to Assessment and Management of Environmental and Social Risks and Impacts (ESS-1)

ESS 1 is triggered in this project. This is an umbrella Standard as Assessment and Management of Environmental and Social Risks and Impacts includes all environment and social related risks and impacts. The issues that may pose potential E&S risks and/or impacts include air and noise emissions, water pollution, wastes and effluents and engagement of labor etc. These issues have to be assessed to determine the extent of the risks and impacts. In addition to this proper monitoring has to be identified and suggested for this project which should be undertaken by the proponent according to the schedule proposed. Paramount Textile PLC has ECC (certificate no: 24-115927) for the proposed which is attached in **Annexure 1**.

The existing and the proposed extended part of the project activities, anticipated to have some environmental and social risks. These risks need to be identified and managed by conducting a ESIA study. This ESIA study Suggested some ESMP to minimize the negative effect of the project activity. The project authority also needs to establish an individual monitoring team for the regular monitoring purposes. It is a responsibility for the monitoring team to ensure the daily compliance. Stakeholder consultation should be undertaken at a periodic interval throughout the lifecycle of the project. The proponent has its own environmental policy, which is attached in **Annexure 23**.

#### 6.2.2 Impacts Related to Labour and Working Condition (ESS-2)

##### 6.2.2.1 Occupational Health and Safety

The safety of the workers may be at risk during construction activities. The movement of trucks to and from the site, the operation of various equipment and machinery and the actual construction activities will expose the workers to work-related accidents and injuries. Pollutants such as dust and noise could also have negative implications on the health of workers. In addition, falling debris could injure workers if personal protective equipment (PPE) is not provided or properly used. Back injury could

occur if workers lift heavy objects using inappropriate body posture. Other potential hazards might be; driving equipment with improper brake system, lack of concentration while working. The protection of head, eye, ear, and hand, foot of the workers, labors and project personnel could be affected if proper and adequate arrangement is not ensured. Moreover, other infectious or contagious disease like COVID can cause adverse situation at the site.

The company has their own health safety management and mitigation plan and policy which is followed in case of any emergency situation. PTPLC's Health Safety policy is given in **Annexure 24**. There are available first aid boxes, medical room and full-time doctor and nurse facility in the project area. Firefighting systems, such as sprinklers, portable extinguishers (appropriate to the flammable hazard in the area) etc. are provided at strategic locations with clear labelling. The proponent has made an MoU with Al-Hera Hospital at Mawna Chowrasta, Sreepur, Gazipur which is approximately 3.55 km from the. According to the MoU, the hospital will provide emergency treatment for any kind of industrial accident, fire accident and natural disaster. The hospital will also provide ambulance facility, hospital bed, priority treatment, oxygen cylinder, other medical equipment and testing facility etc. The MoU with the hospital is provided as **Annexure 25**. If any accident occur during the construction activity proponent will send the injured labor to the Al-Hera hospital for treatment.

#### **Proposed Mitigation Measures**

- ✓ The proponent should provide treatment facilities and pay compensation according to Bangladesh Labor Law 2006 if any accident occurs;
- ✓ All workers will be properly informed, consulted and trained on health and safety issues;
- ✓ Proponent should follow the proposed Occupational Health & Safety Management Plan in case of identification of occupational risk & hazard during construction phase attached in **Annexure 26**;
- ✓ A permit to enter project site will be established to ensure entry of only authorized persons
- ✓ Personal Protective Equipment (PPE) shall be worn at all times on the Site. This shall include appropriate ear plugs, safety shoes, safety eyewear, and hard hats (**Figure 6.1**);
- ✓ A near miss and accident reporting system will be followed and corrective measures shall be taken to avoid / minimize near miss incidents;
- ✓ Proponent will provide first aid facilities to the labourers and all project personnel whilst working on the project;
- ✓ Safety measures in the form of DO's and Don't Do will be displayed at strategic locations;
- ✓ Where sound levels cannot be reduced at the source, suitable hearing protection will be provided when noise levels indicate an Leq of more than 80 dB(A). When hearing protection is used, arrangements will be made to ensure the wearers can be warned of other hazards.

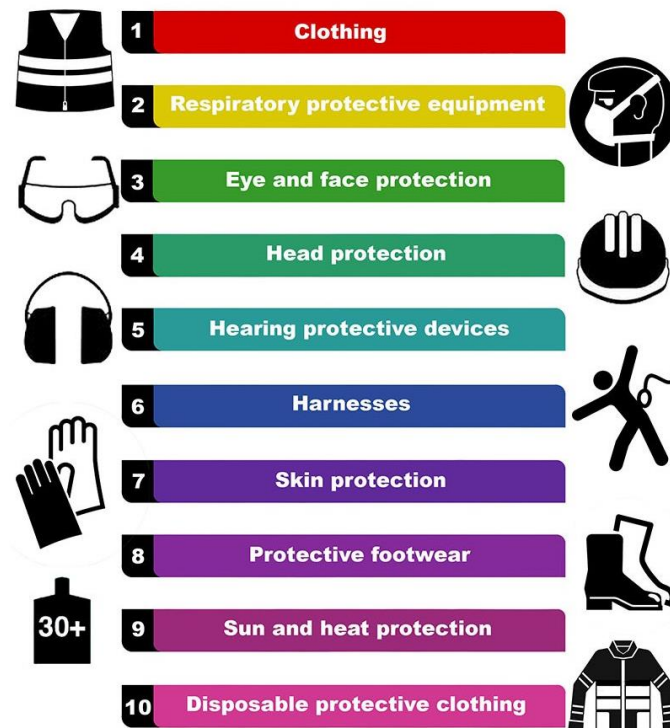


Figure 6.1: Suggested PPE for Occupational Health & Safety of the workers

#### 6.2.2.2 Labor and Working Condition

Working conditions and terms of employment examples are wages and benefits; wage deductions; hours of work; overtime arrangements and overtime compensation, breaks, rest days and leave for illness, maternity, vacation or holiday which should be maintained properly.

There will be no labour shed inside the project area as all the construction workers will come from nearby area and after daily work, they will leave the project site.

#### Proposed Mitigation Measures

- ✓ The Proponent should maintain standard wage, wage deductions; hours of work; overtime arrangements and overtime compensation as per the ILO Core Labour Standards Convention and Bangladesh Labor Act, 2006 which should be ensured by the proponent;
- ✓ Proponent should follow the proposed Labour Management Plan for recruitment, salary and working hour distribution purpose attached in **Annexure 27**;
- ✓ Leave for illness, maternity, vacation or holiday should also be maintained by the proponent as per the Labour Management Plan;
- ✓ Child labor and forced labor should strictly be prohibited;
- ✓ Discrimination between male and female labors should be prohibited;
- ✓ Establish internal (worker's) grievance mechanism which should be accessible to all project employees/ workers as well as those hired by the proponents.

### 6.2.2.3 Impact due to Sanitation Hazard and Drinking Water

The health of the project personnel, construction workers and laborers working at the project site could be impacted due to lack of hygiene. Due to labour influx the most common diseases that can be transmitted through water are dysentery, typhoid, paratyphoid, cholera, amoebiasis etc. Contamination of water and change in sanitation system may occur. More due to lack of toilet facility and safe drinking water, worker's health may be at risk.

Labourers in construction work will use ground water for drinking and sanitation purposes. There are 9 septic tanks with soak pit present within the project area. Dimension of each septic tank is about 30ft\*10ft\*3ft. the total volume of the septic tank is 228.6 m<sup>3</sup>/day, which is sufficient for the sewage waste management of overall factory during construction phase. Location of septic tank is shown in **Annexure 14**.

#### **Proposed Mitigation Measures**

- ✓ All the labors should follow the safety protocol (i.e., Physical distancing, Face coverings, Gloves, Goggles & Face Shields, Hand hygiene, Coughing/Sneezing hygiene, Personal disinfection, request for cleaning supplies and Face coverings to others) due to the Covid situation;
- ✓ There should be enough arrangement (4~5 liters per person) for the supply of safe drinking water to the workers;
- ✓ Adequate number of toilets (1:15) should be made available for the labours;
- ✓ Male and female toilets should be isolated.

### 6.2.2.4 Employment Generation

A number of local people can be engaged in project related activities and may have employment opportunity. Employment opportunities are of benefit both economically and in a social sense.

#### **Mitigation Measures**

- ✓ Salaries and other benefits based on qualification and experience;
- ✓ Priority given to local residents for both professional and nonprofessional positions.

## 6.2.3 Impacts Related to Resource Efficiency and Pollution Prevention and Management (ESS 3)

### 6.2.3.1 Impact on Air Quality

Construction materials processing, construction activities, vehicle movement, etc. may generate fugitive dust particles. The proposed project involves construction activities like civil construction, mechanical construction, handling and stocking of construction materials, etc. It is necessary to adopt a management plan for controlling the fugitive particulate matter during construction activities.

During construction phase, potential impact on ambient air quality could arise due to:

- Intermittent emissions of NO<sub>x</sub>, SO<sub>x</sub>, SPM and CO resulting from construction machinery / heavy equipment, movement of vehicles, transportation of materials, personnel and equipment; and
  - Construction material transport, storage, handling and construction waste disposal.
- **Potential Environmental Impacts of Dust**

Dust produced will potentially negatively affect the following:

- 1) Employees generally construction workers;
- 2) Immediate neighbors and general public; and
- 3) Vegetation.

### **Proposed Mitigation Measures**

The impact of construction activities would be temporary and restricted to the construction phase. The impact will be confined within the close vicinity and is expected to be negligible due to its small magnitude. Following mitigation measures will be taken to minimize the air pollution during the construction stage:

- ✓ Regular sprinkling of water will be done on open surface and dust grounds;
- ✓ Transportation of materials in tarpaulin-covered trucks;
- ✓ The sand and other such dispersible material will be stored at site for minimum working period;
- ✓ Removal of soil/mud from trucks and other appliances prior to leaving the project area;
- ✓ Construction equipment will be maintained in good operating condition to reduce exhaust emissions;
- ✓ The construction activity will be carried out during day time only (from 7.00 am to 7.00 pm);
- ✓ Low sulfur diesel (S < 0.5%) will be used in diesel-powered equipment and they will be regularly maintained and idling time reduced to minimize emissions;
- ✓ All vehicles should have updated fitness certificate;
- ✓ Regular maintenance of vehicles should be conducted; and
- ✓ Solid waste burning in the project site is strictly prohibited.

#### **6.2.3.2 Impact on Noise Quality**

Increased noise levels are directly linked with various activities associated with the construction phase. The major sources of noise during the construction phase are -

- ✓ vehicular traffic, construction instruments i.e., concrete mixers, vibrators, excavators etc.;
- ✓ Construction activities including construction of proposed project.

### **Proposed Mitigation Measures**

The following mitigation measures will be implemented to minimize potential noise impacts during the construction phase in all periods:

- ✓ Noisy construction works to be limited to day time hours (from 7.00 am to 7.00 pm);

- ✓ Proper Acoustically designed machinery should be used;
- ✓ Cutting pipes and other noise generating works should be done in a safe zone;
- ✓ Where applicable and possible exceptionally noisy machines to be fitted with noise reduction devices;
- ✓ Workers should wear Personal Protective Equipment (PPE) for protecting them from the sound induced hazard;
- ✓ Construction workers should be advised to limit verbal noise or other forms of noise;
- ✓ Noise protection wall or barrier should be constructed in case of long-term noisy construction.

#### 6.2.3.3 Impact on Surface Water

The proposed project may affect natural drainage, surface water quality if not managed the construction works properly. There is no river within the 5 km of the project area and a few water bodies are present (**Figure 4.4**) around the project area which have no direct negative impact from the proposed project implementation activity. There is a man-made pond within the project area for beautification of the project area with proper boundary which also has no direct negative impact from the proposed project implementation activity.

Labourers in construction work will use ground water for drinking and sanitation purposes. There are 9 septic tanks with soak pit present within the project area. Dimension of each septic tank is about 30ft\*10ft\*3ft. the total volume of the septic tank is 228.6 m<sup>3</sup>/day, which is sufficient for the sewage waste management of overall factory during construction phase. Location of septic tank is shown in **Annexure 14**.

#### Proposed Mitigation Measure

- ✓ Stockpiling of spoil soil at a safe distance from the drainage system;
- ✓ Making provision for temporary storage of wastes inside construction yard and disposal of solid wastes in an appropriate manner and at appropriate site at regular interval;
- ✓ Adequate provision has to be retained for the treatment and disposal of cuttings, drilling fluids and other chemicals and lube oil wastes generated during drilling, testing and commissioning stage;
- ✓ Proper handling and treatment of sewage waste should be in place to avoid surface water contamination due to discharge.

#### 6.2.3.4 Impact on Ground Water Quality

Spillage and seepage of chemical, over-extraction of ground water, waste handling area and generation of sewage / domestic wastes from construction area may adversely affect ground water quality in the area. The project would affect ground water quality if the construction works are not managed properly.

During construction phase, for drinking and sanitation purpose ground water will be used.



### **Proposed Mitigation Measures**

- ✓ Proper spill control and management at site;
- ✓ Storage of hazardous material and waste in proper manner mentioned in **section 6.2.3.6 and 6.2.3.7**;
- ✓ Disposal of the waste at a designated location around the site;
- ✓ Minimize the extraction and proper management of ground water should be strictly followed;
- ✓ Regular inspections of machinery, equipment, storage areas are needed to ensure no spillage.

#### **6.2.3.5 Impact on Soil Quality**

Contamination of the soil may occur from improper handling of waste. The majority of the generated wastes will be non-hazardous. General construction waste will comprise of surplus or off-specification materials such as concrete, wooden pallets, steel cuttings/filings, packaging paper or plastic, wood, plastic pipes, metals etc. Domestic-type wastes consisting of food waste, plastic, glass, aluminum cans and waste paper will also be generated by the construction workforce. Accidental spillage may also deteriorate the soil quality of the project area.

### **Proposed Mitigation Measures**

- ✓ Proposed solid and hazardous waste management plan provided in **Annexure 33 and 34** respectively should be strictly followed to avoid contamination of soil;
- ✓ Construct appropriate spill containment facilities for all fuel storage areas;
- ✓ Regular inspections of machinery, equipment, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;
- ✓ Properly stripping of top soil and conserve it for future use (greenbelt development);
- ✓ Municipal solid waste generated from the construction site will be transferred to the disposal site in consultation with the Union Parishad.

#### **6.2.3.6 Impact due to Solid Waste Generation**

##### **• Solid waste due to project work**

During construction, large amount of construction waste that includes unused construction materials, construction debris, excavated spoils, abandoned or broken machine parts, debris, packaging materials etc. will be produced. Improper disposal of packaging materials, boxes, plastics and ropes can lead to littering in the construction site and surrounding areas. Unarranged piling up and disposal of construction waste will cause unhealthy situation in the area and become visual tiring.

##### **• Sanitation waste**

During construction phase labor will be engaged in different constructional work. Sewage will be generated within the project site. If these are not handled properly then it may impact the surrounding environment negatively.

- **E- Waste**

A variety of E-wastes will be generated during the construction of the extended part of the project. Proper handling and Management of E-Waste is required to avoid any damage to human health, local environment including land, water and air.

**Proposed Mitigation Measures**

- ✓ Segregate all wastes, wherever practical according to the waste management plan in **Annexure 33**;
- ✓ Some temporary bins with color coding indicating degradable and non-degradable waste might be installed at labor shed and work places to prevent scattered throwing of wastes according to the waste management plan (**Annexure 33**);
- ✓ Difficult to dispose wastes (plastic and hazardous waste) will be minimized and where practicable and avoided such as plastic wastes;
- ✓ Generated solid wastes should be periodically disposed to the designated solid waste dumping yard in consultation with the Municipal authority to ensure that waste does not build up on site and result in aesthetic impacts or odors;
- ✓ All metals, scrap, e-waste and other recyclable materials shall be recycled to secondary dealers and records shall be maintained. Other solid wastes will be disposed to the designated municipal solid waste dumping site;
- ✓ Hazardous waste should not be mixed with other solid waste generated;
- ✓ Proper sanitation system should be provided and at the same time, regular, proper and safe disposal of human waste should be ensured. The workers will be made aware to practice those facilities.

#### 6.2.3.7 Impact due to Hazardous material and waste

Hazardous material can cause different types of accidents while transporting to or from the project site. They may cause damage during inadequate storage, transportation, treatment, or disposal operations. Improper hazardous-waste storage or disposal frequently contaminates soil, surface water and groundwater supply as harmful water pollution and can also be a source of dangerous land pollution. Paints, used fuel, lubricants, used metals, solvents, etc. are Hazardous waste generated during construction activity.

**Proposed Mitigation Measures**

- ✓ The proponent should follow the hazardous waste management plan for handling and safe disposal of the hazardous waste, Hazardous Waste Management plan is attached in **Annexure 34**;
- ✓ All hazardous materials should be kept in a secondary containment facility;
- ✓ The oil and chemical storage of the project (fresh and used) should be done on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity;
- ✓ An appropriate storage site should be provided for disassembled spare parts (e.g. motors and spare parts) that contain oil or other types of fluids. They should be stored in containers that

are secured that will not allow oil and other fluids to escape with an impermeable surface and a sealed drainage system;

- ✓ Hazardous components should be segregated having regard to their eventual destinations and the compatibility of the component types;
- ✓ Spent lubricating oil and other old parts of machinery will be sold only to the DoE approved vendors;
- ✓ In case of any spillage, it should be immediately acted up on. To combat spillage equipment i.e. safety goggles, gloves, PPE, disposal bags, containers, suction pump, boom skimmer etc. should be available at the site;
- ✓ Regular inspections of machinery, equipment, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring.

#### **6.2.4 Impacts Related to Community Health and Safety (ESS 4)**

Possible sources of impacts to community health and safety during the construction phase are dust, noise emissions, possibility of occurring accidents and local people may come to contact of hazardous material related to the project. Increased vehicle on access road due to movement of construction materials might also affect easy access of the inhabitants to the local market and houses close to the road and nearby areas temporarily. During construction of the project, disturbance may be created due to generation of noise from moving vehicles, heavy machineries and welding operations. The flow of concerned skilled technicians from abroad might bring sexually transmitted diseases, e.g., HIV/AIDS, which might outbreak if preventive measures from the beginning are not taken.

#### **Proposed Mitigation Measures**

- ✓ Water spraying on the access roads and at the construction sites would reduce dust emissions considerably;
- ✓ To reduce noise related impacts, night time movement of vehicles and construction activities will be restricted;
- ✓ Implementation of a safety program around the project boundary (speed restrictions, lights on trucks, truck load restrictions etc.) and should be followed to avoid accidents;
- ✓ Proper fencing / boundary should be constructed around the project site to control unauthorized access;
- ✓ Project construction sites should have proper sanitation facilities and regular pest control (i.e., to pest control for mosquitos or other insects for housing workers / labors);
- ✓ The contractor will also coordinate with project authority to ensure that any conflicts will be immediately resolved;
- ✓ A grievance mechanism for community will be set up according to the details provided in Chapter 11;
- ✓ The Contractor should train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria, transmission of sexually transmitted infections (STI), and HIV/AIDS which should be ensured by the PLC authority;
- ✓ All wastes should be properly handled and disposed to avoid any outbreak of disease.
- ✓ Proposed Community Health and Safety Management Plan is attached in **Annexure 36** which should be followed by PTPLC.

#### **6.2.4.1 Impact due to Traffic Movement**

Due to the transportation of construction material, machineries and other equipment during construction phase may create heavy vehicular traffic. The project site is directly connected with an approach road to the national highway. An increase in traffic during the peak construction activities may create public safety issues, traffic congestion, road accidents for local residents.

##### **Proposed Mitigation Measures**

- ✓ Management to provide for adequate internal parking for all vehicles;
- ✓ All vehicles should have updated fitness certificate;
- ✓ Regular maintenance of vehicles;
- ✓ Speed limits, proper signage, visibility and traffic awareness and pedestrian safety should be implemented within the project site and followed by the drivers;
- ✓ Provide dedicated location within the site for loading and unloading of the construction materials.

#### **6.2.4.2 Impact on Vulnerable Groups**

Populations found to be particularly vulnerable to environmental pollution include the poor, the elderly, the very young, those already in poor health, and/or indigenous populations. Susceptibility of unconventional relations between the migrant laborers and local vulnerable women may lead to the risk of gender oriented/sexually transmitted diseases like HIV/ AIDS and STI. Gender related facilities for the women in general, will include pregnant women, lactating mothers, elderly and disabled people who will be working in the project area. Necessary facilities for the women and men including disabled and elderly people will need to be provided. Moreover, during construction, when air pollution levels increase in an area, vulnerable individuals like the elderly, the sick, and the very young might experience health problems like- heart or lung diseases, asthma and bronchitis, increased susceptibility to respiratory and cardiac symptoms. Based on the discussion above the impact on Vulnerable Groups and Gender Issues is assessed to be Minor.

PTPLC is responsible to provide medical support to the vulnerable group if they affected from any project activity.

##### **Proposed Mitigation Measures**

- ✓ The need of women and vulnerable groups (VGs) should be identified properly and special attention should be given to them;
- ✓ Ensure minimum air and noise emission, treated waste water discharge are within guideline value and do not cause harm to vulnerable group
- ✓ Employment and income of subsistence to improve VGs' status/livelihoods;
- ✓ Provision should be kept for social and economic development support;
- ✓ No discrimination of wages for male and female laborers/workers for similar work;
- ✓ Provisions of time-to-time mandatory training and awareness buildings for the workforce to as precautionary measures for anti-social activities those includes sexual harassment and gender-based violence, women trafficking communal diseases etc.

#### 6.2.4.3 Social acceptability of Construction workers to the host communities

The differences in the cultures of laborers and workers (in case hiring is required) and local community may create some problems. In the rural area, the local people especially the religiously conservative section of the community will not accept the foreign workers in general. In addition to that, there are many female workers in the existing factory whom should be treated respectfully by the labourers otherwise chaos may be generated within the project premises.

#### **Proposed Mitigation Measures**

- ✓ Adequate training or awareness would be given to the workers about local culture and behavior;
- ✓ Limited movement of the labourers who are not local within the project boundary;
- ✓ Priority given to local residents for both professional and nonprofessional positions

#### 6.2.5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS- 05)

No impact anticipated as proposed land is owned by paramount textile ltd and the extension is occurring under their existing project boundary.

#### 6.2.6 Impacts Related to Bio-diversity & Living Natural Resources (ESS 6)

##### 6.2.6.1 Impact on Terrestrial Habitat

According to the field survey, there is no critical and modified habitat present in and around the project area. All existing flora and fauna fall under least concern category according to IUCN. Any endangered, vulnerable or threatened faunal species were not found during the field visit around the project area. There will be no habitat loss due to this proposed project implementation.

Activities during construction phase such as excavation, heavy earthwork, machineries installation, construction of associated facilities may generate some negative impact on project area terrestrial habitats i.e., fugitive emission and deposition on vegetation may lower the rate of photosynthesis, fauna could be adversely affected through construction-related activities (noise, dust, light pollution, and habitat loss).

Excessive noise might be generated from different construction activities at the Project site. Moreover, human activities for construction works and vehicular movement may also create disturbance to the fauna.

#### **Proposed Mitigation Measures**

- ✓ Water sprinkling for dust suppression;
- ✓ Awareness should be built to the workers in favor of conserving fauna;
- ✓ This lighting facility, may cause disturbance to the nocturnal wildlife in and around the site. Bright lights should be avoided and LED lights should be installed;
- ✓ Noisy construction works to be limited to day time hours (from 7.00 am to 7.00 pm);
- ✓ Machinery and equipment in use to be serviced regularly to ensure that they are in good condition to minimize excessive noise.

#### 6.2.6.2 Impact on Aquatic Habitat

- ✓ Surface runoff from construction site, spillage & leakage of oil etc.;
- ✓ Noise, vibration and illumination at night time for construction work will also hamper natural fish behavior;
- ✓ Disposal of harmful substances into the river water, a localized and temporary disturbance to fish breathing may lead some species to death;
- ✓ Runoff erosion and due to suspension of sediment or increased turbidity of river water will have negative impact on Aquatic fauna.

There is no river near the project area and only a few water bodies are present (**Figure 4.4**) around the project area which have no direct negative impact from the proposed project implementation activity. There is a man-made pond within the project area for beautification of the project area with proper boundary which also has no direct negative impact from the proposed project implementation activity. Still the below mentioned mitigation measures should be followed to avoid any unexpected negative impacts.

#### Proposed Mitigation Measures

- ✓ No waste should be dumped in internal drainage and pond within project area during construction;
- ✓ Raw material, debris and fuel should be stored on paved surfaces under covered areas;
- ✓ Wastewater should not be disposed-off in the water bodies or drainage line without proper treatment;
- ✓ Sewage treatment plant (STP) should be installed for proper treatment of sewage;
- ✓ Site should be kept clean so as no pollutant from site should enter the surrounding water bodies.

#### 6.2.7 Impacts Related to Tribal/Indigenous Population (ESS 7)

The surveys indicated no tribal or indigenous people within the project influence area.

#### 6.2.8 Impact Related on Impacts on Cultural Heritage (ESS 8)

The existing and extension project does not have any archaeological sites around the 5km radius of the project; Thus, no impacts are foreseen on ancient monuments and archaeological sites due to the construction of the extended project. However, the baseline survey has identified some community resources such as a few mosques, schools, madrasa and Eidgah field in the project influenced area, shown in **Table 4.1 and Figure 4.3**.

#### 6.2.9 Impact Related to Financial Intermediaries (ESS 9)

Proponent should prepare all the Environment and social documents related to this project and disclose them on their websites.

#### **6.2.10 Impact Related to Stakeholder Engagement and Information Disclosure (ESS 10)**

Stakeholder consultation should be a continuous process, and they should be provided with sufficient information throughout the life cycle of the project, in a manner appropriate to the nature of their interests and the potential environmental and social risks and impacts of the project.

In the stakeholder consultation process FGD and KII was conducted. FGDs with local communities including local businessman, local residential people and local labors was conducted where all the participants request the proponent to give local people employment opportunity and do not dump any waste water in the surrounding area. Proponents ensure them they will prioritize local people in employment based on their skill. A KII with relevant Government & Non-government officials including DoE, Union Parishad members, UNO, NGOs etc. was conducted and they suggest the proponent to implement all the relevant social and environmental law and maintain the DoE standard. Details of the appropriate stakeholder mapping and meaningful consultation with all the project related stakeholders, is discussed in chapter 10.

### **6.3. Operation Phase Impacts**

#### **6.3.1 Impacts related to Assessment and Management of Environmental and Social Risks and Impacts (ESS-1)**

The proposed extended part of the project activities at Gazipur, anticipated to have some environmental and social risks. These risks need to be managed according to the approved ESIA and EMP. This ESIA study Suggested some ESMP to minimize the negative effect of the project activity which should be followed and proper monitoring should be undertaken according to the specified schedule mentioned in this ESIA report. The proponent has ECC for the proposed project, which is attached in **Annexure 1**. The proponent has its own environmental policy, which is attached in **Annexure 23**.

#### **6.3.2 Impacts Related to Labour and Working Condition (ESS-2)**

##### **6.3.2.1 Occupational Health and Safety**

Project operation will involve working within noisy machineries, storage area, handling and use of hazardous materials like chemicals, etc. These essential components of the project may cause different types of hazards, for example, fire, explosion, cut, electrocution, intoxication/ toxic exposure etc. and the consequences of these hazardous materials may result in health injury, electrocution, organ disease, outburst, loss of health, loss of life etc. Flammable solvents are used in the manufacturing processes can lead to fire hazards. Safe and good occupational health status of the employees and workers is important for the persons working in the project area. There is a clinical chamber with doctor and paramedics in the factory.

Paramount Textile have proper dining, toilet and first aid facilities for the workers. For female workers Child care Room has been set up, so that they work without any tension regarding their children. In addition to that there is already an existing emergency medical room with a doctor and nurse facilities.



Emergency and first aid medicines and equipment i.e., (sphygmomanometer, thermometer, adhesive bandages, elastic bandages, dual head stethoscope, antiseptic cream, aroclor solution 10%, adhesive tape, face mask, hand gloves, hand sanitizer, sharp scissors, safety pins and saline) are available there.

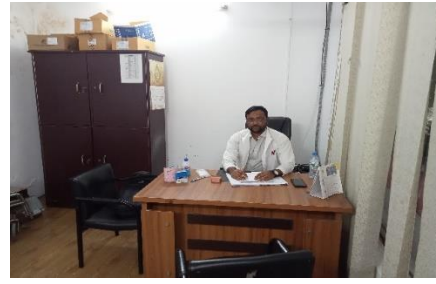
The proponent has made an MoU with Al-Hera hospital at Mawna Chowrasta, Sreepur, Gazipur which is approximately 3.55 km from the. According to the MoU, the hospital will provide emergency treatment for any kind of industrial accident, fire accident and natural disaster. The hospital will also provide ambulance facility, hospital bed, priority treatment, oxygen cylinder, other medical equipment and testing facility etc. The MoU with the hospital is provided as **Annexure 25**. The same MoU will be continued for the proposed project.

The working area have proper ventilation and lighting facilities, they mop the floor regularly to keep the working environment clean. For the protection from noise workers use earplugs during operation. The proponent has a grievance policy for workers which is attached in **Annexure 28**.

There is already fire safety equipment installed at different locations of the project area and have a fire safety policy attached in **Annexure 29**. Fire drills are conducted during training sessions. Available fire safety equipment at site is fire extinguisher, fire lading valve. Health & safety Policy of PTPLC is attached in **Annexure 24** and the evacuation plan for each section is provided in **section 7.5**. Photographs of OHS Strategies are presented in **Figure 6.2**.



Safety Signage



Medical Room

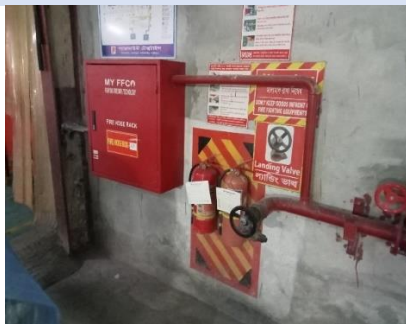


First Aid Kit



Child Care Room

Medical Facility



Fire Fighting Equipment

Figure 6.2: Precautions taken by Paramount Textile Authority

### Proposed Mitigation Measures

- ✓ The proponent will provide all kinds of treatment facilities and pay compensation according to Bangladesh Labor Act 2006;
- ✓ Proponent should follow the proposed Occupational Health & Safety Management Plan in case of identification of occupational risk & hazard during operation phase and provide appropriate safety measure for that, the details OHS plan is attached in **Annexure 26**.
- ✓ The workers should wear PPE (Personal Protective Equipment), safety goggles, and other necessities as per requirements, Suggested PPE for Occupational Health & Safety of the workers is provided in **Figure 6.1**;
- ✓ Provide adequate lighting in all workrooms;
- ✓ Staff members who regularly handle chemicals should have an easy access to Material Safety Data Sheets (MSDS) as they provide information such as physical data (melting or boiling points), toxicity, reactivity, disposal methods, storage conditions, and protective equipment and spill or leak procedures. Along with the training, an availability of MSDS in local language enables the workers to read the contents within without any issues;

- ✓ Workers and staffs in the weaving section, generators room and boiler room should wear ear plugs while machineries are in operation;
- ✓ A safety manual for storage and handling of hazardous chemicals will be prepared and implemented;
- ✓ The storage area for the dyes and other chemicals should be cool and dry areas. One member in each shift of the staff should be trained in first aid to ensure outreach in case of an emergency;
- ✓ Regular cleaning of the floors with a Vacuum cleaner to cut down the dust spread;
- ✓ Monitoring and repairing dust control equipment and ventilation systems;
- ✓ Annual training programs for employees to create health hazard awareness;
- ✓ Well-maintained machinery to reduce noise pollution;
- ✓ The staff will be trained for first-aid and firefighting procedures. The rescue team will support the first-aid and firefighting team;
- ✓ A first-aid center with the trained personnel should be maintained;
- ✓ Train staff on how to prevent and manage incidences. This should involve proper handling of electricity, water etc. and sensitization on various modes of escape, conduct and responsibility during such incidences;
- ✓ Use signage to warn staff and/ or visitors of dangerous places. The signage must be visible and placed strategically;
- ✓ Conduct mock drills on a routine basis to make workers and staffs aware of fire emergency response;
- ✓ Educate all workers about the evacuation procedures to handle emergency situations;
- ✓ A near miss and accident reporting system will be followed and corrective measures shall be taken to avoid / minimize near miss incidents;
- ✓ Safety measures in the form of DO and Don't Do will be displayed at strategic locations;
- ✓ Safety audits will be conducted periodically as per the regulatory requirements;
- ✓ A Permit to enter the project area will be established to ensure that only authorized persons can entry to the site;
- ✓ Regular medical checkup would be done to ensure the soundness of health of employees and workers;
- ✓ In addition, necessary steps to be taken for arrangement of ambulance service in the project area to support any emergency medical aid and shifting to the hospital/ medical Centre.

#### **6.3.2.2 Labor and Working Condition**

Working conditions and terms of employment examples are wages and benefits; wage deductions; working hours; overtime arrangements and overtime compensation, breaks, and leave for illness, maternity, vacation or holiday in a week. The working hour policy of paramount textile is given in **Annexure 30**.

The project has now 3010 workers and after expansion there will be 4000 workers. The project area has no labour camp facilities, 4 shifts of working hour is present there;

- General Shift: 9.00 AM to 6.00 PM
- Morning Shift: 6.00 AM to 2.00 PM
- Evening Shift: 2.00 PM to 10.00 PM

- Night Shift: 10.00 PM to 6.00 AM

As per the working policy workers can have from 1 p.m. to 2 p.m. break from lunch, prayer purposes and workers in production unit can have 30 minutes break in 4–5-hour interval during working hour. daily 8 hours of work and weekly 48hours; maximum 2hours of overtime in a day and 1 holiday in a week.

The proponent has a grievance mechanism policy for the internal workers which is given in **Annexure 28**.

#### **Proposed Mitigation Measures**

- ✓ The proponent should adopt and implement human resources policies and procedures as per the Bangladesh Labor Act, 2006;
- ✓ The proponent will not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements;
- ✓ Proponent should maintain standard salary, salary deductions; hours of work; overtime arrangements and overtime compensation as per the proposed Labour Management Plan (**Annexure 27**);
- ✓ Leave for illness, maternity, vacation or holiday should also be maintained by the proponent;
- ✓ Child labor and forced labor should strictly be prohibited;
- ✓ Discrimination between male and female labor should be prohibited;
- ✓ Measures should be taken to prevent and address harassment, intimidation, and/or exploitation, especially in regard to women;
- ✓ The proponent will not employ forced labor, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty;
- ✓ The company should follow its own health safety management and mitigation plan and policy in case of any emergency situation, Health Safety Management plan given in **Annexure 24**.

#### **6.3.2.3 Sanitation Hazard & Drinking Water**

The health of the project personnel, workers and laborers could be impacted if arrangement of sanitation and drinking water is not ensured adequately and properly. During operation stage, workers and laborers generate human waste and other waste. These are the potential source for spread of diseases, as various insects will play dominating role in the spread of diseases. There are chances for the spread of water borne diseases also. There are canteen and dining facilities available for staffs and workers. There is safe drinking water facility for all and separate toilet facilities for male and female workers.

The proposed project will install 9 STPs with 131.2 m<sup>3</sup>/day capacity, which is not sufficient for the 4000 workers during the operation phase. As per BNBC 2020, Proponent need to increase the capacity of STP to (40L/capita/day X 4000) 160 m<sup>3</sup>/day.

For sanitation and drinking purposes they are using ground water. The existing project will use 720 m<sup>3</sup>/day water for sanitation and drinking purposes and the proposed project will require 900 m<sup>3</sup>/day water for sanitation and drinking purposes.



The proponent has already made arrangement of safe drinking water for workers and the drinking water quality result in **Table 4.4** shows that all the parameters are under WHO standards. The project area has the proper toilets, canteen and dining facilities shows in **Figure 6.3**.



**Hand washing Place**



**Drinking Water Facility**



**Toilet**



**Ablution Room**



**Dining**



**Canteen**

**Figure 6.3: Sanitation Facilities of Paramount Textile PLC**

### **Proposed Mitigation Measures**

- ✓ Project personnel and workers will follow appropriate means of waste removal and sanitation measures;
- ✓ Ensure sanitary facilities for the workers to encourage personal hygiene;
- ✓ All the workers and staffs should follow the safety protocol (i.e., Physical distancing, Face coverings, Gloves, Goggles & Face Shields, Hand hygiene, Coughing/Sneezing hygiene, Personal disinfection, request for cleaning supplies and Face coverings to others) due to the Covid situation;
- ✓ Adequate number of toilets and bathrooms should be made for the workers. Standards range is 1 unit to 15 persons;
- ✓ Separate Male and female toilets should be available;
- ✓ Sanitary waste should be treated and adequately disposed of in drainage system to avoid surface water contamination;
- ✓ Proponent should increase the capacity of the STPs to 160m<sup>3</sup>/day for 4000 people.

#### 6.3.2.4 Employment Generation

One of the main positive impacts during the operation phase is the availability of employment opportunities. The increase in temporary and permanent jobs in staffs and officials would result in more transaction of money locally for purchasing of different goods and services. A number of local people are engaged in project related activities and may have employment opportunity. Employment opportunities are of benefit both economically and in a social sense.

#### Mitigation Measures

- ✓ Encourage local and equitable employment;
- ✓ Salaries and other benefits based on qualification and experience;
- ✓ Priority given to local residents for both professional and nonprofessional positions.

#### 6.3.3 Impacts Related to Resource Efficiency and Pollution Prevention and Management (ESS 3)

The proponent has an environmental policy, where they mention about taking different steps to reduce the water consumption, air pollution reduction and the implementation of environmental rules and regulation. Details of paramount textile Environmental policy is attached in **Annexure 23**.

##### 6.3.3.1 Air quality

The existing project is using captive generators & boilers which cause exhaust gas emission and will be used in addition with 5 extra captive generators during the operation phase of the proposed extension project as well. If it is not managed properly, it can create air pollution. This could be minimized by providing proper stack height to disperse exhaust gasses adequately. Proponent has already installed stack for generator (80 ft) and boiler (80 ft). However, it is evident from the ambient air and stack emission analysis report (as presented in Chapter 4, **Annexure 20**) that the factory is not creating any negative impact on ambient air as all the parameters are well within the guideline value. The consumption of fuel will be increased as the production capacity of the project will increase which will increase air emission from generators and boilers.

The benefit of this extension project is that, PTPLC will use energy efficient machineries for the capacity enhancement which will have positive impact in energy savings. Energy efficiency with previous machineries is presented in table below.

**Table 6.1: Energy and production difference between previous and proposed machineries**

S L	Names of Machineries	Input Energy	Output/ Producti on	Input Energy/ Power	Output/ Producti on	Benefits of Proposed Machineries
		Previous Machine		Proposed Machine		
1.	Dyeing and Bleaching of Yarn	90 KW	1296 kg/day	54 KW	1400 kg/day	• Low Liquor Ratio 1: 3.8;

S L	Names of Machineries	Input Energy	Output/ Producti on	Input Energy/ Power	Output/ Producti on	Benefits of Proposed Machineries
		Previous Machine		Proposed Machine		
2.	Dyeing and Bleaching of Yarn	90 KW	1296 kg/day	54KW	1400 kg/day	<ul style="list-style-type: none"> <li>Electrical Load for main circulation Pump is 70% lower than what installed in ordinary previous dyeing machine.</li> </ul>
3.	Dyeing and Bleaching of Yarn	170 KW	4000 kg/day	121 KW	4000 Kg/day	
4.	Dyeing Machine	-	-	73.5 KW	3600 Kg/day	<ul style="list-style-type: none"> <li>Proposed machineries have VFD (Variable Frequency Drive), which have energy saving capacity;</li> <li>Proposed machineries are more efficient;</li> <li>Intelligence Washing System and Process Control;</li> <li>low water consumption for per kg fabric Dyeing.</li> </ul>
		-	-	73.5 KW	3000 kg/day	
		-	-	62.5 KW	2500 Kg/day	
		-	-	52.5 KW	2000 Kg/day	
		-	-	39.5 KW	1500 kg/day	
		-	-	28.5 KW	1000 kg/day	
		-	-	18.5 KW	600 Kg/day	
		-	-	18.5 KW	500 kg/day	
		-	-	14.5 KW	300 Kg/day	
		-	-	11.5 KW	200 kg/day	
		-	-	11.5 KW	100 kg/day	
		-	-	11.5 KW	50 Kg/day	
		-	-	5.5 KW	20 Kg/day	
5.	01 Set Sanforizing Machine & Felt Compacting Machine	58 KW	15500 kg/day	38 KW	16000 kg/day	<ul style="list-style-type: none"> <li>Proposed machineries have VFD (Variable Frequency Drive), which have energy saving capacity;</li> <li>Proposed machineries are more efficient.</li> </ul>
6.	Sanforizing Line for Processing Wovens	58 KW	15500 kg/day	46 KW	32000 kg/day	<ul style="list-style-type: none"> <li>Proposed machineries have VFD (Variable Frequency Drive), which have energy saving capacity;</li> <li>Proposed machineries are more efficient;</li> <li>VFD &amp; LED Lights</li> </ul>



S L	Names of Machineries	Input Energy	Output/ Producti on	Input Energy/ Power	Output/ Producti on	Benefits of Proposed Machineries
		Previous Machine		Proposed Machine		
7.	Sanforizing Line for Process Roller	58 KW	15500 kg/day	46 KW	32000 kg/day	<ul style="list-style-type: none"> <li>• VFD, Premium Efficiency IE3 Motor,</li> <li>• VFD &amp; LED Lights</li> </ul>
8.	Continuous Dyeing Range Machine (Thermosol)	-	-	160 KW	32000 Kg/day	<ul style="list-style-type: none"> <li>• VFD, High efficiency IE 2 Motor,</li> <li>• Advanced Control system,</li> <li>• Uniform Operation</li> </ul>
9.	Complete Bleaching	170 Kw	13300 kg/day	105 kW	28800 Kg/day	<ul style="list-style-type: none"> <li>• IE 3 Premium Efficiency Motor &amp; VFD,</li> <li>• Heat Recovery unit from Hot waste drain water</li> </ul>
10	01 Set Continuous Washing Machine	150 KW	6000 kg/day	73.15 KW	32000 Kg/day	<ul style="list-style-type: none"> <li>• High &amp; Premium efficiency Motor and VFD,</li> <li>• Set of control equipment for processing water: Water regulation devices for weight proportional feeding of process water.</li> <li>• Heat Recovery unit from Hot waste drain water</li> </ul>
11	01 Set Mercerizing Machine	200 KW	13300 kg/day	150 KW	25600 kg/day	<ul style="list-style-type: none"> <li>• IE 3 Premium Efficiency Motor &amp; VFD</li> </ul>
12	Automatic Flat- Bed Screen Printing Machine	170 KW	3000 kg/day	120.45 KW	7853 kg/day	<ul style="list-style-type: none"> <li>• Driving method: AC Servo system with computer</li> </ul>
13	NR 1 SET AIRO 24-180 SOFTENING AND DYEING MACHINE WITH PADDER	110 KW	1300 Kg/day	90 KW	22400 Kg/day	<ul style="list-style-type: none"> <li>• IE 3 Premium efficiency Motor &amp; VFD</li> </ul>
14	Continuous Loop Steamer	42 KW	13440 Kg/day	36.8 KW	16440 Kg/day	<ul style="list-style-type: none"> <li>• VFD, Premium Efficiency IE3 Motor,</li> <li>• Moisture control device</li> </ul>
15	Hydro Extractor (Centrifuge Machine)	22 KW	8000 Kg/day	16 KW	11520 kg/day	<ul style="list-style-type: none"> <li>• IE 3 Premium efficiency Motor &amp; VFD</li> </ul>

In addition, this project is an environmental incentive-based project as it is using the waste heat from generators as a source of fuel for operating 2 EGB boilers. This process will reduce the generator stack emission of exhaust gas in the air and will reduce the consumption of fossil fuel in boiler operation. For the proposed project Paramount Textile PLC is planning to install new machineries for the

proposed project, which will be more energy and resource efficient than the existing machineries. Details of the energy efficient machineries list is provided in **Table 6.1**.

PTPLC is planning to install 5 MW Roof top solar panels. the implementation plan is 2MW (2026), 2MW (2028) and 1 MW (2029).

#### Proposed Mitigation Measures

- ✓ Regularly maintain all equipment and reduce idling time to avoid additional emissions of NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub>;
- ✓ It shall be ensured that machinery is turned off when not in operation;
- ✓ Housekeeping of the area shall be maintained by deputing sweepers to remove dirt/debris from the floors/ sites on daily basis to reduce the amount dust particle in the surrounding air;
- ✓ Sprinkling water at the outdoor compound of the project area to reduce the dust when needed;
- ✓ All vehicles should have updated fitness certificate and should be maintained so that it emits less polluting substance;
- ✓ Limit the idling time of vehicles not more than 2 minutes;
- ✓ Fit vehicles with appropriate exhaust systems and emission control devices;
- ✓ Plantation of trees in the project compound. Any open area should be planted with appropriate vegetation (trees, flowers and grasses);
- ✓ Solar panels should be installed according to their plan to reduce generator usage as well as fuel consumption to reduce harmful emission of GHG;
- ✓ Non-toxic household products should be used.

#### 6.3.3.1.1 GHG Emission Calculation and Reduction of Its Carbon Footprint

The extension of this project will consume 9024 m<sup>3</sup>/hr natural gas from Titas Gas Transmission and Distribution Company for electricity generation of 15.9MW/h for both existing and proposed facility. Gas based reciprocating engine is used in captive power generation for this project which emits less GHG emission compared to coal or liquid fuel based captive generator. The efficiency of the captive is 40%.

For GHG emission calculation, CO<sub>2</sub>, has been accounted for this power plant project. Using the standard process of IPCC (2006), the emission of CO<sub>2</sub> has been estimated for the fuel of natural gas according to their operation period. Considering the 100-year global warming potentiality for CO<sub>2</sub>, the collective GHG emission is calculated in CO<sub>2</sub> equivalent. Annually, this power plant will emit around 9,564.13 tCO<sub>2</sub>/yr of GHG during 100% operation through natural gas at 85% PLF. **Table 6.2** shows the detailed generations of GHG in three scenarios.

**Table 6.2: Annual GHG Emissions from extension of Paramount Textile PLC**

Parameters of GHG	Calculation	Only natural gas (85% PLF)
		Natural gas (100%)
Total Electricity Consumption	15.9MWh*8760*85%	1,18,391.4 MWh/yr
Fuel consumption	Total Electricity Generation *40%*3.6	1,70,483.62 GJ/yr
Total GHG emission (t CO <sub>2</sub> /yr)	Fuel consumption*0.0561	9,564.13 tCO <sub>2</sub> /yr
GHG emission (t CO <sub>2</sub> /MWh)	Project Emission/Total Electricity Generation	0.0808 tCO <sub>2</sub> /MWh

GHG emission (lb CO <sub>2</sub> /MWh)	GHG emission (t CO <sub>2</sub> /MWh) *2204.62	178.1 lb CO <sub>2</sub> /MWh
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N.B.: Emission factor from 2006 IPCC Guidelines for National GHG Inventories. (Chapter 2: Stationary Sources)  
Source 2: <https://www.adb.org/sites/default/files/institutional-document/296466/guidelines-estimating-ghg.pdf>

#### ❖ Measures Taken by PTPLC

PTPLC will use exhaust gas boiler and will install energy and resource efficient machineries for their production, shown in **Table 6.1**. They are using H<sub>2</sub>O<sub>2</sub> in bleaching, sustainable yarns like organic yarn, pre-consumed recycled blended yarns are using for fabrics production. PTPLC also replaced all the conventional lights with energy efficient LED light to reduce the GHG emission.

#### ❖ Recommendations

Here are some others recommendations for reducing greenhouse gas emission are as below:

- ✓ Guidelines issued by the Building Code, 2020 should be followed;
- ✓ Energy efficient building materials should be considered for construction of structures;
- ✓ Energy efficient process and building structures should achieve 20% reductions in energy consumption;
- ✓ Air Dyeing Technology could be used in place of traditional dyeing technology for the entire process Because in this process water just serve as a solvent of dyeing liquor and only a little water is consumed.
- ✓ It is recommended that the project authorities should undertake yearly energy audit for their entire manufacturing process and ancillary facilities.

#### 6.3.3.2 Noise Hazard

Major sources of noise and vibration will be come from captive generators, boilers, Weaving Section, dyeing machine, material carrying vehicle etc. Noises that originated from the equipment, if reach an intolerable limit, can cause permanent damage to the hearing cells in the inner ear, leading to hearing loss to workers and neighbors. Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress.

The existing project operation create noise and vibration pollution. The source of noise and vibration pollution is generators, boiler, weaving section, dyeing machine, material carrying vehicle etc. Noises that originated from the equipment, if reach an intolerable limit, can cause permanent damage to the hearing cells in the inner ear, leading to hearing loss to workers and neighbors. In some section of the industry (Weaving section, Boiler, Generator) there noise level was found very high and crossed the limit of DoE.

Workers in the weaving section always wear ear plugs during operation. Generator and the boiler rooms are the sources of the highest noise level. The noise level data was collected from a distance of 4feet from the main machineries otherwise noise level of these 2 rooms reduced by half after closing the door and no workers stay at that rooms. During maintenance of the generators and boilers staffs wear ear plugs. The weaving room, generator room and boiler room use sound proof insulators on doors, which prevents the noise and vibration to pass outside the room.

### Proposed Mitigation Measures

- ✓ All equipment and mechanical machineries shall have to be maintained in good working order;
- ✓ To reduce the effect, exhaust gas silencers will be used in the stack which will keep the noise level within limit;
- ✓ Workers and staffs must wear ear plugs while working in the weaving section, generator room and boiler room;
- ✓ In particular, significant noisy components or machines (generator, boiler etc.) should be kept in acoustically enclosed buildings with thick doors;
- ✓ Where applicable and possible exceptionally noisy machines to be fitted with noise reduction devices or noise mufflers;
- ✓ Any employee who may complain about ear related pain and or complication while at work should be provided medical attention;
- ✓ Proper and timely preventive maintenance of approach vehicles is to be adopted to reduce noise levels;
- ✓ Project boundary wall is more than man height which will dampen the noise level.

#### 6.3.3.3 Impact on Soil Quality

- ✓ Accidental spillage of untreated effluent on the nearby land may impact negatively,
- ✓ Improper storage and disposal of sewage wastes and hazardous waste;
- ✓ Improper dumping of Solid and hazardous waste;
- ✓ Surface run-off from spillage area into nearby open land.

Accidental spillage of chemicals, oil, lubricant can degrade the soil quality. Lack of solid and sludge waste management of existing project can cause soil degradation. There is spill kit at every building for combating accidental spillage. In addition, chemicals are kept in drums with secondary containment facility on hard standing floor in a separate room. Photographs are provided in **Figure 6.4**. The proponent has a waste management procedure and policy discussed in **Annexure 31**.

### Proposed Mitigation Measures

- ✓ Hazardous waste should be carefully handled and disposed off following waste management plan provided in **Annexure 33**;
- ✓ The fuel, chemical and lubricant storage area (fresh and used) will be on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity;
- ✓ Regular inspections of machinery, equipment, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;
- ✓ In case of any spillage, it should be immediately acted up on. To combat spillage equipment i.e., safety goggles, gloves, PPE, disposal bags, containers, suction pump, boom skimmer etc. should be available at the site;
- ✓ Sewage Treatment Plant (STP) should be installed for management of sewage waste so that it does not affect soil quality;

- ✓ Municipal solid waste generated from the project site will be transferred to the designated disposal site in consultation with the Union Parishad;
- ✓ Ensure proper disposal for electrical and hazardous materials to prevent accidental spillage according to the E-Waste Guideline 2021 and Solid Waste Management Guidelines 2021 by DoE, during maintenance work.

#### **6.3.3.4 Impact on Surface Water**

There is no river within the 5 km of the project area and a few water bodies are present (**Figure 4.4**) around the project area which have no direct negative impact due to operational activity. There is a man-made pond within the project area for beautification of the project area with proper boundary which also has no direct negative impact from the proposed project implementation activity.

The existing project would affect natural drainage, surface water quality if any untreated waste water from dyeing and printing section is discharged to surface water body. Accidental spillage of chemical and waste water may also impact surface water quality negatively. Paramount Textile PLC has already installed a 4800 m<sup>3</sup>/day capacity ETP to treat existing operational waste water and the treated water is discharged to the local government canal. Details of existing ETP is provided in section **3.6.1** and effluent quality from ETP is also within guideline value which is presented in **Section 4.3.10**. Paramount Textile PLC is planning to install another ETP with 4800 m<sup>3</sup>/day capacity for the proposed project. Details of proposed ETP is provided in **section 3.6.1.2**.

Paramount Textile is planning to install 9 STPs for proper of sewage waste during the operation phase. The total capacity of STPs is 131.2 m<sup>3</sup>/day which is sufficient for 3280 people but there will 4000 workers and staffs during the proposed project operation phase. The capacity of the proposed STP is not sufficient as the design considered rate of waste water generation is 40 L/capita/day (BNBC 2020) and for 4000 people it should be 4000 X 40 L/capita/day = 160000 L/day or 160m<sup>3</sup>/day. Details provided in **section 3.6.3**.

#### **Proposed Mitigation Measures**

There is no river within the 5km radial zone of the project area. The project area has an access to municipal drainage system to dump the treated effluent. The below mentioned mitigation measures should be followed to conserve the nearby surface water body-

- ✓ Surface drainage shall be maintained and monitored so that it does not block or overflow;
- ✓ Hazardous waste should be carefully handled and disposed off to avoid surface runoff or mixing with waterbody;
- ✓ Sanitary waste should be treated and adequately disposed of to avoid surface water contamination;
- ✓ STP should be installed and the outlet water should meet the discharge guideline value;
- ✓ Proponent should increase the capacity of the STP to 160 m<sup>3</sup>/day;
- ✓ No operational waste water should be discharged without treating it in ETP;
- ✓ Outlet effluent quality of ETP should be periodically checked to ensure the effective operation of ETP.

#### 6.3.3.5 Impact on Ground Water

Continuous discharge of untreated industrial effluents, domestic sewage, and hazardous waste and over exploitation of the resource will badly impact ground water sustainability. Over utilization of ground water is the key factor for ground water depletion but there are other factors which have negative impact on ground water sustainability. Direct disposal of effluent in the surface water body for longer period may also cause some degradation in the ground water quality.

The proponent is using 3924 m<sup>3</sup>/day ground water for production, drinking & sanitation and other purposes. They installed 2 WTP for treating the rain water. Treated rain water are using in production unit. The capacity of the each WTP is 200 m<sup>3</sup>/hr. Details of WTP is provided in **section 3.8.2**.

The proposed project will use 7850 m<sup>3</sup>/day ground water for production, drinking & sanitation and other purposes. To reduce the extraction of they are planning to implement ZLD (Zero liquid discharge) plan where the 30% of the existing waste water from the ETP will be reused to reduce the extraction of ground water. Details of ZLD implementation plan is provided in **Annexure 38**. In addition, PTPLC will expand the capacity of WTP storage tank from 629 m<sup>3</sup> to 860 m<sup>3</sup>.

#### Proposed Mitigation Measures

- ✓ Minimize the extraction and proper management of ground water should be strictly followed;
- ✓ Storage of hazardous material and waste in proper manner and disposal of the waste at a designated location around the site;
- ✓ All hazardous materials will be kept in containers with secondary containment facility to avoid ground water contamination;
- ✓ Sanitary waste should be disposed through sewage treatment system (STP) to avoid ground water contamination;
- ✓ The capacity of the rain water harvesting should be increased;
- ✓ No waste water should be discharge without treating in ETP;
- ✓ As this project is a ground water use intensive project so the proponent may undertake ground water modelling after every 5 years during project life cycle.

#### 6.3.3.6 Impact due to Solid Waste

The operation of the existing project itself generates some solid wastes from the production process which includes cutting waste, roll surplus, defective and surplus fabric pieces, paper, cartoons, bags, boxes, office wastes, pallets, chemical containers and drums etc. Improper disposal of fabric, papers, tissues, packaging materials, boxes, plastics can lead to littering in the project and surrounding areas. Production waste is collected and store in a primary waste storage area, shown in **Figure 6.4**.

Regularly the wastes from bins placed at important locations i.e., office rooms, kitchen and dining area, medical room, child care room etc. are collected and transferred it monthly at nearby municipal solid waste dumping yard. Solid waste is collected by local vendors but they are not certified as in Bangladesh there are no certified municipal solid waste collectors. Waste management Policy and

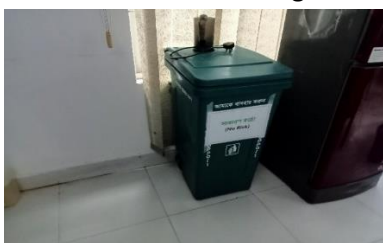
procedure of Paramount Textile PLC is attached in **Annexure 31** and Waste Inventory has been attached in **Annexure 32**.



Production Waste Storage Area



Waste Bin



Different colored bin used for different kinds of waste

**Figure 6.4: Existing Waste management of Paramount Textile PLC**

#### **Proposed Mitigation Measures**

- ✓ All solid waste should be segregated properly. The project authority should undertake waste segregation at source to separate hazardous waste from non-hazardous waste;
- ✓ All solid waste will be segregated properly in different colored bins; Wastes may be segregated into Biodegradable waste, Recyclable waste and non-recyclable waste;
  - **Biodegradable waste:** food waste, dry leaves, etc. for composting and reuse;
  - **Recyclable waste:** paper, wood, cotton, reusable hardware, glass, metal scrap, etc.
  - **Non-recyclable waste:** Polythene and plastics which cannot be treated for reuse.
- ✓ Some solid waste has secondary demand and they should be sold to the secondary dealers. Other solid wastes will be disposed to the designated landfill area;
- ✓ Municipal solid waste generated from the project site will be transferred to the disposal site in consultation with the Union Parishad;
- ✓ Difficult to dispose wastes (plastic wastes) will be minimized and where practicable avoided such as plastic wastes;
- ✓ All type of solid waste which will be sold or disposed to the disposal site should have proper movement register from the site for waste transfer.

#### **6.3.3.7 Impact due to Hazardous Chemical / Waste**

Hazardous wastes are generated and several chemicals will be used during operation process. The spillage or accidental escaping of hazardous substances into the surrounding environment can be a potentially devastating, damaging and deadly occurrence for all living creatures and organisms, including humans. When released into the atmosphere or finding its way into watercourses such as



streams or rivers, these contaminants can travel and adversely affect great areas, and subsequently, a large number of life forms.

The proponent has separate storage areas with hard standing floor for hazardous chemical and waste with proper safety signage, shown in **Figure 6.5**. There is spill kit at every building for combating accidental spillage. Hazardous wastes are properly labelled and is given to hazardous waste collector fortnightly. Treated sludge waste from the ETP will be dispatched off by the Lafarge Holcim Bangladesh Limited a cement industry where they use the dried sludge as a raw material of cement, certificate is provided in **Annexure 12**. Sludge management policy of Paramount Textile PLC is provided in **Annexure 36**. The proponent has an emergency response plan for the management of chemical spill is provided in **Annexure 37**.



**Figure 6.5: Hazardous Waste and Chemical Storage Area**

### **Proposed Mitigation Measures**

- ✓ The proponent should follow the hazardous waste management plan for handling and safe disposal of the hazardous waste, Hazardous Waste Management plan is attached in **Annexure 34**.
- ✓ The chemical storage of the project (fresh and used) should be done on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity;
- ✓ An appropriate storage site should be provided for disassembled spare parts (e.g. motors and electrical parts) that contain oil or other types of fluids. They should be stored in containers that are secured that will not allow oil and other fluids to escape with an impermeable surface and a sealed drainage system;
- ✓ Skilled labors should be appointed for the unloading work to avoid spillage;
- ✓ In case of any spillage, it should be immediately acted up on. Spillage equipment i.e. safety goggles, gloves, PPE, disposal bags, containers, absorbent material etc. should be available at the site;
- ✓ Regular inspections of machinery, equipment, pipe work, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;
- ✓ The hazardous waste will be removed from the site with a regular interval for safe disposal at designated permitted facility; Waste management registrar should be maintained;
- ✓ Spent lubricating oil, used filters etc. which have secondary usage value will be sold only to Doe approved vendors;
- ✓ All the hazardous waste should be properly labelled, where the following information should be added:

- Name & type of waste,
- Quantity of waste,
- Date of waste generation (period of waste generation),
- Waste generation site,
- Disposal site,
- Responsible authority who handles this waste.

#### 6.3.3.8 Impact due to Liquid Waste

Due to dyeing and printing, chemical waste water is generated which is treated through existing ETP which has a capacity of 4800 m<sup>3</sup>/day. Treated water is collected through an outlet and stored in a water collection tank before disposed them off. From this Collection Tank, treated water is pumped to Govt. municipal drainage line. The proponent is planning to increase the capacity of the ETP by adding another ETP with capacity of 4800 m<sup>3</sup>/day. Details of the proposed and existing ETP is discussed in **section 3.6.1**. the proponent has an Emergency response plan for ETP, provided in **section 7.7**.

Domestic wastewater from office areas, and worker areas of the existing project is generated which is treated through a septic tank with a soak pit. The existing 9 septic tank total volume is 228.6 m<sup>3</sup>/day, which is sufficient for treatment of the sewage waste in construction phase.

For the proposed project, proponent is planning to install 9 STPs in the project area for the proposed project. the total capacity of the proposed STP is 131.2 m<sup>3</sup>/day, which is not sufficient for the 4000 people in the operation phase. As per the BNBC, 2020 the waste water generation of a non-residential worker is 40L/capita/day, that means in operation phase the proposed project require to increase STP capacity to (40L/day X 4000) 160 m<sup>3</sup>/day. Description of the STP process flow is discussed in **Annexure 14**. The effluent characteristics of the STPs and proposed ETPs should meet both IFC EHS guideline along with Bangladesh standard mentioned in **Table 6.3** and **Table 6.4** respectively.

**Table 6.3: Standards of STP Treated Waste Water Before Discharge**

Parameters	Standard for Liquid waste discharge in Inland surface water as per ECR, 2023	WB EHS guidelines for treated sanitary sewage discharge
pH	6-9	6-9
BOD <sub>5</sub> at 20°C	30 mg/l	30 mg/l
COD	125 mg/l	125 mg/l
Total Nitrogen	-	10 mg/l
Total Phosphorus	-	2 mg/l
Oil and Grease	10 mg/l	10 mg/l
Total Suspended Solid	-	50 mg/l
Total Coliform Bacteria	1000	400 MPN/100 ml

**Table 6.4: Standards of ETP Treated Waste Water Before Discharge**

Parameters	As per ECR'2023 Bangladesh Standard for Wastewater from textile Industrial Units, discharging to inland surface Water
pH	6-9
Temperature	Not more than 5°C than the discharging point
COD	200 mg/l
Suspended Solid	100
Total dissolved Solid	2100
BOD at 20°C	30 mg/l

**Proposed Mitigation Measures**

- ✓ The proponent should implement ZLD plan for proper management of liquid waste, ZLD plan attached in **Annexure 38**;
- ✓ Waste water from project activity should not be dumped to the nearest water body or drainage system without proper treatment;
- ✓ Waste water from the production unit must be treated in a ETP before reused or discharged;
- ✓ The effluent characteristics of the STP and ETPs should meet both IFC EHS guideline along with Bangladesh standard;
- ✓ Proponent should increase the capacity of STP to 160 m<sup>3</sup>/day;
- ✓ Periodically monitoring of treated waste water before reuse or discharged.

**6.3.4 Impacts Related to Community Health and Safety (ESS 4)**

The project manager will evaluate the risks and impacts to the health and safety of the Affected Communities during operation phase. Impact on Community Health, Safety and Security comprises possibility of occurring accidents and local people may come to contact of hazardous material related to the project. Due to continuous extraction of ground water, community people may face scarcity of available ground water during dry season.

**Proposed Mitigation Measures**

- ✓ Implementation of a safety program (speed restrictions, lights on trucks, truck load restrictions etc.) within the project area and at the entrance;
- ✓ The boiler and generator room and the weaving section should use noise proof door to reduce the noise;
- ✓ Should implement ZLD plan and rain water harvesting pond to reduce the extraction of ground water;
- ✓ Sanitary waste should be properly handled and disposed at designated area to avoid outbreak of diseases;
- ✓ No waste water should be dumped in the drainage system without proper treatment;
- ✓ Train all workers in basic sanitation and health care issues (e.g., how to avoid malaria, transmission of sexually transmitted infections (STI), and HIV/AIDS;

- ✓ A grievance mechanism for community will be set up according to the details provided in Chapter 11. A detail of Community Health and Safety Management Plan is attached in **Annexure 35**.

#### **6.3.4.1 Traffic and Transportation**

Increase in vehicular traffic in the area is likely to be experienced during the operation phase of the project. During the operation phase, increase in vehicular traffic in the area may result in:

- ✓ Possible traffic congestion of local roads and lanes;
- ✓ Occasional experience of delays on the said local roads;
- ✓ Pedestrians and cyclists using the roads around the project area may face accidents on the said roads;
- ✓ There will be an increase of exhaust emission from vehicles, which will pollute local atmospheric air.

Paramount Textile has constructed a 20-25ft wide main entrance road and 50-60ft wide internal road. The road around the project site is shown in **Figure 3.2**. The internal roads facility of the project site is very satisfactory and well planned. There is no traffic jam around the existing project area, but it can be increased during the construction of the proposed project.

#### **Proposed Mitigation Measures**

- ✓ Management to provide for adequate internal parking, for all vehicles coming to the project premises;
- ✓ All users of said roads to always observe traffic rules; this will give pedestrians and cyclists their space and safety while using the road;
- ✓ Piloting should be done for internal traffic with materials and goods to avoid any accidents;
- ✓ Enforce on-site speed limit, especially close to the sensitive receptors, schools, health centers, etc.;
- ✓ Marking of the roads, warning signs / lights, road signs to be clearly used.

#### **6.3.4.2 Impacts on Vulnerable Group**

A group of vulnerable people such as poor, the elderly, the very young, those already in poor health can get negatively affected by air and noise pollution, hazardous waste, liquid waste from the project operation. Gender-related facilities for the women in general, will include pregnant women, lactating mothers, elderly and disabled people who will be working in the project area. Necessary facilities for the women and men including disabled and elderly people will need to be provided.

#### **Proposed Mitigation Measure**

- ✓ Ensure air and noise emission, waste water discharge is within guideline value and do not cause harm to vulnerable group;
- ✓ The needs of women and vulnerable groups (VGs) should be identified properly and special attention should be given to them;

- ✓ Train all workers in basic sanitation and health care issues (e.g., how to avoid malaria, transmission of sexually transmitted infections (STI), and HIV/AIDS;
- ✓ Creating income generating opportunities for the vulnerable population.

#### **6.3.4.3 Social Acceptability of Workers to The Host Communities**

The differences in the cultures of workers (in case hiring is required) and local community may create some problems. In the rural area, the local people especially the religiously conservative section of the community may not accept the foreign workers in general.

#### **Proposed Mitigation Measures**

- ✓ Priority should be given to local residents for both professional and nonprofessional positions
- ✓ Adequate training or awareness would be given to the migratory workers about local culture and behavior. So, there is no major problem raising in dealing with foreign or migratory workers.

#### **6.3.5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS- 05)**

No impact anticipated

#### **6.3.6 Impacts Related to Bio-diversity & Living Natural Resources (ESS 6)**

##### **6.3.6.1 Impact on Terrestrial Habitat**

- ✓ Improper management of solid waste may adversely impact the fauna of that area, they may get affected or infected due to disposal of infectious waste;
- ✓ Fugitive emission from the operation of the project may negatively impact terrestrial habitat;
- ✓ Pollutant and dust emission in the atmosphere may impact negatively to the terrestrial flora and fauna.

#### **Proposed Mitigation Measures**

- ✓ Proper disposal and management of solid waste should be maintained;
- ✓ Site should be kept clean;
- ✓ Raw material, debris, solid waste and spent oil should be properly, stored and disposed off;
- ✓ Plantation of local species in surrounding areas of the Project site;
- ✓ Greenbelt area should be built-up in open areas, a Green Belt Development Plan is provided in **Annexure 39**.

##### **6.3.6.2 Impact on Aquatic Habitat**

- ✓ Aquatic habitat would be affected due to discharge of waste water and disposal of solid waste into adjacent surface water body;
- ✓ If any hazardous waste is thrown to the surface water body, then it may greatly impact the aquatic flora and fauna;
- ✓ Runoff erosion from the project site may have negative impact on aquatic fauna.

There is no river within the 5 km of the project area and a few water bodies are present (**Figure 4.4**) around the project area which have no direct negative impact due to operational activity. There is a man-made pond within the project area for beautification of the project area with proper boundary which also has no direct negative impact from the proposed project implementation activity.

The existing project has a ETP of 200m<sup>3</sup>/hr capacity to treat the liquid waste from the production unit before disposed them off. Treated water is collected through an outlet into a water collection tank. From this Collection Tank, treated water is pumped to Govt. municipal drainage line to the Turag River which is approx. 50 km far from the project site. The standards of outlet water from the ETP are under the DoE standards. There are 9 septic tanks for treating the sewage waste of the existing project. In addition, they are planning to install 9 STPs for sewage treatment. So, no waste water from the existing project is directly dumped in the nearest water body without treated.

#### **Proposed Mitigation Measures**

- ✓ For optimal maintenance, a tank should be cleaned once every year to keep the septic system working well;
- ✓ Specific procedures and necessary preparedness should be undertaken to contain any accidental spill at source and also to prevent their spread in the surrounding environment;
- ✓ Site should be kept clean so as no pollutant from site should enter the water bodies along with run-off;
- ✓ Wastewater should not be disposed-off in the water bodies or drainage line without proper treatment;
- ✓ Regular monitoring of the ETP outlet water to avoid waste water discharge to the municipal drainage;
- ✓ Sewage treatment plant (STP) will be installed for proper treatment of sewage;
- ✓ Effluent quality should be checked periodically.

#### **6.3.7 Impacts Related to Tribal/Indigenous Population (ESS 7)**

The surveys indicated no tribal or indigenous people within the project influence area.

#### **6.3.8 Impact Related on Impacts on Cultural Heritage (ESS 8)**

The existing and extension project does not have any archaeological sites around the 5km radius of the project; Thus, no impacts are foreseen on ancient monuments and archaeological sites due to the construction of the extended project. However, the baseline survey has identified a few mosques, schools, madrasa and Eidgah field in the project influenced area and due to machinery operation, air, noise and dust emission from project production unit.

#### **Proposed Mitigation Measure**

- ✓ Significant noisy components or machines (generator, boiler etc.) should be limited from 7 a.m. to 7 p.m. or should be kept in acoustically enclosed buildings with thick doors;
- ✓ Sprinkling water at the outdoor compound of the project area to reduce the dust when needed.

## 7 EMERGENCY RESPONSE, HEALTH & SAFETY AND DISASTER MANAGEMENT PLAN

### 7.1 Emergency Response

The initial response to an incident is a critical step in the overall emergency response. Like all other Industries and installations, the project must have adequate measures against accidents or incidents to meet the emergency. The purpose of having an Emergency Response Plan (ERP) is to:

- Assist personnel in determining the appropriate response to emergencies;
- Provide personnel with established procedures and guidelines;
- Notify the appropriate Company Emergency Response Team personnel and regulatory/ Govt. agencies;
- Manage public and media relations;
- Minimize the effects that disruptive events can have on company operations by reducing recovery times and costs;
- Respond to immediate requirements to safeguard the subtending environment and community.

Details of emergency response steps, approaches are provided in **Annexure 40**.

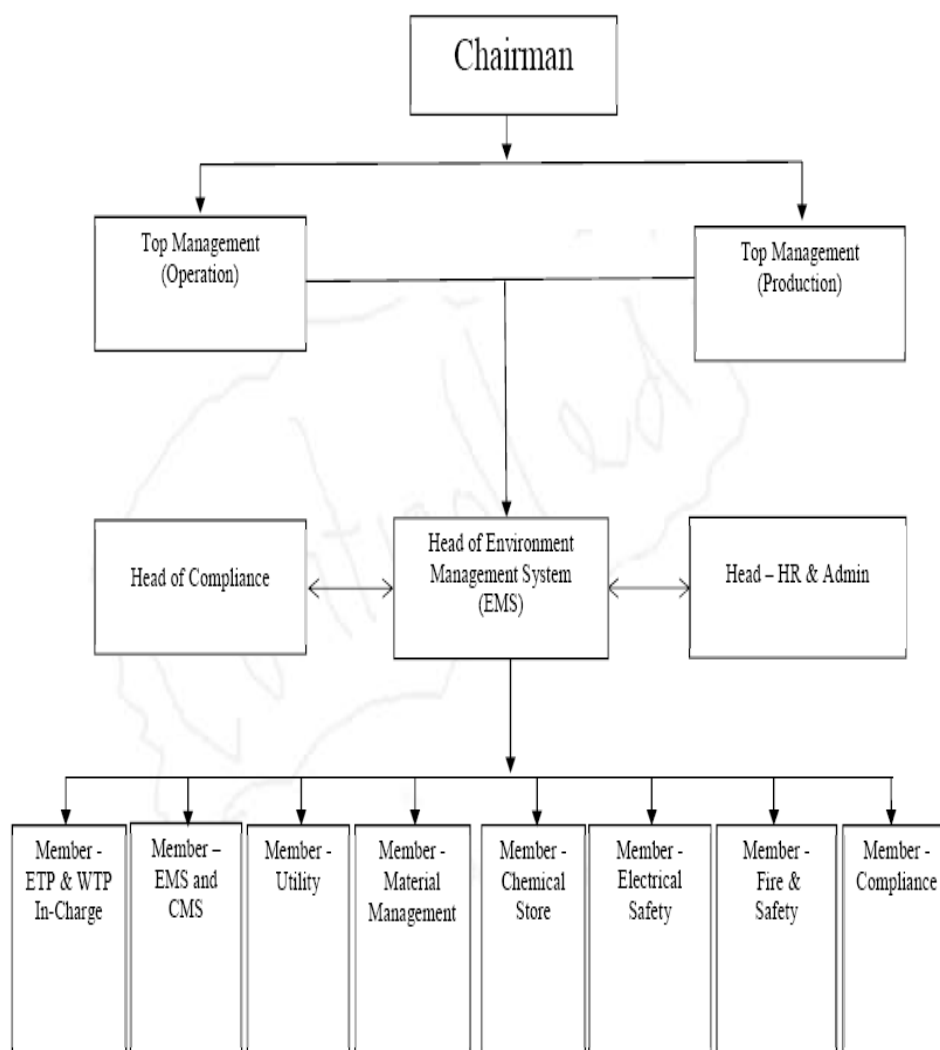
### 7.2 Emergency Response Plan

An Emergency Response Plan (ERP) is to provide a systematic approach to the protection of employees, assets and the environment from impact of serious incidents. A well-constructed ERP will prevent a minor incident from becoming a disaster, save lives, prevent injuries and minimize damage to property and the environment. The goals of the ERP are to:

- Provide for clear lines of authority, responsibilities and communication during incident and crisis events;
- Provide a means by which trained people and resources are available to those managing the incident or crisis event;
- Possible emergency events that have been identified for this Project are; immediate medical evacuation due to personnel injury, traffic accidents (road), leakage of hazardous chemicals, fire, earthquake, flooding, civil disturbance/riot, terrorist events/threats and gas leak/explosion.

During any kind of emergency situation all the personnel related to PLC will follow the communication matrix, details of the emergency response team and communication matrix is shown in **Figure 7.1 And Table 7.1** respectively.





**Figure 7.1: Emergency Response Team**

**Table 7.1: Communication Matrix during Emergency**

Incident	1 <sup>st</sup> Receiver	2 <sup>nd</sup> Receiver	3 <sup>rd</sup> Receiver (if needed)	4 <sup>th</sup> Receiver (if needed)
<b>Traffic Accidents</b>	Member of EMS and Compliance Management System	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	-
<b>Spill/leak of Hazardous Materials in Land and Water</b>	Member of Material Management and Chemical Store	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	-
<b>Spill/leak of waste water from ETP</b>	Member of ETP and WTP (In Charge)	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	-
<b>Terrorist Events/Threats</b>	Member of EMS and Compliance	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	Rapid Action Battalion (RAB)

Incident	1 <sup>st</sup> Receiver	2 <sup>nd</sup> Receiver	3 <sup>rd</sup> Receiver (if needed)	4 <sup>th</sup> Receiver (if needed)
	Management System			
<b>Earthquake</b>	Member of EMS and Compliance Management System	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	Fire Service & Civil Defence
<b>Flooding</b>	Member of EMS and Compliance Management System	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	Fire Service & Civil Defence
<b>Fire Hazard</b>	Member of Fire and safety	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	Fire Service & Civil Defence
<b>Bomb Threat</b>	Member of EMS and Compliance Management System	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	Bomb Disposal Unit via Police and Rapid Action Battalion (RAB)
<b>Kidnap/ Extortion</b>	Member of EMS and Compliance Management System	Member to Head of EMS/ Head of compliance/ Head of HR	Head of EMS to Top Management	Bangladesh Police and Rapid Action Battalion (RAB)

Details of the Emergency Response Plan is given in **Annexure 40**.

### 7.3 Emergency Evacuation Plan

The Head of EMS will follow the plan for evacuation in the event of an emergency. Paramount textile has prepared their evacuation plan which is given in **Annexure 41**. The layout plan has been prepared showing all the possible emergency fire exits and the location of the evacuation zone. An emergency contact list should also be prepared consisting of Hospitals, Police, Ambulance services and other relevant contact details. The proponent already has a MoU with the Al-Hera hospital in Sreepur, this hospital will provide medical support during any emergency situation, contract is provided in **Annexure 25**.

### 7.4 Emergency Response Plan for Fire Hazard

#### ❖ Fire Hazard

Fire hazards such as electrical hazards, combustible dusts, sparks, voltage up/down are common in electrical interconnection facility. Although fires are not a daily occurrence, they usually will cause severe property damage and business interruption. Sometimes the fire protection equipment systems have not received attention since they were installed. If these systems are needed, however, they are counted upon to perform reliably and protect vital factory equipment from fire. Fire protection

systems are a combination of mechanical and electrical components and, like power generation equipment, need regular attention.

In addition, some people in charge of fire protection do not have an adequate knowledge of necessary inspection and testing frequencies, or they use the minimum frequencies prescribed by their authority having jurisdiction. Suitable fire protection and detection systems shall be provided designed to the requirements of National Fire Protection Association (NFPA) standards. Gas detection systems and alarms shall also be included.

Fire protection shall consist of wet pipe, automatic deluge systems, hydrants, CO<sub>2</sub> gas flooding systems, and portable extinguishers of CO<sub>2</sub> and dry powder in sufficient quantities. PTPLC has a fire safety policy plan which is attached in **Annexure 29**. Details of the emergency response plan for a fire hazard is attached in **Annexure 42**.

### **7.5 Emergency response plan for ETP**

In case any emergency incident occurs in the ETP section the affected personnel should follow the communication matrix mentioned in **Table 7.1** and act accordingly. The PLC have an emergency response plan for ETP with specific mitigation measure, details are provided in **Annexure 43**.

### **7.6 Emergency response plan for chemical spill**

Paramount textile PLC have an emergency response plan, if any hazardous chemical spill incident occurs in the chemical storage area. Details of Emergency plan for chemical store is provided in **Annexure 37**.

### **7.7 Disaster Management Plan**

Disaster Management is a planned and systematic approach to minimize damage to life, property and environment. It involves the systematic observation and analysis of measures relating to disaster prevention, mitigation, preparedness, emergency response, rehabilitation and reconstruction. It is also to be realized that disaster management involves community preparedness so as to achieve the desired objective of minimization of damage. Community preparedness plan involves all pre- disaster planning to reduce the loss. It is basically a synthesis of various specific plans to solve a common purpose.

Appropriate management plan of different disasters such as Earthquake, flooding, cyclones, Pandemic, bomb threat and sudden attack is given in **Annexure 44**.

## 8 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

### 8.1 General Considerations

In the context of a project, Environmental and Social Management Plan (ESMP) is concerned with the implementation of the measures necessary to minimize and offset the adverse impacts and to enhance beneficial impacts. Unless the mitigation and benefit enhancement measures are identified in EMP and fully implemented, the prime function of the ESMP cannot be achieved. Thus, the objectives of ESMP for the present project are:

- ✓ Identification of monitoring requirements and Monitoring indicators;
- ✓ Mitigation measures to reduce or eliminate negative impacts; and
- ✓ Enhancement measures to maximize positive impacts.

### 8.2 Mitigation/Benefit Enhancement Measures

For effective and environmentally friendly operation of a project, a set for guiding tools and suggestions are necessary which need to be followed for operation and maintenance. This plan generally has various components of management depending on the type of project activity and types of discharge and their pollution potential. The project authority may also be needed to expand the suggested outline of the ESMP proposed in this report.

All beneficial and adverse impacts which may likely to occur are identified and aspect of mitigation and benefit enhancement measures as the Environmental and Social Standards has also been discussed in section 6.0. In view of the earlier discussion summary of recommended mitigation and benefit enhancement measures, proposed ESMP are presented in **Table 8.1**.

Table 8.1: Environmental & Social Management Plan

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
<b>Construction Phase</b>				
<b>Assessment and Management of Environmental and Social Risks and Impacts (ESS-1)</b>				
<b>The proposed project activities, anticipated to have some environmental and social risks. These risks need to be identified and managed by conducting a ESIA study.</b>				
<b>Management plan for Labor and Working Condition (ESS-2)</b>				
<b>Occupational health and safety</b>	<ul style="list-style-type: none"> <li>✓ The proponent should provide treatment facilities and pay compensation according to Bangladesh Labor Law 2006 if any accident occurs;</li> <li>✓ All workers will be properly informed, consulted and trained on health and safety issues;</li> <li>✓ Proponent should follow the proposed Occupational Health &amp; Safety Management Plan in case of identification of occupational risk &amp; hazard during construction phase attached in <b>Annexure 26</b>;</li> <li>✓ A permit to enter project site will be established to ensure entry of only authorized persons</li> <li>✓ Personal Protective Equipment (PPE) shall be worn at all times on the Site. This shall include appropriate ear plugs, safety shoes, safety eyewear, and hard hats (<b>Figure 6.1</b>);</li> <li>✓ A near miss and accident reporting system will be followed and corrective measures shall be taken to avoid / minimize near miss incidents;</li> <li>✓ Proponent will provide first aid facilities to the labourers and all project personnel whilst working on the project;</li> <li>✓ Safety measures in the form of DO's and Don't Do will be displayed at strategic locations;</li> <li>✓ Where sound levels cannot be reduced at the source, suitable hearing protection will be provided when noise levels indicate an Leq of more than 80 dB(A). When hearing protection is used, arrangements will be made to ensure the wearers can be warned of other hazards.</li> </ul>	inspection on PPE usage, safety orientation & training of workers, incident reporting, access to medical facility, site security and Review of implementation records of specific high-risk procedures	Monthly around the project site	Project Proponent
<b>Sanitation Hazard and Drinking Water</b>	<ul style="list-style-type: none"> <li>✓ All the labors should follow the safety protocol (i.e., Physical distancing, Face coverings, Gloves, Goggles &amp; Face Shields, Hand hygiene, Coughing/Sneezing hygiene, Personal disinfection, request for cleaning supplies and Face coverings to others) due to the Covid situation;</li> <li>✓ There should be enough arrangement (4~5 liters per person) for the supply of safe drinking water to the workers;</li> <li>✓ Adequate number of toilets (1:15) should be made available for the labours;</li> <li>✓ Male and female toilets should be isolated.</li> </ul>	Availability of safe drinking water, septic tank/ waste water disposal and sanitation facility to the workers,  Drinking Water: pH, TDS, Alkalinity,	Monthly around the project site  Drinking Water: Once in 3 months	Project Proponent

Issues/aspects		Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
			Hardness, Cl, Ca, Na, K, TC and FC	at 1 location given in Table 4.4	
<b>Labor and Working Condition</b>	✓	The Proponent should maintain standard wage, wage deductions; hours of work; overtime arrangements and overtime compensation as per the ILO Core Labour Standards Convention and Bangladesh Labor Act, 2006 which should be ensured by the proponent; ✓ Proponent should follow the proposed Labour Management Plan for recruitment, salary and working hour distribution purpose attached in <b>Annexure 27</b> ; ✓ Leave for illness, maternity, vacation or holiday should also be maintained by the proponent as per the Labour Management Plan; ✓ Child labor and forced labor should strictly be prohibited; ✓ Discrimination between male and female labors should be prohibited; ✓ Establish internal (worker's) grievance mechanism which should be accessible to all project employees/ workers as well as those hired by the proponents.			Project Proponent
<b>Employment Generation</b>	✓	Salaries and other benefits based on qualification and experience; ✓ Priority given to local residents for both professional and nonprofessional positions.			
<b>Management plan for resource efficiency and Pollution Prevention and Management (ESS 3)</b>					
<b>Impact on Air quality</b>	✓	Regular sprinkling of water will be done on open surface and dust grounds; ✓ Transportation of materials in tarpaulin-covered trucks; ✓ The sand and other such dispersible material will be stored at site for minimum working period; ✓ Removal of soil/mud from trucks and other appliances prior to leaving the project area; ✓ Construction equipment will be maintained in good operating condition to reduce exhaust emissions; ✓ The construction activity will be carried out during day time only (from 7.00 am to 7.00 pm); ✓ Low sulfur diesel (S < 0.5%) will be used in diesel-powered equipment and they will be regularly maintained and idling time reduced to minimize emissions; ✓ All vehicles should have updated fitness certificate; ✓ Regular maintenance of vehicles should be conducted; and ✓ Solid waste burning in the project site is strictly prohibited.	Ambient Air Quality: SO <sub>2</sub> , NO <sub>x</sub> , SPM, PM <sub>10</sub> and PM <sub>2.5</sub>	Once in 3 months at 5 Locations Given in Table 4.6(a)	Project proponent
<b>Noise Hazard</b>	✓	Noisy construction works to be limited to day time hours (from 7.00 am to 7.00 pm); ✓ Proper Acoustically designed machinery should be used; ✓ Cutting pipes and other noise generating works should be done in a safe zone;	Noise at different locations	Once in 3 months at 5 Locations	Project proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
	<ul style="list-style-type: none"> <li>✓ Where applicable and possible exceptionally noisy machines to be fitted with noise reduction devices;</li> <li>✓ Workers should wear Personal Protective Equipment (PPE) for protecting them from the sound induced hazard;</li> <li>✓ Construction workers should be advised to limit verbal noise or other forms of noise;</li> <li>✓ Noise protection wall or barrier should be constructed in case of long-term noisy construction.</li> </ul>		Given in Table 4.7	
<b>Impact on Soil Quality</b>	<ul style="list-style-type: none"> <li>✓ Proposed solid and hazardous waste management plan provided in <b>Annexure 33 and 34</b> respectively should be strictly followed to avoid contamination of soil;</li> <li>✓ Construct appropriate spill containment facilities for all fuel storage areas;</li> <li>✓ Regular inspections of machinery, equipment, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;</li> <li>✓ Properly stripping of top soil and conserve it for future use (greenbelt development);</li> <li>✓ Municipal solid waste generated from the construction site will be transferred to the disposal site in consultation with the Union Parishad.</li> </ul>			Project proponent
<b>Impact on Surface Water</b>	<ul style="list-style-type: none"> <li>✓ Stockpiling of spoil soil at a safe distance from the drainage system;</li> <li>✓ Making provision for temporary storage of wastes inside construction yard and disposal of solid wastes in an appropriate manner and at appropriate site at regular interval;</li> <li>✓ Adequate provision has to be retained for the treatment and disposal of cuttings, drilling fluids and other chemicals and lube oil wastes generated during drilling, testing and commissioning stage;</li> <li>✓ Proper handling and treatment of sewage waste should be in place to avoid surface water contamination due to discharge.</li> </ul>			Project proponent
<b>Impact on Ground Water</b>	<ul style="list-style-type: none"> <li>✓ Proper spill control and management at site;</li> <li>✓ Storage of hazardous material and waste in proper manner mentioned in <b>section 6.2.3.6 and 6.2.3.7;</b></li> <li>✓ Disposal of the waste at a designated location around the site;</li> <li>✓ Minimize the extraction and proper management of ground water should be strictly followed;</li> <li>✓ Regular inspections of machinery, equipment, storage areas are needed to ensure no spillage.</li> </ul>			Project proponent
<b>Impact due to Hazardous Chemical / waste</b>	<ul style="list-style-type: none"> <li>✓ The proponent should follow the hazardous waste management plan for handling and safe disposal of the hazardous waste, Hazardous Waste Management plan is attached in <b>Annexure 34;</b></li> <li>✓ All hazardous materials should be kept in a secondary containment facility;</li> </ul>	Fuel tank and chemical storage operation, maintenance and leakage inspection,	Monthly around the project site	Project Proponent



Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
	<ul style="list-style-type: none"> <li>✓ The oil and chemical storage of the project (fresh and used) should be done on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity;</li> <li>✓ An appropriate storage site should be provided for disassembled spare parts (e.g. motors and spare parts) that contain oil or other types of fluids. They should be stored in containers that are secured that will not allow oil and other fluids to escape with an impermeable surface and a sealed drainage system;</li> <li>✓ Hazardous components should be segregated having regard to their eventual destinations and the compatibility of the component types;</li> <li>✓ Spent lubricating oil and other old parts of machinery will be sold only to the DoE approved vendors;</li> <li>✓ In case of any spillage, it should be immediately acted up on. To combat spillage equipment i.e. safety goggles, gloves, PPE, disposal bags, containers, suction pump, boom skimmer etc. should be available at the site;</li> <li>✓ Regular inspections of machinery, equipment, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring.</li> </ul>	Hazardous waste storage area condition and inventory.		
<b>Impact due to Solid Waste</b>	<ul style="list-style-type: none"> <li>✓ Segregate all wastes, wherever practical according to the waste management plan in <b>Annexure 33</b>;</li> <li>✓ Some temporary bins with color coding indicating degradable and non-degradable waste might be installed at labor shed and work places to prevent scattered throwing of wastes according to the waste management plan (<b>Annexure 33</b>);</li> <li>✓ Difficult to dispose wastes (plastic and hazardous waste) will be minimized and where practicable and avoided such as plastic wastes;</li> <li>✓ Generated solid wastes should be periodically disposed to the designated solid waste dumping yard in consultation with the Municipal authority to ensure that waste does not build up on site and result in aesthetic impacts or odors;</li> <li>✓ All metals, scrap, e-waste and other recyclable materials shall be recycled to secondary dealers and records shall be maintained. Other solid wastes will be disposed to the designated municipal solid waste dumping site;</li> <li>✓ Hazardous waste should not be mixed with other solid waste generated;</li> <li>✓ Proper sanitation system should be provided and at the same time, regular, proper and safe disposal of human waste should be ensured. The workers will be made aware to practice those facilities.</li> </ul>	Quantity of solid waste, segregation, disposal process and transfer	Monthly around the project site	Project proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
<b>Community Health and Safety (ESS 4)</b>				
<b>Traffic and Transportation</b>	<ul style="list-style-type: none"> <li>✓ Management to provide for adequate internal parking for all vehicles;</li> <li>✓ All vehicles should have updated fitness certificate;</li> <li>✓ Regular maintenance of vehicles;</li> <li>✓ Speed limits, proper signage, visibility and traffic awareness and pedestrian safety should be implemented within the project site and followed by the drivers;</li> <li>✓ Provide dedicated location within the site for loading and unloading of the construction materials.</li> </ul>	Incoming & outgoing traffic, traffic movement records and site security	Monthly around the project site	Project proponent
<b>Vulnerable Groups</b>	<ul style="list-style-type: none"> <li>✓ The need of women and vulnerable groups (VGs) should be identified properly and special attention should be given to them;</li> <li>✓ Ensure minimum air and noise emission, treated waste water discharge are within guideline value and do not cause harm to vulnerable group</li> <li>✓ Employment and income of subsistence to improve VGs' status/livelihoods;</li> <li>✓ Provision should be kept for social and economic development support;</li> <li>✓ No discrimination of wages for male and female laborers/workers for similar work;</li> <li>✓ Provisions of time-to-time mandatory training and awareness buildings for the workforce to as precautionary measures for anti-social activities those includes sexual harassment and gender-based violence, women trafficking communal diseases etc..</li> </ul>			Project Proponent
<b>Social acceptability of workers to the host community</b>	<ul style="list-style-type: none"> <li>✓ Adequate training or awareness would be given to the workers about local culture and behavior;</li> <li>✓ Limited movement of the labourers who are not local within the project boundary;</li> <li>✓ Priority given to local residents for both professional and nonprofessional positions.</li> </ul>			Project Proponent
<b>Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS- 05)</b>				
No impact anticipated as proposed land is owned by paramount textile ltd and the extension is occurring under their existing project boundary.				
<b>Bio-diversity &amp; Living Natural Resources (ESS 6)</b>				
<b>Terrestrial Habitat</b>	<ul style="list-style-type: none"> <li>✓ Water sprinkling for dust suppression;</li> <li>✓ Awareness should be built to the workers in favor of conserving fauna;</li> <li>✓ This lighting facility, may cause disturbance to the nocturnal wildlife in and around the site. Bright lights should be avoided and LED lights should be installed;</li> <li>✓ Noisy construction works to be limited to day time hours (from 7.00 am to 7.00 pm);</li> <li>✓ Machinery and equipment in use to be serviced regularly to ensure that they are in good condition to minimize excessive noise.</li> </ul>			Project proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
<b>Aquatic Habitat</b>	<ul style="list-style-type: none"> <li>✓ No waste should be dumped in internal drainage and pond within project area during construction;</li> <li>✓ Raw material, debris and fuel should be stored on paved surfaces under covered areas;</li> <li>✓ Wastewater should not be disposed-off in the water bodies or drainage line without proper treatment;</li> <li>✓ Sewage treatment plant (STP) should be installed for proper treatment of sewage;</li> <li>✓ Site should be kept clean so as no pollutant from site should enter the surrounding water bodies.</li> </ul>			Project proponent
<b>Tribal/Indigenous Population (ESS 7)</b>				
The surveys indicated no tribal or indigenous people within the project influence area				
<b>Cultural Heritage (ESS 8)</b>				
no impacts are foreseen on ancient monuments and archaeological sites				
<b>Financial Intermediaries (ESS 9)</b>				
Proponent should prepare all the Environment and social documents related to this project and disclose them on their websites.				
<b>Stakeholder Engagement and Information Disclosure (ESS 10)</b>				
A FGD and KII was conducted with relevant participants to collect their suggestions and act accordingly				
<b>Operation Phase</b>				
<b>Assessment and Management of Environmental and Social Risks and Impacts (ESS-1)</b>				
ECC should be renewed yearly from the DoE				
<b>Management plan for Labor and Working Condition (ESS-2)</b>				
<b>Occupational Health and Safety</b>	<ul style="list-style-type: none"> <li>✓ The proponent will provide all kinds of treatment facilities and pay compensation according to Bangladesh Labor Act 2006;</li> <li>✓ Proponent should follow the proposed Occupational Health &amp; Safety Management Plan in case of identification of occupational risk &amp; hazard during operation phase and provide appropriate safety measure for that, the details OHS plan is attached in <b>Annexure 26</b>.</li> <li>✓ The workers should wear PPE (Personal Protective Equipment), safety goggles, and other necessities as per requirements, Suggested PPE for Occupational Health &amp; Safety of the workers is provided in <b>Figure 6.1</b>;</li> <li>✓ Provide adequate lighting in all workrooms;</li> <li>✓ Staff members who regularly handle chemicals should have an easy access to Material Safety Data Sheets (MSDS) as they provide information such as physical data (melting or boiling points), toxicity, reactivity, disposable methods, storage conditions, and protective equipment</li> </ul>	inspection on PPE usage, safety orientation & training of workers, incident reporting, access to medical facility, site security and Review of implementation records of specific high-risk procedures	Quarterly around the project site	Project Proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
	<p>and spill or leak procedures. Along with the training, an availability of MSDS in local language enables the workers to read the contents within without any issues;</p> <ul style="list-style-type: none"> <li>✓ Workers and staffs in the weaving section, generators room and boiler room should wear ear plugs while machineries are in operation;</li> <li>✓ A safety manual for storage and handling of hazardous chemicals will be prepared and implemented;</li> <li>✓ The storage area for the dyes and other chemicals should be cool and dry areas. One member in each shift of the staff should be trained in first aid to ensure outreach in case of an emergency;</li> <li>✓ Regular cleaning of the floors with a Vacuum cleaner to cut down the dust spread;</li> <li>✓ Monitoring and repairing dust control equipment and ventilation systems;</li> <li>✓ Annual training programs for employees to create health hazard awareness;</li> <li>✓ Well-maintained machinery to reduce noise pollution;</li> <li>✓ The staff will be trained for first-aid and firefighting procedures. The rescue team will support the first-aid and firefighting team;</li> <li>✓ A first-aid center with the trained personnel should be maintained;</li> <li>✓ Train staff on how to prevent and manage incidences. This should involve proper handling of electricity, water etc. and sensitization on various modes of escape, conduct and responsibility during such incidences;</li> <li>✓ Use signage to warn staff and/ or visitors of dangerous places. The signage must be visible and placed strategically;</li> <li>✓ Conduct mock drills on a routine basis to make workers and staffs aware of fire emergency response;</li> <li>✓ Educate all workers about the evacuation procedures to handle emergency situations;</li> <li>✓ A near miss and accident reporting system will be followed and corrective measures shall be taken to avoid / minimize near miss incidents;</li> <li>✓ Safety measures in the form of DO and Don't Do will be displayed at strategic locations;</li> <li>✓ Safety audits will be conducted periodically as per the regulatory requirements;</li> <li>✓ A Permit to enter the project area will be established to ensure that only authorized persons can entry to the site;</li> <li>✓ Regular medical checkup would be done to ensure the soundness of health of employees and workers;</li> <li>✓ In addition, necessary steps to be taken for arrangement of ambulance service in the project area to support any emergency medical aid and shifting to the hospital/ medical Centre.</li> </ul>		]	

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
<b>Sanitation Hazard and Drinking Water</b>	<ul style="list-style-type: none"> <li>✓ Project personnel and workers will follow appropriate means of waste removal and sanitation measures;</li> <li>✓ Ensure sanitary facilities for the workers to encourage personal hygiene;</li> <li>✓ All the workers and staffs should follow the safety protocol (i.e., Physical distancing, Face coverings, Gloves, Goggles &amp; Face Shields, Hand hygiene, Coughing/Sneezing hygiene, Personal disinfection, request for cleaning supplies and Face coverings to others) due to the Covid situation;</li> <li>✓ Adequate number of toilets and bathrooms should be made for the workers. Standards range is 1 unit to 15 persons;</li> <li>✓ Separate Male and female toilets should be available;</li> <li>✓ Sanitary waste should be treated and adequately disposed of in drainage system to avoid surface water contamination;</li> <li>✓ Proponent should increase the capacity of the STPs to 160m<sup>3</sup>/day for 4000 people.</li> </ul>	<p>Availability of safe drinking water, septic tank/wastewater disposal and</p> <p>Drinking Water: pH, TDS, Alkalinity, Hardness, Cl, Ca, Na, K, TC and FC</p>	<p>Quarterly around the project site</p> <p>Drinking Water: Once in 3 months at 1 location given in Table 4.4</p>	Project Proponent
<b>Labor and Working Condition</b>	<ul style="list-style-type: none"> <li>✓ The proponent should adopt and implement human resources policies and procedures as per the Bangladesh Labor Act, 2006;</li> <li>✓ The proponent will not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements;</li> <li>✓ Proponent should maintain standard salary, salary deductions; hours of work; overtime arrangements and overtime compensation as per the proposed Labour Management Plan (<b>Annexure 27</b>);</li> <li>✓ Leave for illness, maternity, vacation or holiday should also be maintained by the proponent;</li> <li>✓ Child labor and forced labor should strictly be prohibited;</li> <li>✓ Discrimination between male and female labor should be prohibited;</li> <li>✓ Measures should be taken to prevent and address harassment, intimidation, and/or exploitation, especially in regard to women;</li> <li>✓ The proponent will not employ forced labor, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty;</li> <li>✓ The company should follow its own health safety management and mitigation plan and policy in case of any emergency situation, Health Safety Management plan given in <b>Annexure 24</b>.</li> </ul>			Project Proponent
<b>Employment Generation</b>	<ul style="list-style-type: none"> <li>✓ Encourage local and equitable employment;</li> <li>✓ Salaries and other benefits based on qualification and experience;</li> <li>✓ Priority given to local residents for both professional and nonprofessional positions.</li> </ul>			Project Proponent
<b>Management plan for Resource Efficiency and Pollution Prevention and Management (ESS 3)</b>				

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
<b>Impact on Air Quality</b>	<ul style="list-style-type: none"> <li>✓ Regularly maintain all equipment and reduce idling time to avoid additional emissions of NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub>;</li> <li>✓ It shall be ensured that machinery is turned off when not in operation;</li> <li>✓ Housekeeping of the area shall be maintained by deputing sweepers to remove dirt/debris from the floors/ sites on daily basis to reduce the amount dust particle in the surrounding air;</li> <li>✓ Sprinkling water at the outdoor compound of the project area to reduce the dust when needed;</li> <li>✓ All vehicles should have updated fitness certificate and should be maintained so that it emits less polluting substance;</li> <li>✓ Limit the idling time of vehicles not more than 2 minutes;</li> <li>✓ Fit vehicles with appropriate exhaust systems and emission control devices;</li> <li>✓ Plantation of trees in the project compound. Any open area should be planted with appropriate vegetation (trees, flowers and grasses);</li> <li>✓ Solar panels should be installed according to their plan to reduce generator usage as well as fuel consumption to reduce harmful emission of GHG;</li> <li>✓ Non-toxic household products should be used.</li> </ul>	SO <sub>2</sub> , NO <sub>x</sub> , CO, SPM, PM <sub>10</sub> and PM <sub>2.5</sub>	Once in 3 months at 5 Locations given in Table 4.6(a)	Project Proponent
<b>Noise Hazard</b>	<ul style="list-style-type: none"> <li>✓ All equipment and mechanical machineries shall have to be maintained in good working order;</li> <li>✓ To reduce the effect, exhaust gas silencers will be used in the stack which will keep the noise level within limit;</li> <li>✓ Workers and staffs must wear ear plugs while working in the weaving section, generator room and boiler room;</li> <li>✓ In particular, significant noisy components or machines (generator, boiler etc.) should be kept in acoustically enclosed buildings with thick doors;</li> <li>✓ Where applicable and possible exceptionally noisy machines to be fitted with noise reduction devices or noise mufflers;</li> <li>✓ Any employee who may complain about ear related pain and or complication while at work should be provided medical attention;</li> <li>✓ Proper and timely preventive maintenance of approach vehicles is to be adopted to reduce noise levels;</li> <li>✓ Project boundary wall is more than man height which will dampen the noise level.</li> </ul>	Noise at different locations at day and night	Once in 3 months at 5 Locations given in Table 4.7	Project Proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
<b>Impact on Soil Quality</b>	<ul style="list-style-type: none"> <li>✓ Hazardous waste should be carefully handled and disposed off following waste management plan provided in <b>Annexure 34</b>;</li> <li>✓ The fuel, chemical and lubricant storage area (fresh and used) will be on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity;</li> <li>✓ Regular inspections of machinery, equipment, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;</li> <li>✓ In case of any spillage, it should be immediately acted up on. To combat spillage equipment i.e., safety goggles, gloves, PPE, disposal bags, containers, suction pump, boom skimmer etc. should be available at the site;</li> <li>✓ Sewage Treatment Plant (STP) should be installed for management of sewage waste so that it does not affect soil quality;</li> <li>✓ Municipal solid waste generated from the project site will be transferred to the designated disposal site in consultation with the Union Parishad;</li> <li>✓ Ensure proper disposal for electrical and hazardous materials to prevent accidental spillage according to the E-Waste Guideline 2021 and Solid Waste Management Guidelines 2021 by DoE, during maintenance work.</li> </ul>			
<b>Impact on Surface Water</b>	<ul style="list-style-type: none"> <li>✓ Surface drainage shall be maintained and monitored so that it does not block or overflow;</li> <li>✓ Hazardous waste should be carefully handled and disposed off to avoid surface runoff or mixing with waterbody;</li> <li>✓ Sanitary waste should be treated and adequately disposed of to avoid surface water contamination;</li> <li>✓ STP should be installed and the outlet water should meet the discharge guideline value;</li> <li>✓ Proponent should increase the capacity of the STP to 160 m<sup>3</sup>/day;</li> <li>✓ No operational waste water should be discharged without treating it in ETP;</li> <li>✓ Outlet effluent quality of ETP should be periodically checked to ensure the effective operation of ETP.</li> </ul>			
<b>Impact on Ground Water</b>	<ul style="list-style-type: none"> <li>✓ Minimize the extraction and proper management of ground water should be strictly followed;</li> <li>✓ Storage of hazardous material and waste in proper manner and disposal of the waste at a designated location around the site;</li> <li>✓ All hazardous materials will be kept in containers with secondary containment facility to avoid ground water contamination;</li> </ul>	<p>Monitoring of ground water table</p> <p>pH, TDS, Alkalinity, Hardness, Cl, Ca, Na, K, TC and FC</p>	<p>Quarterly</p> <p>Once in 3 months at 1 location</p>	Project proponent



Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
	<ul style="list-style-type: none"> <li>✓ Sanitary waste should be disposed through sewage treatment system (STP) to avoid ground water contamination;</li> <li>✓ The capacity of the rain water harvesting should be increased;</li> <li>✓ No waste water should be discharge without treating in ETP;</li> <li>✓ As this project is a ground water use intensive project so the proponent may undertake ground water modelling after every 5 years during project life cycle.</li> </ul>		given in Table 4.3	
<b>Impact due to Hazardous Chemical / waste</b>	<ul style="list-style-type: none"> <li>✓ The proponent should follow the hazardous waste management plan for handling and safe disposal of the hazardous waste, Hazardous Waste Management plan is attached in <b>Annexure 34</b>.</li> <li>✓ The chemical storage of the project (fresh and used) should be done on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity;</li> <li>✓ An appropriate storage site should be provided for disassembled spare parts (e.g. motors and electrical parts) that contain oil or other types of fluids. They should be stored in containers that are secured that will not allow oil and other fluids to escape with an impermeable surface and a sealed drainage system;</li> <li>✓ Skilled labors should be appointed for the unloading work to avoid spillage;</li> <li>✓ In case of any spillage, it should be immediately acted up on. Spillage equipment i.e. safety goggles, gloves, PPE, disposal bags, containers, absorbent material etc. should be available at the site;</li> <li>✓ Regular inspections of machinery, equipment, pipe work, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;</li> <li>✓ The hazardous waste will be removed from the site with a regular interval for safe disposal at designated permitted facility; Waste management registrar should be maintained;</li> <li>✓ Spent lubricating oil, used filters etc. which have secondary usage value will be sold only to Doe approved vendors;</li> <li>✓ All the hazardous waste should be properly labelled, where the following information should be added: <ul style="list-style-type: none"> <li>• Name &amp; type of waste,</li> <li>• Quantity of waste,</li> <li>• Date of waste generation (period of waste generation),</li> <li>• Waste generation site,</li> <li>• Disposal site,</li> </ul> </li> </ul>	Fuel tank and chemical storage operation, maintenance and leakage inspection, Hazardous waste storage area condition and inventory.	Quarterly	Project Proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
	<ul style="list-style-type: none"> <li>Responsible authority who handles this waste.</li> </ul>			
<b>Impact due to Liquid Waste</b>	<ul style="list-style-type: none"> <li>✓ The proponent should implement ZLD plan for proper management of liquid waste, ZLD plan attached in <b>Annexure 38</b>;</li> <li>✓ Waste water from project activity should not be dumped to the nearest water body or drainage system without proper treatment;</li> <li>✓ Waste water from the production unit must be treated in a ETP before reused or discharged;</li> <li>✓ The effluent characteristics of the STP and ETPs should meet both IFC EHS guideline along with Bangladesh standard;</li> <li>✓ Proponent should increase the capacity of STP to 160 m<sup>3</sup>/day;</li> <li>✓ Periodically monitoring of treated waste water before reuse or discharged.</li> </ul>	Intel and outlet of ETP waste water quality: pH, DO, TSS, TDS, BOD, COD, Temperature	Once in 3 months	Project Proponent
<b>Impact due to Solid Waste</b>	<ul style="list-style-type: none"> <li>✓ All solid waste should be segregated properly. The project authority should undertake waste segregation at source to separate hazardous waste from non-hazardous waste;</li> <li>✓ Proponent should follow the Waste Management Plan attached in <b>Annexure 33</b>.</li> <li>✓ All solid waste will be segregated properly in different colored bins; Wastes may be segregated into Biodegradable waste, Recyclable waste and non-recyclable waste; <ul style="list-style-type: none"> <li>• <b>Biodegradable waste:</b> food waste, dry leaves, etc. for composting and reuse;</li> <li>• <b>Recyclable waste:</b> paper, wood, cotton, reusable hardware, glass, metal scrap, etc.</li> <li>• <b>Non-recyclable waste:</b> Polythene and plastics which cannot be treated for reuse.</li> </ul> </li> <li>✓ Some solid waste has secondary demand and they should be sold to the secondary dealers. Other solid wastes will be disposed to the designated landfill area;</li> <li>✓ Municipal solid waste generated from the project site will be transferred to the disposal site in consultation with the Union Parishad;</li> <li>✓ Difficult to dispose wastes (plastic wastes) will be minimized and where practicable avoided such as plastic wastes;</li> <li>✓ All type of solid waste which will be sold or disposed to the disposal site should have proper movement register from the site for waste transfer.</li> </ul>	Quantity of solid waste, segregation, disposal process and transfer	Quarterly	
<b>Management plan for Community Health and Safety (ESS 4)</b>				
<b>Traffic and Transportation</b>	<ul style="list-style-type: none"> <li>✓ Management to provide for adequate internal parking, for all vehicles coming to the project premises;</li> <li>✓ All users of said roads to always observe traffic rules this will give pedestrians and cyclist their space and safety while using the road;</li> <li>✓ Piloting should be done for internal traffic with materials and goods to avoid any accidents;</li> </ul>	Incoming & outgoing traffic, traffic movement records and site security	Quarterly	Project Proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
	<ul style="list-style-type: none"> <li>✓ Enforce on-site speed limit, especially close to the sensitive receptors, schools, health centers, etc.;</li> <li>✓ Marking of the roads, warning signs / lights, road signs to be clearly used.</li> </ul>			
<b>Vulnerable Groups</b>	<ul style="list-style-type: none"> <li>✓ Ensure air and noise emission, waste water discharge is within guideline value and do not cause harm to vulnerable group;</li> <li>✓ The needs of women and vulnerable groups (VGs) should be identified properly and special attention should be given to them;</li> <li>✓ Train all workers in basic sanitation and health care issues (e.g., how to avoid malaria, transmission of sexually transmitted infections (STI), and HIV/AIDS;</li> <li>✓ Creating income generating opportunities for the vulnerable population.</li> </ul>			Project Proponent
<b>Social acceptability of workers to the host community</b>	<ul style="list-style-type: none"> <li>✓ Priority should be given to local residents for both professional and nonprofessional positions</li> <li>✓ Adequate training or awareness would be given to the migratory workers about local culture and behavior. So, there is no major problem raising in dealing with foreign or migratory workers.</li> </ul>			Project Proponent
<b>Bio-diversity &amp; Living Natural Resources (ESS 6)</b>				
<b>Terrestrial Habitat</b>	<ul style="list-style-type: none"> <li>✓ Proper disposal and management of solid waste should be maintained;</li> <li>✓ Site should be kept clean;</li> <li>✓ Raw material, debris, solid waste and spent oil should be properly, stored and disposed off;</li> <li>✓ Plantation of local species in surrounding areas of the Project site;</li> <li>✓ Greenbelt area should be built-up in open areas, a Green Belt Development Plan is provided in <b>Annexure 39.</b></li> </ul>			Project Proponent
<b>Aquatic Habitat</b>	<ul style="list-style-type: none"> <li>✓ For optimal maintenance, a tank should be cleaned once every year to keep the septic system working well;</li> <li>✓ Specific procedures and necessary preparedness should be undertaken to contain any accidental spill at source and also to prevent their spread in the surrounding environment;</li> <li>✓ Site should be kept clean so as no pollutant from site should enter the water bodies along with run-off;</li> <li>✓ Wastewater should not be disposed-off in the water bodies or drainage line without proper treatment;</li> <li>✓ Regular monitoring of the ETP outlet water to avoid waste water discharge to the municipal drainage;</li> <li>✓ Sewage treatment plant (STP) will be installed for proper treatment of sewage;</li> <li>✓ Effluent quality should be checked periodically.</li> </ul>			Project Proponent

Issues/aspects	Management Plan	Key verifiable indicator	Frequency & Location	Responsibility
<b>Tribal/Indigenous Population (ESS 7)</b>				
no tribal or indigenous people within the project influence area				
<b>Cultural Heritage (ESS 8)</b>				
<b>Impact on cultural heritage</b>	<ul style="list-style-type: none"> <li>✓ Significant noisy components or machines (generator, boiler etc.) should be limited from 7 a.m. to 7 p.m. or should be kept in acoustically enclosed buildings with thick doors;</li> <li>✓ Sprinkling water at the outdoor compound of the project area to reduce the dust when needed.</li> </ul>			Project proponent

### 8.3 Monitoring Plan

Environmental monitoring is an essential tool in relation to environmental management as it provides the basic information for rational management decisions. The prime objectives of monitoring are-

- To check on whether mitigation and benefit enhancement measures are actually being adopted and are effective in practice;
- To provide a means whereby impacts which were subject to uncertainty at the time of preparation of EMP, or which were unforeseen, can be identified, and steps to be taken to adopt appropriate control measures;
- To provide information on the actual nature and extent of key impacts and the effectiveness of the mitigation measures which, through a feedback mechanism, can be taken into account in the planning and execution of similar projects in future.

There are two basic forms of monitoring:

- Visual observation or checking, coupled with inquiries
- Physical measurement of selected parameters

In the case of industrial projects in general, monitoring is done by physical measurement of some selected parameters like air, water, noise etc. It should be mentioned here that the monitoring program should be such so that it can ensure compliance with national environmental standards. The importance of this monitoring program is also for ensuring that the project does not create adverse environmental changes in the area and providing a database of operations and maintenance, which can be utilized if unwarranted complaints are made.

#### 8.3.1 Monitoring Indicators

Environmental monitoring requires a set of indicators that could be conveniently measured, assessed and evaluated periodically to establish trends of impacts. Physical, chemical, ecological and human interest including socio-economic indicators should be well understood. The monitoring program, in view of the possible impacts as assessed earlier, should consider the indicators for the impact assessment related to following issues is presented in **Table 8.2** and **Table 8.3** in the following pages.

##### 8.3.1.1 Environmental and Social Monitoring Plan

The environmental monitoring should also focus on enhancing the possible beneficial impacts arising from employment of local workforce for project implementation. **Table 8.2 & 8.3** summarizes the potentially significant visual and analytical parameters needed to be monitored during the construction and operation phase. The project proponent should be responsible for overall environmental and social monitoring of the project.

**Table 8.2: Monitoring Plan (Visual)**

Issue	Key aspects	Monitoring Frequency	Responsibility
	Construction Phase		

Issue	Key aspects	Monitoring Frequency	Responsibility
Traffic volume	Incoming & outgoing traffic, traffic movement records	Quarterly	Paramount Textile / Third party monitoring team
Site Security	Proper fencing, isolation of site from general access, marked passage for workers and visitors	Quarterly	
Site Drainage	Maintaining proper drainage	Quarterly	
Personal Protective Equipment	Ensure every single person involved in the construction activity wear proper PPE	Quarterly	
Incident record & reporting	Documented record of all incident, accident and its remedial process.	Quarterly	
Occupational Health and safety	Daily inspection on PPE usage, Review of implementation records of specific high-risk procedures	Quarterly	
Access to medical facility	Check access to medical facility and first aid facility at site	Quarterly	
Grievance Redress Mechanism	Any significant complaint from External neighbours and Internal (workers) and their remedial procedure	Quarterly	
Safety orientation & training of workers	Frequency of training & orientation of workers for safety	Quarterly	
Sanitation & drinking water facility to workers	Availability of safe drinking water, septic tank/wastewater disposal and sanitation facility to the workers, enough number of toilets and separate male female toilet facilities for workers	Quarterly	
Handling of raw material	Monitoring unloading and transportation of raw material, quantity and storage capacity	Quarterly	
Chemical Storage and Hazardous waste Management	Fuel tank and chemical storage operation, maintenance and leakage inspection, Hazardous waste storage area condition and inventory.	Quarterly	
Solid waste	Quantity of solid waste, segregation, disposal process and transfer	Quarterly	
Operation Phase			
Traffic volume	Incoming & outgoing traffic, traffic movement records	Quarterly	Paramount Textile / Third party monitoring team
Site Security	Proper fencing, isolation of site from general access, marked passage for workers and visitors	Quarterly	
Site Drainage	Maintaining proper drainage	Quarterly	

Issue	Key aspects	Monitoring Frequency	Responsibility
<b>Personal Protective Equipment</b>	Ensure every single person involved in the construction activity wear proper PPE	Quarterly	
<b>Incident record &amp; reporting</b>	Documented record of all incident, accident and its remedial process.	Quarterly	
<b>Access to medical facility</b>	Check access to medical facility and first aid facility at site	Quarterly	
<b>Occupational Health and safety</b>	Daily inspection on PPE usage, Review of implementation records of specific high-risk procedures	Quarterly	
<b>Grievance Redress Mechanism</b>	Any significant complaint from External neighbours and Internal (workers) and their remedial procedure	Quarterly	
<b>Safety orientation &amp; training of workers</b>	Frequency of training & orientation of workers for safety	Quarterly	
<b>Sanitation &amp; drinking water facility to workers and staffs</b>	Availability of safe drinking water, septic tank/wastewater disposal and sanitation facility to the workers, enough number of toilets and separate male female toilet facilities for workers	Quarterly	
<b>Solid waste</b>	Quantity of solid waste, segregation and disposal process	Quarterly	
<b>Chemical Storage and Hazardous waste Management</b>	Fuel tank and chemical storage operation, maintenance and leakage inspection, Hazardous waste storage area condition and inventory.	Quarterly	
<b>Product handling</b>	Monitoring unloading and transportation of raw and finished material, quantity and storage capacity	Quarterly	
<b>Ground Water Table</b>	Monitoring of ground water table	Quarterly	

Table 8.3: Monitoring Plan (Analytical)

Issue	Parameters	Applicable Standards	Monitoring Locations	Monitoring Frequency	Responsibility
<b>Construction Phase</b>					
Ambient Air Quality	SO <sub>2</sub> , NO <sub>x</sub> , CO, SPM, PM <sub>10</sub> and PM <sub>2.5</sub>	Air Pollution (Control) Rules 2022 (Schedule-1) & IFC EHS Guideline, 2007	(5 Locations) Given in Table 4.6(a)	Once in 3 months	Paramount Textile / Third party monitoring team



Issue	Parameters	Applicable Standards	Monitoring Locations	Monitoring Frequency	Responsibility
Noise level	Noise at different locations at day and night	Noise Pollution (Control) Rules 2006 (Schedule-1) & IFC EHS Guideline, 2007	(5 Locations) Given in Table 4.7	Once in 3 months	
Drinking water	pH, TDS, Alkalinity, Hardness, Chlorine, Calcium, Sodium, Potassium, Total Coliform, Fecal Coliform	Environment Conservation Rules (ECR) 2023 (Schedule-2 (Kha)) and & IFC EHS Guideline, 2007	(1 Location) Given in Table 4.4	Once in 3 months	
Operation Phase					
Ambient Air Quality	SO <sub>2</sub> , NO <sub>x</sub> , CO, SPM, PM <sub>10</sub> and PM <sub>2.5</sub>	Air Pollution (Control) Rules 2022 (Schedule-1) & IFC EHS Guideline, 2007	5 Locations Given in Table 4.6(a)	Once in 3 months	Paramount Textile / Third party monitoring team
Noise level	Noise at different locations at day and night	Noise Pollution (Control) Rules 2006 (Schedule-1) & IFC EHS Guideline, 2007	(5 Locations) Given in Table 4.7	Once in 3 months	
Ground Water	pH, TDS, DO, Turbidity, As, Fe, Chloride, Calcium, Total Coliform and Fecal Coliform	Environment Conservation Rules (ECR) 2023 (Schedule-2 (Kha)) and & IFC EHS Guideline, 2007	Given in Table 4.3 (1 Location)	Once in 3 months	
Drinking water	pH, TDS, DO, Turbidity, As, Fe, Chloride, Calcium, Total Coliform and Fecal Coliform	Environment Conservation Rules (ECR) 2023 (Schedule-2 (Kha)) and & IFC EHS Guideline, 2007	Given in Table 4.4 (1 Location)	Once in 3 months	
Effluent Quality	pH, DO, TSS, TDS, BOD, COD, Temperature	ECR 2023 (Schedule-4), WB EHS guidelines for treated waste	Inlet & Outlet of ETP	Once in 3 months	

Issue	Parameters	Applicable Standards	Monitoring Locations	Monitoring Frequency	Responsibility
		water from industry			

### 8.3.2 Cost of Monitoring

The following are the cost of monitoring for the environmental and social parameters during implementation of the project:

**Table 8.4: Cost estimate for Environmental Monitoring during Construction Phase**

Item	Parameter	Unit cost (Taka)	Unit per year	Total cost per year (Taka)
<b>Construction Phase</b>				
<b>Ambient Air Quality</b>	SO <sub>2</sub> , NO <sub>x</sub> , CO, SPM, PM <sub>10</sub> and PM <sub>2.5</sub>	16000.00	20	3,20,000.00
<b>Noise level</b>	Noise at different locations at day and night	600.00	20	12,000.00
<b>Drinking water</b>	pH, TDS, DO, Turbidity, As, Fe, Chloride, Calcium, Total Coliform and Faecal Coliform	10,700.00	4	42,800.00
<b>Visual monitoring</b>	Table 8.2	60,000.00	4	2,40,000.00
<b>Total cost in Construction Phase</b>				<b>6,14,800.00</b>
<b>Operation Phase</b>				
<b>Ambient Air Quality</b>	SO <sub>2</sub> , NO <sub>x</sub> , CO, SPM, PM <sub>10</sub> and PM <sub>2.5</sub>	16000.00	20	3,20,000.00
<b>Noise level</b>	Noise at different locations at day and night	600.00	20	12,000.00
<b>Drinking water</b>	pH, TDS, DO, Turbidity, As, Fe, Chloride, Calcium, Total Coliform and Faecal Coliform	10,700.00	4	42,800.00
<b>Ground Water</b>	pH, TDS, DO, Turbidity, As, Fe, Chloride, Calcium, Total Coliform and Faecal Coliform	10,700.00	4	42,800.00
<b>Effluent Quality</b>	pH, DO, TSS, TDS, BOD, COD, Temperature	6,500.00	8	52,000.00
<b>Visual monitoring</b>	Table 8.2	60,000.00	4	2,40,000.00
<b>Total Cost During Operation Phase</b>				<b>7,09,600.00</b>
<b>Total Monitoring Cost</b>				<b>13,24,400.00</b>

## 8.4 Cost of EMP implementation

**Table 8.5: EMP Implementation Cost**

Item	Number	Duration	Total cost per year (Taka)
Environmental and social monitoring during project implementation	Refer <b>Table 8.4</b>	Yearly	13,24,400.00
Occupational Health, Safety and Security implementation	Lump sum	Yearly	5,00,000.00
Community Health Safety and Security implementation	Lump sum	Yearly	5,00,000.00
Capacity Building and Training	04	Yearly	4,00,000.00
Medicine & Medical services	Lump sum	Yearly	1,00,000.00
Environmental Compliance Audit	02	Yearly	6,00,000.00
<b>Subtotal</b>			<b>24,24,400.00</b>
<b>Contingency budget (10% of subtotal cost)</b>			<b>2,42,440.00</b>
<b>Total cost</b>			<b>26,66,840.00</b>

## 8.5 Organizational Structure for Implementation of EMP

For proper implementation of the EMP, there should be a core group of people in the paramount Textile who should be well trained on environmental issues but all personnel at site should be given basic training on environmental and health & safety. The skills of staff should be refreshed and upgraded periodically through need-based training program. PTPLC have a Emergency response team and the same team will be responsible for EMP implementation, team structure is given in **Figure 7.1**.

## 9 ALTERNATIVE ANALYSIS

### 9.1 Introduction

Assessments of alternatives involve evaluating different options related to project concept, design and site selection. This helps in finalizing the best option that is techno-commercially viable having minimum impact on the local environmental and social conditions. Analyses of alternatives were considered for the following aspects of the proposed project-

- ✓ Analysis 1: Location Alternatives.
- ✓ Analysis 2: Technology Alternatives.

#### 9.1.1 Analysis 1: Location Alternatives

Paramount textile is planning to expand their project on their own land near the existing project. The project land is owned by Paramount textile PLC and enough to set with all equipment and machineries. The project is viable on following count: -

- Own land of the project proponent.
- No resettlement and rehabilitation issues in the proposed project.
- The site has easy access from highway and have well internal road connectivity.
- Water Requirement from ground water and rain water harvesting, the proponent has permission of ground water withdrawal from Sreepur Pouroshova, attached in **Annexure 16**.
- Manpower availability from nearby areas.

Based on the above criterion, alternative of proposed project location is not acceptable.

#### 9.1.2 Analysis 2: Technology Alternatives

The proposed project involves the introduction of new machineries which will be energy and resource efficient than the existing machineries. As per the **Table 6.3** in **section 6.4.1**, the production capacity of the proposed machineries will be higher than the previous machineries and the input energy requirement is low for the new production machineries, that means the proposed machineries will consume less energy and will create less pollution. In addition, this project is an environmental incentive-based project as it is using the waste heat from generators as a source of fuel for operating 2 EGB boilers. This process will reduce the generator stack emission of exhaust gas in the air and will reduce the consumption of fossil fuel in boiler operation.

Based on the above discussion, it is clear that alternative of project technology is not required as the proposed project technology is quite resource efficient.

## **10 STAKEHOLDER CONSULTATION**

### **10.1 Introduction**

Stakeholder consultation forms an important part of the ESIA study. The main objective of the consultation process is to apprise the local inhabitants about the proposed project and to seek their opinions regarding the possible impacts of the project.

Community input (both of knowledge and values) on socioeconomic and environmental issues can greatly enhance the quality of decision-making. Stakeholder consultation was therefore conducted in the project area not only to satisfy the legal requirements of the ESIA process in Bangladesh but also to improve and enhance the social and environmental design of the project.

### **10.2 Consultation Process**

- Primary stakeholders were consulted during informal and formal meetings;
- The consultation process was carried out in the Bangla language. During these meetings a simple, non-technical, description of the project was given, with an overview of the project's likely human and environmental impact. This was followed by an open discussion allowing participants to voice their concerns and opinions. In addition to providing communities with information on the proposed project, their feedback was documented during the primary stakeholder consultation;
- The issues and suggestions raised were recorded in field notes for analysis and interpretation;
- By reaching out to a wider segment of the population and using various communication tools—such as participatory needs assessment, community consultation meetings, focused group discussions, in-depth interviews, and participatory rural appraisal—ESIA involved the community in active decision-making;
- This process will continue even during construction and operation phase of the project to create consensus among stakeholders on specific environmental and social issues raised in the context of proposed project;
- Secondary stakeholder consultations were more formal as they involved government representatives and local welfare organizations consulted during face-to-face meetings. They were briefed on the ESIA process, the project design, and the potential negative and positive impact of the project on the area's environment and communities.

It was important not to raise community expectations unnecessarily or unrealistically during the stakeholder consultation meetings in order to avoid undue conflict with local leaders or local administrators. The issues recorded in the consultation process were examined, validated and addressed in the ESIA report.

### **10.3 Stakeholders Consulted & Consultation Technique**

In recognition of the diversity of views within any community, it is very important to obtain a clear understanding of the different stakeholders and to analyze their capacity and willingness to be involved in some or all of the project and its planning process. It is important to be aware of how different power relations can distort participation. It is also important to examine how community skills, resources, and 'local knowledge' can be applied to improve project design and implementation. All of this can be achieved by careful use of the various tools of Stakeholder Consultation. Therefore, the following participatory technique and key stakeholders were employed during stakeholder consultation:

- FGD with local communities including local businessman, local residential people and local labors.
- KII with relevant Government & Non-government officials including DoE, Department of Agricultural, Union Parishad members, UNO, NGOs etc.

The details of stakeholder mapping, benefits of stakeholder consultation is discussed under stakeholder engagement plan, which is attached in **Annexure 45**.

## 10.4 Stakeholder Concerns and Recommendations

FGDs and KII for this proposed project was conducted at 9<sup>th</sup> -15<sup>th</sup> November, 2023. The findings of FGDs and KII are given in **Table 10.1** and **Table 10.2** respectively. All these have been addressed in various sections of the ESIA, and the mitigation plans have been incorporated in the EMP. The summary of the various stakeholder consultations is given below. Participants list of Public Consultation is attached as **Annexure 46**.

**Table 10.1: Summary of Consultation and Discussion with Community People**

Issues	Issues Discussed by Community people	Comments of Community People	Response from PTPLC
<b>Employment</b>	Creating more employment opportunity	During the implementation of the project, they requested that the authority should involve local people in constructional work and construction materials should be locally purchased	PTPLC representative ensured that they will prioritize employment of local people based on their skill.
<b>Waste Generation</b>	Disposal of Liquid, solid and hazardous waste	They requested the authority for proper disposal of waste and do not dump any waste water in surrounding water bodies so that it doesn't create any negative impact. They also requested not to	PTPLC representative described their waste management plan which ensures proper handling of waste and also mentioned that they are implementing ZLD plan to reduce the impact of

Issues	Issues Discussed by Community people	Comments of Community People	Response from PTPLC
		dump any solid and hazardous waste in the surrounding area.	liquid waste from production unit.
<b>Environment</b>	Possibilities of air, noise, light & water pollution	They requested the authority to follow all laws and regulations of environment. Besides, they should use high technology in order to protect air, water and soil from pollution.	PTPLC representative mentioned that, they will use latest technology which will be more energy and emission efficient
<b>Compensation Demand</b>	Possibilities of property loss by project activity	They requested that the Project authority should give compensation if any damage occurs to their house, crop or property due to project activity	There is no resettlement issue but if any disaster or damage occurs due to project activity PTPLC will compensate.
<b>Community development</b>	Overall development of the Upazila	They expect that the socio-economic condition of local people will flourish. People are in favor of the project and they ask to prioritize local people and employ them during different phases of the project.	PTPLC representative ensured that they will involve local people in project operation based on their skill which will improve the socio-economic condition of the project surrounding area.



Local farmers



Local community





Factory workers



Women workers

**Figure 10.1: Photographs of FGD around the project site**

Table 10.2: Summary of KII with Govt. &amp; Non-Govt. Officials

Authority	Name	Designation	Gender	Comments	Response From PTPLC
<b>Government Officials</b>					
Department of Environment (DoE), Gazipur	Md. Nayan Miah	Deputy Director	Male	<ul style="list-style-type: none"> <li>Must maintain all the environmental laws and code as per the DoE guideline;</li> <li>Must implement ZLD plan as per schedule;</li> <li>Waste water should be treated in ETP before disposed off;</li> <li>Must install STPs for the sewage waste treatment;</li> <li>Should prepare a project specific environmental management plan.</li> </ul>	They ensure that they will implement ZLD plan and STPs for the proposed project and all the will maintain the DoE standard and guideline.
UNO Office	Jasim Sheikh	Confidential Assistant Of UNO	Male	<ul style="list-style-type: none"> <li>We support this project because it will increase the job opportunity for local people;</li> <li>The project authority should maintain all the safety rules during fabric productions and project implementations;</li> <li>The authority must follow all laws and regulations of environment so that the biodiversity of River and Forest do not get harm.</li> </ul>	They ensure that they will prioritize local people in different project activity based on their skill which will improve the socio-economic condition of the project surrounding area.
Upazila parishad	Boloram Das	Admin officer	Male	<ul style="list-style-type: none"> <li>He suggested not dump any waste water from the factory to the adjacent water body;</li> <li>Proper mitigation and management plan should be adopted so that natural aquatic ecosystem is not disturbed;</li> <li>Employment opportunity should be given to the local people;</li> <li>Project authority should contribute for the welfare of surrounding community.</li> </ul>	<ul style="list-style-type: none"> <li>No liquid or solid waste will be dumping surrounding area.</li> <li>A proper waste management plan will be followed and all the waste water from the production unit will be treated in ETP before discharged in municipal drainage line.</li> </ul>

Authority	Name	Designation	Gender	Comments	Response From PTPLC
Palli Development Bank	Arifa Akter	Branch Manager	Female	<ul style="list-style-type: none"> <li>I believe this kind of project will create employment opportunity for local people and will help to achieve national economic growth.</li> </ul>	They mentioned that they will prioritize local people in different project activity based on their skill
<b>NGOs of Sreepur</b>					
ASA, Sreepur Branch	Khaibur Rahman	Branch Manager	Male	<ul style="list-style-type: none"> <li>We always Support this kind of project. We are ready to provide any kind of support if needed;</li> <li>The authority should give priority to the local people for different job opportunity;</li> <li>The authority should provide compensation if any damage occurs due to project intervention;</li> <li>They should follow the environmental laws and regulations so that it does not impact on health of community people.</li> </ul>	Proponent ensure that that they have different management plan for the safety of their workers and community people and mentioned that they will provide job opportunity for the skilled local people.



**Figure 10.2: Photographs of KII at different Government and Non. Govt. Office**

## 11 GRIEVANCE REDRESS MECHANISM AND DISCLOSURE

### 11.1 Grievance Redress Mechanism

Public participation, consultation and information disclosure undertaken as part of the local ESIA process have discussed and addressed major community environmental concerns. Continued public participation and consultation has been emphasized as a key component of successful project implementation. As a result of this public participation during the initial stages of the project, major issues of grievance are not expected. For the proposed project, the complaints that may be anticipated during construction phase are mostly related to dust, noise and some other social and environmental issues. To settle such issues effectively, an effective and transparent channel for lodging complaints and grievances will be established. The grievance redress mechanism should be scaled to the risks and adverse impacts of the project. It should address affected people's concerns and complaints promptly, using an understandable process. It should also be readily accessible to all sections of the community at no cost and without retribution.

The mechanism will be accessible to diverse members of the community, including more vulnerable groups such as women and youth. Multiple means of using this mechanism, including face-to-face meetings, written complaints, telephone conversations should be available. Confidentiality and privacy for complainants should be honored where this is seen as necessary or important.

### 11.2 Grievance Redress Mechanism Procedure

A grievance redress mechanism and procedures are setup to provide opportunity for project affected persons (PAPs) to settle their complaints and grievances amicably. The established grievances redress procedures and mechanism ensures that project affected persons are provided with the appropriate compensations and that all administrative measures are in line with the law. It also allows project affected persons not to lose time and resources from going through lengthy administrative and legal procedures. Grievances are first preferred to be settled amicably.

PTPLC have a complain box outside their factory gate to collect complaint from the community people, here they can give their suggestions or complaint anonymously. For the factory workers they have internal GRM system and a different committee. The internal GRM system has 5 types grievance redress mechanism for workers of the existing textile factory which is discussed in details in **Annexure 28**.

PTPLC has set-up a grievance redress committee to address any complaints from the community during the project implementation. The representation in the committee makes PAPs to have trust and build confidence in the system. The grievance redress committee reports its plan and activities to the Implementation committee. The following list presents members of the committee is given in table 11.1:

**Table 11.1: External GRM Committee Details**

SL no.	Name	Designation	Contact Number
1.	Mr. A. H. M Abdur Rahman (Hasan)	Director of PLC	+8801755-524278
2.	Md. Mainuddin	Head of Admin	+8801774-750001
3.	Md. Abdul Alim	Head of Compliance	+8801775-549327

- ✓ GRC will maintain a Complaints Database, which will contain all the information on complaints or grievances received from the communities or other stakeholders. This would include: the type of complaint, location, time, actions to address these complaints, and final outcome;
- ✓ The procedures to be followed and adopted by the grievance redress should be transparent and simple to understand or uniform process for registering complaints provide project affected persons with free access to the procedures;
- ✓ The response time between activating the procedure and reaching a resolution should be as short as possible;
- ✓ An effective monitoring system will inform project management about the frequency and nature of grievances;
- ✓ GRC will arrange half yearly meetings where the activities and the outcomes/measures taken according to the Complaints Database are to be monitored and reviewed by the Head of admin to ensure the required transparency;
- ✓ In addition to the above, if there are any grievances related to social or environmental management issues in the project area, the GRC will record these grievances and suggestions and pass it on to the relevant consultant for necessary action and follow-up;
- ✓ In case a dispute is not resolved by arbitrational tribunal, then if any of the party disagrees, the aggrieved party has the right to appeal to the ordinary courts of law;
- ✓ The preferred option of dispute settlement ought to be the option of settling the dispute amicably because recourse to courts may take a very long time even years before a final decision is made and therefore, should not be the preferred option for both parties concerned.

A grievance form is presented below and hard copies of both English and Bangla will be made available at the project office.

**Table 11.2: Sample Grievance Reporting Form**

Contact Details	Name:
	Address:
	Telephone Number/ Cell Phone Number:
	Email:
How would you prefer to be contacted (please tick box)	<input type="checkbox"/> By Phone <input type="checkbox"/> By Email
Details of your Grievance  (Please describe the problems, how it happened, when, where, and how many times, as relevant)	

What is your suggested resolution for the?		
Signature:		Date:

### 11.3 During Construction

During construction phase there might be some complaints regarding constructional noise, dust pollution, hazardous waste etc. However, unforeseen issues may occur. To settle such issues effectively, an effective and transparent channel for lodging complaints and grievances should be established during construction period.

### 11.4 During Operation

During the operational phase of the project, the complaints that may be anticipated are mostly related air pollution, noise pollution, accidental issues, social issue etc. due to the project. The grievance redress mechanism should be scaled to the risks and adverse impacts of the project. It should address affected people's concerns and complaints promptly, using an understandable and transparent process. It should also be readily accessible to all sections of the community at no cost and without retribution.

## **12 CONCLUSION AND RECOMMENDATIONS**

### **12.1 Conclusions**

The proposed project is a nationally important project to ensure economic growth and secure the future development of our country. The proposed capacity enhancement project is an energy efficient project as PTPLC will use more energy-efficient machineries which is expected to reduce the energy consumption and associated CO<sub>2</sub> emissions, contributing to an overall more economical, ecological and socially sustainable use of energy in Bangladesh.

As the project is ongoing and the extension work is almost finished and only the ETP completion and some minor civil works are remaining to complete so the impact during construction stage is limited for a very short period of time and can be managed if suggested management plans are followed during construction phase.

During operation phase, fire hazard, air and noise emission, sanitation, health and safety issues and generation of liquid wastes are the major anticipated impacts but they are manageable if suggested management plans are followed during construction phase.

To reduce the negative impact recommended management plan in EMP section must be followed. Maintenance of all equipment regularly and reducing idling time to avoid the additional emission of NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub> from machinery. Sprinkling the water inside the project area where the possibility of flying dust particles, Fitness should be check regularly of Vehicles that are used in this factory to avoid much emission. Exhaust gas silencers should be introduced in the stack to reduce much noise, Workers must have to use ear plug during working any noisy place especially in Generator and Boiler room, should provide a noise barrier by using various equipment. Regular training program should be arranged for the workers on using fire equipment properly, understating of fire evacuation plan and fire safety policy of the factory to avoid the fire hazard. Management of Hazardous Chemical/waste is very crucial for the safety of the factory as well as workers. The chemical storage of the project (fresh and used) should be constructed on hard standing floor and roofing with a secondary containment facility of 110% bigger than the allowable maximum storage capacity. Besides, the hazardous waste should be removed from the site with a regular interval for safe disposal at designated permitted facility; Waste management registrar should be maintained. To create a better and safe work environment, occupational health and safety policy is very important. Wearing PPE, earplugs, safety goggles and gloves is compulsory for all workers during working period. Proper medical facility should be provided by the authority in case of any accident or incident. Discharge waste water from dyeing & Printing and water must be treated by existing ETP and discharge water quality should be regular monitored to avoid the water pollution of nearest water body. The proposed project will increase the capacity of workers and staffs, so the proponent should install STPs in the project area for treatment of sewage water.



The proponent should increase the ETP capacity, implement ZLD plan and can increase the usage of rain water harvesting for the reduce the ground water extraction. They should install STPs for sewage waste treatment.

The findings of this ESIA report suggests that the factory involves potential but limited environmental impacts to which further careful attention should be given to minimize and offset the adverse effects. From the primary baseline study and test report of Air, Noise, Water, Light Intensity and Stack Emission, it has been found that all parameters are under the standard of DoE. The outlet water parameters have been found under the allowable limit that means water can be discharge in water body. In short, the possible negative impacts are not severe, and the adverse impacts if duly addressed could be minimized without much effort, though they would require attention and positive commitment from the Project Management. It is expected that Paramount Textile PLC will follow all environmentally compatible steps during by which it sets a positive example as an environment friendly industrial unit, within the environmentally acceptable limits all the time.

## **12.2 Recommendations**

- Paramount Textile PLC authority must follow the Environmental management and monitoring plan;
- The authority must implement ZLD plan as soon as possible and should increase the capacity of the rain water harvesting;
- As this project is a ground water use intensive project so the proponent may undertake ground water modelling after every 5 years during project life cycle;
- The open areas should be brought under green belt development for the sustainable project operation;
- All waste water discharge from the factory should be treated by ETP. Waste water from discharge point should be monitoring according to the monitoring plan to find out the water parameters are below or above DoE limit;
- Installation of STP for proper sewage management is mandatory.

# **Annexure**

# **Annexure 1**

**ECC from DoE**



গণপ্রজাতন্ত্রী বাংলাদেশ সরকার  
পরিবেশ অধিদপ্তর  
গাজীপুর জেলা কার্যালয়  
ধানসিড়ি টাওয়ার  
বাড়ী-৪৮/১৪(৩য় তলা), ব্লক-এ, সার্ভি রোড  
চান্দনা, জয়দেবপুর, গাজীপুর  
[www.doe.gov.bd](http://www.doe.gov.bd)

পরিবেশগত ছাড়পত্র

ছাড়পত্র নং: ২৪-১১৫৯২৭

পরিবেশগত ব্যবস্থাপনা নিশ্চিতকরণ সাপেক্ষে সংযুক্ত শর্তে নিম্নবর্ণিত প্রতিষ্ঠান/প্রকল্পের অনুকূলে পরিবেশগত ছাড়পত্র প্রদান করা হলো :

প্রতিষ্ঠান/প্রকল্পের নাম : Paramount Textile PLC.  
উদ্যোক্তার নাম : Shakhawat Hossain  
সনাক্তকরণ নং : ১১৪৯৭৭  
প্রতিষ্ঠান/প্রকল্পের কার্যক্রম : ইয়ার্ন ডাইং, প্রিন্টিং, সলিড ডাইং ও সফট ফ্লো ডাইং  
প্রতিষ্ঠান/প্রকল্পের শ্রেণী : Red  
প্রতিষ্ঠান/প্রকল্পের ঠিকানা : Gilarchala, Sreepur, Gazipur  
প্রদানের তারিখ : ০৪ ফেব্রুয়ারি ২০২৪ খ্রি:  
মেয়াদ উত্তীর্ণের তারিখ : ০৩ ফেব্রুয়ারি ২০২৫



এ ছাড়পত্র সনদের সাথে পৃথকভাবে সংযুক্ত প্রদত্ত শর্তাবলী যথাযথভাবে প্রতিপালন করতে হবে,  
অন্যথায় ছাড়পত্র বাতিল/ক্ষতিপূরণ আদায়সহ যে কোন আইনানুগ ব্যবস্থা গ্রহণ করা হবে।

বিঃদ্রঃ এটি একটি সিস্টেম জেনারেটেড ছাড়পত্র এবং এতে কোনোরূপ স্বাক্ষরের প্রয়োজন নেই।

পরিবেশগত ছাড়পত্র জন্য প্রযোজ্য শর্তাবলী:

১. উদ্যোগের কর্তৃক দাখিলকৃত আবেদনপত্র, অন্যান্য কাগজপত্র, পরিদর্শন প্রতিবেদন, ইএমপি প্রতিবেদন ও সংশ্লিষ্ট কাগজপত্র পর্যালোচনা পরিবেশ অধিদপ্তর, সদর দপ্তরের পরিবেশগত ছাড়পত্র বিষয়ক কমিটির ৫০৭ তম সভায় পর্যালোচনা করা হয়। পর্যালোচনান্তে কমিটির গৃহীত সিদ্ধান্ত নং (ক-১০) মোতাবেক গিলারচালা, ১ নং সিএন্ডবি বাজার, শ্রীপুর, গাজীপুরে অবস্থিত “প্যারামাউন্ট টেক্সটাইল লিঃ নামক কারখানাটির অনুকূলে গাজীপুর জেলা কার্যালয় কর্তৃক গত ১২/০১/২০২১ খ্রিঃ তারিখে অনলাইন ছাড়পত্র নংঃ-২১-৫৩১৭৯ এর মাধ্যমে জারীকৃত পরিবেশগত ছাড়পত্রটি বাতিলপূর্বক কারখানাটির নাম প্যারামাউন্ট টেক্সটাইল লিমিটেড এর পরিবর্তে প্যারামাউন্ট টেক্সটাইল পিএলসি ” নামক ইয়ার্ন ডাইং, প্রিন্টিং, সলিড ডাইং ও সফট ফ্লো ডাইং কার্যক্রম পরিচালনা কারখানাটির অনুকূলে বিধি মোতাবেক প্রযোজ্য ও প্রচলিত বিশেষ শর্তের সাথে নিম্নলিখিত শর্তে পরিবেশগত ছাড়পত্র প্রদান করা হলোঃ

শর্তাবলী:

২. কারখানাটির কোন কর্মকান্ড ও উৎপাদন প্রক্রিয়া দ্বারা কোন ভাবেই পরিবেশ দূষণ করা যাবে না।

৩. কারখানাটিতে সৃষ্ট সকল বর্জ্য পরিকল্পিত উপায়ে সংগ্রহ অথবা পরিশোধন পূর্বক তা স্বাস্থ্য ও পরিবেশসম্মতভাবে অপসারণের ব্যবস্থা নিশ্চিত করতে হবে।

৪. কারখানাটির বিরুদ্ধে ভবিষ্যতে পরিবেশ দূষনমূলক কোন অভিযোগ উত্থাপিত হলে ও অত্র দপ্তর কর্তৃক তা প্রমাণিত হলে অত্র দপ্তরের নির্দেশিত নিয়ন্ত্রণ/সংশোধন মূলক ব্যবস্থাদি (স্থানান্তর/কার্যক্রম বন্ধসহ) গ্রহণ করতে আপনার প্রতিষ্ঠান বাধ্য থাকবে।

৫. এ ছাড়পত্র দৈনিক সর্বোচ্চ ৩২ টন ইয়ার্ন ডাইং, ১৮ টন প্রিন্টিং, ২০ টন সলিড ডাইং ও ১৫ টন সফট ফ্লো ডাইং কার্যক্রম পরিচালনার জন্য প্রযোজ্য। প্রকল্পের উৎপাদন বৃদ্ধি, জায়গা সম্প্রসারণ, উৎপাদন প্রক্রিয়া বা তৎসংশ্লিষ্ট কোনো প্রকার পরিবর্তনের জন্য পরিবেশ অধিদপ্তরের ছাড়পত্র গ্রহণ করতে হবে।

৬. কারখানার উৎপাদন প্রক্রিয়ায় বিভিন্ন ইউনিট হতে সৃষ্ট তরল বর্জ্য ২০০ ঘনমিটার/ঘন্টা ও ২০০ ঘনমিটার/ঘন্টা ক্ষমতাসম্পন্ন ২টি তরল বর্জ্য পরিশোধনাগার (ইটিপি)-এর মাধ্যমে পরিশোধন করতে হবে। পরিশোধিত তরল বর্জ্য নির্গমনের জন্য নির্ধারিত ড্রেনেজ লাইন ব্যতীত অন্য কোনো বাইপাস লাইনের মাধ্যমে নির্গমন করা যাবে না। ইটিপি হতে নির্গত তরল বর্জ্যের তাত্ক্ষণিক সংগৃহীত নমুনার মানমাত্রা পরিবেশ সংরক্ষণ বিধিমালা, ২০২৩-এ উল্লিখিত মানমাত্রার মধ্যে থাকতে হবে। কোনো সময় ইটিপি বা এর কোনো ইউনিট অকার্যকর হলে সাথে সাথে সংশ্লিষ্ট উৎপাদন ইউনিট (যেমন: ডাইং) বন্ধ করতে হবে। ইটিপি সংস্কার করে এর কার্যক্ষমতা সম্পর্কে নিশ্চিত হওয়া সাপেক্ষে বন্ধ ইউনিট পুনরায় চালু করা যাবে।

৭. ইএমপি প্রতিবেদন উল্লিখিত সকল Mitigation Measures সার্বক্ষণিক কার্যকারিভাবে চালু রাখতে হবে।

৮. কারখানাটি চালু অবস্থায় প্রতি ছয় মাস অন্তর অর্থাৎ বছরে ২ বার ইটিপির তরল বর্জ্যের (পরিশোধনপূর্ব ও পরিশোধনান্তর) গুণগতমান (Temperature, Color, pH, BOD<sub>5</sub>, COD ও SS) পরীক্ষার ফলাফল পরিবেশ অধিদপ্তরে দাখিল করতে হবে।

৯. কারখানার তরল বর্জ্য নির্গমনের ইনলেট ও আউটলেট পয়েন্টে স্থাপিত ফ্লো মেজারিং ডিভাইস সর্বদা কার্যকর রাখতে হবে এবং ফ্লো-ড্যাটা রেকর্ড সংরক্ষণ করতে হবে।

১০. কারখানার ETP হতে সৃষ্ট স্লাজ Dewatering এর জন্য স্লাজ ড্রাইং বেড যথাযথভাবে কার্যকর রাখতে হবে।

১১. ETP'র স্লাজ ব্যবস্থাপনার লক্ষ্যে Bangladesh Standard and Guidelines for Sludge Management অনুসারে Sludge Management Plan প্রণয়ন করে আগামী ৩(তিন) মাসের মধ্যে অনুমোদনের জন্য পরিবেশ অধিদপ্তরে দাখিল করতে হবে।

১২. বায়বীয় বর্জ্য নির্গমনের জন্য স্থাপিত চিমনি সার্বক্ষণিক কার্যক্ষম রাখতে হবে।

১৩. জেনারেটরের Spent lubricating oil এবং Oil Filter পরিবেশ অধিদপ্তরের ছাড়পত্র গ্রহণকারী প্রতিষ্ঠান ব্যতিরেকে অন্য কোনো Vendor এর কাছে বিক্রয় করা যাবে না।

১৪. প্রতিষ্ঠানটিতে পয়োবর্জ্য পরিশোধনের জন্য অত্র কার্যালয়ে দাখিলকৃত ড্রাইং, ডিজাইন অনুযায়ী STP নির্মাণ সম্পন্ন করতে হবে এবং তা কার্যকর রাখতে হবে।

১৫. কারখানা চত্বরে উপযুক্ত প্রজাতির ফলদ ও বনজ গাছ লাগিয়ে সবুজায়ন করতে হবে।

১৬ . কারখানার পরিবেশগত ব্যবস্থাপনার জন্য যথাযথ ডিগ্রিধারী প্রশিক্ষিত জনবল রাখতে হবে। কারখানার ইটিপি পরিচালনার লক্ষ্যে প্রতিটি শিফটের জন্য অপারেটর এবং ETP Performance মনিটরিং-এর জন্য প্রয়োজনীয় যন্ত্রপাতিসহ কারখানায় নিজস্ব গবেষণাগার স্থাপনপূর্বক দক্ষ জনবল নিয়োগ করতে হবে।

১৭ . কারখানায় কর্মরত শ্রমিকদেরকে কারখানার অভ্যন্তরে সার্বক্ষণিক উপযুক্ত মাস্ক, হ্যান্ডগ্লাভস, সেফটিগ্লাভস, বুট, হেলমেট ব্যবহার করতে হবে। এ ছাড়া পেশাগত স্বাস্থ্য রক্ষার্থে সকলব্যবস্থা সার্বক্ষণিক চালু রাখতে হবে।

১৮ . অগ্নি নিরাপত্তা ব্যবস্থা নিশ্চিত করার লক্ষ্যে বাংলাদেশ ন্যাশনাল বিল্ডিং কোড এবং ফায়ার লাইসেন্সের শর্তানুসারে উপযুক্ত ব্যবস্থা সার্বক্ষণিক কার্যকরী রাখতে হবে।

১৯ . কারখানার শব্দের মাত্রা শব্দদূষণ (নিয়ন্ত্রণ) বিধিমালা, ২০০৬-এ বর্ণিত মানমাত্রার মধ্যে রাখতে হবে।

২০ . কারখানার বর্জ্য ব্যবস্থাপনার জন্য 3R (Reduce, Reuse and Recycle) Policy অবলম্বন করতে হবে।

২১ . এই ছাড়পত্র ভূমির মালিকানা স্বত্ব নির্ধারণ করে না।

২২ . বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ এবং তদধীন প্রণীত বিধিমালা এ প্রদত্ত ক্ষমতাবলে উপরিলিখিত শর্তসমূহ Enforce করা হবে।

২৩ . বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ এবং তদধীন প্রণীত বিধিমালা এ প্রদত্ত ক্ষমতাবলে উপরিলিখিত শর্তসমূহ উহভূৎপব করা হবে।

২৪ . বাস্তবায়নকৃত ZLD এর বিস্তারিত অতিসত্তর পরিবেশ অধিদপ্তরে দাখিল করতে হবে।

২৫ . ছাড়পত্র জারীর আগামী ০০৬ (ছয়) মাসের মধ্যে STP নির্মাণপূর্বক প্রমাণক দাখিল করতে হবে।

২৬ . কারখানা চালুর অবস্থায় ০৩ (তিন) মাসের মধ্যে তরল বর্জের ফলাফল অত্র দপ্তরে দাখিল করতে হবে।

২৭ . এ পর্যায়ে প্রাপ্ত ও পরিবেশিত তথ্যের ভিত্তিতে এ ছাড়পত্র প্রদান করা হলো। পরবর্তীতে কোনো তথ্য অসম্পূর্ণ, ত্রুটিপূর্ণ, অসত্য কিংবা গোপন করা হয়েছে মর্মে প্রমাণিত হলে এ ছাড়পত্র বাতিল করা হবে।

২৮ . এ ছাড়পত্র জারির তারিখ হতে পরবর্তী ১ (এক) বৎসরের জন্য বহাল থাকবে এবং মেয়াদ শেষ হওয়ার অন্ততঃ ৩০ (ত্রিশ) দিন পূর্বে নবায়নের জন্য (নবায়ন ফি ও প্রয়োজনীয় কাগজপত্রসহ) এ কার্যালয়ে আবেদন করতে হবে।

২৯ . ছাড়পত্রের একটি কপি কারখানাটির এমন স্থানে ঝুলিয়ে রাখতে হবে যেন তা সহজেই দৃষ্টিগোচর হয় এবং এ অধিদপ্তরের কোনো কর্মকর্তা/পরিদর্শক পরিদর্শনের সময় তাঁকে সকল প্রকার সহযোগিতা প্রদান করতে হবে।

৩০ . বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (সংশোধিত ২০১০) এবং পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭ (সংশোধিত ২০০২) এর সংশ্লিষ্ট ধারা/বিধি অনুযায়ী পরিবেশ সংরক্ষণ, পরিবেশগত মান উন্নয়ন এবং পরিবেশ দূষণ নিয়ন্ত্রণ ও প্রশমনের উদ্দেশ্যে মহাপরিচালক কর্তৃক সময়ে সময়ে প্রদত্ত নির্দেশনাসমূহ যথাযথভাবে প্রতিপালন করতে হবে।

৩১ . উপর্যুক্ত অনুচ্ছেদে বর্ণিত যে কোনো শর্ত ভঙ্গ করলে এ ছাড়পত্র বাতিল বলে গণ্য হবে এবং শর্ত ভঙ্গের কারণে বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (সংশোধিত ২০১০) এবং পরিবেশ সংরক্ষণ বিধিমালা, ২০২৩ অনুযায়ী কারখানাটির বিরুদ্ধে আইনানুগ ব্যবস্থা গ্রহণ করা হবে।

# **Annexure 2**

## **ESIA Methodology**



## ESIA METHODOLOGY

The approach and methodology followed to complete the ESIA study is divided into several tasks elaborated in subsequent sections and presented in **Figure 2**.

### **Task 1: Review of the Scopes of ESIA & Environment and Social Regulatory Requirements**

The consultant reviewed the scopes of the ESIA study and proposed activities outlined in the contract document. The review process involved the assessment of environment related regulatory requirements for the proposed project. Any gaps in the project information that is deemed essential for determining impacts/risks and also as a requirement to comply with the applicable environment related regulations has been sought. The project related information that has been collected from the client includes:

- ✓ Geographical co-ordinates of the project site;
- ✓ Maps at appropriate scales to illustrate the proposed project components;
- ✓ Brief project component description - their location etc. on layout plan; and
- ✓ Other project related information including project cost, details of construction activities, water requirement and source, water balance, manpower, fuel requirement, energy requirement and source and other proposed pollution control measures.

### **Task 2: Project Description**

A section on detail project description was prepared. This was developed to a level of detail needed to adequately understand potentially significant project impacts. This covers project location, existing and proposed project condition, list of equipment and machineries, Chemical list, resources utilities, implementation arrangements and maps using appropriate scales. Achievement of project milestones is dependent on receiving information on the design of the project ancillary facilities quickly.

### **Task 3: Environmental and Social Baseline Conditions**

Extensive field visits have been conducted to collect primary and secondary data to ensure establishment of proper baseline information. This section covers the following aspects comprehensively in addition:

- Relevant physical, biological, and socioeconomic conditions within the study area;
- Detail description of local geology, Soil, Local climatic condition, hydrological (Surface and ground) condition, geography, extreme environment, wind pattern and soil condition;
- Description of land use/ land cover has been provided including ecologically critical area, national parks, forest, orchard, cultural heritage site etc. (if any), in the selected project site. Landsat 8 image (Spatial Resolution: 30m\*30m and color composite band: 1-7) has been used for Land use and land cover analysis.
- While describing the meteorological condition, mean, minimum & maximum temperature, monthly & yearly total rainfall, humidity, wind speed & wind direction of last 7 years including

several relevant distribution maps of Bangladesh have been collected from Bangladesh Meteorological department (BMD) and provided in the relevant section;

- Baseline primary data has been collected (air, noise, surface & ground water) and their test results have been presented.
- In describing ecology, aquatic flora, aquatic fauna, terrestrial flora, terrestrial fauna and forest as are available in the site and site area have been described with photographs;
- Cyclones and alignment of cyclones has been provided with maps, figures, data and information;
- Similarly, seismicity risk and flood risk have been described with relevant maps, figures, data and information;
- Latest Primary Socio-economic information has been collected through household survey and Secondary Socio-economic information have been collected from latest Bangladesh Bureau of Statistics (BBS);
- Description of map of unique sites or special features such as parks and protected areas, Heritage Rivers, historic sites, environmentally and culturally significant sites;
- Physical or cultural heritage (if any);

#### **(a) Primary Baseline Data Collection**

- Ambient Air;
- Noise;
- Surface water;
- Ground water;
- Drinking water;
- Terrestrial flora and fauna;
- Aquatic flora and fauna;
- Traffic study;
- Social data collection;
- Stakeholder consultation
  - I. **Key Informant Interview (KII):** The survey team will interview project related govt. and non govt. stakeholders to know their point of view and comments about the project implementation.
  - II. **Focus Group Discussion (FGD):** Any individual or group who is potentially affected by the proposed project directly or indirectly. The consultations will conduct FGDs in different locations in and around the project location.

#### **(b) Secondary Baseline Data Collection**

Readily available secondary information was collected for following aspects:

##### **I. Physical Environment**

- Regional setting;
- Climate and meteorology;
- Geology and soil;

- Hydrology and water use;
- Natural hazards.

## **II. Socio- economic Environment**

- Demographic profile;
- Economic activities & livelihood pattern;
- Socio-economic Infrastructure & Indicators;
- Health care facilities;
- Electrification;
- Education facilities;
- Drinking water & sanitation;
- Agriculture.

### ***Secondary Data Sources***

- ✓ Bangladesh Meteorological Department;
- ✓ Gazipur District Statistics;
- ✓ Bangladesh Water Development Boards;
- ✓ Population And Housing Census.

## **III. Geographical Information Systems (GIS)**

Geographical Information Systems (GIS) was used as a specialized analysis and presentation tool. Before commencing field investigations, spatial analysis of satellite imagery and present administrative areas and other boundaries/constraints was considered for the environmental assessments. For example, forest areas, water bodies, infrastructures, roads and urban areas and the alignment were identified. A land sat 8-9 image will be used to understand the Existing land use Pattern around the project area. It also supports more detailed on-ground survey, particularly spatial features that may be directly or indirectly influenced by Project activities.

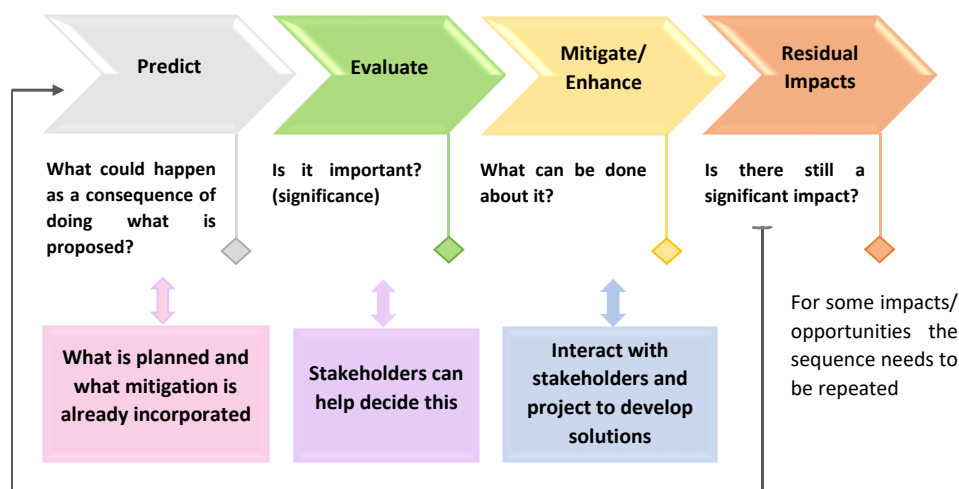
### **Task 4: Impact Assessment and Mitigation Measures**

The aim of this task is to identify and assess potential impacts on various environmental components due to the proposed project. Based on baseline data collected for the study area, information on type and quantity of emission of pollutants and surveys of the study area, ESIA team has identified and predicted potential impacts due to the proposed project on the surrounding environment during construction and operation stages of the project.

The methodology for the impact assessment followed the World Bank Operational Guideline, IFC EHS Guidelines, GoB's relevant Act and Rules including the EHS Guidelines and those for Development Project. It involves the prediction, evaluation and mitigation of impacts. The impacts were identified and quantified for the intensity using modeling and/ or matrix techniques and evaluated as major, medium,

minor or insignificant impacts on the environment and communities in the study area during the ESIA study for this project.

The anticipated changes enhancing the baseline conditions, with respect to air, noise, water, ecology and land environments or potential deterioration of human health, ecology and cultural baseline conditions of the study area was assessed and predicted using prediction tools as per the following description:



**Figure 1: Impact Assessment Process for the ESIA Study**

#### **Task 5: Environmental Management Plan (EMP)**

Requirement and details of the control measures were suggested in the EMP for implementation by Client during construction and operation phases of the Project. The EMP comprises of the following aspects based on the impacts assessed for the project:

- ✓ Introduction to the purpose of the EMP;
- ✓ Mitigation measures and control technologies, safeguards etc. to minimize adverse impacts on air, water, soil and biological and socio-economic environment, measures to minimize associated hazards and control emergency situation; and
- ✓ Project monitoring programme for effective implementation of the mitigation measures.

This sets out the mitigation and management measures required during project implementation to avoid or reduce the environmental and/ or social impacts. Plans that can be developed at a later stage (e.g., Solid and hazardous waste management plan, occupational health and safety management plan, safety management plan, possible risk) were identified and provided as initial documents which will be updated prior to start of construction activities by the contractor.

#### **Task 6: Monitoring Evaluation**

A tentative monitoring plan is included here, covering the type of monitoring to be done during construction and operation phase, their tentative costing needs to be done.

#### **Task 7: Emergency Response & Disaster Management Plan**

The Emergency Response Plan (ERP) and Disaster Management Plan (DMP) are two very crucial documents for any project. A risk assessment study was carried out to provide a systematic analysis of the major risks that may arise as a result of the operation of the proposed project. The output of the assessment contributed towards strengthening of emergency response planning in order to prevent damage to personnel, infrastructure and receptors in the immediate vicinity of the proposed facilities.

#### **Task 8: Stakeholder Consultation**

- Extensive consultation was conducted with key stakeholders' including the local population, vulnerable groups, government departments/agencies, and NGOs;
- Stakeholder consultation was completed with the intent of collecting baseline information on the environmental and social conditions and sensitivities, developing a better understanding of the potential impacts, informing the public of the proposed project and to gain an understanding of the perspectives/concerns of the stakeholders;
- A summary of the stakeholder engagement process and the profile of the groups and their opinions is provided in the Stakeholder Consultation chapter (**Chapter 10**) of this report; and
- Information gathered were used for formulating mitigation measures and environmental management plans.

#### **Task 9: Grievance Redress Mechanism**

A grievance redress mechanism and procedures are setup to provide opportunity for project affected persons (AP) to settle their complaints and grievances amicably. The established grievances redress procedures and mechanism ensures that project affected persons are provided with the appropriate compensations and that all administrative measures are in line with the law.

#### **Tasks 10: Reporting**

An ESIA report is prepared upon completion of the above tasks as per the prescribed format and list of abbreviations will also be provided. Based on one set of consolidated comments of Client and lender, this ESIA report will be finalized.

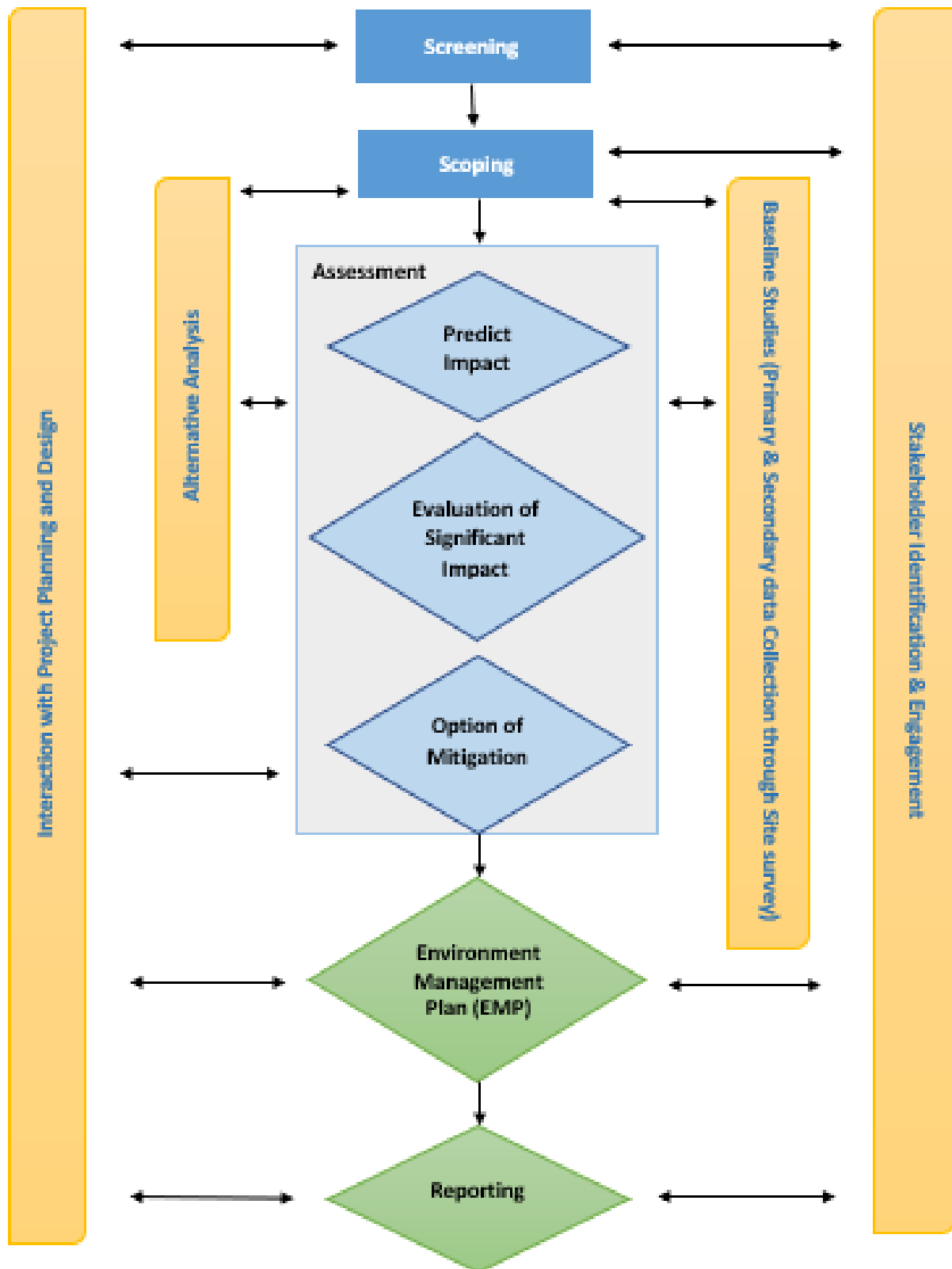


Figure 2: ESIA Methodology

# **Annexure 3**

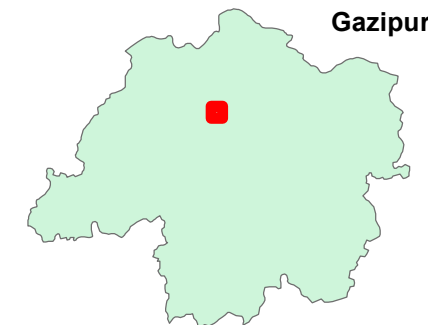
## **Project Location Map**





# Project Location



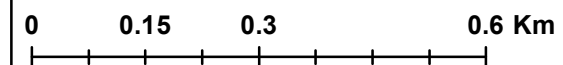
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



## Legend

-  Project Boundary
-  Ward Boundary

Scale: 1:10,000



Coordinate System: UTM Zone 46N  
Projection: Transverse Mercator  
Datum: WGS 1984

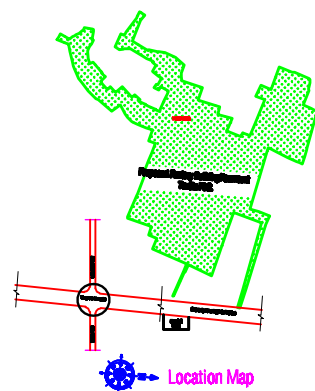
Prepared By:



**Adroit Environment  
Consultants Ltd. (AECL)  
H#1,R#16,Sector#7,Uttara  
Dhaka-1230**

# Project Layout





BUILDING DESCRIPTION:					
BN	NAME OF BUILDING	UNIT	Floorplan Area	Estimate Area	Total Building Area
01	WATERMILL & G PLANT #1	WPT	17,000.00	00	17,000.00
02	30 STORED-DRY WOOD BUILDING	WPT	27,000.00	00	27,000.00
03	30 STORED WTP BUILDING	WPT	10,000.00	00	10,000.00
04	STING-01 BUILDING	WPT	12,500.00	00	12,500.00
05	30 STORED ASPH. WALKING & PAVING-02	WPT	400,000.00	00	400,000.00
06	3-30 STORED SOFT WOODS BUILDING	WPT	10,114.00	00	10,114.00
07	IMPROVING BUILDING	WPT	30,000.00	00	30,000.00
08	PAINT PLANT IMPROVING BUILDING	WPT	20,000.00	00	20,000.00
09	30 STORED TIMBER 02 BUILDING	WPT	500,000.00	00	500,000.00
10	30 STORED-DRYAL, STORE & G PLANT #2	WPT	10,700.00	00	10,700.00
11	3-30 STORED-PAVED WALKING BUILDING	WPT	60,000.00	00	60,000.00
12	PAINT PLANT GO DOWN	WPT	60,000.00	00	60,000.00
13	OFFICE, BARRS & MISCELL	WPT	20,000.00	00	20,000.00
14	CHILD CARE & OFFICE BUILDING	WPT	600.00	00	600.00
15	PAINT WAREHOUSE GO DOWN	WPT	12,000.00	00	12,000.00
16	EXP & OFFICE BUILDING	WPT	30,000.00	10,000.00	40,000.00
17	3-30 STORED FIRE PLAN BUILDING	WPT	10,000.00	00	10,000.00
18	WOODSHOP-000	WPT	20,000.00	00	20,000.00
19	GRP BUILDING	WPT	17,170.00	00	17,170.00
20	SOIL BUILDING	WPT	500.00	00	500.00
21	PAVING BUILDING	WPT	60,000.00	00	60,000.00
22	PAVING GO DOWN	WPT	11,000.00	00	11,000.00
23	PAVING-IMP-IMP BUILDING	WPT	20,000.00	00	20,000.00
24	AGGREGAL, MILLING & MIXING	WPT	2,000.00	00	2,000.00
25	3-30 STORED WILD DRIVING BUILDING	WPT	200,000.00	00	200,000.00
26	GRAY PAVING GO DOWN	WPT	700.00	00	700.00
27	WATERMILL GO DOWN & GPR WPT#1	WPT	4,100.00	00	4,100.00
28	ALL SECURITY OFFICE	WPT	100.00	00	100.00
29	OFFICE & BARRS WPTING ROOM	WPT	1,100.00	00	1,100.00
30	3-30 STORED SOFT FLOORING BUILDING	WPT	2,000.00	00	2,000.00
31	3-30 STORED WTP GO BUILDING	WPT	0.00	20,000.00	20,000.00
32	PAVING GO DOWN & IMP BUILDING	WPT	0.00	10,000.00	10,000.00
33	3-30 STORED WOODS GO BUILDING	WPT	0.00	50,000.00	50,000.00
TOTAL BUILDUP AREA			WPT	1,412,000.00	80,000.00
					1,492,000.00



<b>Project Name:</b>	<b>Owners Name &amp; Signature:</b>	<b>Total Buildup Area:</b>	<b>Structural Engineer:</b>	<b>Architect:</b>	<b>Consultants:</b> <b>ADEPT</b>
REVISED & PROPOSED MASTER PLAN OF PARAMOUNT TEXTILE PLC. ADDRESS: MOUZA: KEWA, GILARCHALA, SREEPUR, GAZIPUR.	<b>MD. SHAKHAWAT HOSSIAN</b>	1474791.00 SFT <b>137062.36 SQM</b>	Md. Fakhruul Islam B.Sc in Civil Engineer, BUET IEB No.-F 11512	1. Maruf Hasan 2. Muntasir Mamun	Advanced Development of Engineering & Planning Technology. <b>ADEPT ST Complex,</b> Ka-7/1, Bashundhara Link Road, Jagannathpur, Dhaka.  Email # adept020878@gmail.com

# **Annexure 4**

## **Building And Sheds**

### **Description**

## BUILDING AND SHEDS DESCRIPTIONS

SL. No.	Building/ Sheds Number	Building/ Sheds Type	Present Area (sq.ft)	Proposed Area (sq.ft)	After extension total area (sq.ft)	Floor Description
<b>Buildings Detail</b>						
1.	Building 01	Weaving & AC Plant-01	10580	-	10580	<ul style="list-style-type: none"> <li>• Ground Floor: Warping, Sizing, Drawing, Loom, Office, AC Plant-01 &amp; Dining</li> <li>• Mezzanine- Electrical Lab, electrical Office</li> <li>• Roof top: Solar Panel</li> </ul>
2.	Building 02	2 Storied weaving 02 building	63240	-	63240	<ul style="list-style-type: none"> <li>• Ground floor: Weaving Section</li> <li>• 1st floor: Raw Yarn Store, Dining</li> <li>• Roof top: fully unoccupied</li> </ul>
3.	Building 03	03 Storied Admin Building & Dyeing-02	45640	-	45640	<ul style="list-style-type: none"> <li>• Ground floor: Yearn Dyeing-02,</li> <li>• 1st floor: Office</li> <li>• 2nd floor: Office</li> <li>• Roof top: fully unoccupied</li> </ul>
4.	Building 04	03 Storied Hard Winding Building	58755	-	58755	<ul style="list-style-type: none"> <li>• Basement: Yarn Store</li> <li>• Ground Floor: Warping</li> <li>• 1st floor: Finished Fabric Go-down (Excess)</li> <li>• 2nd floor: Grey Fabric Store</li> <li>• Roof top: fully unoccupied</li> </ul>
5.	Building 05	03 Storied WTP Building	19650	-	19650	<ul style="list-style-type: none"> <li>• Ground floor: Vessel Pump Room of WTP</li> <li>• 1st floor: Training Room, R&amp;D, CCI</li> <li>• 2nd floor: R&amp;D, Hand Loom, Production development of sister concern unit.</li> <li>• Roof top: fully unoccupied</li> </ul>
6.	Building 06	03 Storied Generator Building	27290	-	27290	<ul style="list-style-type: none"> <li>• Ground Floor: Generator Room</li> <li>• 1st floor: Boiler Room</li> <li>• 2nd floor: Compressor Room</li> <li>• Roof top: fully unoccupied</li> </ul>

SL. No.	Building/ Sheds Number	Building/ Sheds Type	Present Area (sq.ft)	Proposed Area (sq.ft)	After extension total area (sq.ft)	Floor Description
7.	Building 07	06 Storied Soft Winding Building	192114	-	192114	<ul style="list-style-type: none"> <li>Basement: Yarn Store</li> <li>Ground floor: Gray Inspection</li> <li>1st floor: Packing, Twisting &amp; Doubling</li> <li>2nd floor: Hard Winding</li> <li>3rd floor: Hard Winding</li> <li>4th floor: Soft Winding, yarn waiting area for dyeing,</li> <li>5th floor: Soft Winding</li> <li>Roof top: Fabric store, gardening, approx. 70% area vacant.</li> </ul>
8.	Building 08	03 Storied General Store & AC Plant 02	13720	-	13720	<ul style="list-style-type: none"> <li>Ground floor: AC Plant 02 and drawing area.</li> <li>1st floor: Spare Parts Store</li> <li>2nd floor: Spare Parts Store</li> <li>Roof top: fully unoccupied</li> </ul>
9.	Building 09	Mosque, Ablution & Moktab	21900	-	21900	<ul style="list-style-type: none"> <li>Ground Floor: Mosque, Ablution &amp; Moktab</li> <li>Roof top: fully unoccupied</li> </ul>
10.	Building 10	Boiler Building	926	-	926	<ul style="list-style-type: none"> <li>Ground Floor: Boiler Room</li> <li>Roof top: fully unoccupied</li> </ul>
11.	Building 11	01-Storied Fire Pump Building	1,820	-	1,820	<ul style="list-style-type: none"> <li>Basement: Fire Pump Room</li> <li>1st floor: Fire Control Panel Room</li> <li>Roof top: fully unoccupied</li> </ul>
12.	Building 12	04-Storied Solid Dyeing Building	290100	-	290100	<ul style="list-style-type: none"> <li>Basement: Chemical store</li> <li>Ground floor to 2nd floor: Sulfurizing production process</li> <li>Roof top: fully unoccupied</li> </ul>
13.	Building 13	04-Storied Soft Flow Dyeing Building	215389	-	215389	<ul style="list-style-type: none"> <li>Basement: Chemical store</li> <li>Ground floor: Soft flow dyeing</li> <li>1st to 2nd floor: Fabric store</li> <li>3rd floor: under renovation</li> <li>Roof top: fully unoccupied</li> </ul>
14.	Building 14	Dyeing-01 Building	122296	-	122296	<ul style="list-style-type: none"> <li>Ground Floor: Yarn Dyeing-01, Batch, RF Dryer, Fabric Dyeing, Pretreatment, Fabric</li> </ul>

SL. No.	Building/ Sheds Number	Building/ Sheds Type	Present Area (sq.ft)	Proposed Area (sq.ft)	After extension total area (sq.ft)	Floor Description
						<ul style="list-style-type: none"> <li>Finishing, &amp; Chemical Sub-Store, yarn storage, Adjacent chemical &amp; maintenance room.</li> <li>Mezzanine: Office, Yarn Dyeing Lab, Solid Dyeing Lab &amp; Hanks Dyeing</li> <li>Roof top: fully unoccupied</li> </ul>
15.	Building 15	2 storied WTP-03	-	9810	9810	<ul style="list-style-type: none"> <li>Water treatment plant-03</li> <li>1st floor: under construction</li> <li>Roof top: fully unoccupied</li> </ul>
16.	Building 16	2 storied REB building	-	9890	9890	<ul style="list-style-type: none"> <li>Ground floor: Sub-station, Boiler</li> <li>1st floor: under construction</li> <li>Roof top: fully unoccupied</li> </ul>
17.	Building 17	2 stored ETP & Office building	35310	15740	51050	<ul style="list-style-type: none"> <li>Ground floor: ETP</li> <li>1st floor: ETP Lab &amp; Office</li> <li>Roof top: fully unoccupied</li> </ul>
<b>Shed Details</b>						
18.	Shed 01	Mercerizing Building	39985	-	39985	<ul style="list-style-type: none"> <li>Ground Floor: Mercerizing &amp; Fabric Finishing</li> <li>Mezzanine: Lab &amp; Office</li> </ul>
19.	Shed 02	Finished Fabric Inspection Building	20596	-	20596	<ul style="list-style-type: none"> <li>Ground Floor: Finished Fabric Inspection Section</li> </ul>
20.	Shed 03	Finished Fabric store	6085	-	6085	<ul style="list-style-type: none"> <li>Ground Floor: Finished Fabric store</li> </ul>
21.	Shed 04	Raw Material store	12485	-	12485	<ul style="list-style-type: none"> <li>Ground Floor: Chemical store</li> </ul>
22.	Shed 05	Office, Dining & Medical	5980	-	5980	<ul style="list-style-type: none"> <li>Ground Floor: Office, Sample preparation, Child Care, staff Dining, staff kitchen &amp; Medical</li> </ul>
23.	Shed 06	canteen	695	-	695	<ul style="list-style-type: none"> <li>Ground Floor: Worker's canteen</li> </ul>
24.	Shed 07	Printing Building	60788	-	60788	<ul style="list-style-type: none"> <li>Ground Floor: All over Printing Section, Color Kitchen, Chemical Sub-Store, Sample, screen</li> <li>wash, engraving, finishing, fabric washing and compacting.</li> <li>Mezzanine: Office</li> </ul>



SL. No.	Building/ Sheds Number	Building/ Sheds Type	Present Area (sq.ft)	Proposed Area (sq.ft)	After extension total area (sq.ft)	Floor Description
25.	Shed 08	Printing store	11100	-	11100	<ul style="list-style-type: none"> <li>Ground Floor: Printing store</li> </ul>
26.	Shed 09	Finishing Unit-02 Building	35600	-	35600	<ul style="list-style-type: none"> <li>Ground Floor: Rotary Print, Flat Bad Print, Digital Printing &amp; Printing Finishing</li> </ul>
27.	Shed 10	Wastage Go-down & Car Wash	4128	-	4128	<ul style="list-style-type: none"> <li>Ground Floor: Wastage Go-down &amp; Car Wash</li> </ul>
28.	Shed 11	All Security Office	1960	-	1960	<ul style="list-style-type: none"> <li>Ground Floor: Security post</li> </ul>
29.	Shed 12	Workshop Shed	2240	-	2240	<ul style="list-style-type: none"> <li>Ground Floor: Workshop</li> </ul>
30.	Shed 13	CRP (Caustic Recovery Plant) Building	1717	-	1717	<ul style="list-style-type: none"> <li>Ground Floor: CRP (Caustic Recovery Plant)</li> </ul>
31.	Shed 14	Finished Fabric store and RMS room, Generator & LPG storage	-	18270	18270	<ul style="list-style-type: none"> <li>Finished Fabric store and RMS room</li> </ul>
32.	Shed 15	Office accessories store and driver waiting room.	1160	-	1160	
33.	Shed 16	Finished Fabric store	7032	-	7032	
	<b>Total =</b>		<b>1421081.0</b>	<b>53710.0</b>	<b>1474791.0</b>	

# **Annexure 5**

## **Machineries List**

## EXISTING MACHINERIES/EQUIPMENT

List of existing machineries/ equipment are given in **Table 1-5** that are being using during project operation

**Table 1: Existing Soft & Hard Winding Machine List**

SL No	Machine Name	Brand Name	Type	Model No / Design	Country Of Origin	Qty	Unit
1	Soft Winding M/c (Coral)	Coral	Soft Winding	HS-101C & CS	China	24	Set
2	Soft Winding M/C (Fadis)	Fadis	Soft Winding	SIMCRO TFT 306 PREMIUM	Italy	3	Set
Total Soft Winding Machine:						27	Nos
3	Hard Winding M/c (Coral)	Coral	Hard Winding	HS-101C & CH	China	35	Nos
4	Winding M/C (Stalam)	Stalam	Hard Winding	SHA & SHB	China	2	Nos
5	Winding M/C (Fadis)	Fadis	Hard Winding	SIMCRO TFT 306 PREMIUM	Italy	1	Nos
Total Hard Winding Machine						38	Nos
<b>Grand Total of Winding Machine</b>						<b>65</b>	<b>Nos</b>

**Table 2: Existing Yarn Dyeing Machine List**

S/ N	Machine Name	Brand Name	Type	Model No / Design	Country of origin	Qty	Unit
1	Yarn Dyeing M/C (3 Kg Capacity)	Gofront	Air Padding	GF241NT-21	China	1	Nos
2	Yarn Dyeing M/C (5 Kg Capacity)	Gofront	Air Padding	GF241NT-21	China	1	Nos
3	Yarn Dyeing M/C (12 Kg Capacity)	Gofront	Air Padding	GF241NT-42	China	1	Nos
4	Yarn Dyeing M/C (30 Kg Capacity)	Gofront	Air Padding	GF241NT-50	China	1	Nos
5	Yarn Dyeing M/C (450 Kg Capacity)	Gofront	Air Padding	GF241HLC140	China	1	Nos
6	Yarn Dyeing M/C (1020 Kg Capacity)	Gofront	Air Padding	GF241HLC187	China	4	Nos
7	Yarn Dyeing M/C (2000 Kg Capacity)	Gofront	Air Padding	GF241NT-200	China	2	Nos
<b>Sub Total (A)=</b>						<b>11</b>	<b>Nos</b>
8	Yarn Dyeing M/C (200-300gm Capacity)	Fongs	Air Padding	Microwin-1	China	20	Nos
9	Yarn Dyeing M/C (1 Kg Capacity)	Fongs	Air Padding	Lab Win - 1	China	12	Nos
10	Yarn Dyeing M/C (3 Kg Capacity)	Fongs	Air Padding	Lab Win - 3	China	2	Nos
11	Yarn Dyeing M/C (6 Kg Capacity)	Fongs	Air Padding	Lab Win - 6	China	2	Nos
12	Yarn Dyeing M/C (12 Kg Capacity)	Fongs	Air Padding	Lab Win - 12	China	5	Nos

S/ N	Machine Name	Brand Name	Type	Model No / Design	Country of origin	Qty	Unit
13	Yarn Dyeing M/C (20 Kg Capacity)	Fongs	Air Padding	Lab Win - 43 5A	China	2	Nos
14	Yarn Dyeing M/C (32 Kg Capacity)	Fongs	Air Padding	Lab Win - 43 8A	China	2	Nos
15	Yarn Dyeing M/C (48 Kg Capacity)	Fongs	Air Padding	All Win - 53 8A	China	5	Nos
16	Yarn Dyeing M/C (36 Kg Capacity)	Fongs	Air Padding	All Win - 53	China	1	Nos
17	Yarn Dyeing M/C (81 Kg Capacity)	Fongs	Air Padding	All Win - 70 9A	China	4	Nos
18	Yarn Dyeing M/C (108 Kg Capacity)	Fongs	Air Padding	All Win - 75 9A	China	3	Nos
19	Yarn Dyeing M/C (108 Kg Capacity)	Fongs	Air Padding	All Win - 85	China	3	Nos
20	Yarn Dyeing M/C (216 Kg Capacity)	Fongs	Air Padding	All Win - 85 12A	China	5	Nos
21	Yarn Dyeing M/C (288 Kg Capacity)	Fongs	Air Padding	All Win - 105 12A	China	5	Nos
22	Yarn Dyeing M/C (432 Kg Capacity)	Fongs	Air Padding	All Win - 120	China	2	Nos
23	Yarn Dyeing M/C (468Kg Capacity)	Fongs	Air Padding	All Win - 120 13A	China	2	Nos
24	Yarn Dyeing M/C (648 Kg Capacity)	Fongs	Air Padding	All Win - 145	China	2	Nos
25	Yarn Dyeing M/C (828 Kg Capacity)	Fongs	Air Padding	All Win - 166	China	2	Nos
<b>Sub Total (B)=</b>						<b>79</b>	<b>Nos</b>
26	Yarn Dyeing M/C (03 Kg Capacity)	Ugolini	Air Padding	Sp/110-4	Italy	4	Nos
27	Yarn Dyeing M/C (06 Kg Capacity)	Ugolini	Air Padding	Sp/110-4	Italy	4	Nos
28	Yarn Dyeing M/C (10 Kg Capacity)	Ugolini	Air Padding	Sp/110-4	Italy	8	Nos
<b>Sub (C)Total =</b>						<b>16</b>	<b>Nos</b>
29	Yarn Dyeing M/C (3 Kg Capacity)	S. M	Bangla		Bangla	1	Nos
30	Yarn Dyeing M/C (35 Kg Capacity)	S. M	Bangla		Bangla	1	Nos
<b>Sub (D)Total =</b>						<b>2</b>	<b>Nos</b>

**Table 3: Existing Weaving Machine List**

S/N	Machine Name	Brand Name	Type	Model No / Design	Country Of Origin	Ledger Qty	Unit
1	Weaving Machine	Tsudakoma	Air	205 + 205i	Osaka, Japan	42	Nos
2	Weaving Machine	Tsudakoma	Air	Zax Positive	Osaka, Japan	4	Nos
3	Weaving Machine	Tsudakoma	Air	Zax Negative	Osaka, Japan	24	Nos
4	Weaving Machine	Tsudakoma	Air	Zax Dobby	Osaka, Japan	8	Nos
5	Weaving Machine	Tsudakoma	Air	Zax positive - 9100	Osaka, Japan	12	Nos
<b>Sub Total (A) =</b>						<b>90</b>	<b>Nos</b>
6	Weaving Machine	Toyota	Air	600	Japan	32	Nos
7	Weaving Machine	Toyota	Air	710	Japan	36	Nos
8	Weaving Machine	Toyota	Air	810	Japan	68	Nos
<b>Sub Total (B) =</b>						<b>136</b>	<b>Nos</b>
9	Weaving Machine	Picanol (New)	Air	Omni Plus - 800	Belgium	10	Nos
10	Weaving Machine	Picanol (Old)	Air	Omni Plus	Belgium	50	Nos
11	Weaving Machine	Picanol	Rapier	Optimax-I	Belgium	88	Nos
12	Weaving Machine	Picanol	Air	Summum	Belgium	2	Nos
<b>Sub Total (C) =</b>						<b>150</b>	<b>Nos</b>

S/N	Machine Name	Brand Name	Type	Model No / Design	Country Of Origin	Ledger Qty	Unit
<b>Grand Total (A+B+C)</b>						<b>376</b>	<b>Nos</b>

**Table 4: Existing Solid Dyeing Machine List**

SI No	Machine Name	Brand Name	Model No	Origin	Qty	Unit	Current Location
1	Cold Pad Batch Dyeing (CPB) Machine	Kusters (Benninger)	CPB	Germany	2	Nos	CPB Floor
2	Pad steamer machine	Kusters & Babcock		Germany	1	Nos	CPB Floor

**Table 5: Existing Printing Machine List**

SL No	Machine Name	Brand Name	Model No / Design	Origin	Qty	Unit
1	Loop steamer (Steam Ager) Machine	Arioli	VAPO 2015	Italy	1	Set
2	Stenter machine	IL-SUNG (Sun Super-II)	ISST-II-08GP	South Korea	2	Set
3	Rotary screen-printing machine	Zimmer	ROTOSCREEN-TU	Austria	1	Set
4	Automatic Flat-Bed Screen Printing Machine	Kuil	Gp-8800, 85" , 8c	South Korea	1	Set
5	Automatic Flat-Bed Screen Printing Machine	Kuil		South Korea	1	Set
6	Sunforiser with calender machine	Cibitex	Ready	Italy	1	Set
7	Felt Compacting Range Machine	Lafer	KSA 500	Italy	1	Set
8	Washing Machine with Cylinder Dryer	Red Flag	Model: KMH658 - 260	China	1	Set

## PROPOSED MACHINERIES/EQUIPMENT

List of machineries that will be added after capacity enhancement is given in **Table 6-12**:

**Table 6: Proposed Yarn Dyeing Machine List**

SL No	Machine Name	Brand Name	Model No / Design	Origin	Qty	Unit
1	Yarn Dyeing M/C (710 Kg Capacity)	Loris Bellini	Pulsar 1600/2250	Italy	2	Nos
2	Yarn Dyeing M/C (2000 Kg Capacity)	Loris Bellini	Pulsar 2460/2600	Italy	1	Nos
<b>Sub Total =</b>					<b>3</b>	<b>Nos</b>

**Table 7: Proposed Soft Flow Dyeing Machine List**

SI No	Machine Name	Brand Name	Model No	Origin	Qty	Unit
1	Stuart Dsi Ht 10	Danitech	Dsi Ht 10	Italy	3	set
2	Danisample Ds Ht 25	Danitech	Ds Ht 25	Italy	3	set
3	Danisample Ds Ht 50	Danitech	Ds Ht 50	Italy	3	set
4	Danisample Ds Ht 100	Danitech	Ds Ht 100	Italy	3	set
5	Danisample Ds Ht 150	Danitech	Ds Ht 150	Italy	3	set
6	Danievo Ht1 250	Danitech	DE Ht1 250	Italy	1	set
7	Danievo Ht1 300	Danitech	DE Ht1 300	Italy	1	set
8	Danievo Ht2 500	Danitech	DE Ht2 500	Italy	1	set
9	Danievo Ht3 750	Danitech	DE Ht2 500	Italy	1	set
10	Danievo Ht4 1000	Danitech	DE Ht3 750	Italy	1	set
11	Danievo Ht5 1250	Danitech	DE Ht4 1000	Italy	1	set
12	Danievo Ht6 1500	Danitech	DE Ht6 1500	Italy	1	set
13	Danievo Ht6 1800	Danitech	DE Ht6 1800	Italy	1	set
<b>Total</b>					<b>23</b>	
14	Rope Openner & Slitting Line	Bianco	TERT P00385T1257	Italy	1	Set
15	Stenter machine	IL-SUNG (Sun Super-II)	ISST-II-08GP	South korea	1	Set

**Table 8: Proposed Solid Dyeing Machine List**

SI No	Machine Name	Brand Name	Model No	Origin	Qty	Unit
1	Pad steamer machine	Goller (Fong's)	C1E8-2000	China	1	Nos
2	Thermosol Dyeing Machine	Monforts-Fong's	THERMEC 6500	China	1	Nos
3	Woven washing machine	Goller (Fong's)	ED 1SC4U1-2600	China	1	Nos
4	Pad Steaming Machine	Red Flag	LMH649-200	China	1	Nos

**Table 9: Proposed Weaving Machine List**

SI No	Machine Name	Brand Name	Model No	Origin	Qty	Unit
1	Air Het Weaving Machine	Toyota	JAT 810	Japan	46	Nos

**Table 3.10: Proposed Pretreatment Machine List**

SI No	Machine Name	Brand Name	Model No	Origin	Qty	Unit
1	Singeing And Desizing Machine	Osthoff & Kuster	VP/H	Germany	1	Nos
2	COMPLEXA BLEACHING RANGE MACHINE	(Goller) FONG'S	O2E6D1C1-2000	China	1	Nos
3	Clips Mercerizing Machine	Goller (Fong's)	92CF12OP1E6-2000	P.R. China	1	Nos

**Table 3.11: Proposed Finishing Machine List**

SI No	Machine Name	Brand Name	Model No	Origin	Qty	Unit
1	Softening and dyeing machine with Padder	Airo	AIRO 24-180	Italy	1	Nos
2	Stenter Machine	Monforts-Fong's	Montex-6500 8F	P.R. China	1	Nos
3	Stenter Machine	Monforts-Fong's	Montex-6500 8F	P.R. China	1	Nos
4	Stenter Machine	Monforts-Fong's	Montex-6500 10F	P.R. China	1	Nos
5	Peach Machine	Xetma	160-008/NW2200	Germany	1	Nos
6	Sanforizing Machine	Cibitex	Shrinktex W series	Italy	3	Nos
7	3-Bowled Calender Machine	Guarneri	GTK 360 NIPCO I. RW 2.00MM	Italy	1	Nos

**Table 3.12: Proposed Printing Unit Machine List**

SI No	Machine Name	Brand Name	Model No	Origin	Qty	Unit
1	Loop steamer (Steam Ager) Machine	Dayan	CDS-213	China	1	Set
2	Automatic Flat-Bed Screen Printing Machine	Kuil	Gp-8800, 85", 12c	South Korea	1	Set
3	sanforizing and Felt Compacting Range Machine	Lafer	KGA H2600	Italy	1	Set
4	Rotary screen-printing machine	Ichinoes (Samurai)	RSX	Japan	1	Set
5	Continuous Washing M/C	Goller (Fong's)	ED 1SC4U1-2600	China	1	Set
6	Stenter machine	IL-SUNG (Sun Super-II)	ISST-II-08GP	South korea	2	Set



# **Annexure 6**

## **List of Chemicals**

Chemicals Name			
Acetic Acid 99.85%	Croaks N	JingenST RS 200	Polytex 17
Adalin DE	Cyclanon XC-W New Liq	JingenDT HLF 18	Polytex 60
Adalin NI	Dekol 1097 SP.TH Liq	JingenFX R-536	Polytex 820 NW
Adasil ME-T	Detersolv CA	JingenPk MS-100	Polytex BI
Adasil SM	Dicrylan SD	JingenSNR MSS 13	Prestogen FCB.ID Liq C
Albafix ECO	Ecosize A-100C	JinlevEco YDL	Primafast Gold RSL
Albatex AD-G	Ek-Size	JinlubEco PRH	Pyrovatex CP New
Antimussol UDF Liq	Felosan RG-N	JintexEco AMA	Ruco-Dry ECO Plus
Antistram Cat-New	Fixapret AP Liq c	Lanzene MAXI-OV2	Rucofin GWE
Aplodex RS	Fixapret F-ECO Liq	Lanzene ROW B4	Rucofin SIQ New
Applifix NF	Floranit 40/28 T	Leonil EHC Liq C	Rucogen WBL New
Applisurf SPC	Formic Acid 85%	Mercerol QWXL Liq	Sapamine SFC
Appretan EM LS	Fornax W	Mega White 4BB	Securon 1420
Arristan 64	Foryl CPB	Nobelon DS	Stabilol ZM
Arristan EPD	Heiq Viroblock NPJ03	Novalase LT 40	Sera Con P-NR
Avosperse AD	Hydrogen Peroxide-50%	Novapret NFC/LT3	Sera Gal C-FTRH
Bactosol HP2E Liq	Imerol Jet-B Liq c	Novofil TNC	Silicon Softener RH-NB-9905
Belfasin GT	Industrial Salt (Common Salt)	Novofix CT_HYD	Sirrix NE Liq
Belfasin OET TR	Intense Cel-Plus 500	Optifix RUB New Liq	Skaywhit 4BK
Bensize CM-600	Invatex AC	Osimol LAR	Soda Ash Light
Bensize P-110	iScour Jet Conc.	Permacol OP/BD	Sodium Acetate
Catalyst F-M Liq	Jingen FSA	Phobol CP-C	Sodium Hydrosulfite E

# **Annexure 7**

## **Safety Data Sheet**

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Pulcra Chemicals

ADALIN DE

DRP0115TR

Version 1.2

Revision Date 12.01.2022

Print Date 23.09.2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Trade name : ADALIN DE                      DRP0115TR

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-                      : Textile auxiliary  
stance/M ixture

### 1.3 Details of the supplier of the safety data sheet

Company                      Pulcra Chemicals GmbH  
Isardamm 79 - 83  
82538 Geretsried  
Germany

Telephone                      +49 8171 628-200  
Responsible/issuing person                      MSDS-DE@pulcrachem.com

### 1.4 Emergency telephone number

Telephone                      GBK GmbH 24H Emergency Telephone Number  
+49 6132 84463

WHO Directory of poison centres  
WININ.who.int/pcs/poisons/centre/en/

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Chronic aquatic toxicity, Category 3                      H412: Harmful to aquatic life with long lasting effects.

### 2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard statements                      H412                      Harmful to aquatic life with long lasting effects.

Precautionary statements                      Prevention:  
P273                      Avoid release to the environment.  
Disposal:  
P501                      Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Other hazards

None known.

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## SECTION3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature

Aqueous preparation of:

Paraffin waxes (petroleum), hydrotreated, Ethene, homopolymer, oxidized, Additives

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Amines, tallow alkyl, ethoxylated	61791-26-2 Polymer	Acute Tox.4; H302 Skin Irrit.2; H315 Eye Dam. 1; H318 Aquatic Chronic 1; H410	$\geq 0,5$ - $< 0,75$

For explanation of abbreviations see section 16.

## SECTION4: First aid measures

### 4.1 Description of first aid measures

General advice

If you feel unwell, seek medical advice (show the label where possible).

Never give anything by mouth to an unconscious person.

Take off contaminated clothing and shoes immediately.

If inhaled

If breathed in, move person into fresh air.

In case of skin contact

Immediately flush skin with large amounts of water.

In case of eye contact

If easy to do, remove contact lens, if worn.

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed

If swallowed, DO NOT induce vomiting.

If symptoms persist, call a physician.

If a person vomits when lying on his back, place him in the recovery position.

### 4.2 Most important symptoms and effects, both acute and delayed

### 4.3 Indication of any immediate medical attention and special treatment needed

## SECTION5: Firefighting measures

### 5.1 Extinguishing media

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting

Do not use a solid water stream as it may scatter and spread fire.

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Hazardous decomposition products may be formed under fire conditions (see section 10).

Exposure to decomposition products may be a hazard to health.

## 5.3 Advice for firefighters

Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Further information

Standard procedure for chemical fires.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
In the event of fire and/or explosion do not breathe fumes.  
Use water spray to cool unopened containers.  
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions

Refer to protective measures listed in sections 7 and 8.  
Ensure adequate ventilation, especially in confined areas.  
Avoid inhalation of vapour or mist.

### 6.2 Environmental precautions

Environmental precautions

Do not flush into surface water or sanitary sewer system.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.  
Clean contaminated surface thoroughly.

### 6.4 Reference to other sections

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling

For personal protection see section 8.  
Do not breathe vapours or spray mist.  
Avoid contact with skin and eyes.

Advice on protection against fire and explosion

Normal measures for preventive fire protection.

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Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.  
General industrial hygiene practice.  
Avoid breathing vapours, mist or gas.  
Avoid contact with skin, eyes and clothing.  
When using do not eat, drink or smoke.  
Wash hands before breaks and at the end of workday.  
Wash contaminated clothing before re-use.

Dust explosion class

Not applicable

## 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Keep containers tightly closed in a dry, cool and well-ventilated place.  
Protect from frost, heat and sunlight.

Advice on common storage

Keep away from food, drink and animal feedingstuffs.

Storage class (TRGS 510)

12, Non Combustible Liquids

Other data

No decomposition if stored and applied as directed.

## 7.3 Specific end use(s)

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

Engineering measures

Provide adequate ventilation.

Personal protective equipment

Eye protection

In case of splash hazard, please wear protective goggles.

Hand protection

Remarks

Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.  
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.



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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	liquid
Colour	white
pH	4,5 - 5,5, Method: ISO 976
Flash point	Aqueous solution, does not flash
Water solubility	completely soluble

### 9.2 Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

### 10.2 Chemical stability

No decomposition if used as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

### 10.4 Conditions to avoid

### 10.5 Incompatible materials

Materials to avoid : None known.

### 10.6 Hazardous decomposition products

Hazardous decomposition products	Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.
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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute oral toxicity	LD50 : > 2.000 mg/kg
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#### Skin corrosion/irritation

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No skin irritation

Serious eye damage/eye irritation

No eye irritation

Respiratory or skin sensitisation

Germ cell mutagenicity

Carcinogenicity

STOT - single exposure

STOT - repeated exposure

Aspiration toxicity

Further information

This product is a mixture. Health hazard information is based on its components.

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish

LC50 : 10 - 100 mg/l

Toxicity to bacteria

ECO : > 100 mg/l

### 12.2 Persistence and degradability

Biodegradability

The surfactant components are more than 90% biodegradable.

The total of the organic components contained in the product achieve values below 60% BOD/COD or CO<sub>2</sub> liberation, or below 70% DOC reduction in tests for ease of degradability. Threshold values for 'readily degradable' (e.g. to OECD method 301) are not reached.

The total of organic components contained in the product achieves an elimination of > 70 % DOC reduction in the test for principle degradability, the modified Zahn - Wellens test (OECD 302 B).

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

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according to Regulation (EC) No. 1907/2006

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## 12.5 Results of PBT and vPvB assessment

Not relevant

## 12.6 Other adverse effects

Additional ecological information

Information given is based on data on the components and the ecotoxicology of similar products.

The product should not be allowed to enter drains, water courses or the soil.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product

In accordance with local and national regulations.  
Do not dispose of together with household waste.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Dispose of as unused product.

## SECTION 14: Transport information

### 14.1 UN number

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.2 Proper shipping name

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.3 Transport hazard class

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.4 Packing group

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.5 Environmental hazards

ADR	Not dangerous goods
-----	---------------------

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RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

## 14.6 Special precautions for user

Not applicable

## 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Directive 96/82/EC does not apply

Water contaminating class  
(Germany)

WGK 1 slightly water endangering  
Classification according VwVwS, Annex 4.

TA Luft List (Germany)

Total dust: not subject  
Inorganic substances in powdered form: not subject  
Inorganic substances in vapour or gaseous form: not subject  
Organic Substances: not subject  
Carcinogenic substances: not subject  
Mutagenic: not subject  
Toxic to reproduction: not subject

### 15.2 Chemical Safety Assessment

## SECTION 16: Other information

### Full text of H-Statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H410	Very toxic to aquatic life with long lasting effects.

### Full text of other abbreviations

Acute Tox.	Acute toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
Skin Irrit.	Skin irritation

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This safety datasheet only contains information relating to safety and does not replace any product

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information or product specification.

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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Trade name	ADALIN NI	DRP0120TR
Registration number		

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-stance/Mixture : Textile auxiliary

### 1.3 Details of the supplier of the safety data sheet

Company	Pulcra Kimya Sanayi T. Ticaret A.S. Beylikbagl Mahallesi 341 Sokak No:1 41410 Gebze Turkey
---------	---

Telephone	+90-2626754200
Responsible/issuing person	MSDS-TR@pulcrachem.com

### 1.4 Emergency telephone number

Telephone	+90-2626754404
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WHO Directory of poison centres  
[www.who.int/ipcs/poisons/centre/en/](http://www.who.int/ipcs/poisons/centre/en/)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Serious eye damage, Category 1	H318: Causes serious eye damage.
--------------------------------	----------------------------------

Chronic aquatic toxicity, Category 3	H412: Harmful to aquatic life with long lasting effects.
--------------------------------------	--

### 2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

~

Signal word	Danger
-------------	--------

Hazard statements	H318	Causes serious eye damage.
	H412	Harmful to aquatic life with long lasting effects.

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fects.

## Precautionary statements

### Prevention:

P273

Avoid release to the environment.

P280

Wear protective gloves/ eye protection/ face protection.

### Response:

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308

IF exposed or concerned:

P310

Immediately call a POISON CENTER/doctor.

### Disposal:

P501

Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

Alcohols, C16-18, ethoxylated

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature

Mixture of:

Ethene, homopolymer, oxidized, Additives

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Alcohols, C16-18, ethoxylated	68439-49-6 Polymer	Eye Irrit.2; H319	>= 1 - < 5
Amines, tallow alkyl, ethoxylated	61791-26-2 Polymer	Acute Tox.4; H302 Skin Irrit.2; H315 Eye Dam.1; H318 Aquatic Chronic 1; H410	>= 1 - < 2,5

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice

If you feel unwell, seek medical advice (show the label where possible).

Take off contaminated clothing and shoes immediately.



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If inhaled	Move to fresh air. If symptoms persist, call a physician.
In case of skin contact	Wash with water and soap. If symptoms persist, call a physician.
In case of eye contact	If easy to do, remove contact lens, if worn. Rinse immediately with plenty of water and seek medical advice.
If swallowed	Do NOT induce vomiting. Obtain medical attention. If a person vomits when lying on his back, place him in the recovery position.

## 4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

## 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No information available.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Product is compatible with standard fire-fighting agents.

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.  
Hazardous decomposition products formed under fire conditions.  
Exposure to decomposition products may be a hazard to health.

### 5.3 Advice for firefighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Standard procedure for chemical fires.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
In the event of fire and/or explosion do not breathe fumes.  
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment.

### 6.2 Environmental precautions

Environmental precautions Do not flush into surface water or sanitary sewer system.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.  
Clean contaminated surface thoroughly.

### 6.4 Reference to other sections

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling	For personal protection see section B. Do not breathe vapours or spray mist. Avoid contact with skin and eyes.
Advice on protection against fire and explosion	Normal measures for preventive fire protection.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. When using do not eat, drink or smoke. Wash hands before breaks and at the end of workday. Wash contaminated clothing before re-use.
Dust explosion class	Not applicable

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.
Advice on common storage	Keep away from food and drink.
Other data	Keep container closed. Store in a cool, frost-free place.

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## 7.3 Specific end use(s)

Specific use(s)

For further information, refer to the product technical data sheet.

## SECTION8: Exposure controls/personal protection

### 8.1 Control parameters

### 8.2 Exposure controls

#### Personal protective equipment

Eye protection : Goggles

#### Hand protection

Material

Protective gloves complying with EN 374.

Remarks

Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.

For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

#### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

#### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

## SECTION9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance

liquid

Colour

off-white

Odour

characteristic

Odour Threshold

No data available

pH

4 - 6, Concentration: 100 g/l (20 °C)  
Method: ISO 976

Melting point/freezing point

No data available

Boiling point/boiling range

100 °C (1.013,2 hPa)

Flash point

> 100 °C

Evaporation rate

No data available

Upper explosion limit

No data available

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Lower explosion limit	No data available
Vapour pressure	23 hPa (20°C)
Relative density	No data available
Density	ca. 1 g/cm <sup>3</sup> (20°C)
Water solubility	partly miscible (20 °C)
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Thermal decomposition	No data available
Viscosity, kinematic	No data available
Explosive properties	No data available
Oxidizing properties	No data available

## 9.2 Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

### 10.2 Chemical stability

No decomposition if used as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

### 10.4 Conditions to avoid

### 10.5 Incompatible materials

### 10.6 Hazardous decomposition products

Hazardous decomposition products Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute oral toxicity LD50 : > 5.000 mg/kg

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Acute inhalation toxicity

No data available

Acute dermal toxicity

No data available

Skin corrosion/irritation

No skin irritation

Serious eye damage/eye irritation

Irritating to eyes.

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

Germ cell mutagenicity- Assessment

No data available

Carcinogenicity

Carcinogenicity - Assessment

No data available

Reproductive toxicity

Effects on foetal development

This information is not available.

Reproductive toxicity - Assessment

No data available

Teratogenicity - Assessment

No data available

STaT - single exposure

No data available

STaT - repeated exposure

No data available

Aspiration toxicity

No data available

Further information

This product is a mixture. Health hazard information is based on its components.

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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish No data available

Toxicity to daphnia and other aquatic invertebrates No data available

Toxicity to bacteria No data available

### 12.2 Persistence and degradability

Biodegradability Information given is based on data on the components and the ecotoxicology of similar products.

The total of organic components contained in the product achieves an elimination of > 70 % DOC reduction in the test for principle degradability, the modified Zahn - Wellens test (OECD 302 B).

The total of the organic components contained in the product achieves values below 60% BOD/COD or CO<sub>2</sub> liberation, or below 70% DOC reduction in tests for ease of degradability. Threshold values for 'readily degradable' (e.g. to OECD method 301) are not reached.

### 12.3 Bioaccumulative potential

Bioaccumulation No data available

### 12.4 Mobility in soil

Mobility Medium: Soil  
No data available

### 12.5 Results of PBT and vPvB assessment

Assessment This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

Additional ecological information Information given is based on data on the components and the ecotoxicology of similar products.  
The product should not be allowed to enter drains, water courses or the soil.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product	In accordance with local and national regulations. Do not dispose of waste into sewer. Do not dispose of together with household waste.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Dispose of as unused product.

## SECTION 14: Transport information

### 14.1 UN number

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.2 Proper shipping name

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.3 Transport hazard class

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.4 Packing group

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.5 Environmental hazards

ADR	Not dangerous goods
RID	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

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Not applicable for product as supplied.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Directive 96/82/EC does not apply

#### Other regulations

According to 13 December 2014, No:29204, "Ministry of Environment and Urbanization; Regulation on Safety data sheets regarding hazardous substances and mixtures".  
Regulation on Classification, Packaging and Labelling of Dangerous Substances and Preparations. Dated 26 December 2008, Numbered 27092 (Bis) Ministry of Environment and Forestry".  
Regulation on Classification, Labelling and Packaging of Substances and Mixtures. Dated 11 December 2013, Numbered 28848 (Bis) Ministry of Environment and Forestry.

### 15.2 Chemical safety assessment

## SECTION 16: Other information

#### Full text of H-Statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H410	Very toxic to aquatic life with long lasting effects.

#### Full text of other abbreviations

Acute Tox.	Acute toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Skin Irrit.	Skin irritation

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**Antimussol UDF liq**

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Substance key: CLA553

Revision Date: 19.11.2020

Version : 2 - 2 / EU

Date of printing : 16.01.2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Trade name**

Antimussol UDF liq

**Material number:** 220380

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified uses of the substance or mixture**

Industry sector : Textile processing industry

Type of use : Defoamer

### 1.3. Details of the supplier of the safety data sheet

**Identification of the company**

Archroma Singapore, Pte. Ltd.

1 International Business Park #06-01 The Synergy

609917 Singapore

Telephone no. : +65 21 5577 0240

**Information about the substance/mixture**

Product Stewardship +41 61 716 3401

e-mail: PS.MSDS-Europe@archroma.com

### 1.4. Emergency telephone number

+49 69 2222 5285, +33 1 7211 0003, +39 0236 042 884

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification according CLP regulation (Regulation (EC) No. 1272/2008, as amended)**

Not a hazardous substance or mixture.

### 2.2. Label elements

**Labelling according CLP regulation (Regulation (EC) No. 1272/2008, as amended)**

Not a hazardous substance or mixture.

**Sensitizing components / contains :**

5-Chloro-2-methyl-2,3-dihydroisothiazol-3-one and 2-Methyl-2,3-dihydroisothiazol-3-one (3:1)

1,2-Benzisothiazol-3(2H)-one

2-Methylisothiazolin-3-one

May produce an allergic reaction.

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## 2.3. Other hazards

No additional hazards are known except those derived from the labelling.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### Chemical characterization

silicone foam control agent

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

Remove/Take off immediately all contaminated clothing.

Ensure that the First Aid Personnel are aware of the product involved, and take precautions to protect themselves (e.g. wear personal protection equipment).

#### After inhalation

If inhaled, remove to fresh air.

#### After contact with skin

In case of contact, immediately flush skin with plenty of water.

#### After contact with eyes

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

In case of irritation consult an oculist

#### After ingestion

When swallowed accidentally, drink sufficient amounts of water and seek medical aid.

### 4.2. Most important symptoms and effects, both acute and delayed

#### Symptoms

The possible symptoms known are those derived from the labelling (see section 2).

#### Hazards

No additional hazards are known except those derived from the labelling.

### 4.3. Indication of any immediate medical attention and special treatment needed

#### Treatment

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

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## **Suitable extinguishing media**

Water spray jet  
Alcohol-resistant foam  
Dry powder  
Carbon dioxide (CO<sub>2</sub>)

## **Extinguishing media that must not be used for safety reasons**

High volume water jet

## **5.2. Special hazards arising from the substance or mixture**

In case of fire hazardous decomposition products may be produced such as:  
Carbon oxides  
Silicon oxides

## **5.3. Advice for firefighters**

### **Special protective equipment for firefighting**

Self-contained breathing apparatus  
Full protective suit

### **Further information**

Cool endangered containers with water spray jet.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Wear suitable protective equipment.  
Ventilate the area.

### **6.2. Environmental precautions**

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
The product should not be allowed to enter drains, water courses or the soil.

### **6.3. Methods and material for containment and cleaning up**

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Treat recovered material as described in the section "Disposal considerations".

### **6.4. Reference to other sections**

#### **Additional information**

Information regarding Safe handling, see chapter 7.  
For personal protection see section 8.  
Information regarding Waste Disposal, see chapter 13.

## **SECTION 7: Handling and storage**

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## 7.1. Precautions for safe handling

### Advice on safe handling

Use only in well-ventilated areas.  
Handle and open container with care.  
Avoid inhalation, ingestion and contact with skin and eyes.  
Keep container tightly closed.

### Hygiene measures

Wash hands before breaks and at the end of workday.  
Use protective skin cream before handling the product.  
Take off immediately all contaminated clothing and wash it before reuse.  
Do not eat, drink or smoke when using this product.  
Observe the usual precautions for handling chemicals.

### Advice on protection against fire and explosion

Observe the general rules of industrial fire protection

## 7.2. Conditions for safe storage, including any incompatibilities

### Requirements for storage areas and containers

Keep only in the original container.

### Advice on storage compatibility

Avoid storage near incompatible agents (see section 10).  
Do not store or transport together with foodstuffs

### Further information on storage conditions

Keep containers tightly closed in a cool, well-ventilated place.  
Handle and open container with care.  
Keep away sources of ignition.  
Do not freeze.

## 7.3. Specific end use(s)

No further recommendations.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure limit values

Exposure limit values are not available.

#### DNEL/DMEL values

DNEL/DMEL values are not available.

#### PNEC values

PNEC values are not available.

### 8.2. Exposure controls

#### Appropriate engineering controls

Local ventilation recommended - mechanical ventilation may be used.

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## **General protective measures**

Observe the usual precautions for handling chemicals.

Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory protection :** Protection necessary if aerosols or vapors should develop.  
mask, comb.gas/particle filter

**Hand protection :** Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).  
Chemical resistant gloves

**Eye protection :** Safety glasses

**Body protection :** working clothes

## **SECTION 9: Physical and chemical properties**

### **9.1. Information on basic physical and chemical properties**

**Physical state :** liquid ( 20 °C )

**Form :** viscous liquid

**Particle size :** Not applicable

**Colour :** white to light yellow

**Odour :** none

**Odour threshold :** not available

**pH value :** 7 (25 °C)  
Determined in the undiluted form  
(as such)

**Solidification point :** -5 °C

**Boiling point :** 100 °C ( 1.013,25 hPa)  
of water

**Flash point :** > 100 °C

**Evaporation rate :** not available

**Lower explosion limit :** not available

**Upper explosive limit :** not available

**Combustion number :** Not applicable

**Minimum ignition energy :** not available

**Vapour pressure :** not available

**Vapour density relative to air :** not available

**Relative Density:** approx. 1 (20 °C)  
similar to water

**Solubility in water :** completely miscible

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<b>Octanol/water partition coefficient (log Pow) :</b>	This property is not applicable for mixtures.
<b>Ignition temperature :</b>	not available
<b>Self-ignition temperature :</b>	Not applicable
<b>Thermal decomposition :</b>	not available
<b>Viscosity (dynamic) :</b>	approx. 700 mPa.s
<b>Viscosity (kinematic) :</b>	approx. 700 mm <sup>2</sup> /s
<b>Explosive properties :</b>	Explosive according to EU supply regulations : Not explosive Method : Expert judgement
<b>Oxidizing properties :</b>	Type of oxidizing effect : not oxidizing Method : Expert judgement

## 9.2. Other information

<b>Density :</b>	approx. 1 g/cm <sup>3</sup> (20 °C) similar to water
<b>Surface tension :</b>	not available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

See section 10.3. "Possibility of hazardous reactions"

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.  
Stable

### 10.4. Conditions to avoid

None known.

### 10.5. Incompatible materials

not known

### 10.6. Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

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## Information related to the product itself:

<b>Acute oral toxicity :</b>	LD50 > 2.000 mg/kg (Rat) Method : OECD Test Guideline 420
<b>Acute dermal toxicity :</b>	not available
<b>Acute inhalation toxicity :</b>	not available
<b>Irritant effect on skin :</b>	Based on available data, the classification criteria are not met.
<b>Irritant effect on eyes :</b>	Based on available data, the classification criteria are not met.
<b>Sensitization :</b>	Based on available data, the classification criteria are not met.
<b>Repeated dose toxicity:</b>	not available
<b>Genetic toxicity in vitro :</b>	not available
<b>Carcinogenicity :</b>	not available
<b>Developmental toxicity/teratogenicity :</b>	not available
<b>Toxicity to reproduction/fertility :</b>	not available
<b>Specific target organ toxicity (STOT) - single exposure :</b>	not available
<b>Specific target organ toxicity (STOT) - repeated exposure :</b>	not available
<b>Aspiration hazard :</b>	No data available

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Information related to the product itself:

<b>Fish toxicity :</b>	not available
<b>Fish toxicity (chronic) :</b>	not available
<b>Daphnia toxicity :</b>	EC50 > 100 mg/l (48 h, Daphnia magna (Water flea)) Method : OECD Test Guideline 202
<b>Daphnia toxicity (chronic) :</b>	not available
<b>Algae toxicity :</b>	not available
<b>Bacteria toxicity :</b>	EC50 48.350 mg/l (activated sludge) Method : OECD Test Guideline 209

### 12.2. Persistence and degradability

#### Information related to the product itself:

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<b>Physico-chemical eliminability :</b>	not available
<b>Biodegradability :</b>	96 % (28 d, Dissolved organic carbon (DOC)) Inherently biodegradable. Method : OECD Test Guideline 302B
<b>Chemical oxygen demand (COD) :</b>	76 mg/g
<b>Biochemical oxygen demand (BOD5) :</b>	< 100 mg/g

### 12.3. Bioaccumulative potential

#### Information related to the product itself:

**Bioaccumulation:** No information is available on the mixture "as is". If relevant information is available on the substances listed in Chapter 3, it is reported here.

### 12.4. Mobility in soil

#### Information related to the product itself:

**Transport and distribution between environmental compartments :** No information is available on the mixture "as is". If relevant information is available on the substances listed in Chapter 3, it is reported here.

### 12.5. Results of PBT and vPvB assessment

#### Information related to the product itself:

No information is available on the mixture "as is". If relevant information is available on the substances listed in Chapter 3, it is reported here.

### 12.6. Other adverse effects

#### Information related to the product itself:

**Additional ecotoxicological remarks**  
Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Product

Product should be taken to a suitable and authorized waste disposal site in accordance with relevant regulations and if necessary after consultation with the waste disposal operator and/or the competent Authorities



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## **Uncleaned packaging**

Packaging that cannot be cleaned should be disposed of as product waste

## **SECTION 14: Transport information**

### **Section 14.1. to 14.5.**

<b>ADR</b>	not restricted
<b>ADN</b>	not restricted
<b>RID</b>	not restricted
<b>IATA</b>	not restricted
<b>IMDG</b>	not restricted

### **14.6. Special precautions for user**

See sections 6 to 8 of this Safety Data Sheet.

### **14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code (International Bulk Chemicals Code)**

No transport as bulk according IBC - Code.

## **SECTION 15: Regulatory information**

### **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

#### **Other regulations**

Apart from the data/regulations specified in this chapter, no further information is available concerning safety, health and environmental protection.

### **15.2. Chemical safety assessment**

No Chemical Safety Assessment (CSA) is yet available for the substance, or for the component substances, contained in this product.

## **SECTION 16: Other information**

Observe national and local legal requirements

### **Legend**

<b>ADN</b>	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
<b>ADR</b>	European Agreement concerning the International Carriage of Dangerous Goods by Road
<b>AOX</b>	Adsorbable organic bound halogens
<b>CAS</b>	Chemical Abstracts Service
<b>DMEL</b>	Derived Minimal Effect Level (genotoxic substances)
<b>DNEL</b>	Derived No Effect Level

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EC50	Half maximal effective concentration
GHS	Globally Harmonized System
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
MARPOL	International Convention for the Prevention of Pollution From Ships
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOEC	Non Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative, Toxic
PEC	Predicted Environmental Concentration
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	International Rule for Transport of Dangerous Substances by Railway
SVHC	Substances of Very High Concern
vPvB	very Persistent and very Bioaccumulative

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : ARRISTAN 64

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-stance/Mixture : Textile auxiliary  
Leather auxiliary  
Raw material for care products formulae

#### 1.3 Details of the supplier of the safety data sheet

##### Manufacturer/Supplier

CHT Germany GmbH  
Bismarckstraße 102  
72072 Tübingen  
Germany  
Tel.: +49 7071 154 0  
info@cht.com

CHT Switzerland AG  
Kriessemstrasse 20  
9462 Montlingen  
Switzerland  
Tel.: +41 71 763 88 11  
info.switzerland@cht.com

Importer : -  
-  
-  
-  
-  
-

Responsible Department : CHT Germany GmbH  
CHT Switzerland AG  
Product Safety  
sds.germany@cht.com  
sds.switzerland@cht.com

#### 1.4 Emergency telephone number

Emergency telephone number : +1 703 527 3887 CHEMTREC (International, 24 hours)

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Long-term (chronic) aquatic hazard, Category 3 H412: Harmful to aquatic life with long lasting effects.

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### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard statements : H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P273 Avoid release to the environment.

**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : Functional polysiloxane

#### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated	75718-16-0	Skin Irrit. 2; H315	>= 20 - < 30
Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated	75718-16-0	Skin Irrit. 2; H315 Eye Dam. 1; H318	>= 3 - < 10
Alcohols, C12-14, ethoxylated	68439-50-9	Eye Dam. 1; H318 Aquatic Acute 1; H400 Aquatic Chronic 3; H412 M-Factor (Acute aquatic toxicity): 1	>= 3 - < 10
Isotridecanol, ethoxylated	69011-36-5	Acute Tox. 4; H302	>= 3 - < 10

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		Eye Dam. 1; H318	
octamethylcyclotetrasiloxane (REACH SVHC Candidate List)	556-67-2 209-136-7 014-018-00-1 01-2119529238-36	Flam. Liq. 3; H226 Repr. 2; H361f Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	$\geq 0,025 - < 0,1$

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : Take off all contaminated clothing immediately.  
Show this safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.  
If symptoms persist, call a physician.
- In case of skin contact : Wash off immediately with soap and plenty of water.  
If skin irritation persists, call a physician.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
If symptoms persist, call a physician.
- If swallowed : Rinse mouth with water.  
Do NOT induce vomiting.  
Call a physician immediately.

### 4.2 Most important symptoms and effects, both acute and delayed

- Risks : None known.

### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Water spray  
Dry powder  
Foam

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### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Hazardous decomposition products formed under fire conditions.  
Can be released in case of fire:  
Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
Silica

### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : In case of fire do not inhale smoke, conflagration gases and steams.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.  
Contaminated surfaces will be extremely slippery.

### 6.2 Environmental precautions

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.  
If the product contaminates rivers and lakes or drains inform respective authorities.  
Pay attention to local or official regulations.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Clean contaminated surface thoroughly.  
Dispose of in accordance with local regulations.

### 6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8.

---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of aerosol.  
Provide sufficient air exchange and/or exhaust in work rooms.

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Advice on protection against fire and explosion : No special protective measures against fire required.

Hygiene measures : Avoid contact with skin, eyes and clothing. Do not breathe vapours, aerosols. Take off all contaminated clothing immediately. Handle in accordance with good industrial hygiene and safety practice.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Do always store in containers which correspond to the original ones. Keep container tightly closed.

Further information on storage conditions : Protect from frost. Protect from temperatures over + 40 °C.

Advice on common storage : No special precautions required.

### 7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
octamethylcyclotetrasiloxane (REACH SVHC Candidate List)	Workers	Inhalation	Long-term systemic effects	73 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	73 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term systemic effects	13 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	13 mg/m <sup>3</sup>
	Consumers	Ingestion	Long-term systemic effects	3,7 mg/kg bw/day

#### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
octamethylcyclotetrasiloxane (REACH SVHC Candidate List)	Fresh water	1,5 µg/l
	Marine water	0,15 µg/l
	STP	10 mg/l
	Fresh water sediment	3 mg/kg dry weight (d.w.)
	Marine sediment	0,3 mg/kg dry

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		weight (d.w.)
	Soil	0,54 mg/kg dry weight (d.w.)
	Secondary Poisoning	41 mg/kg food

### 8.2 Exposure controls

#### Engineering measures

Solids with occupational exposure limits in liquid preparations do not cause an exposure in the workplace, because they are not present in a respirable form. Exposure can occur in the form of aerosols or after drying of the liquid the solids remain, possibly in a finely dispersed form. Provide sufficient air exchange and/or exhaust in work rooms.

#### Personal protective equipment

Eye protection : Goggles (EN 166)

#### Hand protection

Material : Nitrile rubber  
Break through time : > 480 min  
Glove thickness : >= 0,4 mm  
Protective index : Class 6

Remarks : The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. The obtained break through times according to EN 374 Part III are not measured under normal operating conditions. Therefore a maximum usage time of 50% of the break through time is recommended.

Skin and body protection : Wear suitable protective clothing (EN 14605).

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.  
Recommended Filter type:  
Combination filter A/P (EN 141)

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : Emulsion, liquid  
Colour : slight, cloudy  
Odour : characteristic  
Melting point/range : No data available  
Boiling point/boiling range : 100 °C  
Upper explosion limit / Upper flammability limit : Not applicable



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Lower explosion limit / Lower flammability limit	:	Not applicable
Flash point	:	Not applicable
pH	:	5 - 7 (20 °C) Concentration: 100 g/l
Viscosity Viscosity, dynamic	:	20 - 70 mPa.s (20 °C) Brookfield LVT spindle 1 50 rpm
Solubility(ies) Water solubility	:	miscible
Partition coefficient: n-octanol/water	:	Not applicable
Vapour pressure	:	No data available
Density	:	0,95 - 1,05 g/cm <sup>3</sup> (20 °C)
Relative vapour density	:	Not applicable

### 9.2 Other information

Oxidizing properties	:	Not applicable
Flammability (liquids)	:	does not ignite
Self-ignition	:	not auto-flammable
Evaporation rate	:	Not applicable
Conductivity	:	Not determined
Surface tension	:	No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No hazards to be specially mentioned.

### 10.2 Chemical stability

The product is chemically stable.

### 10.3 Possibility of hazardous reactions

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Hazardous reactions : No dangerous reaction known under conditions of normal use.

### 10.4 Conditions to avoid

Conditions to avoid : Not applicable

### 10.5 Incompatible materials

Materials to avoid : Not applicable

### 10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

##### Product:

Acute oral toxicity : LD50 (Rat): > 2 000 mg/kg  
Method: OECD 423

Acute inhalation toxicity : Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity : Remarks: Based on available data, the classification criteria are not met.

##### Components:

#### **Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated:**

Acute oral toxicity : LD50 (Rat): > 2 000 mg/kg  
Remarks: Argument by analogy

#### **Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated:**

Acute oral toxicity : LD50 (Rat): > 2 000 mg/kg  
Remarks: Argument by analogy

#### **Alcohols, C12-14, ethoxylated:**

Acute oral toxicity : LD50 (Rat): > 2 000 mg/kg  
Remarks: (classified according to CESIO recommendations)

#### **Isotridecanol, ethoxylated:**

Acute oral toxicity : LD50 (Rat): > 300 - 2 000 mg/kg  
Remarks: (classified according to CESIO recommendations)

Acute dermal toxicity : LD50 (Rat): > 2 000 mg/kg  
Remarks: value stated in literature

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### octamethylcyclotetrasiloxane (REACH SVHC Candidate List):

Acute oral toxicity : LD50 (Rat, male): 4 800 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): 36 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 2 375 mg/kg  
Method: OECD Test Guideline 402

### Skin corrosion/irritation

#### Product:

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

#### Components:

#### Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated:

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Irritating to skin.

#### Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated:

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation  
Remarks : Argument by analogy

#### Isotridecanol, ethoxylated:

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : value stated in literature

### octamethylcyclotetrasiloxane (REACH SVHC Candidate List):

Species : Rat  
Method : OECD Test Guideline 404  
Result : No skin irritation

### Serious eye damage/eye irritation

#### Product:

Species : Rabbit

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Method : OECD Test Guideline 405  
Result : No eye irritation

### Components:

#### **Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : No eye irritation

#### **Siloxanes and Silicones, 3-[(2-aminoethyl)amino]propyl Me, di-Me, hydroxy-terminated:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Causes serious eye damage.  
Remarks : Argument by analogy

#### **Alcohols, C12-14, ethoxylated:**

Result : Risk of serious damage to eyes.  
Remarks : (classified according to CESIO recommendations)

#### **Isotridecanol, ethoxylated:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Causes serious eye damage.  
Remarks : (classified according to CESIO recommendations)

#### **octamethylcyclotetrasiloxane (REACH SVHC Candidate List):**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : No eye irritation

### **Respiratory or skin sensitisation**

#### Product:

Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Did not cause sensitisation on laboratory animals.

### Components:

#### **octamethylcyclotetrasiloxane (REACH SVHC Candidate List):**

Test Type : Maximisation Test  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Did not cause sensitisation on laboratory animals.

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### Germ cell mutagenicity

#### Product:

Genotoxicity in vitro : Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)  
Result: negative

Germ cell mutagenicity- Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

### Reproductive toxicity

#### Components:

#### **octamethylcyclotetrasiloxane (REACH SVHC Candidate List):**

Reproductive toxicity - Assessment : Suspected of damaging fertility., toxic effect on reproduction, category 2

### STOT - single exposure

#### Product:

Remarks : Based on available data, the classification criteria are not met.

### STOT - repeated exposure

#### Product:

Remarks : Based on available data, the classification criteria are not met.

### Aspiration toxicity

#### Product:

Based on available data, the classification criteria are not met.

## 11.2 Information on other hazards

### Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### Further information

#### Product:

Remarks : If used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

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### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Product:

- Toxicity to fish : Remarks: No data is available on the product itself.
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10 - 100 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : Remarks: No data is available on the product itself.
- Toxicity to microorganisms : EC50 (activated sludge): > 1 000 mg/l  
Method: OECD Test Guideline 209

##### Components:

##### **Alcohols, C12-14, ethoxylated:**

- Toxicity to fish : LC50 (Fish): > 0,1 - 1 mg/l  
Exposure time: 96 h  
Remarks: (classified according to CESIO recommendations)
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,2 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- M-Factor (Acute aquatic toxicity) : 1

##### **Ecotoxicology Assessment**

- Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects., (classified according to CESIO recommendations)

##### **Isotridecanol, ethoxylated:**

- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): > 1 - 10 mg/l  
Exposure time: 96 h  
Remarks: (classified according to CESIO recommendations)
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): > 1 - 10 mg/l  
Exposure time: 48 h  
Remarks: (classified according to CESIO recommendations)
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 1 - 10 mg/l  
Exposure time: 72 h  
Test Type: static test

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Method: OECD Test Guideline 201  
Remarks: (classified according to CESIO recommendations)

EC10 (Desmodesmus subspicatus (green algae)): > 1 - 10 mg/l

Exposure time: 72 h

Test Type: static test

Method: OECD Test Guideline 201

Remarks: value stated in literature

Toxicity to microorganisms : EC50 (activated sludge): 140 mg/l  
Test Type: Respiration inhibition

Toxicity to fish (Chronic toxicity) : NOEC: > 1 mg/l  
Exposure time: 21 d  
Species: Fish

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: > 1 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

### octamethylcyclotetrasiloxane (REACH SVHC Candidate List):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 0,022 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,015 mg/l  
Exposure time: 48 h  
Test Type: flow-through test

Toxicity to algae/aquatic plants : EC10 (Pseudokirchneriella subcapitata (algae)): >= 0,022 mg/l  
Exposure time: 96 h

EC50 (Pseudokirchneriella subcapitata (algae)): > 0,022 mg/l  
Exposure time: 96 h

M-Factor (Acute aquatic toxicity) : 10

Toxicity to microorganisms : EC50 (activated sludge): > 10 000 mg/l  
Exposure time: 3 h  
Test Type: static test  
Method: ISO 8192

Toxicity to fish (Chronic toxicity) : NOEC: >= 0,0044 mg/l  
Exposure time: 93 d  
Species: Oncorhynchus mykiss (rainbow trout)  
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 0,0015 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)

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Test Type: flow-through test

M-Factor (Chronic aquatic toxicity) : 10

### 12.2 Persistence and degradability

#### Product:

Biodegradability : Test Type: DOC-CO<sub>2</sub> measuring  
Biodegradation: 25 %  
Exposure time: 28 d  
Method: OECD 302 B with CO<sub>2</sub> (mineralisation)

Test Type: DOC-CO<sub>2</sub> measuring  
Biodegradation: 100 %  
Exposure time: 28 d  
Method: OECD 302 B with CO<sub>2</sub> (elimination)  
Remarks: The product is "inherently biodegradable" according to the criteria of the OECD.

Remarks: The total of the surfactants contained in the product is to be judged readily biodegradable according to OECD.

Biochemical Oxygen Demand (BOD) : 33 mg O<sub>2</sub>/g  
Incubation time: 5 d  
Method: DIN EN 1899-1 (H 55)

Chemical Oxygen Demand (COD) : 459 mg O<sub>2</sub>/g  
Method: DIN 38409-H-41

Physico-chemical removability : Remarks: The elimination in a sewerage purification plant is effected by means of biological decomposition as well as abiotic processes such as e.g. flocculation and precipitation, sedimentation, adsorption to the activated sludge and mechanical separation.

#### Components:

##### **Alcohols, C12-14, ethoxylated:**

Biodegradability : Result: Readily biodegradable.

##### **Isotridecanol, ethoxylated:**

Biodegradability : Test Type: CO<sub>2</sub> measuring  
Result: Readily biodegradable.  
Biodegradation: > 60 %  
Exposure time: 28 d  
Method: OECD 301 B (mineralisation)  
Remarks: (classified according to CESIO recommendations)



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### 12.3 Bioaccumulative potential

**Product:**

Bioaccumulation : Remarks: No data is available on the product itself.

**Components:**

**octamethylcyclotetrasiloxane (REACH SVHC Candidate List):**

Partition coefficient: n-octanol/water : log Pow: 6,98 (21,7 °C)

### 12.4 Mobility in soil

**Product:**

Mobility : Remarks: No data available

### 12.5 Results of PBT and vPvB assessment

**Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

**Components:**

**octamethylcyclotetrasiloxane (REACH SVHC Candidate List):**

Assessment : This substance is considered to be persistent, bioaccumulating and toxic (PBT)..  
: This substance is considered to be very persistent and very bioaccumulating (vPvB)..

### 12.6 Endocrine disrupting properties

**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

**Product:**

Adsorbed organic bound halogens (AOX) : Remarks: The product does not increase the AOX-value of the waste water.

Additional ecological information : According to our knowledge, the product does not contain

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heavy metals and other compounds of EC directive 2000/60 EC.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Product : Pay attention to local or official regulations.

Contaminated packaging : Pay attention to local or official regulations.

### SECTION 14: Transport information

#### 14.1 UN number or ID number

Not regulated as a dangerous good

#### 14.2 UN proper shipping name

Not regulated as a dangerous good

#### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

#### 14.4 Packing group

Not regulated as a dangerous good

#### 14.5 Environmental hazards

Not regulated as a dangerous good

#### 14.6 Special precautions for user

Remarks : see chapter 6 - 8

#### 14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not applicable

### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

##### Other regulations:

National and local regulations must be observed.

#### 15.2 Chemical safety assessment

not required

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### SECTION 16: Other information

#### Full text of H-Statements

H226	: Flammable liquid and vapour.
H302	: Harmful if swallowed.
H315	: Causes skin irritation.
H318	: Causes serious eye damage.
H361f	: Suspected of damaging fertility.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H412	: Harmful to aquatic life with long lasting effects.

#### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Eye Dam.	: Serious eye damage
Flam. Liq.	: Flammable liquids
Repr.	: Reproductive toxicity
Skin Irrit.	: Skin irritation

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS -

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Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States);  
UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

Training advice : Based on the information in the safety data sheet and the workplace conditions, employees must be regularly trained in the safe handling of the product. National rules for training employees in handling hazardous substances must be observed.

Other information : The classification for dangerous physico-chemical properties, health and environmental hazards has been derived from a combination of computational methods and, if available, test data.

This data sheet contains changes from the previous version in section(s):

2  
3  
6  
8  
11  
12  
15  
16

Sources of key data used to compile the Safety Data Sheet : Information from our suppliers, as well as data from the "Registered substances database" of the European Chemicals Agency (ECHA) has been used to compile this safety data sheet.

### Classification of the mixture:

Aquatic Chronic 3 H412

### Classification procedure:

Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : FELOSAN RG-N  
Unique Formula Identifier (UFI) : OSH5-30TU-R008-QAVP

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Textile auxiliary

#### 1.3 Details of the supplier of the safety data sheet

##### Manufacturer/Supplier

CHT Germany GmbH  
Bismarckstraße 102  
72072 Tübingen  
Germany  
Tel.: +49 7071 154 0  
info@cht.com

CHT Switzerland AG  
Kriessmstrasse 20  
9462 Montlingen  
Switzerland  
Tel.: +41 71 763 88 11  
info.switzerland@cht.com

Importer : -  
-  
-  
-  
-  
-

Responsible Department : CHT Germany GmbH  
CHT Switzerland AG  
Product Safety  
sds.germany@cht.com  
sds.switzerland@cht.com

#### 1.4 Emergency telephone number

Emergency telephone number : +1 703 527 3887 CHEMTREC (International, 24 hours)

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Serious eye damage, Category 1	H318: Causes serious eye damage.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

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### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H318 Causes serious eye damage.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P273 Avoid release to the environment.  
P280 Wear eye protection/ face protection.

#### **Response:**

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

#### **Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

#### **Hazardous components which must be listed on the label:**

Isotridecanol, ethoxylated

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : Mixture of fatty alcohol ethoxylated

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### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Isotridecanol, ethoxylated	69011-36-5	Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 50 - < 70
Isotridecanol, ethoxylated	69011-36-5	Eye Irrit. 2; H319 Aquatic Chronic 3; H412	>= 10 - < 20

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : Take off all contaminated clothing immediately.  
Show this safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.  
If symptoms persist, call a physician.
- In case of skin contact : Wash off immediately with soap and plenty of water.  
If symptoms persist, call a physician.
- In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Call a physician immediately.
- If swallowed : Rinse mouth with water.  
Do NOT induce vomiting.  
Call a physician immediately.

### 4.2 Most important symptoms and effects, both acute and delayed

- Risks : There may be reddening, swelling, overheating and pain on contact.

### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Water spray  
Dry powder  
Alcohol-resistant foam

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### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Hazardous decomposition products formed under fire conditions.  
Can be released in case of fire:  
Carbon oxides

### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : In case of fire do not inhale smoke, conflagration gases and steams.  
Use water spray to cool unopened containers.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.  
Contaminated surfaces will be extremely slippery.

### 6.2 Environmental precautions

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.  
If the product contaminates rivers and lakes or drains inform respective authorities.  
Pay attention to local or official regulations.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Clean contaminated surface thoroughly.  
Dispose of in accordance with local regulations.

### 6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8.

---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.



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Hygiene measures : Avoid contact with skin, eyes and clothing. Take off all contaminated clothing immediately. Handle in accordance with good industrial hygiene and safety practice.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Do always store in containers which correspond to the original ones. Keep container tightly closed.

Further information on storage conditions : Protect from temperatures below + 5 °C. Protect from temperatures over + 60 °C.

Advice on common storage : No special precautions required.

Storage class (TRGS 510) : 10, Combustible liquids

### 7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

### 8.2 Exposure controls

#### Engineering measures

Solids with occupational exposure limits in liquid preparations do not cause an exposure in the workplace, because they are not present in a respirable form. Exposure can occur in the form of aerosols or after drying of the liquid the solids remain, possibly in a finely dispersed form. Provide sufficient air exchange and/or exhaust in work rooms.

#### Personal protective equipment

Eye protection : Wear eye/face protection.  
Tightly fitting safety goggles

#### Hand protection

Material : Nitrile rubber  
Break through time : > 480 min  
Glove thickness : >= 0,35 mm  
Protective index : Class 6

Remarks : The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. The obtained break through times according to EN 374 Part III are not measured under normal operating conditions. Therefore a maximum usage time of 50% of the break through time is recommended.

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Skin and body protection : Protective suit  
Respiratory protection : Combination filter A/P

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : colourless, light yellow

Odour : faint, characteristic

Melting point/range : No data available

Boiling point/boiling range : No data available

Upper explosion limit / Upper flammability limit : Not applicable

Lower explosion limit / Lower flammability limit : Not applicable

Flash point : > 100 °C  
Method: DIN 51376

Auto-ignition temperature : > 200 °C  
Method: DIN 51794

pH : 5,0 - 7,0 (20 °C)  
Concentration: 100 g/l

Viscosity  
Viscosity, dynamic : 60 - 120 mPa.s (20 °C)  
Brookfield LVT  
50 rpm  
spindle 2

Solubility(ies)  
Water solubility : miscible

Partition coefficient: n-octanol/water : Not applicable

Vapour pressure : No data available

Density : 0,98 g/cm<sup>3</sup> (20 °C)

Relative vapour density : Not applicable

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### 9.2 Other information

Oxidizing properties : Not applicable  
Self-ignition : not auto-flammable  
Evaporation rate : Not applicable  
Conductivity : Not determined

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No hazards to be specially mentioned.

### 10.2 Chemical stability

The product is chemically stable.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

### 10.4 Conditions to avoid

Conditions to avoid : Not applicable

### 10.5 Incompatible materials

Materials to avoid : Not applicable

### 10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

##### Product:

Acute oral toxicity : LD50 (Rat): > 5 000 mg/kg  
Remarks: Argument by analogy  
Acute inhalation toxicity : Remarks: Based on available data, the classification criteria are not met.  
Acute dermal toxicity : Acute toxicity estimate: > 2 000 - 5 000 mg/kg  
Method: Calculation method

##### Components:

Isotridecanol, ethoxylated:

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Acute oral toxicity : LD50 (Rat): > 5 000 mg/kg  
Remarks: value stated in literature

Acute dermal toxicity : LD50 (Rat): > 2 000 mg/kg  
Method: OECD Test Guideline 402  
Remarks: value stated in literature

### Isotridecanol, ethoxylated:

Acute oral toxicity : LD50 (Rat): > 5 000 mg/kg  
Method: OECD Test Guideline 401  
Remarks: value stated in literature

### Skin corrosion/irritation

#### Product:

Remarks : Prolonged skin contact may cause skin irritation.

#### Components:

##### Isotridecanol, ethoxylated:

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : value stated in literature

##### Isotridecanol, ethoxylated:

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : (classified according to CESIO recommendations)

### Serious eye damage/eye irritation

#### Product:

Remarks : Causes serious eye damage.

#### Components:

##### Isotridecanol, ethoxylated:

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Risk of serious damage to eyes.  
Remarks : (classified according to CESIO recommendations)

##### Isotridecanol, ethoxylated:

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Irritating to eyes.

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Remarks : (classified according to CESIO recommendations)

### Respiratory or skin sensitisation

**Product:**

Remarks : No known sensitising effect.

### Germ cell mutagenicity

**Product:**

Germ cell mutagenicity- Assessment : Based on available data, the classification criteria are not met.

### Carcinogenicity

**Product:**

Carcinogenicity - Assessment : Based on available data, the classification criteria are not met.

### Reproductive toxicity

**Product:**

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met.

### STOT - single exposure

**Product:**

Remarks : Based on available data, the classification criteria are not met.

### STOT - repeated exposure

**Product:**

Remarks : Based on available data, the classification criteria are not met.

### Aspiration toxicity

**Product:**

Based on available data, the classification criteria are not met.

## 11.2 Information on other hazards

### Endocrine disrupting properties

**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at

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levels of 0.1% or higher.

### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Product:

- Toxicity to fish : LC50 : > 1 - 10 mg/l  
Exposure time: 96 h  
Remarks: Argument by analogy
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Argument by analogy
- Toxicity to algae/aquatic plants : EC50 : > 1 - 10 mg/l  
Exposure time: 72 h  
Remarks: Argument by analogy
- Toxicity to microorganisms : EC50 (activated sludge): > 1 000 mg/l  
Method: OECD Test Guideline 209  
Remarks: Argument by analogy

##### Components:

##### **Isotridecanol, ethoxylated:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 1 - 10 mg/l  
Exposure time: 96 h  
Remarks: (classified according to CESIO recommendations)
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l  
Exposure time: 48 h  
Remarks: (classified according to CESIO recommendations)
- Toxicity to algae/aquatic plants : EC50 (algae): > 1 - 10 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: (classified according to CESIO recommendations)
- EC10 (algae): > 1 - 10 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: (classified according to CESIO recommendations)
- Toxicity to microorganisms : EC50 (activated sludge): > 1 000 mg/l  
Exposure time: 16 h  
Method: DIN 38412, part 8  
Remarks: Argument by analogy
- Toxicity to daphnia and other : NOEC: 1 mg/l

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aquatic invertebrates (Chronic toxicity)

Species: Daphnia magna (Water flea)  
Remarks: value stated in literature

### Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.  
Remarks: (classified according to CESIO recommendations)

### Isotridecanol, ethoxylated:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): > 1 - 10 mg/l  
Exposure time: 96 h  
Remarks: (classified according to CESIO recommendations)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l  
Exposure time: 48 h  
Remarks: value stated in literature

Toxicity to algae/aquatic plants : EC10 (Desmodesmus subspicatus (green algae)): > 0,1 - 1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: value stated in literature

## 12.2 Persistence and degradability

### Product:

Biodegradability : Test Type: DOC-CO2 measuring  
Biodegradation: 95 %  
Exposure time: 28 d  
Method: OECD 302 B with CO2 (elimination)

Test Type: DOC-CO2 measuring  
Biodegradation: 95 %  
Exposure time: 28 d  
Method: OECD 302 B with CO2 (mineralisation)  
Remarks: The product is "inherently biodegradable" according to the criteria of the OECD.  
The total of the surfactants contained in the product is to be judged readily biodegradable according to OECD.  
The surfactant(s) contained in this mixture complies (comply) with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

Biochemical Oxygen Demand (BOD) : ca. 600 mg O2/g  
Incubation time: 5 d  
Method: DIN EN 1899-1 (H 55)  
Remarks: Argument by analogy

Chemical Oxygen Demand : ca. 2000 mg O2/g

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(COD) Method: DIN 38409-H-41  
Remarks: Argument by analogy

### Components:

#### **Isotridecanol, ethoxylated:**

Biodegradability : Test Type: CO2 measuring  
Result: Readily biodegradable.  
Biodegradation: > 60 %  
Exposure time: 28 d  
Method: OECD 301 B (mineralisation)  
Remarks: (classified according to CESIO recommendations)

Test Type: DOC measuring  
Result: Readily biodegradable.  
Biodegradation: > 90 %  
Exposure time: 28 d  
Method: OECD 301 E (elimination)

#### **Isotridecanol, ethoxylated:**

Biodegradability : Test Type: CO2 measuring  
Result: Readily biodegradable.  
Biodegradation: > 60 %  
Method: OECD 301 B (mineralisation)  
Remarks: value stated in literature

### **12.3 Bioaccumulative potential**

#### Product:

Bioaccumulation : Remarks: No data is available on the product itself.

### **12.4 Mobility in soil**

#### Product:

Mobility : Remarks: No data available

### **12.5 Results of PBT and vPvB assessment**

#### Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

### **12.6 Endocrine disrupting properties**

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to



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REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

**Product:**

Adsorbed organic bound halogens (AOX) : Remarks: According to our state of knowledge, the product does not contain organically linked halogens. The product does not increase the AOX-value of the waste water.

Additional ecological information : According to our knowledge, the product does not contain heavy metals and other compounds of EC directive 2000/60 EC.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of in accordance with local regulations.

## SECTION 14: Transport information

### 14.1 UN number or ID number

Not regulated as a dangerous good

### 14.2 UN proper shipping name

Not regulated as a dangerous good

### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

### 14.4 Packing group

Not regulated as a dangerous good

### 14.5 Environmental hazards

Not regulated as a dangerous good

### 14.6 Special precautions for user

Remarks : see chapter 6 - 8

### 14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not applicable

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### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

according to Detergents                    : 30 % and more: Non-ionic surfactants  
Regulation EC 648/2004

##### Other regulations:

National and local regulations must be observed.

#### 15.2 Chemical safety assessment

not required

---

### SECTION 16: Other information

#### Full text of H-Statements

H318    : Causes serious eye damage.  
H319    : Causes serious eye irritation.  
H412    : Harmful to aquatic life with long lasting effects.

#### Full text of other abbreviations

Aquatic Chronic                            : Long-term (chronic) aquatic hazard  
Eye Dam.                                    : Serious eye damage  
Eye Irrit.                                    : Eye irritation

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic sub-

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stance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

Training advice : Based on the information in the safety data sheet and the workplace conditions, employees must be regularly trained in the safe handling of the product. National rules for training employees in handling hazardous substances must be observed.

Other information : The classification for dangerous physico-chemical properties, health and environmental hazards has been derived from a combination of computational methods and, if available, test data.

This data sheet contains changes from the previous version in section(s):

2  
11  
12

Sources of key data used to compile the Safety Data Sheet : Information from our suppliers, as well as data from the "Registered substances database" of the European Chemicals Agency (ECHA) has been used to compile this safety data sheet.

### Classification of the mixture:

Eye Dam. 1 H318  
Aquatic Chronic 3 H412

### Classification procedure:

Calculation method  
Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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Version  
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Date of last issue: 16.11.2016  
Date of first issue: 10.05.2013

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : TUBINGAL 4748

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub- : Textile auxiliary  
stance/Mixture Raw material for textile auxiliaries

#### 1.3 Details of the supplier of the safety data sheet

##### Manufacturer/Supplier

CHT Germany GmbH  
Bismarckstraße 102  
72072 Tübingen  
Germany  
Tel.: +49 7071 154 0  
info@cht.com

CHT Switzerland AG  
Kriessernstrasse 20  
9462 Montlingen  
Switzerland  
Tel.: +41 71 763 88 11  
info.switzerland@cht.com

Importer : -  
-  
-  
-  
-  
-

Responsible Department : CHT Germany GmbH  
CHT Switzerland AG  
Product Safety  
sds.germany@cht.com  
sds.switzerland@cht.com

#### 1.4 Emergency telephone number

Emergency telephone : +49 7071 154 0 (Germany, 24 hours)  
number +41 71 763 88 11 (Switzerland, 24 hours)

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2

H319: Causes serious eye irritation.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

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Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements :

### Prevention:

P264 Wash skin thoroughly after handling.

P280 Wear eye protection/ face protection.

### Response:

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : Fatty acid condensation product

#### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Isotridecanol, ethoxylated	69011-36-5 Polymer	Acute Tox. 4; H302 Eye Dam. 1; H318	>= 1 - < 3

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice : Take off all contaminated clothing immediately.  
Show this safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air.  
If symptoms persist, call a physician.

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- |                         |   |   |
|-------------------------|---|---|
| In case of skin contact | : | Wash off immediately with soap and plenty of water.<br>If symptoms persist, call a physician.   |
| In case of eye contact  | : | In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.<br>Call a physician immediately. |
| If swallowed            | : | Rinse mouth with water.<br>Do NOT induce vomiting.<br>Call a physician immediately.   |

### 4.2 Most important symptoms and effects, both acute and delayed

- |       |   |  |
|-------|---|--|
| Risks | : | There may be reddening, swelling, overheating and pain on contact. |
|-------|---|--|

### 4.3 Indication of any immediate medical attention and special treatment needed

- |           |   |                        |
|-----------|---|------------------------|
| Treatment | : | Treat symptomatically. |
|-----------|---|------------------------|

---

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- |                                |   |  |
|--------------------------------|---|--|
| Suitable extinguishing media   | : | Carbon dioxide (CO <sub>2</sub> )<br>Water spray<br>Dry powder<br>Foam |
| Unsuitable extinguishing media | : | High volume water jet  |

### 5.2 Special hazards arising from the substance or mixture

- |                                       |   |   |
|---------------------------------------|---|---|
| Specific hazards during fire-fighting | : | Hazardous decomposition products formed under fire conditions.<br>Can be released in case of fire:<br>Carbon oxides<br>Nitrogen oxides (NO <sub>x</sub> ) |
|---------------------------------------|---|---|

### 5.3 Advice for firefighters

- |   |   |   |
|---|---|---|
| Special protective equipment for firefighters | : | In the event of fire, wear self-contained breathing apparatus.  |
| Further information                           | : | Use water spray to cool unopened containers.<br>In case of fire do not inhale smoke, conflagration gases and steams.<br>Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |

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### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.  
Contaminated surfaces will be extremely slippery.

#### 6.2 Environmental precautions

Environmental precautions : The product should not be allowed to enter drains, water courses or the soil.  
Pay attention to local or official regulations.

#### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Use mechanical handling equipment.  
Avoid dust formation.  
Dispose of in accordance with local regulations.

#### 6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8.

---

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Advice on safe handling : No special handling advice required.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.  
Keep away from heat and sources of ignition.

Hygiene measures : Avoid contact with skin, eyes and clothing.  
Do not breathe dust or spray mist.  
Do not inhale fumes.  
Take off all contaminated clothing immediately.  
Handle in accordance with good industrial hygiene and safety practice.

#### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Do always store in containers which correspond to the original ones.  
Keep container tightly closed.  
Keep in a dry, cool place.

Further information on storage conditions : Protect from temperatures over + 40 °C.

Advice on common storage : No special precautions required.

#### 7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

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### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

#### 8.2 Exposure controls

##### Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

##### Personal protective equipment

Eye protection : Goggles (EN 166)

Hand protection

Material : Nitrile rubber

Break through time : > 480 min

Glove thickness : > 0,35 mm

Protective index : Class 6

Remarks : The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.  
The obtained break through times according to EN 374 Part III are not measured under normal operating conditions.  
Therefore a maximum usage time of 50% of the break through time is recommended.

Skin and body protection : Wear suitable protective clothing (EN 14605).

Respiratory protection : Breathing apparatus only if aerosol or dust is formed.  
Recommended Filter type:  
Combination filter A/P (EN 141)

---

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance : flakes

Colour : light yellow

Odour : characteristic

pH : 5,5 - 6 (20 °C)  
Concentration: 100 g/l

Melting point/range : ca. 45 - 50 °C



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Boiling point/boiling range : No information available.

Flash point : Not applicable

Evaporation rate : Not applicable

Upper explosion limit / Upper flammability limit : Not applicable

Lower explosion limit / Lower flammability limit : Not applicable

Vapour pressure : Not applicable

Relative vapour density : Not applicable

Density : Not applicable

Bulk density : No data available

Solubility(ies)  
Water solubility : emulsifiable

Partition coefficient: n-octanol/water : Not applicable

Viscosity  
Viscosity, dynamic : No data available

Viscosity, kinematic : Not applicable

Oxidizing properties : Not applicable

### 9.2 Other information

Conductivity : Not determined

Self-ignition : not auto-flammable

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No hazards to be specially mentioned.

### 10.2 Chemical stability

The product is chemically stable.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

### 10.4 Conditions to avoid

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Conditions to avoid : Not applicable

### 10.5 Incompatible materials

Materials to avoid : Not applicable

### 10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product:

Acute oral toxicity : Acute toxicity estimate: > 2 000 - 5 000 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Based on available data, the classification criteria are not met.

Acute dermal toxicity : Acute toxicity estimate: > 2 000 - 5 000 mg/kg  
Method: Calculation method

##### Components:

##### **Isotridecanol, ethoxylated:**

Acute oral toxicity : LD50 (Rat): > 300 - 2 000 mg/kg  
(classified according to CESIO recommendations)

Acute dermal toxicity : LD50 (Rat): > 2 000 mg/kg  
value stated in literature

#### Skin corrosion/irritation

##### Product:

: Prolonged skin contact may cause skin irritation.

##### Components:

##### **Isotridecanol, ethoxylated:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
: value stated in literature

#### Serious eye damage/eye irritation

##### Product:

: Causes serious eye irritation.

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### Components:

#### **Isotridecanol, ethoxylated:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Risk of serious damage to eyes.  
: (classified according to CESIO recommendations)

#### **Respiratory or skin sensitisation**

##### Product:

: No known sensitising effect.

#### **Germ cell mutagenicity**

##### Product:

Germ cell mutagenicity- Assessment : Based on available data, the classification criteria are not met.

#### **Carcinogenicity**

##### Product:

Carcinogenicity - Assessment : Based on available data, the classification criteria are not met.

#### **Reproductive toxicity**

##### Product:

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met.

#### **STOT - single exposure**

##### Product:

: Based on available data, the classification criteria are not met.

#### **STOT - repeated exposure**

##### Product:

: Based on available data, the classification criteria are not met.

#### **Aspiration toxicity**

##### Product:

Based on available data, the classification criteria are not met.

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### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Product:

- Toxicity to fish : No data is available on the product itself.
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10 - 100 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Argument by analogy
- Toxicity to algae : No data is available on the product itself.
- Toxicity to microorganisms : EC50 (activated sludge): > 1 000 mg/l  
Method: OECD Test Guideline 209  
Argument by analogy

##### Components:

##### **Isotridecanol, ethoxylated:**

- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): > 1 - 10 mg/l  
Exposure time: 96 h  
(classified according to CESIO recommendations)
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): > 1 - 10 mg/l  
Exposure time: 48 h  
(classified according to CESIO recommendations)
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): > 1 - 10 mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: OECD Test Guideline 201  
(classified according to CESIO recommendations)
- EC10 (Desmodesmus subspicatus (green algae)): > 1 - 10 mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: OECD Test Guideline 201  
value stated in literature
- Toxicity to microorganisms : EC50 (activated sludge): 140 mg/l  
Test Type: Respiration inhibition
- Toxicity to fish (Chronic toxicity) : NOEC: > 1 mg/l  
Exposure time: 21 d  
Species: Fish
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: > 1 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)

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Method: OECD Test Guideline 211

### 12.2 Persistence and degradability

#### Product:

- Biodegradability : Test Type: O2 measuring  
Biodegradation: > 80 %  
Exposure time: 28 d  
Method: OECD 301 F (mineralisation)  
The product is "readily biodegradable" according to the criteria of the OECD.  
Argument by analogy
- Biochemical Oxygen Demand (BOD) : ca. 600 mg/g  
Incubation time: 5 d  
Method: DIN EN 1899-1 (H 55)  
Argument by analogy
- Chemical Oxygen Demand (COD) : ca. 2 200 mg/g  
Method: DIN 38409-H-41  
Argument by analogy

#### Components:

##### **Isotridecanol, ethoxylated:**

- Biodegradability : Test Type: CO2 measuring  
Result: Readily biodegradable.  
Biodegradation: > 60 %  
Exposure time: 28 d  
Method: OECD 301 B (mineralisation)  
(classified according to CESIO recommendations)

### 12.3 Bioaccumulative potential

#### Product:

- Bioaccumulation : No data is available on the product itself.
- Partition coefficient: n-octanol/water : Not applicable

### 12.4 Mobility in soil

#### Product:

- Mobility : No data available

### 12.5 Results of PBT and vPvB assessment

#### Product:

- Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

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0.1% or higher.

### 12.6 Other adverse effects

**Product:**

Adsorbed organic bound halogens (AOX) : The product does not increase the AOX-value of the waste water.

Additional ecological information : According to our knowledge, the product does not contain heavy metals and other compounds of EC directive 2000/60 EC.

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Pay attention to local or official regulations.

Contaminated packaging : Pay attention to local or official regulations.

---

## SECTION 14: Transport information

### 14.1 UN number

Not regulated as a dangerous good

### 14.2 UN proper shipping name

Not regulated as a dangerous good

### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

### 14.4 Packing group

Not regulated as a dangerous good

### 14.5 Environmental hazards

Not regulated as a dangerous good

### 14.6 Special precautions for user

Remarks : see chapter 6 - 8

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable

---

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Other regulations:

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Currently no information available.

### 15.2 Chemical safety assessment

not required

## SECTION 16: Other information

### Full text of H-Statements

H302 : Harmful if swallowed.  
H318 : Causes serious eye damage.

### Full text of other abbreviations

Acute Tox. : Acute toxicity  
Eye Dam. : Serious eye damage

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

Training advice : Based on the information in the safety data sheet and the workplace conditions, employees must be regularly trained in the safe handling of the product. National rules for training

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## TUBINGAL 4748

Version  
2.2

Revision Date:  
01.07.2020

Date of last issue: 16.11.2016  
Date of first issue: 10.05.2013

employees in handling hazardous substances must be observed.

Other information : The classification for dangerous physico-chemical properties, health and environmental hazards has been derived from a combination of computational methods and, if available, test data.

This data sheet contains changes from the previous version in section(s):

4

11

12

16

Sources of key data used to compile the Safety Data Sheet : Information from our suppliers, as well as data from the "Registered substances database" of the European Chemicals Agency (ECHA) has been used to compile this safety data sheet.

### Classification of the mixture:

Eye Irrit. 2

H319

### Classification procedure:

Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.



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## STABITEX LTF PLUS

## IBC1000TR

Version  
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Revision Date: 12.01.2020

Date of last issue: 23.09.2020

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : STABITEX LTF PLUS IBC1000TR  
Product code : 000000000000012144

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub- : Textile auxiliary  
stance/Mixture

#### 1.3 Details of the supplier of the safety data sheet

Company : Pulcra Kimya Sanayi ve Ticaret A.S.  
Beylikbaşı Mahallesi 341 Sokak No:1  
41410 Gebze  
Turkey  
Telephone : +90-2626754200  
Responsible/issuing person : MSDS-TR@pulcrachem.com

#### 1.4 Emergency telephone number

Telephone : +90-2626754404  
: WHO Directory of poison centres  
[www.who.int/ipcs/poisons/centre/en/](http://www.who.int/ipcs/poisons/centre/en/)

---

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**  
Not a hazardous substance or mixture.

#### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**  
Not a hazardous substance or mixture.

#### **Additional Labelling**

EUH210 Safety data sheet available on request.

#### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

##### Hazardous components

Chemical name	CAS-No. EC-No. Registration number Index-No.	Classification	Concentration (% w/w)
Diethylene glycol	111-46-6 203-872-2 01-2119457857-21 603-140-00-6	Acute Tox. 4; H302 STOT RE 2; H373	>= 1 - < 10

For explanation of abbreviations see section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- General advice : If you feel unwell, seek medical advice (show the label where possible).  
Show this safety data sheet to the doctor in attendance.  
Take off contaminated clothing and shoes immediately.
- If inhaled : Move to fresh air.  
If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
Obtain medical attention.
- In case of skin contact : Wash with plenty of soap and water.  
Cover wound with sterile dressing.  
If symptoms persist, call a physician.
- In case of eye contact : If easy to do, remove contact lens, if worn.  
Rinse immediately with plenty of water, also under the eyelids.  
Get medical attention immediately.
- If swallowed : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
IF SWALLOWED: Immediately call a POISON CENTER/doctor.  
If a person vomits when lying on his back, place him in the recovery position.

#### 4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : No information available.

#### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Product is compatible with standard fire-fighting agents.

**5.2 Special hazards arising from the substance or mixture**

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.  
Hazardous decomposition products formed under fire conditions.  
Exposure to decomposition products may be a hazard to health.

**5.3 Advice for firefighters**

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Standard procedure for chemical fires.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
In the event of fire and/or explosion do not breathe fumes.  
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

---

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : Use personal protective equipment.  
Avoid contact with skin, eyes and clothing.  
Remove all sources of ignition.

**6.2 Environmental precautions**

Environmental precautions : Do not flush into surface water or sanitary sewer system.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

**6.3 Methods and material for containment and cleaning up**

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.  
Clean contaminated surface thoroughly.

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### 6.4 Reference to other sections

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Advice on safe handling : For personal protection see section 8.  
Do not breathe vapours or spray mist.  
Avoid contact with skin and eyes.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.  
Avoid contact with skin, eyes and clothing.  
When using do not eat, drink or smoke.  
Wash hands before breaks and at the end of workday.  
Wash contaminated clothing before re-use.
- Dust explosion class : Not applicable

### 7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Keep containers tightly closed in a dry, cool and well-ventilated place.  
Keep away from heat and sources of ignition.
- Advice on common storage : Keep away from food and drink.  
Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.
- Other data : No decomposition if stored and applied as directed.

### 7.3 Specific end use(s)

- Specific use(s) : For further information, refer to the product technical data sheet.

---

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

No data available

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

No data available

### 8.2 Exposure controls

#### Personal protective equipment

- Eye protection : Goggles

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Hand protection	
Material	: Protective gloves complying with EN 374.
Remarks	: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.
Skin and body protection	: Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	: In case of inadequate ventilation wear respiratory protection. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit. Suitable respiratory equipment: Respirator with combination filter for vapour/particulate (EN 141) See information supplied by the manufacturer.

---

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance	: liquid
Odour	: No data available
Odour Threshold	: No data available
pH	: 2 - 4
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: No data available
Flash point	: > 100 °C
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Upper explosion limit	: not determined
Lower explosion limit	: not determined
Vapour pressure	: No data available
Relative density	: No data available
Density	: No data available

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Solubility(ies)	
Water solubility	: completely miscible
Partition coefficient: n-octanol/water	: No data available
Self-ignition	: No data available
Decomposition temperature	: No data available
Viscosity	
Viscosity, kinematic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2 Other information

Dust explosion class	: Not applicable
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No decomposition if stored and applied as directed.

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions	: Hazardous polymerization does not occur. No decomposition if stored and applied as directed.
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### 10.4 Conditions to avoid

Conditions to avoid	: Protect from contamination. Oxidizing material can cause a reaction.
---------------------	---

### 10.5 Incompatible materials

Materials to avoid	: No data available
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### 10.6 Hazardous decomposition products

Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity**

**Product:**

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Acute oral toxicity : LD50: > 2.000 mg/kg

Acute inhalation toxicity : No data available

Acute dermal toxicity : No data available

### Components:

#### **Diethylene glycol:**

Acute oral toxicity : Acute toxicity estimate: 500 mg/kg  
Method: Converted acute toxicity point estimate

Acute dermal toxicity : LD50 (Rabbit): 13.300 mg/kg  
Method: No information available.  
GLP: no

### **Skin corrosion/irritation**

#### Product:

No skin irritation

### Components:

#### **Diethylene glycol:**

Species: Rabbit  
Exposure time: 23 h  
Assessment: No skin irritation  
Method: Draize Test  
Result: No skin irritation  
GLP: no  
Information taken from reference works and the literature.

Species: reconstructed human epidermis (RhE)  
Exposure time: 24 h  
Assessment: No skin irritation  
Method: OECD Test Guideline 439  
Result: No skin irritation  
GLP: yes

### **Serious eye damage/eye irritation**

#### Product:

No eye irritation

### Components:

#### **Diethylene glycol:**

Species: Rabbit  
Exposure time: 24 h  
Assessment: No eye irritation  
Method: Draize Test  
Result: No eye irritation  
GLP: no

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Information taken from reference works and the literature.

### Respiratory or skin sensitisation

#### Product:

No data available

#### Components:

##### **Diethylene glycol:**

Test Type: Maximisation Test

Species: Guinea pig

Assessment: Did not cause sensitisation on laboratory animals.

Method: Regulation (EC) No. 440/2008, Annex, B.6

Result: negative

GLP: yes

### Germ cell mutagenicity

#### Product:

Genotoxicity in vitro : No data available

Genotoxicity in vivo : No data available

Germ cell mutagenicity- Assessment : No data available

#### Components:

##### **Diethylene glycol:**

- Genotoxicity in vitro :
- Test Type: Ames test
  - Species: Salmonella typhimurium
  - Metabolic activation: with and without metabolic activation
  - Method: OECD Test Guideline 471
  - Result: negative
  - GLP: yes
- :
- Test Type: Chromosome aberration test in vitro
  - Species: Salmonella typhimurium
  - Metabolic activation: with and without metabolic activation
  - Method: Regulation (EC) No. 440/2008, Annex, B.10
  - Result: negative
  - GLP: yes
- :
- Test Type: sister chromatid exchange assay
  - Species: Chinese hamster ovary cells
  - Metabolic activation: with and without metabolic activation
  - Method: OECD Test Guideline 479
  - Result: negative
  - GLP: yes



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: Test Type: Chromosome aberration test in vitro  
Species: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
GLP: yes

### Genotoxicity in vivo

: Test Type: Micronucleus test  
Species: Mouse (male)  
Strain: NMRI  
Cell type: Bone marrow  
Application Route: Intraperitoneal  
Dose: 500 - 2000 mg/kg bw  
Method: OECD Test Guideline 474  
Result: negative  
GLP: yes

### Carcinogenicity

#### Product:

Carcinogenicity - Assessment : No data available

### Reproductive toxicity

#### Product:

Effects on foetal development : This information is not available.

Reproductive toxicity - Assessment : No data available  
No data available

#### Components:

##### **Diethylene glycol:**

Effects on foetal development : Species: Rabbit  
Application Route: Oral  
Group: yes  
NOAEL (teratogenicity)  
1.000 mg/kg  
NOAEL (maternal toxicity)  
1.000 mg/kg  
Method: OECD Test Guideline 414  
GLP: yes

### STOT - single exposure

#### Product:

No data available

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### STOT - repeated exposure

#### Product:

No data available

### Repeated dose toxicity

#### Product:

No data available

#### Components:

##### **Diethylene glycol:**

Species: Rat, male and female

NOAEL: 936 mg/kg

Application Route: Oral

Exposure time: 28 d

Group: yes

Method: OECD Test Guideline 407

GLP: yes

Species: Rat, male and female

NOAEL: 128 mg/kg

LOAEL: 1.600 mg/kg

Application Route: Oral

Exposure time: 225 d

Group: yes

Method: No information available.

GLP: No information available.

Target Organs: Kidney

### Aspiration toxicity

#### Product:

No data available

### Further information

#### Product:

This product is a mixture. Health hazard information is based on its components.

---

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Product:

Toxicity to fish : LC50 : > 10.000 mg/l

Toxicity to daphnia and other aquatic invertebrates : No data available

Toxicity to algae : EC50 : > 100 mg/l

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Toxicity to microorganisms :  
No data available

### Components:

#### **Diethylene glycol:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75.200 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.  
Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10.000 mg/l  
Exposure time: 24 h  
EC50 (Daphnia magna (Water flea)): > 10.000 mg/l  
Exposure time: 24 h  
Test Type: static test  
Analytical monitoring: no  
Method: DIN 38412  
GLP: no  
Information taken from reference works and the literature.

Toxicity to algae : NOEC (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: no  
Method: OECD Test Guideline 201  
GLP: No information available.  
Information taken from reference works and the literature.

Toxicity to microorganisms : EC20 (activated sludge): > 1.995 mg/l  
Exposure time: 30 min  
Method: ISO 8192  
GLP: no

Toxicity to fish (Chronic toxicity) : NOEC: 15.380 mg/l  
Exposure time: 7 d  
End point: Loss of equilibrium  
Species: Pimephales promelas (fathead minnow)  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.  
Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 24.000 mg/l  
Exposure time: 7 d  
End point: mortality  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test

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Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.

NOEC: 8.590 mg/l  
Exposure time: 7 d  
End point: toxic effects for reproduction  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.

### 12.2 Persistence and degradability

#### Product:

Biodegradability : Information given is based on data on the components and the ecotoxicology of similar products.  
The examination of the product in the modified Zahn-Wellens test (OECD 302 B) showed an elimination of > 70 % DOC reduction within a test period of 28 days.

Biochemical Oxygen Demand (BOD) : 250 mg/g

Chemical Oxygen Demand (COD) : 384 mg/g

#### Components:

##### **Diethylene glycol:**

Biodegradability : Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: 90 - 100 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301A  
GLP: yes

### 12.3 Bioaccumulative potential

#### Product:

Bioaccumulation : No data available

Partition coefficient: n-octanol/water : No data available

#### Components:

##### **Diethylene glycol:**

Partition coefficient: n-octanol/water : log Pow: -1,98  
Method: No information available.  
GLP: no  
Information taken from reference works and the literature.

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### 12.4 Mobility in soil

#### Product:

Mobility : Medium: Soil  
No data available

#### Components:

##### **Diethylene glycol:**

Distribution among environmental compartments : Koc: 1, log Koc: 0

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

### 12.6 Other adverse effects

#### Product:

Additional ecological information : Information given is based on data on the components and the ecotoxicology of similar products.  
The product should not be allowed to enter drains, water courses or the soil.

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : In accordance with local and national regulations.  
Do not dispose of waste into sewer.  
Do not dispose of together with household waste.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Dispose of as unused product.

---

## SECTION 14: Transport information

### 14.1 UN number

Not regulated as a dangerous good

### 14.2 UN proper shipping name

Not regulated as a dangerous good

### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

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### 14.4 Packing group

Not regulated as a dangerous good

### 14.5 Environmental hazards

Not regulated as a dangerous good

### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

---

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Ministry of Environment and Forestry; Regulation on Restriction Regarding to Manufacture, Placing on the Market and Use of Certain Hazardous Substances, Preparations and Articles. Dated 26 December 2008, Numbered 27092 (Bis). : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

Other regulations : According to 13 December 2014, No:29204, "Ministry of Environment and Urbanization; Regulation on Safety data sheets regarding hazardous substances and mixtures".  
Regulation on Classification, Packaging and Labelling of Dangerous Substances and Preparations. Dated 26 December 2008, Numbered 27092 (Bis) Ministry of Environment and Forestry".  
Regulation on Classification, Labelling and Packaging of Substances and Mixtures. Dated 11 December 2013, Numbered 28848 (Bis) Ministry of Environment and Forestry.

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**SECTION 16: Other information****Full text of H-Statements**

H302 : Harmful if swallowed.  
H373 : May cause damage to organs through prolonged or repeated exposure.

**Full text of other abbreviations**

Acute Tox. : Acute toxicity  
STOT RE : Specific target organ toxicity - repeated exposure

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**Further information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**Pulcra** Chemicals

## STABITEX ZF PLUS

## IBC1000TR

Version  
1.4

Revision Date: 12.01.2020

Date of last issue: 23.09.2020

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : STABITEX ZF PLUS IBC1000TR  
Product code : 000000000000011736

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-  
stance/Mixture : Textile auxiliary

#### 1.3 Details of the supplier of the safety data sheet

Company : Pulcra Kimya Sanayi ve Ticaret A.S.  
Beylikbaşı Mahallesi 341 Sokak No:1  
41410 Gebze  
Turkey  
  
Telephone : +90-2626754200  
Responsible/issuing person : MSDS-TR@pulcrachem.com

#### 1.4 Emergency telephone number

Telephone : +90-2626754404  
  
: WHO Directory of poison centres  
[www.who.int/ipcs/poisons/centre/en/](http://www.who.int/ipcs/poisons/centre/en/)

---

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**  
Not a hazardous substance or mixture.

#### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**  
Not a hazardous substance or mixture.

#### **Additional Labelling**

EUH210 Safety data sheet available on request.

#### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.



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### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

##### Hazardous components

Chemical name	CAS-No. EC-No. Registration number Index-No.	Classification	Concentration (% w/w)
Diethylene glycol	111-46-6 203-872-2 01-2119457857-21 603-140-00-6	Acute Tox. 4; H302 STOT RE 2; H373	>= 1 - < 10

For explanation of abbreviations see section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- General advice : If you feel unwell, seek medical advice (show the label where possible).  
Show this safety data sheet to the doctor in attendance.  
Take off contaminated clothing and shoes immediately.
- If inhaled : Move to fresh air.  
If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
Obtain medical attention.
- In case of skin contact : Wash with plenty of soap and water.  
Cover wound with sterile dressing.  
If symptoms persist, call a physician.
- In case of eye contact : If easy to do, remove contact lens, if worn.  
Rinse immediately with plenty of water, also under the eyelids.  
Get medical attention immediately.
- If swallowed : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
IF SWALLOWED: Immediately call a POISON CENTER/doctor.  
If a person vomits when lying on his back, place him in the recovery position.

#### 4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : No information available.

#### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : No information available.

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**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Product is compatible with standard fire-fighting agents.

**5.2 Special hazards arising from the substance or mixture**

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.  
Hazardous decomposition products formed under fire conditions.  
Exposure to decomposition products may be a hazard to health.

**5.3 Advice for firefighters**

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Standard procedure for chemical fires.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
In the event of fire and/or explosion do not breathe fumes.  
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

---

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : Use personal protective equipment.  
Avoid contact with skin, eyes and clothing.  
Remove all sources of ignition.

**6.2 Environmental precautions**

Environmental precautions : Do not flush into surface water or sanitary sewer system.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

**6.3 Methods and material for containment and cleaning up**

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.  
Clean contaminated surface thoroughly.

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### 6.4 Reference to other sections

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Advice on safe handling : For personal protection see section 8.  
Do not breathe vapours or spray mist.  
Avoid contact with skin and eyes.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.  
Avoid contact with skin, eyes and clothing.  
When using do not eat, drink or smoke.  
Wash hands before breaks and at the end of workday.  
Wash contaminated clothing before re-use.
- Dust explosion class : Not applicable

### 7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Keep containers tightly closed in a dry, cool and well-ventilated place.  
Keep away from heat and sources of ignition.
- Advice on common storage : Keep away from food and drink.  
Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.
- Other data : No decomposition if stored and applied as directed.

### 7.3 Specific end use(s)

- Specific use(s) : For further information, refer to the product technical data sheet.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

No data available

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

No data available

### 8.2 Exposure controls

#### Personal protective equipment

- Eye protection : Goggles

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### Hand protection

Material : Protective gloves complying with EN 374.

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.  
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In case of inadequate ventilation wear respiratory protection.  
In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.  
Suitable respiratory equipment:  
Respirator with combination filter for vapour/particulate (EN 141)  
See information supplied by the manufacturer.

---

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance : liquid

Odour : No data available

Odour Threshold : No data available

pH : 2 - 4

Melting point/freezing point : No data available

Initial boiling point and boiling range : No data available

Flash point : > 100 °C

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit : not determined

Lower explosion limit : not determined

Vapour pressure : No data available

Relative density : No data available

Density : No data available

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Solubility(ies)	
Water solubility	: completely miscible
Partition coefficient: n-octanol/water	: No data available
Self-ignition	: No data available
Decomposition temperature	: No data available
Viscosity	
Viscosity, kinematic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2 Other information

Dust explosion class	: Not applicable
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No decomposition if stored and applied as directed.

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions	: Hazardous polymerization does not occur. No decomposition if stored and applied as directed.
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### 10.4 Conditions to avoid

Conditions to avoid	: Protect from contamination. Oxidizing material can cause a reaction.
---------------------	---

### 10.5 Incompatible materials

Materials to avoid	: No data available
--------------------	---------------------

### 10.6 Hazardous decomposition products

Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity**

**Product:**

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Acute oral toxicity : LD50: > 2.000 mg/kg

Acute inhalation toxicity : No data available

Acute dermal toxicity : No data available

### Components:

#### **Diethylene glycol:**

Acute oral toxicity : Acute toxicity estimate: 500 mg/kg  
Method: Converted acute toxicity point estimate

Acute dermal toxicity : LD50 (Rabbit): 13.300 mg/kg  
Method: No information available.  
GLP: no

### **Skin corrosion/irritation**

#### Product:

No skin irritation

### Components:

#### **Diethylene glycol:**

Species: Rabbit  
Exposure time: 23 h  
Assessment: No skin irritation  
Method: Draize Test  
Result: No skin irritation  
GLP: no  
Information taken from reference works and the literature.

Species: reconstructed human epidermis (RhE)  
Exposure time: 24 h  
Assessment: No skin irritation  
Method: OECD Test Guideline 439  
Result: No skin irritation  
GLP: yes

### **Serious eye damage/eye irritation**

#### Product:

No eye irritation

### Components:

#### **Diethylene glycol:**

Species: Rabbit  
Exposure time: 24 h  
Assessment: No eye irritation  
Method: Draize Test  
Result: No eye irritation  
GLP: no

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Information taken from reference works and the literature.

### Respiratory or skin sensitisation

#### Product:

No data available

#### Components:

##### **Diethylene glycol:**

Test Type: Maximisation Test

Species: Guinea pig

Assessment: Did not cause sensitisation on laboratory animals.

Method: Regulation (EC) No. 440/2008, Annex, B.6

Result: negative

GLP: yes

### Germ cell mutagenicity

#### Product:

Genotoxicity in vitro : No data available

Genotoxicity in vivo : No data available

Germ cell mutagenicity- Assessment : No data available

#### Components:

##### **Diethylene glycol:**

- Genotoxicity in vitro :
- Test Type: Ames test
  - Species: Salmonella typhimurium
  - Metabolic activation: with and without metabolic activation
  - Method: OECD Test Guideline 471
  - Result: negative
  - GLP: yes
- :
- Test Type: Chromosome aberration test in vitro
  - Species: Salmonella typhimurium
  - Metabolic activation: with and without metabolic activation
  - Method: Regulation (EC) No. 440/2008, Annex, B.10
  - Result: negative
  - GLP: yes
- :
- Test Type: sister chromatid exchange assay
  - Species: Chinese hamster ovary cells
  - Metabolic activation: with and without metabolic activation
  - Method: OECD Test Guideline 479
  - Result: negative
  - GLP: yes

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: Test Type: Chromosome aberration test in vitro  
Species: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
GLP: yes

### Genotoxicity in vivo

: Test Type: Micronucleus test  
Species: Mouse (male)  
Strain: NMRI  
Cell type: Bone marrow  
Application Route: Intraperitoneal  
Dose: 500 - 2000 mg/kg bw  
Method: OECD Test Guideline 474  
Result: negative  
GLP: yes

### Carcinogenicity

#### Product:

Carcinogenicity - Assessment : No data available

### Reproductive toxicity

#### Product:

Effects on foetal development : This information is not available.

Reproductive toxicity - Assessment : No data available  
No data available

### Components:

#### **Diethylene glycol:**

Effects on foetal development : Species: Rabbit  
Application Route: Oral  
Group: yes  
NOAEL (teratogenicity)  
1.000 mg/kg  
NOAEL (maternal toxicity)  
1.000 mg/kg  
Method: OECD Test Guideline 414  
GLP: yes

### STOT - single exposure

#### Product:

No data available



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### STOT - repeated exposure

**Product:**

No data available

### Repeated dose toxicity

**Product:**

No data available

**Components:**

**Diethylene glycol:**

Species: Rat, male and female

NOAEL: 936 mg/kg

Application Route: Oral

Exposure time: 28 d

Group: yes

Method: OECD Test Guideline 407

GLP: yes

Species: Rat, male and female

NOAEL: 128 mg/kg

LOAEL: 1.600 mg/kg

Application Route: Oral

Exposure time: 225 d

Group: yes

Method: No information available.

GLP: No information available.

Target Organs: Kidney

### Aspiration toxicity

**Product:**

No data available

### Further information

**Product:**

This product is a mixture. Health hazard information is based on its components.

---

## SECTION 12: Ecological information

### 12.1 Toxicity

**Product:**

Toxicity to fish : LC50 : > 10.000 mg/l

Toxicity to daphnia and other aquatic invertebrates : No data available

Toxicity to algae : EC50 : > 100 mg/l

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Toxicity to microorganisms :  
No data available

### Components:

#### **Diethylene glycol:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75.200 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.  
Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10.000 mg/l  
Exposure time: 24 h  
EC50 (Daphnia magna (Water flea)): > 10.000 mg/l  
Exposure time: 24 h  
Test Type: static test  
Analytical monitoring: no  
Method: DIN 38412  
GLP: no  
Information taken from reference works and the literature.

Toxicity to algae : NOEC (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: no  
Method: OECD Test Guideline 201  
GLP: No information available.  
Information taken from reference works and the literature.

Toxicity to microorganisms : EC20 (activated sludge): > 1.995 mg/l  
Exposure time: 30 min  
Method: ISO 8192  
GLP: no

Toxicity to fish (Chronic toxicity) : NOEC: 15.380 mg/l  
Exposure time: 7 d  
End point: Loss of equilibrium  
Species: Pimephales promelas (fathead minnow)  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.  
Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 24.000 mg/l  
Exposure time: 7 d  
End point: mortality  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test

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Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.

NOEC: 8.590 mg/l  
Exposure time: 7 d  
End point: toxic effects for reproduction  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: No information available.  
GLP: No information available.

### 12.2 Persistence and degradability

#### Product:

Biodegradability : Information given is based on data on the components and the ecotoxicology of similar products.  
The examination of the product in the modified Zahn-Wellens test (OECD 302 B) showed an elimination of > 70 % DOC reduction within a test period of 28 days.

Biochemical Oxygen Demand (BOD) : 250 mg/g

Chemical Oxygen Demand (COD) : 384 mg/g

#### Components:

##### **Diethylene glycol:**

Biodegradability : Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: 90 - 100 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301A  
GLP: yes

### 12.3 Bioaccumulative potential

#### Product:

Bioaccumulation : No data available

Partition coefficient: n-octanol/water : No data available

#### Components:

##### **Diethylene glycol:**

Partition coefficient: n-octanol/water : log Pow: -1,98  
Method: No information available.  
GLP: no  
Information taken from reference works and the literature.

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### 12.4 Mobility in soil

#### Product:

Mobility : Medium: Soil  
No data available

#### Components:

##### **Diethylene glycol:**

Distribution among environmental compartments : Koc: 1, log Koc: 0

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

### 12.6 Other adverse effects

#### Product:

Additional ecological information : Information given is based on data on the components and the ecotoxicology of similar products.  
The product should not be allowed to enter drains, water courses or the soil.

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : In accordance with local and national regulations.  
Do not dispose of waste into sewer.  
Do not dispose of together with household waste.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Dispose of as unused product.

---

## SECTION 14: Transport information

### 14.1 UN number

Not regulated as a dangerous good

### 14.2 UN proper shipping name

Not regulated as a dangerous good

### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

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### 14.4 Packing group

Not regulated as a dangerous good

### 14.5 Environmental hazards

Not regulated as a dangerous good

### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

---

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Ministry of Environment and Forestry; Regulation on Restriction Regarding to Manufacture, Placing on the Market and Use of Certain Hazardous Substances, Preparations and Articles. Dated 26 December 2008, Numbered 27092 (Bis). : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

Other regulations : According to 13 December 2014, No:29204, "Ministry of Environment and Urbanization; Regulation on Safety data sheets regarding hazardous substances and mixtures".  
Regulation on Classification, Packaging and Labelling of Dangerous Substances and Preparations. Dated 26 December 2008, Numbered 27092 (Bis) Ministry of Environment and Forestry".  
Regulation on Classification, Labelling and Packaging of Substances and Mixtures. Dated 11 December 2013, Numbered 28848 (Bis) Ministry of Environment and Forestry.

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**SECTION 16: Other information****Full text of H-Statements**

H302 : Harmful if swallowed.  
H373 : May cause damage to organs through prolonged or repeated exposure.

**Full text of other abbreviations**

Acute Tox. : Acute toxicity  
STOT RE : Specific target organ toxicity - repeated exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

# SAFETY DATA SHEET

## UVITEX® 2B CONC

Version	Revision Date:	SDS Number:	Date of last issue: 04.08.2022
1.2	23.12.2022	400001005197	Date of first issue: 19.06.2018

Print Date 15.05.2023

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : UVITEX® 2B CONC

#### Manufacturer or supplier's details

Company : Huntsman International (India) Pvt. Ltd.

Address : Hiranandani Business Park, Light Hall, 'B' Wing Saki Vihar  
Road, Chandivali, Andheri (East)  
Mumbai,  
400 072  
India

Telephone : +91 22 42875100

Company : Archroma Singapore, Pte. Ltd

Address : 1 International Business Park #06-01 The Synergy  
609917  
Singapore

Telephone : +65 63906448

E-mail address : Global\_Product\_EHS\_TE@huntsman.com

Emergency telephone number : Europe: +32 35751234  
Americas: +1 703 527 3887  
USA & Canada: 800 424 9300  
Africa: +32 35751234  
Asia & Pacific: +65 6336 6011  
China: +86 20 39377888  
+86 532 83889090  
India: + 91 22 42 87 5333

#### Recommended use of the chemical and restrictions on use

Recommended use : Optical brighteners

### 2. HAZARDS IDENTIFICATION

#### GHS Classification

Not a hazardous substance or mixture.

#### GHS label elements

Not a hazardous substance or mixture.

Precautionary statements : **Prevention:**  
Avoid ingestion, inhalation, skin and eye contact.  
**Response:**  
Not available

# SAFETY DATA SHEET

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### Storage:

Store in accordance with all local, regional, national and international regulations.

### Disposal:

P501 Dispose of contents and container in accordance with all local, regional, national and international regulations.

### Other hazards which do not result in classification

None known.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Mixture

### Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
sodium carbonate	497-19-8	$\geq 0.1 - \leq 1$

## 4. FIRST AID MEASURES

- General advice : Treat symptomatically.  
Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.
- In case of skin contact : Wash with water and soap as a precaution.
- In case of eye contact : Rinse thoroughly with plenty of water, also under the eyelids.  
Remove contact lenses.  
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : No special precautions are necessary for first aid responders.  
No action shall be taken involving any personal risk or without suitable training.
- Notes to physician : Treat symptomatically.



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### 5. FIREFIGHTING MEASURES

- |   |   |   |
|---|---|---|
| Suitable extinguishing media                  | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical  |
| Unsuitable extinguishing media                | : | Exercise caution when using a high volume water jet as it may scatter and spread fire   |
| Specific hazards during firefighting          | : | No information available.   |
| Hazardous combustion products                 | : | Hydrogen chloride   |
| Specific extinguishing methods                | : | No action shall be taken involving any personal risk or without suitable training.<br><br>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Special protective equipment for firefighters | : | Wear self-contained breathing apparatus for firefighting if necessary.  |

### 6. ACCIDENTAL RELEASE MEASURES

- |   |   |  |
|---|---|--|
| Personal precautions, protective equipment and emergency procedures | : | Avoid dust formation.<br>Refer to protective measures listed in sections 7 and 8.  |
| Environmental precautions   | : | If the product contaminates rivers and lakes or drains inform respective authorities.  |
| Methods and materials for containment and cleaning up               | : | Pick up and arrange disposal without creating dust.<br>Sweep up and shovel.<br>Keep in suitable, closed containers for disposal. |

### 7. HANDLING AND STORAGE

- |   |   |  |
|---|---|--|
| Advice on protection against fire and explosion | : | Provide appropriate exhaust ventilation at places where dust is formed.  |
| Advice on safe handling                         | : | For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area. |
| Conditions for safe storage                     | : | No special storage conditions required.<br>Keep in properly labelled containers.                                     |

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Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Keep in a dry place.  
Stable under normal conditions.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

**Engineering measures** : No data is available on the product itself.

#### Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines

Filter type : Particulates type

#### Hand protection

Material : Neoprene gloves  
Break through time : 10 - 480 min

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Safety glasses with side-shields

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : General industrial hygiene practice.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Colour : yellow

Odour : characteristic

Odour Threshold : No data is available on the product itself.

pH : 8.5 - 10.5 (25 °C)  
Concentration: 10 g/l

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Melting point/freezing point	: No data is available on the product itself.
Boiling point	: No data is available on the product itself.
Flash point	: No data is available on the product itself.
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Vapour pressure	: < 0.001 hPa (20 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: No data is available on the product itself.
Density	: 0.65 - 0.85 g/cm <sup>3</sup> Bulk density
Solubility(ies)	
Water solubility	: > 40 g/l (25 °C)
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Auto-ignition temperature	: > 270 °C
Decomposition temperature	: No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.
Viscosity	: No data is available on the product itself.
Explosive properties	: No data is available on the product itself.
Oxidizing properties	: No data is available on the product itself.
Particle size	: No data is available on the product itself.

## 10. STABILITY AND REACTIVITY

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Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Dust may form explosive mixture in air.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	hydrogen chloride Sodium oxides

### 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

##### Product:

Acute oral toxicity	:	LD50(Rat): > 5,000 mg/kg
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

##### Components:

##### **sodium carbonate:**

Acute oral toxicity	:	LD50 (Rat): 4,090 mg/kg  LD50 (Mouse): 6,600 mg/kg  LD50 (Rat, male and female): 2,800 mg/kg Assessment: The component/mixture is low toxic after single ingestion.
Acute inhalation toxicity	:	LC50 (Rat): 2,875 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): 2,210 mg/kg  LD50 (Rabbit): > 2,000 mg/kg Assessment: The component/mixture is low toxic after single contact with skin.

##### **sodium carbonate:**

Acute oral toxicity	:	LD50 (Rat): 4,090 mg/kg  LD50 (Mouse): 6,600 mg/kg  LD50 (Rat, male and female): 2,800 mg/kg Assessment: The component/mixture is low toxic after single ingestion.
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Acute inhalation toxicity : LC50 (Rat): 2,875 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 2,210 mg/kg  
  
LD50 (Rabbit): > 2,000 mg/kg  
Assessment: The component/mixture is low toxic after single contact with skin.

### Skin corrosion/irritation

#### Product:

Species : Rabbit  
Assessment : No skin irritation  
Result : No skin irritation

#### Components:

##### **sodium carbonate:**

Method : OECD Test Guideline 404  
Result : No skin irritation

##### **sodium carbonate:**

Method : OECD Test Guideline 404  
Result : No skin irritation

### Serious eye damage/eye irritation

#### Product:

Species : Rabbit  
Assessment : No eye irritation  
Result : No eye irritation

#### Components:

##### **sodium carbonate:**

Assessment : Irritating to eyes.  
Result : Irritation to eyes, reversing within 21 days

##### **sodium carbonate:**

Assessment : Irritating to eyes.  
Result : Irritation to eyes, reversing within 21 days

### Respiratory or skin sensitisation

#### Product:

Exposure routes : Skin  
Species : Guinea pig  
Result : Does not cause skin sensitisation.  
Remarks : Information given is based on data on the components and

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the toxicology of similar products.

### **Components:**

#### **sodium carbonate:**

Exposure routes	:	Skin
Result	:	Does not cause skin sensitisation.

#### **sodium carbonate:**

Exposure routes	:	Skin
Result	:	Does not cause skin sensitisation.

### **Germ cell mutagenicity**

No data available

### **Carcinogenicity**

No data available

### **Reproductive toxicity**

#### **Components:**

#### **sodium carbonate:**

Effects on foetal development	:	General Toxicity Maternal: NOAEL: $\geq$ 245 mg/kg body weight Teratogenicity: NOAEL: $\geq$ 245 mg/kg body weight
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#### **sodium carbonate:**

Effects on foetal development	:	General Toxicity Maternal: NOAEL: $\geq$ 245 mg/kg body weight Teratogenicity: NOAEL: $\geq$ 245 mg/kg body weight
-------------------------------	---	---

### **STOT - single exposure**

No data available

### **STOT - repeated exposure**

No data available

### **Repeated dose toxicity**

No data available

### **Aspiration toxicity**

No data available

### **Experience with human exposure**

No data available

### **Toxicology, Metabolism, Distribution**

No data available

### **Neurological effects**

No data available

### **Further information**

No data available

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### 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Product:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to microorganisms : IC50: > 100 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

##### Components:

##### **sodium carbonate:**

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 300 mg/l  
Exposure time: 96 h  
Test Type: static test

LC50 (Lepomis macrochirus (Bluegill sunfish)): 320 mg/l  
Exposure time: 96 h  
Test Type: static test

LC50 (Gambusia affinis (Mosquito fish)): 740 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 265 mg/l  
Exposure time: 48 h

EC50 (Daphnia magna (Water flea)): 200 mg/l  
Exposure time: 48 h

##### **sodium carbonate:**

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 300 mg/l  
Exposure time: 96 h  
Test Type: static test

LC50 (Lepomis macrochirus (Bluegill sunfish)): 320 mg/l  
Exposure time: 96 h  
Test Type: static test

LC50 (Gambusia affinis (Mosquito fish)): 740 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 265 mg/l  
Exposure time: 48 h

EC50 (Daphnia magna (Water flea)): 200 mg/l  
Exposure time: 48 h

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### Persistence and degradability

#### Product:

Biodegradability : Biodegradation: 6 %  
Exposure time: 21 d  
Method: OECD Test Guideline 303A

Biochemical Oxygen Demand (BOD) : 0 mgO<sub>2</sub>/g

Chemical Oxygen Demand (COD) : ca. 265 mgO<sub>2</sub>/g

Physico-chemical removability : Remarks: Poorly eliminated by adsorption on effluent treatment sludge.

### Bioaccumulative potential

No data available

### Mobility in soil

No data available

### Other adverse effects

#### Product:

Adsorbed organic bound halogens (AOX) : 0 %

Additional ecological information : Metal content under the ETAD recommended limits.

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## 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Dispose of contents and container in accordance with all local, regional, national and international regulations.  
Do not dispose of waste into sewer.  
Do not contaminate ponds, waterways or ditches with chemical or used container.

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## 14. TRANSPORT INFORMATION

### International Regulations

#### UNRTDG

Not regulated as dangerous goods

#### IATA-DGR

Not regulated as dangerous goods

#### IMDG-Code

Not regulated as dangerous goods



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### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

### Special precautions for user

Not applicable

## 15. REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### The components of this product are reported in the following inventories:

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory

#### Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

## 16. OTHER INFORMATION

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The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.




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# **Annexure 8**

## **PTPLC Chemical Management Policy**

<u>রাসায়নিক পদার্থ ব্যবস্থাপনা নীতিমালা</u> <b>Chemical Management Policy</b>	
রেফারেন্স নং	PTL-CH-Policy-0006-r06-221203 (F#0046)
বাস্তবায়নকারী	এডমিন এন্ড কমপ্লায়েন্স, ই টি পি বিভাগ, এম এম (মেটেরিয়াল ম্যানেজমেন্ট) বিভাগ, প্রোডাকশন বিভাগ এবং অন্যান্য যে সকল বিভাগ বা সেকশনে রাসায়নিক পদার্থ ব্যবহার করা হয়।  কারখানার কেমিক্যাল ও পরিবেশ ব্যবস্থাপনার কাজে নিয়োজিত ব্যক্তিবর্গ মূখ্য ভূমিকা পালন করবে।
পৃষ্ঠার সংখ্যা	০৫
কার্যকরের (প্রথম বার) তারিখ	০১/০৪/২০১৬
সংস্করণ নং ও তারিখ	ষষ্ঠ, ০৩/১২/২০২২
সংশোধনের কারণ বা সংক্ষিপ্ত বর্ণনা	পূর্বের Higg Index and BCMP গাইডলাইনের সাথে “ZDHC Chemical Management” সংযুক্ত করা হলো।
পরবর্তী সংশোধনের তারিখ	০৩/১২/২০২৩ বা প্রয়োজন সাপেক্ষে বা আইনের পরিবর্তন সাপেক্ষে

			
স্বাক্ষর	প্রস্তুতকারী	বিভাগীয় প্রধান	অনুমোদনকারী





## **Chemical Management Policy Statement**

Paramount Textile PLC ensures to manufacture qualityful product by maintaining eco-friendly environment along with maintaining a safe working environment. To achieve this goal, we will maintain below listed agenda strictly:

### **1. Moving forward towards ZDHC goals:**

To continue factory's manufacturing process, our main target will be discharging zero amount of hazardous chemicals, strictly maintain the quality of chemicals using for manufacturing process, also follow strictly RSL (Restricted Substances List), MRSL (Manufacturing Restricted Substance List), Higg Chemical Management Policy and BSR (Business for Social Responsibilities) for all types of buyers (both foreign and local).

### **2. Sustainability:**

For maintaining environmental safety, along with maintaining health safety for buyers and factory's manufacturing workers, our aim is to use ZDHC level enlisted chemicals in the production. Also, for maintaining health safety for chemical using workers, we will ensure they would wear proper PPE, ensure first aid box in the chemical stores/sub-stores, ensure to store chemicals following chemical compatibility chart, ensure eye-wash station and safety shower for eye washing purpose in case of any emergency, ensure secondary containments for chemical drums for chemical re-using purpose in case of any leakage is occurred in the drum, these points will be our top priority.

### **3. Continuous Improvement:**

Our main focus will be the continuous improvement of chemical management. To achieve this target, we will try our best to ensure "100% ZDHC MRSL Chemical Compliance" in the chemicals using in the production purpose. Also, along with this, we will try our best to ensure maximum amount of chemicals would be in the "ZDHC MRSL Conformance Level 03". On the other hand, we will try to reduce using of hazardous chemicals and increase using less hazardous chemicals. Also, we will focus that all the chemicals using in the overall factory should be included in the chemical inventory list, along with all the chemicals should be enlisted in the online chemical inventory uploading platform (BVE3).





#### **4. Safe Chemistry:**

To increase the quality of chemicals using in the factory is one of our important target. To achieve this target, we will use safe chemical handling method. As a part of safe chemical handling method, we will increase the safety of chemical storage area. We will establish exhaust fan in every chemical store, so that the toxic vapor created in the chemical store will be passed out easily. We will establish two doors (opposite to each other) for emergency exit. We will create "Emergency Back-Up Plan" for each chemical store/sub-store and will implement them. We will apply FIFO (First In First Out) technique so that no date expired chemical can be placed in the chemical store. We will be fully aware and ensure that, no untreated water can be disposed into the environment from ETP.

#### **5. Transparency and Traceability:**

We will be fully transparent about all types of documents and calculations related to chemicals. Also, we will establish traceability of all chemicals in our factory. To establish this traceability, we will conduct root cause analysis. If RSL is failed in any product in our factory, then we will analysis production recipe to ensure from where this RSL is failed. In the meanwhile, to establish this traceability, we will ensure to attach lot number and batch number with each and every chemical drum.


#### **6. Training:**

We will arrange sufficient amount of proper training for the workers whose are working with hazardous chemicals. These training will be conducted both onsite (in the chemical store/sub-store) and offsite (in the training room). To increase the awareness to the management level regarding chemical management, we will conduct separate training and meeting minutes for the management level. Safe chemical handling, PPE, emergency response plan, MSDS and pictogram, these agenda will be added in the training for the workers. We will create a training calendar at the beginning of the year, and throughout the whole year, we will conduct training according to the calendar schedule.

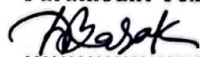
**Responsible Persons:**

For creation, observation, application and correction of chemical management policy to the factory, the responsible persons are below enlisted:

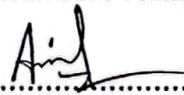
1. **Ahmad Salman Parshi**  
AGM – ETP and ECR  
Paramount Textile PLC

  
.....  
Signature

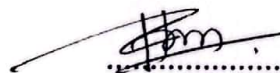
4. **Anik Basak**  
Manager  
Supply Chain Management  
Paramount Textile PLC

  
.....  
Signature


2. **Amimul Ahsan Khan**  
Deputy Manager – ETP and ECR  
Paramount Textile PLC

  
.....  
Signature

5. **Rashidul Islam**  
Sr. DGM – Yarn Dyeing  
Paramount Textile PLC


  
.....  
Signature

3. **Tapan Das**  
Manager – Material Management (Chemical)  
Paramount Textile PLC

  
.....  
Signature

This policy will be published for all workers, employees, sub-contractors, suppliers and public.

Approved by  
Director  
Paramount Textile PLC

  
.....  
Signature





## রাসায়নিক পদার্থ ব্যবস্থাপনা নীতিমালা সংক্রান্ত বিবৃতি

প্যারামাউন্ট টেক্সটাইল পিএলসি পরিবেশ বান্ধব এবং নিরাপদ কর্মক্ষেত্র নিশ্চিতকরণের মাধ্যমে মানসম্পন্ন পণ্য উৎপাদনে বদ্ধ পরিকর। উক্ত লক্ষ্যে নিম্নোক্ত বিষয়গুলো আমরা কঠোর সতর্কতার সাথে রক্ষণাবেক্ষণ করবো:

### 1. ZDHC (ক্ষতিকর রাসায়নিক পদার্থের শূন্য নিঃসরণ) এর লক্ষ্য ও উদ্দেশ্য নিয়ে এগিয়ে যাওয়া:

কারখানা পরিচালনা করার ক্ষেত্রে আমাদের প্রধান লক্ষ্য থাকবে, যাবতীয় রকম ক্ষতিকর রাসায়নিক পদার্থ এর নিঃসরণ শূন্যের কোঠায় নিয়ে আসা, কারখানার উৎপাদনে ব্যবহৃত রাসায়নিক পদার্থ সমূহের কঠোরভাবে মান নিয়ন্ত্রণ করা, এবং সকল ধরনের ক্রেতাদের (আন্তর্জাতিক এবং দেশীয়) ক্ষেত্রে RSL (Restricted Substances List), MRSL (Manufacturing Restricted Substances List), Higg Chemical Management Policy and BSR (Business for Social Responsibility) অনুসরণ করা।

### 2. স্থিতিশীলতা বা স্থায়িত্ব (Sustainability):

পরিবেশগত সুরক্ষা বজায় রাখার জন্য, একই সাথে ক্রেতাদের এবং উৎপাদনে নিয়োজিত শ্রমিকদের স্বাস্থ্যগত নিরাপত্তা নিশ্চিত করার জন্য আমাদের লক্ষ্য ZDHC level enlisted chemical প্রোডাকশনে ব্যবহার নিশ্চিত করা। একই সাথে, কেমিক্যালের কাজে নিয়োজিত শ্রমিকদের স্বাস্থ্যগত সুরক্ষা নিশ্চিত করার জন্য পিপিই পরিধান সুনিশ্চিত করা, কেমিক্যাল স্টোরে ফাস্ট এইডের বক্স নিশ্চিত করা, কেমিক্যাল স্টোরে কম্প্যাক্টোবিলিটি চার্ট অনুসারে কেমিক্যাল সন্নিবেশিত করা, জরুরী পরিস্থিতিতে চোখ ধৌত করার জন্য আই-ওয়াশ স্টেশন এবং শাওয়ারের উপস্থিতি নিশ্চিত করা, কেমিক্যালের ড্রাম ছিদ্র হয়ে গেলে নিঃসরিত কেমিক্যাল পুনরায় ব্যবহারের উপযোগী করার জন্য সেকেন্ডারী কন্টেইনমেন্ট ব্যবহার করা, এইসব নিশ্চিত করাও আমাদের লক্ষ্য থাকবে।

### 3. ক্রমাগত উন্নয়ন (Continuous Improvement):

রাসায়নিক পদার্থের ব্যবস্থাপনার ক্রমাগত উন্নয়নের দিকে আমাদের প্রধান লক্ষ্য থাকবে। এর পদক্ষেপ হিসাবে আমাদের সর্বোচ্চ চেষ্টা থাকবে কারখানায় উৎপাদন কাজে ব্যবহৃত রাসায়নিক পদার্থের ZDHC MRSL Chemical Compliance যাতে 100% থাকে, এবং ব্যবহৃত কেমিক্যালের মাঝে সর্বোচ্চ সংখ্যক যাতে ZDHC MRSL Conformance Level 03 থাকে, এদিকেও আমাদের লক্ষ্য থাকবে। ক্ষতিকর রাসায়নিক পদার্থের পরিমাণ কমিয়ে দিয়ে তুলনামূলক কম ক্ষতিকর রাসায়নিক পদার্থের ব্যবহার বৃদ্ধির দিকেও আমাদের লক্ষ্য থাকবে। কারখানায় ব্যবহৃত সকল ধরনের রাসায়নিক পদার্থ যাতে কেমিক্যাল ইনভেন্টরিতে থাকে, এবং একই সাথে সকল ধরনের কেমিক্যাল যাতে কেমিক্যাল ইনভেন্টরি অনলাইন আপলোডিং প্ল্যাটফর্মে উল্লেখ থাকে (BVE3), এদিকেও আমাদের লক্ষ্য থাকবে।





#### 4. নিরাপদ রসায়ন (Safe Chemistry):

কারখানায় ব্যবহারিত রাসায়নিক পদার্থের গুণগত মান বৃদ্ধি করাও আমাদের অন্যতম একটি লক্ষ্য। এবং এই লক্ষ্য বাস্তবায়নে নিরাপদ রাসায়নিক পদার্থ ব্যবহার এবং রাসায়নিক পদার্থ নিয়ে কাজ করা ব্যক্তিদের স্বাস্থ্য সুরক্ষায় আমরা বদ্ধ পরিকর। এই লক্ষ্যে আমরা রাসায়নিক পদার্থ রাখার ভান্ডারগুলোর নিরাপত্তা বৃদ্ধি করবো। প্রতিটা রাসায়নিক পদার্থের ভান্ডারে আমরা Exhaust Fan বসাবো, যাতে করে ক্ষতিকর রাসায়নিক মিশ্রিত বাতাস বাইরে বেরিয়ে যেতে পারে। প্রতিটা রাসায়নিক ভান্ডারে জরুরী অবস্থায় বাইরে বেড়িয়ে যাবার জন্য আমরা পরস্পর বিপরীতমুখী দুটো করে দরজা স্থাপন করবো। প্রতিটা রাসায়নিক ভান্ডারের জন্য আলাদা আলাদা Emergency Back-Up Plan তৈরী এবং বাস্তবায়ন করবো। মেয়াদউত্তীর্ণ রাসায়নিক পদার্থ যাতে ভান্ডারে থাকতে না পারে, সেজন্য আমরা FIFO (First In First Out) পদ্ধতি ব্যবহার করবো। তরল বর্জ্য শোধনাগার (ETP) থেকে কোনভাবেই যাতে অপরিশোধিত তরল বর্জ্য বাইরে বেড়িয়ে গিয়ে পরিবেশের কোন ক্ষতি করতে না পারে, সে ব্যাপারে আমরা শতভাগ সতর্ক থাকবো।

#### 5. স্বচ্ছতা এবং ট্রেসিবিলিটি (Transparency and Traceability):

রাসায়নিক পদার্থ সংক্রান্ত যাবতীয় নথিপত্র এবং হিসাবপত্রের ব্যাপারে আমরা শতভাগ স্বচ্ছ থাকবো। একই সাথে আমরা আমাদের যাবতীয় কেমিক্যাল সংক্রান্ত Traceability নিশ্চিত করবো। এই লক্ষ্যে আমরা Root Cause Analysis নিশ্চিত করবো। আমাদের কারখানায় উৎপাদিত কোন পণ্য যদি RSL Fail করে, সেক্ষেত্রে প্রোডাকশনের রেসিপি অনুসন্ধান করে কোথা থেকে সেই RSL Fail করলো, সেই জায়গা চিহ্নিত করার জন্য প্রয়োজনীয় পদক্ষেপ নিবো। একই সাথে, এই Traceability প্রতিষ্ঠা করার জন্য প্রতিটা কেমিক্যালের সাথে Lot Number and Batch Number সংযুক্ত আছে কিনা তা নিশ্চিত করবো।

#### 6. প্রশিক্ষণ (Training):

রাসায়নিক পদার্থ নিয়ে কাজ করা প্রতিটি শ্রমিকের জন্য পর্যাপ্ত সংখ্যক ট্রেনিং এর আয়োজন নিশ্চিত করবো, এবং ট্রেনিংগুলো Onsite (কেমিক্যাল স্টোরে/সাবস্টোরে উপস্থিত থেকে) এবং Offsite (ট্রেনিং রুমে) দুইভাবেই করা নিশ্চিত করবো। ম্যানেজমেন্ট লেভেলে রাসায়নিক পদার্থ সংক্রান্ত সচেতনতা বৃদ্ধির জন্য আলাদা ট্রেনিং এবং মিটিং মিনিটের আয়োজন করবো। শ্রমিকদের জন্য করা ট্রেনিং এ নিরাপদ কেমিক্যালের ব্যবহার, পিপিই সংক্রান্ত আলোচনা, জরুরী অবস্থায় কি করতে হবে সেই সংক্রান্ত আলোচনা, MSDS and Pictogram সংক্রান্ত আলোচনা এইসব আলোচ্যসূচি সংযুক্ত থাকবে। বছরের শুরুতেই আমরা কেমিক্যাল সংক্রান্ত ট্রেনিং এর একটা ক্যালেন্ডার তৈরী করবো, সেই ক্যালেন্ডার অনুসারে সারাবছর ট্রেনিং দেওয়া হবে।

## দায়িত্বপ্রাপ্ত ব্যক্তিবর্গ:

কারখানার রাসায়নিক পদার্থ ব্যবস্থাপনা সংক্রান্ত নীতিমালা গঠন, পর্যবেক্ষণ, বাস্তবায়ন এবং সংশোধনের দায়িত্ব নিম্নোক্ত ব্যক্তিবর্গের উপর অর্পণ করা হলো:

### ১। আহমাদ সালমান পারশি

এজিএম - ইটিপি এন্ড ইসিআর  
প্যারামাউন্ট টেক্সটাইল পিএলসি



স্বাক্ষর

### ৪। অনিক বসাক

ম্যানেজার  
সাপ্লাই চেইন ম্যানেজমেন্ট  
প্যারামাউন্ট টেক্সটাইল পিএলসি



স্বাক্ষর

### ২। আমিমুল এহসান খান

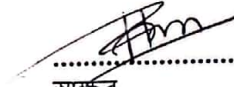
ডেপুটি ম্যানেজার - ইটিপি এন্ড ইসিআর  
প্যারামাউন্ট টেক্সটাইল পিএলসি



স্বাক্ষর

### ৫। রাশিদুল ইসলাম

সিনিয়র ডিজিএম - ইয়ার্ণ ডায়িং  
প্যারামাউন্ট টেক্সটাইল পিএলসি



স্বাক্ষর

### ৩। তপন দাস

ম্যানেজার - ম্যাটেরিয়াল ম্যানেজমেন্ট (কেমিক্যাল)  
প্যারামাউন্ট টেক্সটাইল পিএলসি



স্বাক্ষর

এই নীতিমালা সকল শ্রমিক, কর্মকর্তা, কর্মচারী, সাব-কন্ট্রাক্টর, সাপ্লায়ার এবং সর্বসাধারণের জন্য প্রকাশ করা হবে।



অনুরূপ মন্ডল,  
পরিচালক  
প্যারামাউন্ট টেক্সটাইল পিএলসি

স্বাক্ষর

# **Annexure 9**

## **Dyeing Process**

## EXISTING YARN DYEING

- **Scouring and Bleaching:** Scouring is the process of removing the impurities such as oil, fat, wax dust, and dirt from the textile material to make it hydrophilic. At first the yarn was bleached in 90°C temperature for 30 minutes to remove the natural color from the raw material.
- **Hot Wash and Dyeing:** Hot water wash is given to remove the remaining impurities after scouring at 80 °C for 10 minutes. If this yarn is put into the dye-bath without hot wash then it will change the pH of the dye-bath. After hot wash, yarn temperature increases. The yarn then dyed in selected color for 60 minutes at 60 °C temperature. To bring it back to its room temperature, cold wash is given to it.
- **Cold Wash and Neutralizing:** cold wash is given to the dyed yarn at 40°C temperature for 10 minutes to make the color more saturated. After cold wash the product again neutralized with acetic acid for 10 minutes before soaping. The desired pH range will depend on the dye stuff, so it will be checked before carrying it out.
- **Soaping To Finishing:** before the final hot wash the dyed yarn was fixed with some soaping agent at 90°C temperature for 10 minutes. Soaping is the process of removal of non-adhered dyes or hydrolyzed dyes present on the textile material after the dyeing process. The process works to improve the dye fastness on the textile. After soaping a final hot wash and cold wash is given to the dyed yarn before finishing the dyeing process. Now the yarn is ready for making fabrics.

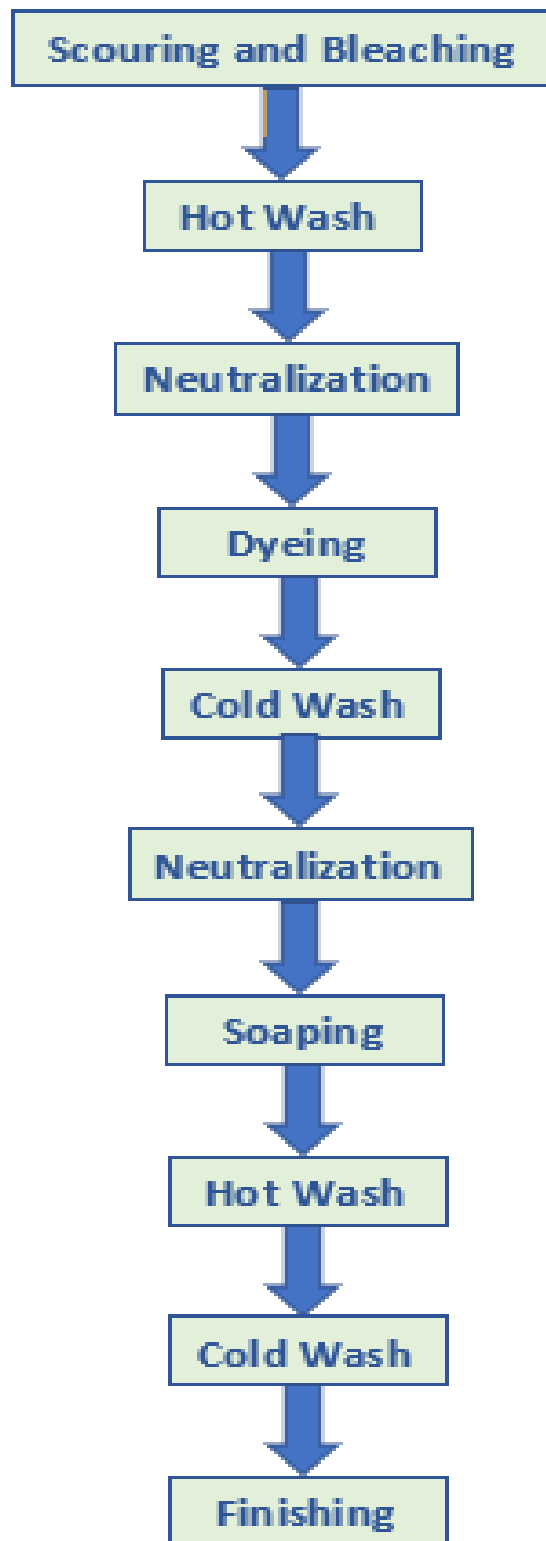


Figure 1: Process Flow diagram of Yarn Dyeing (Existing)

## EXISTING SOLID DYEING WITH PROCESS FLOW

The process of solid dyeing is mentioned in below with flow diagram in **Figure 2**;

- **Warping and Weaving:** The warping process involves winding the yarn onto the beam, sizing the yarn, preparing the beam for use on the loom, and threading the loom. The warp threads are arranged in parallel and placed on a warp beam, which is then loaded onto a loom for weaving.
- **Singeing and De-sizing:** Singeing is done to remove the loose, hairy, and projecting fibers from the surface of the fabric. These fibers are often present in natural fibers, such as cotton and wool. They can make the fabric look uneven and reduce the quality of the final product. De-sizing is done to remove the gummy materials over the fiber. These materials are often present in the form of starch or sizing agents used in the weaving process. This process makes the fabric softer, more pliable, and easier to work with.
- **Bleaching:** In this step, the natural color of the raw materials is reduced. This step is done to prepare the fabric for dyeing or to achieve a specific shade of color. Bleaching is done with the help of chemicals or by exposure to sunlight. This process makes the fabric whiter and brighter, making it easier to dye and giving it a more appealing appearance.
- **Mercerizing:** It is an additional step and it is done to increase the strength and luster of the material. This process is done by treating the fabric with sodium hydroxide under tension. This process causes the fiber to swell and makes it stronger and more lustrous. It also improves the dye uptake of the fabric, making it easier to dye and giving it a more vibrant color.
- **Dyeing and Final Inspection:** Here the material is dyed into another color. It is the last process that sees the refined appearance of the fabric that has to be manufactured. Dyeing can be done with natural or synthetic dyes, depending on the desired outcome. After the product is ready a final inspection is done to check the quality and the color of the product.

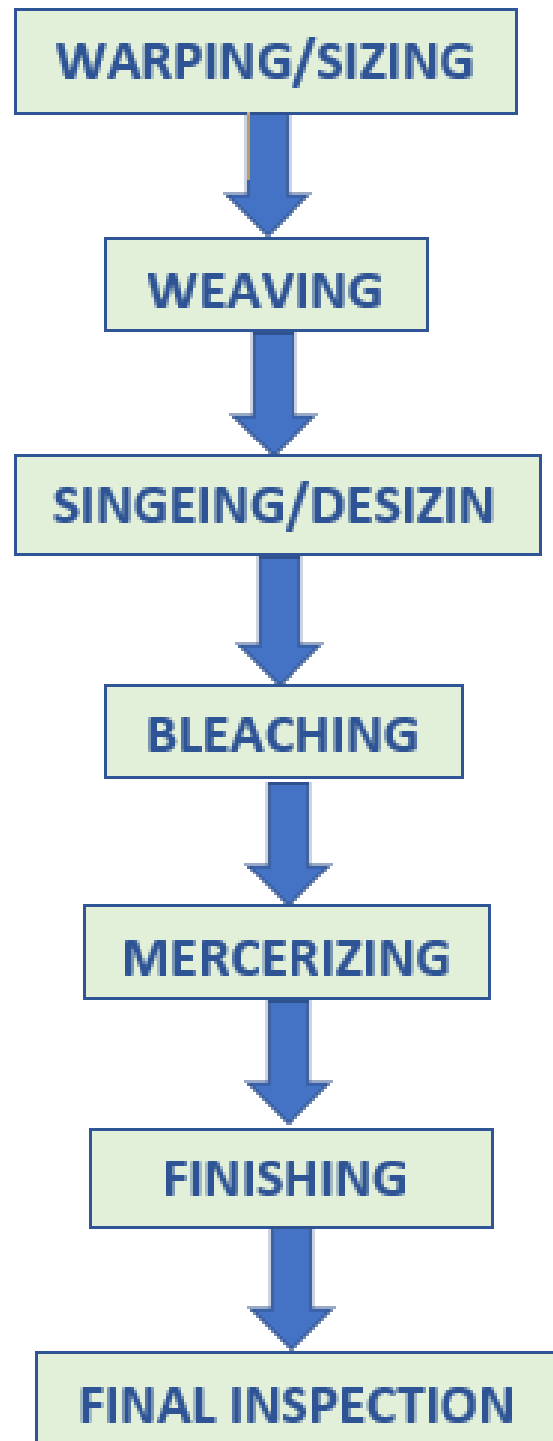


Figure 2: Process Flow diagram of Solid Dyeing (Existing)

## PROPOSED SOFT FLOW DYEING

The process flow chart of soft flow dyeing is **Figure 3**.

- **Scouring to Cold Wash:** Scouring is the process of removing the impurities such as oil, fat, wax dust, and dirt from the textile material to make it hydrophilic. At first the yarn was scouring in 90°C temperature for 50 minutes to remove the natural color from the raw material. Hot water wash at 80°C temperature for 10 minutes is given to remove the remaining impurities after scouring. To bring it back to its room temperature, cold wash at 35°C is given to it for 20 minutes.
- **Enzyme Wash to Dyeing:** The enzyme is a biocatalyst. During enzyme wash, the enzyme hydrolysis the cellulose, at first it attacks the projecting fiber and hydrolyzed them. Then it attacks the yarn portion inside the fabric and partly hydrolyze the yarn portion and a faded affect is produced. A minimum 55°C temperature should be maintained for the enzyme wash and it last for 30 minutes. After enzyme wash a continuous hot wash and a cold wash is required to remove the excess impurities from fabrics before dyeing. The fabric then dyed in selected color for 240 minutes at 50 °C temperature.
- **Neutralizing:** Cold wash is given to the dyed yarn at 35 °C temperature for 30 minutes to make the color more saturated. After cold wash the product again neutralizing with acetic acid for 20 minutes at 50 °C temperature before soaping. The desired pH range will depend on the dyestuff, so check with a technician before carrying it out.
- **Soaping And Final Cold Wash:** Before the final cold wash the dyed fabric was fixed with some soaping agent at 80°C temperature for 20 minutes. Soaping is the process of removal of non-adhered dyes or hydrolyzed dyes present on the textile material after the dyeing process.



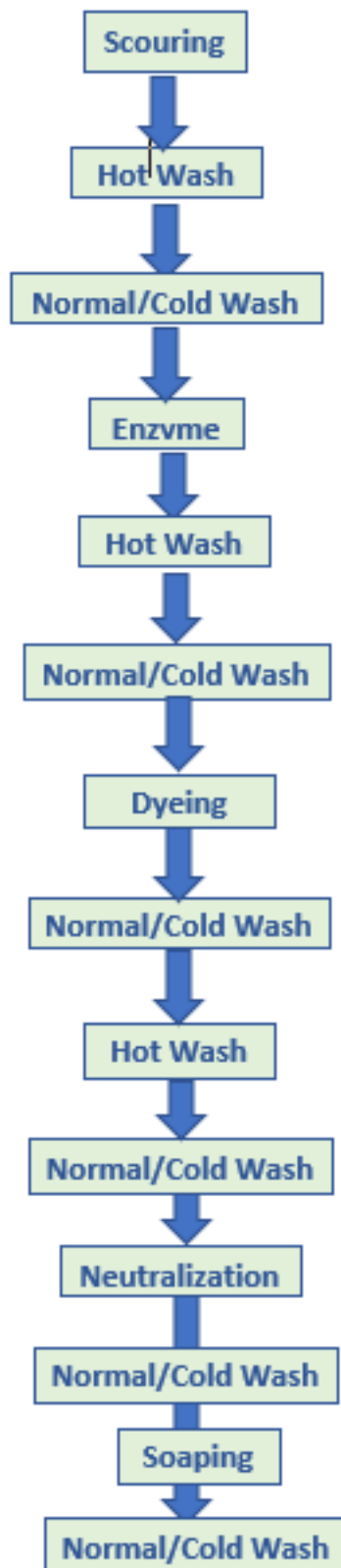


Figure 3: Process Flow diagram of Soft Dyeing (Proposed)



**Figure 4: Photograph of Various Section of Dyeing Unit**





Figure 5: Photograph of Proposed Dyeing Unit

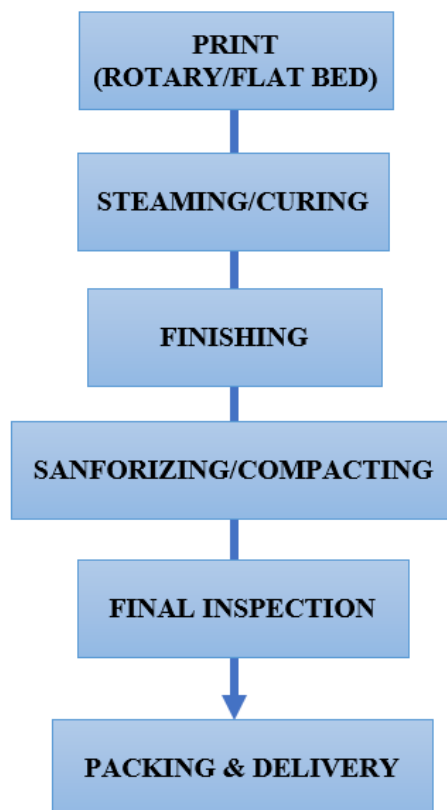
# **Annexure 10**

## **Printing Process**

## PROCESS FLOW OF PRINTING

They are using 2 types of printing methods one is pigment printing and another one is reactive printing

- **Pigment Printing:** In pigment printing they use pigments instead of dyes. The pigments do not penetrate the fiber but are affixed to the surface of the fabric by means of synthetic resins which are cured after application to make them insoluble. The pigments are insoluble, and application is in the form of water-in-oil or oil-in-water emulsions of pigment pastes and resins. The colors produced are bright and generally fast except to crocking. The process flow diagram of pigment printing is shown in **Figure 1**.
- **Reactive Printing:** In reactive printing process they use reactive dye combined with steam to permanently print into the fibers of a fabric. Reactive dyes are printed using an inkjet onto a pre-treated fabric. They are then steamed with a high heat, which sets the dye into the fabric. The dye, pre-treatment and steam cause a chemical reaction that forms a covalent bond, infusing the color into the fiber. The fabric is then washed to remove the excess dye and pre-treatment, resulting in a vibrant, long-lasting print. The process flow diagram of reactive printing is shown in **Figure 2**.



**Figure 1: Process Flow Diagram of Pigment Printing**

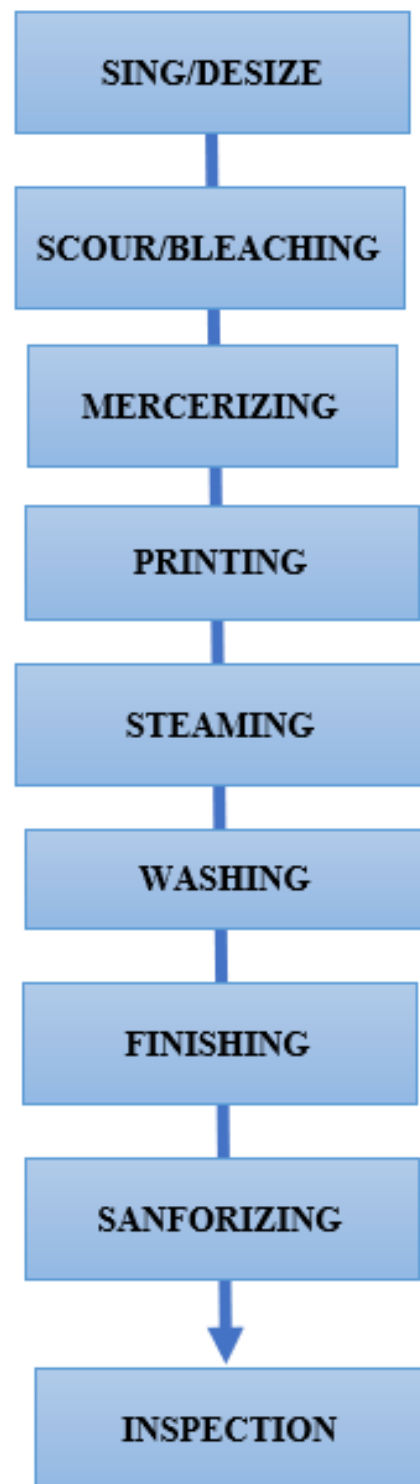
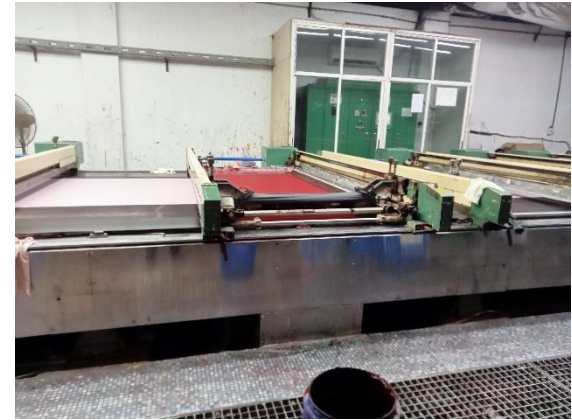
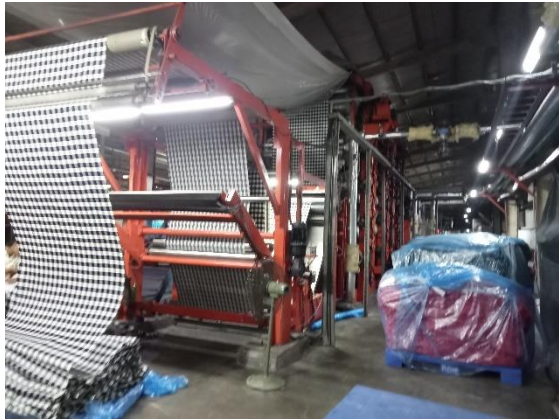


Figure 2: Process Flow Diagram of Reactive Printing





**Figure 3.12: Photograph of Various Section of Printing Unit**

# **Annexure 11**

## **ETP Description and Layout**



## **DESCRIPTION OF ETP PROCESS**

### **1. Screening:**

This section has a mechanical bar screener. The wastewater stream passes through a rotating bar screen of 2 mm size that removes any solid particles in excess of 2 mm.

### **2. Equalization Tank/Homogeneous Tank:**

Wastewater then flows to the equalization tank, where it will be allowed to stay for 23.79 hours. In this tank, there is blower and coarse bubble diffuser are present. By this blower and coarse bubble diffusers, air is continuously flown. From production section, different types of waste water are coming. Sometimes high or low pH, sometimes high or low temperature, sometimes high or low density etc. So, to make an equal/homogeneous wastewater, this tank is used. And the bubbles created from storage blowers help to equalize different types of incoming wastewater.

### **3. Neutralization Tank:**

Wastewater is pumped into this section for neutralization by adding Sulfuric Acid to adjust the pH of the wastewater, and the pH is maintained between 7 to 8. After pH adjustment, the wastewater is sent to the Distribution Tank.

### **4. Distribution Tank:**

Returned Activated Sludge from Sludge Recycle Tank and Inlet Wastewater is combinedly come into this tank. From here, returned sludge along with wastewater is sent to the Biological Oxidation Tank.

### **5. Biological Oxidation Tank:**

In the Biological Oxidation Tank, microorganisms degrade the incoming contaminants of wastewater. Microorganisms break the inlet heavy hydrocarbon bonds in the presence of oxygen. It reduces the COD and BOD of wastewater as well as other impurities, which are converted into Carbon Dioxide, Water and as a by-product, Sludge is produced. Blowers with Fine Bubble Diffusers are used to provide aeration in this tank and to promote aerobic digestion. Also, for breathing purpose of bacteria, this diffused oxygen is necessary.

### **6. Clarifier with Lamellar Packs**

Wastewater with Sludge from Biological Oxidation Tank is sent to the Lamella Type Clarifier in which Sludge settles down and returns to the Biological Oxidation Tank by Sludge Return Tank. The Clarified Treated Water from the top of the Clarifier is then sent to the Oxygen Increase Tank. Suspended Solid, BOD and COD is removed in this stage.

### **7. Oxygen Increase Tank:**

Treated water from the Clarifier is sent to Oxygen Increase Tank. Blower lines and Fine Bubble Diffusers are also installed in this tank. By this Blower and Fine Bubble Diffuser, amount of Dissolved Oxygen in outlet is maintained between 4.5 – 8 mg/L.

### **8. Outlet:**

Treated water is collected through outlet into a water collection tank. From this Collection Tank, treated water is pumped to Govt. municipal drainage line.

**9. Sludge Return Tank:**

The settled sludge from the bottom of the Clarifier is passed to the sludge return tank by sludge return pump. After accumulating that sludge in the sludge return tank, the sludge are treated before disposed off.

**10. Sludge Thickening Tank:**

The Excess Sludge from the Clarifier Tank, is sent to the Sludge Thickening Tank where, Polyelectrolyte is used to make that excess sludge denser.

**11. Sludge Dewatering and Drying:**

After thickening, denser sludge is sent to the centrifuge machine where, the water is separated from the sludge by centrifugal force and then sent to the oxidation tank. The remaining sludge is formed into a cake. After cake formation, that sludge cake is stored into the sludge godown for 06 months. After 06 months, that sludge is no longer active and then they are converted to dried sludge.

**12. Final Destination of Dried Sludge (Offsite Incineration Process more than 1000°C):**

Finally, the dried sludge is sent to the Cement Industry (Lafarge Holcim Bangladesh Limited) for reusing in Geo-Cycle Unit. In the Geo-Cycle Unit, dried sludge is co-processed (more than 1000°C) and converted into ash. Certificate of dried sludge dispatching to the Lafarge Holcim Bangladesh Limited is attached in **Annexure 5**.

## **EXISTING ETP LAYOUT**

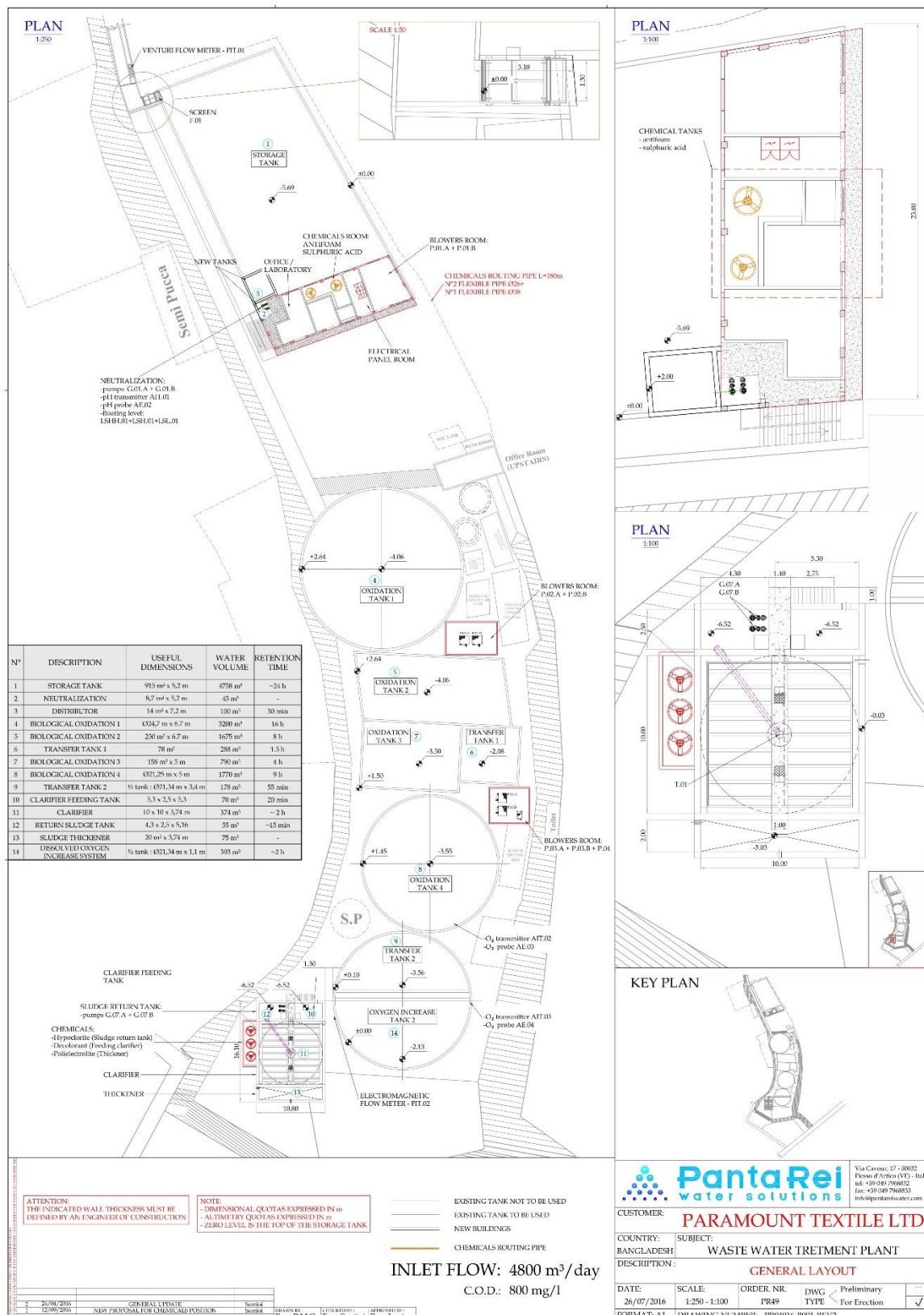
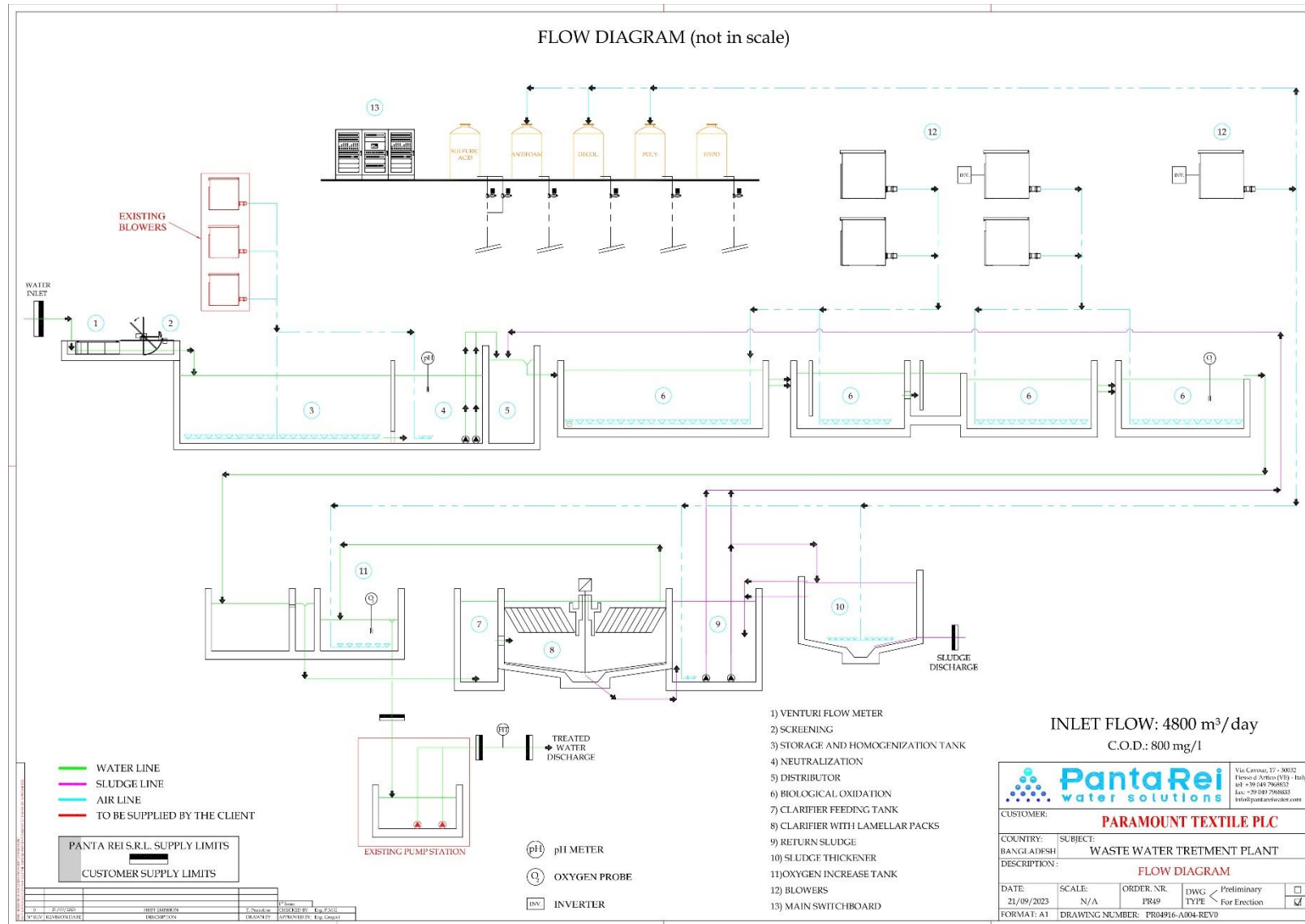


Figure 1: Layout of Existing ETP



**Figure 2: Process Flow of Existing ETP**

# **PROPOSED ETP LAYOUT**

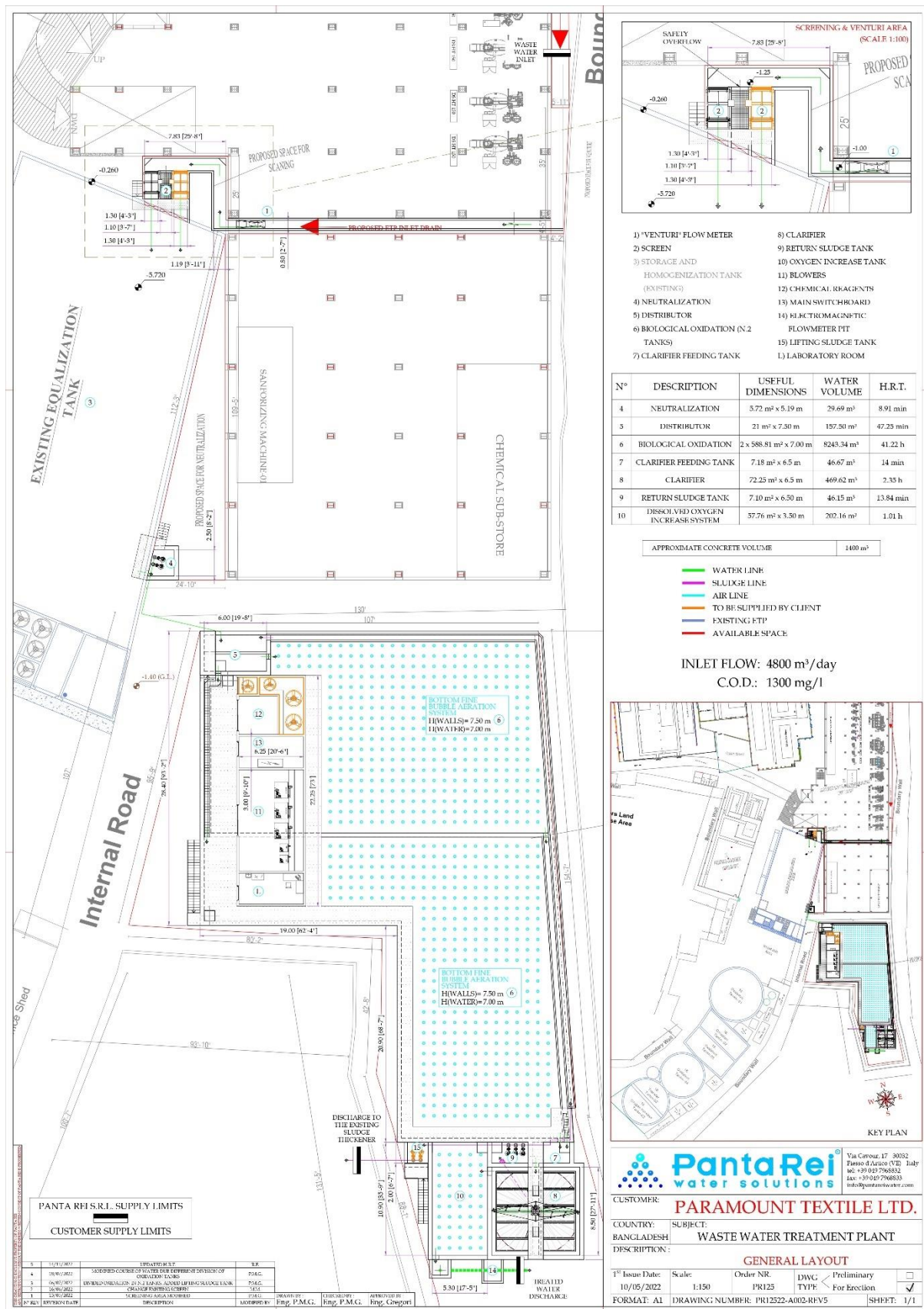


Figure 3: Layout of Proposed ETP







# **Annexure 12**

## **Certificate from Lafarge Holcim Bangladesh Limited**



Ref.: LHBL/AFR/Paramount

Date: November 2, 2022

## Certificate of Acknowledgement of Waste Acceptance

This is to certify that LafargeHolcim Bangladesh Limited, having waste co-processing approval from Department of Environment, has received the following items:

**Company/Generator** : Paramount Textiles Ltd.  
**Type of Waste** : ETP SLUDGE  
**Total Quantity/Volume** : 7.29 MT

Date Delivered	Truck No.	Type of Waste	Received (in MT)	Tentative Date of Disposal	Co-Processed (in MT)
October 26,2022	DM TA 24-7853	ETP SLUDGE	7.29	November, 2022	-
			7.29		-

This certificate is issued to acknowledge that the material listed above has been received Paramount Textiles Ltd.by LafargeHolcim Bangladesh Limited for destruction purpose. Final disposal certificate for all consignments will be provided after the actual destruction.

**Nur-E-Tamrin Chowdhury**  
Executive-Sales, Branding and Communication (Geocycle)  
LafargeHolcim Bangladesh Limited

**Kaushik Mukherjee**  
Head of Geocycle  
LafargeHolcim Bangladesh Limited

# **Annexure 13**

## **WTP Description and Layout**

## **WTP PROCESS FLOW**

WTP is designed to treat ground and rain water by softener plant-ion exchange process for use them in dyeing, washing & printing sections, which has been described below:

### **Softener Plant -Ion Exchange:**

Ion exchange process is used for water softening. As hard water flows through a column of cation exchange resin, calcium and magnesium ions are replaced with sodium ions. The softened water is more compatible with soap, reduces scale buildup in pipes and appliances, and extends the lifespan of water-using equipment.

Over time, the resin becomes saturated with unwanted ions and loses its effectiveness. To restore its capacity, regeneration is necessary. This involves passing a concentrated solution of the desired ions (e.g., sodium chloride for cation exchange resin) through the resin bed, displacing the captured ions and preparing the resin for another cycle of ion exchange.

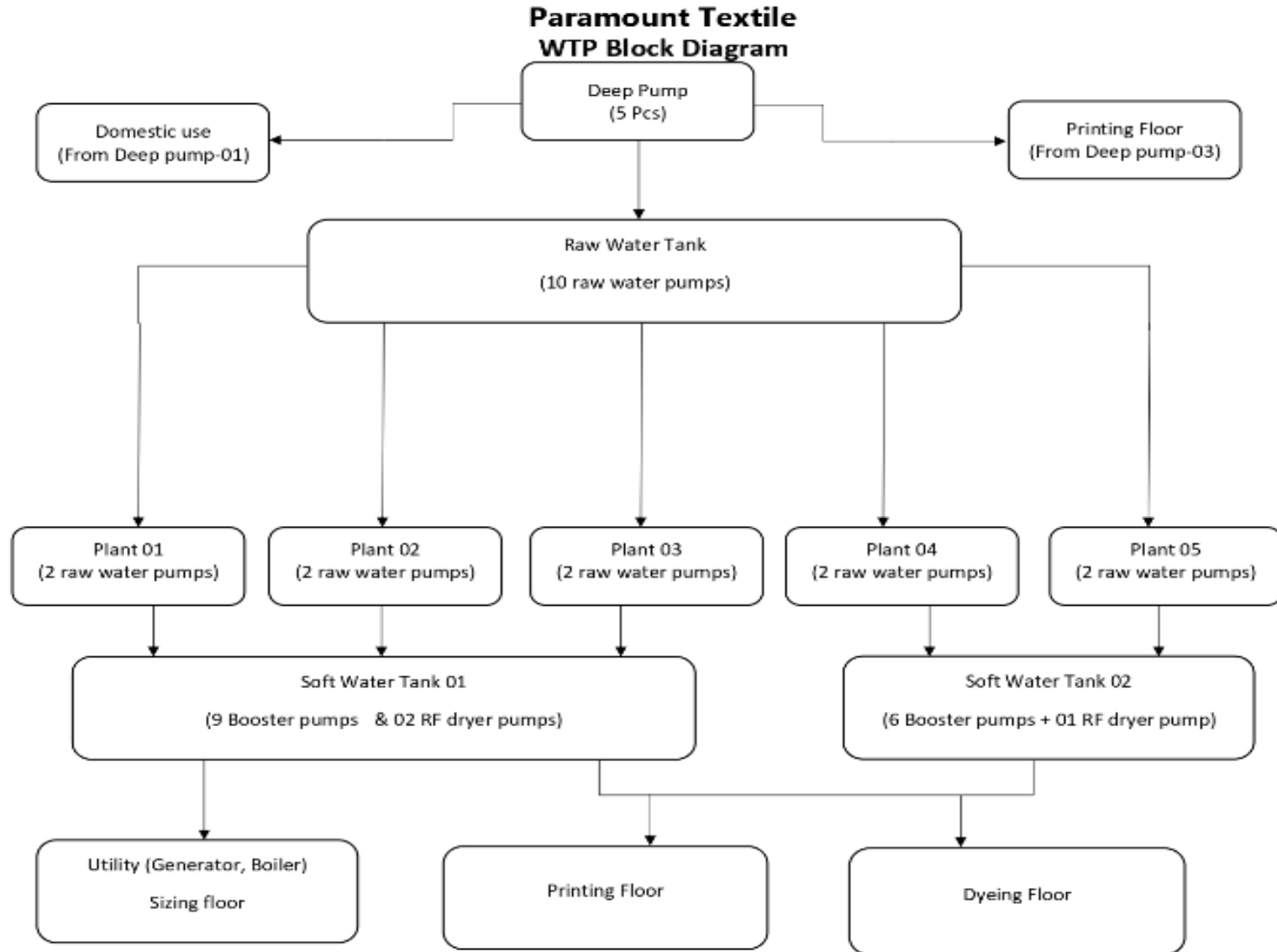


Figure 1: Process Flow Diagram of Each Water Treatment Plant

# **Annexure 14**

## **Sewage Treatment**

# SEWAGE WASTE TREATMENT

The proposed treatment process for sewage waste water will comprise of the following steps. Process flow diagram of proposed STP is given in **Figure 1**.

## **1. Physical Treatment (Collection Tank)**

The physical pretreatment involves a screening, oil & grease trap, Equalization. The wastewater stream will pass through oil & grease trap and bar screen of 2mm size that will remove any solid particles and floating in excess of 2 mm. This screen will have manual cleaning system. Then the wastewater flow equalization tank where wastewater will be allowed to stay in equalization tank for around 10-12 hours depending on the nature of wastewater by gravity. In this tank wastewater will be homogenized by using air flow by air blower or submersible mixer and temperature will also be minimized. Then the wastewater will be pumped to the MBBR biological treatment.

## **2. MBBR Tank**

The wastewater is lead into the bio tank by pump (from Collection or septic tank). Recirculation pump is fitted for recirculating the waste water by Nozzle spray system distributing the waste water over biomedia. Upper part of biomedia works as trickling filter and Lower part works as contact filter. From biotank waste water continues to settling tank also equipped with biomedia (contact filter) and finally discharge through outlet.

## **3. Clarifier tank**

Wastewater from MBBR tank will be flowed to the lamella type clarifier in which solid particles will be settled down and separately collected in a sludge tank. The clarified water from the top of the clarifier will be collected in the UV disinfection water tank. Suspended solid, iron and COD will be removed in this stage.

## **4. Sludge Management System**

Sludge from the lamella settler will be taken to the sludge tank, will be thickened further in the sludge tank and the thickened sludge will be pumped the filter press for the dewatering of sludge to make it in the form of cake.

# Process Flow Chart (MBBR\_STP)

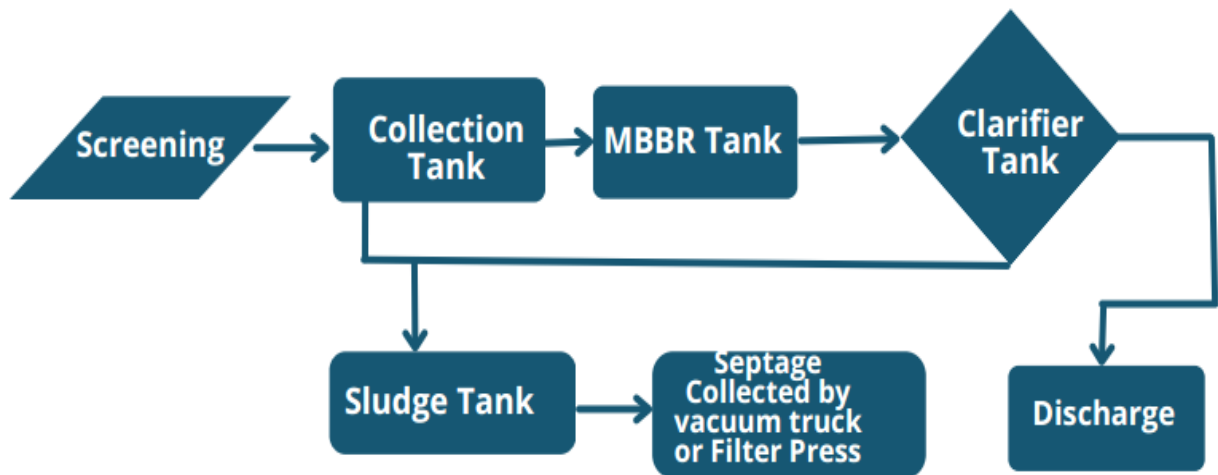


Figure 1: General Process Flow Diagram of all STP



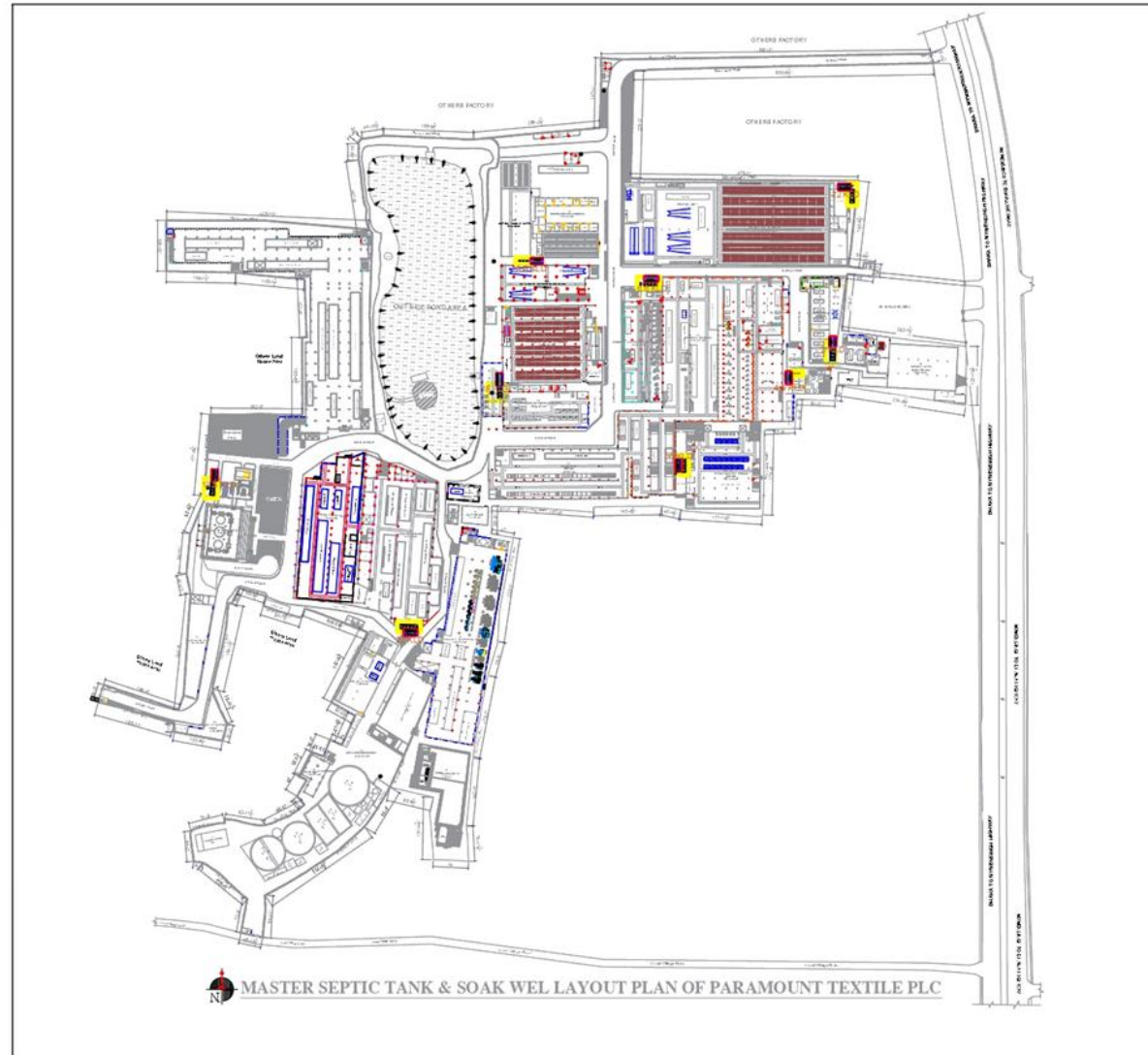
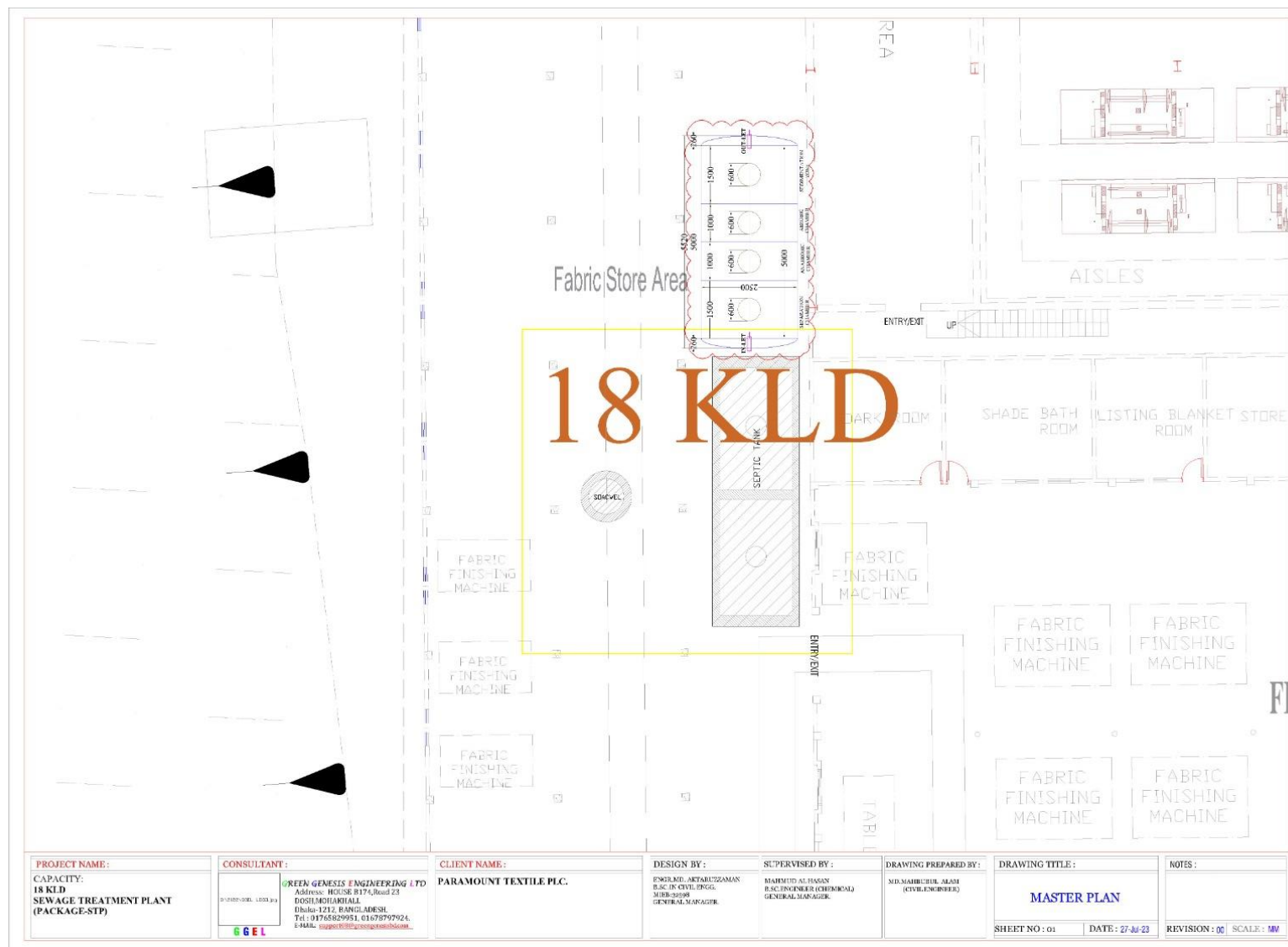
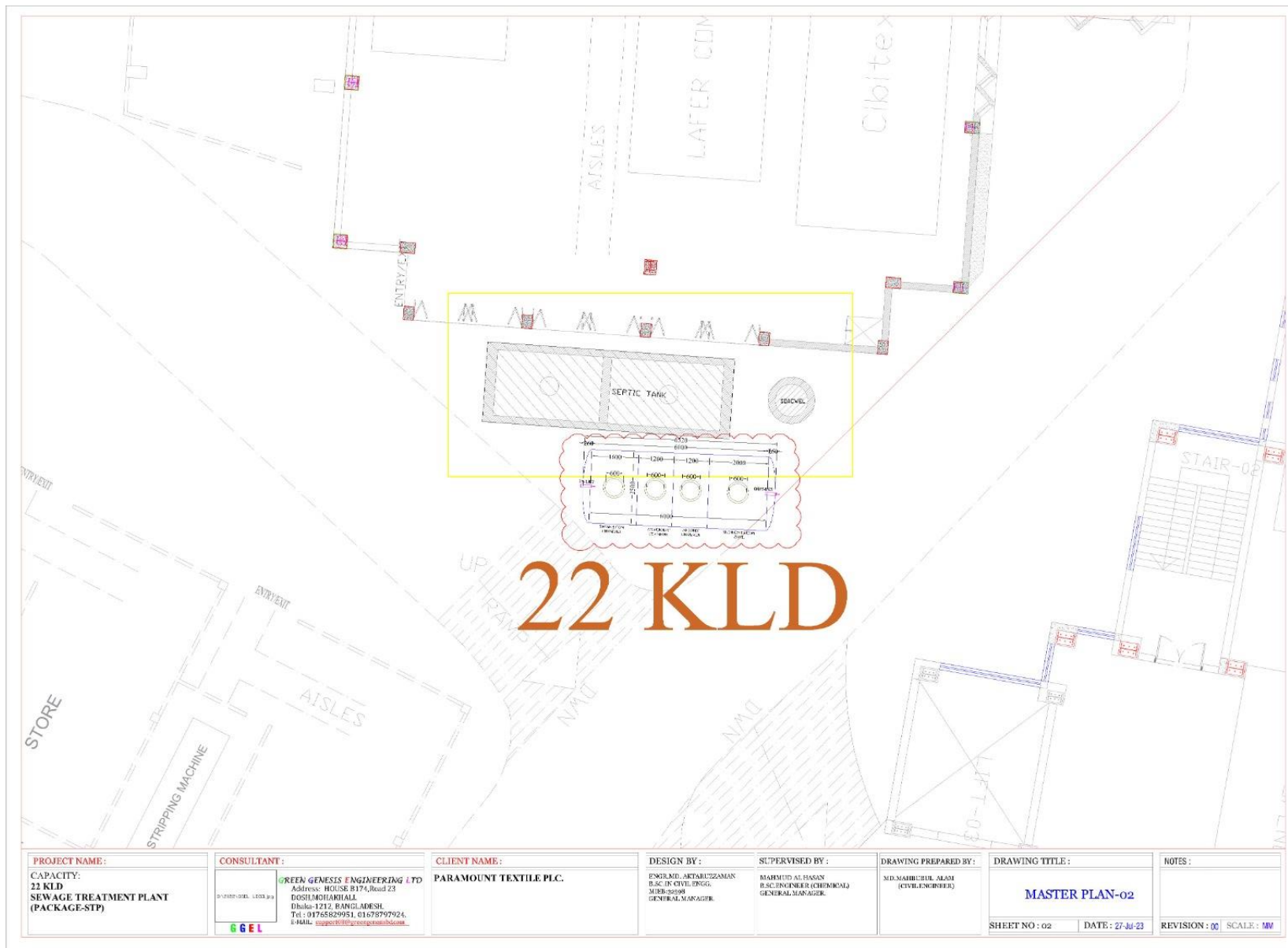
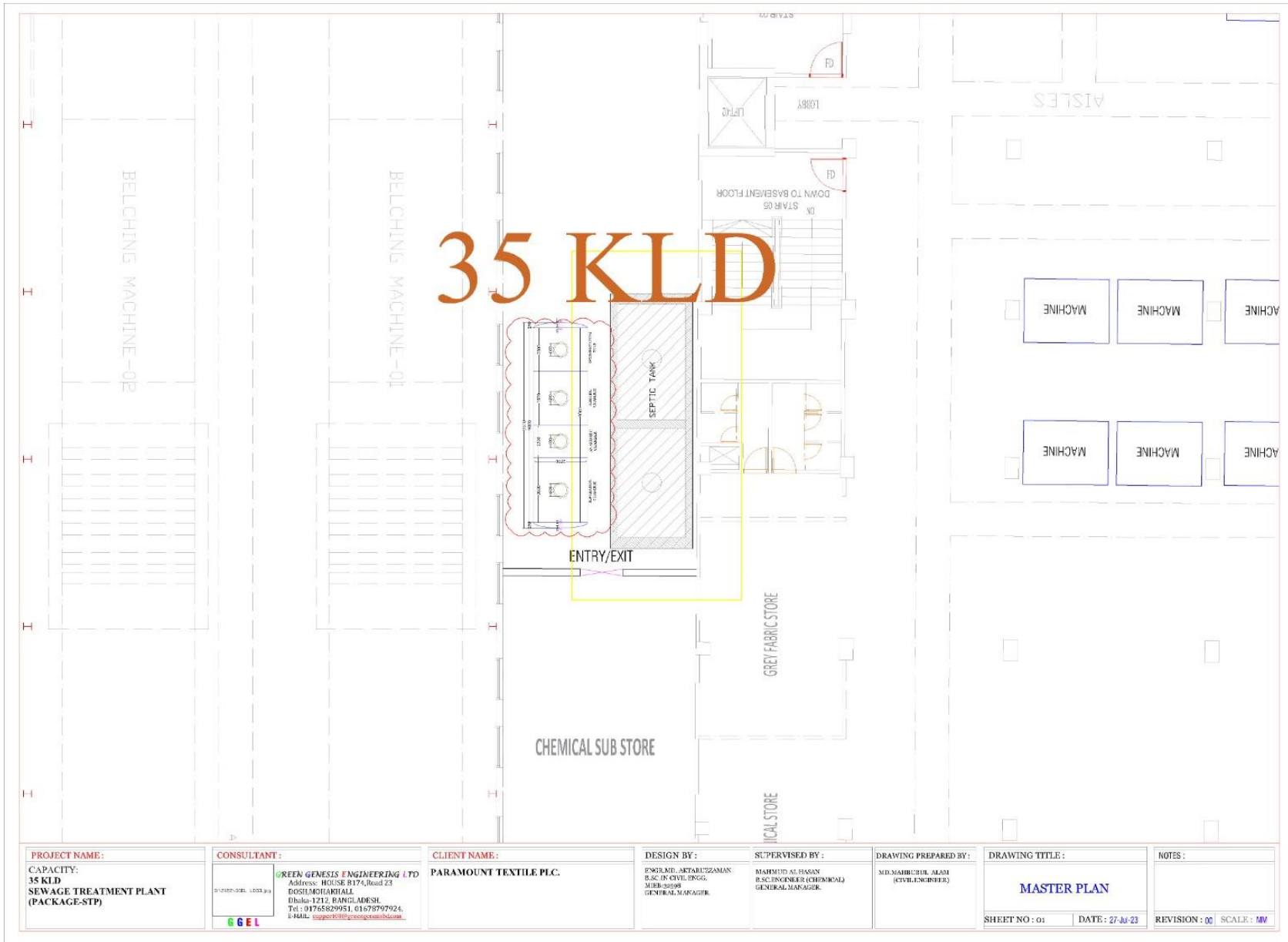
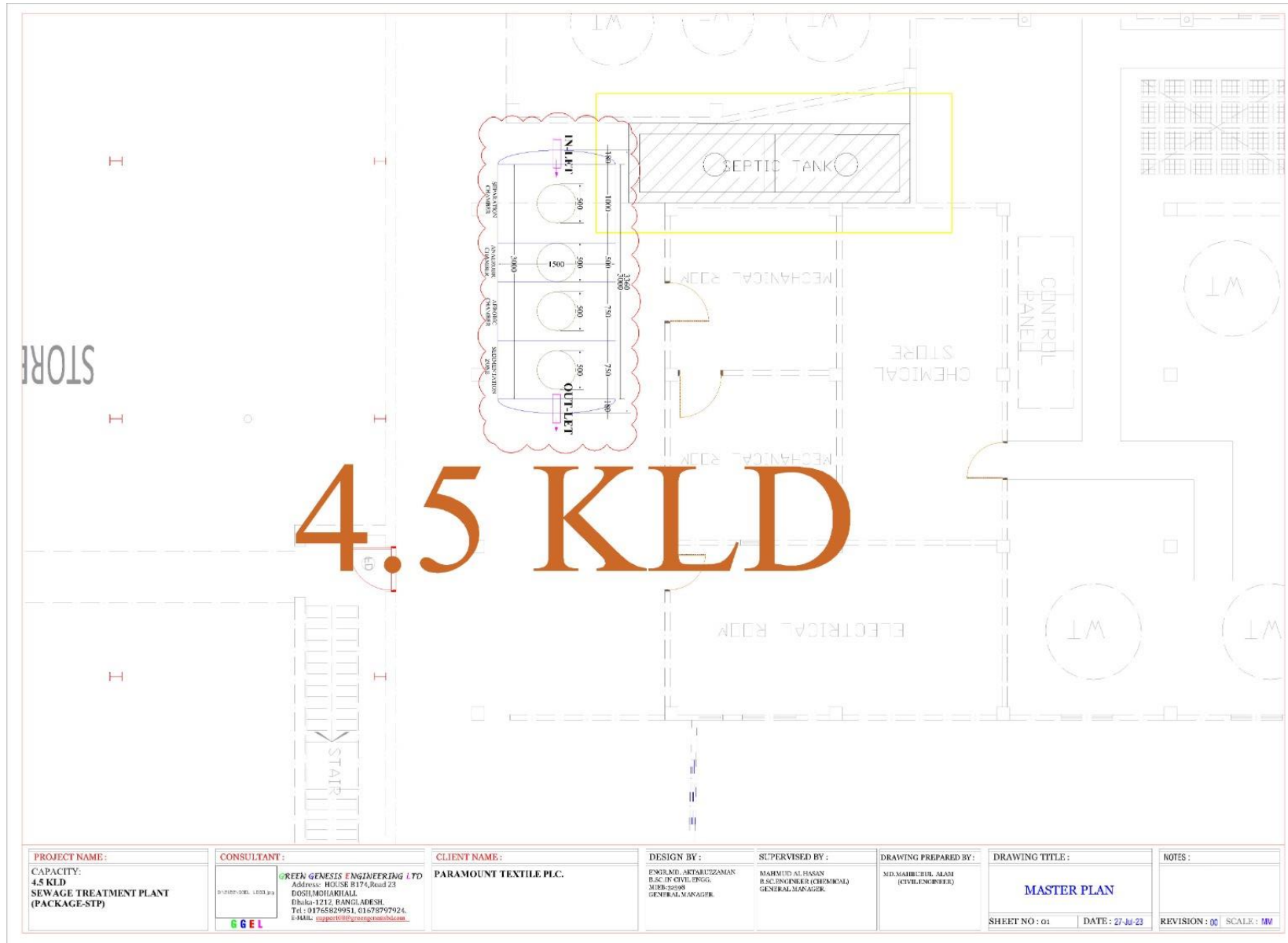


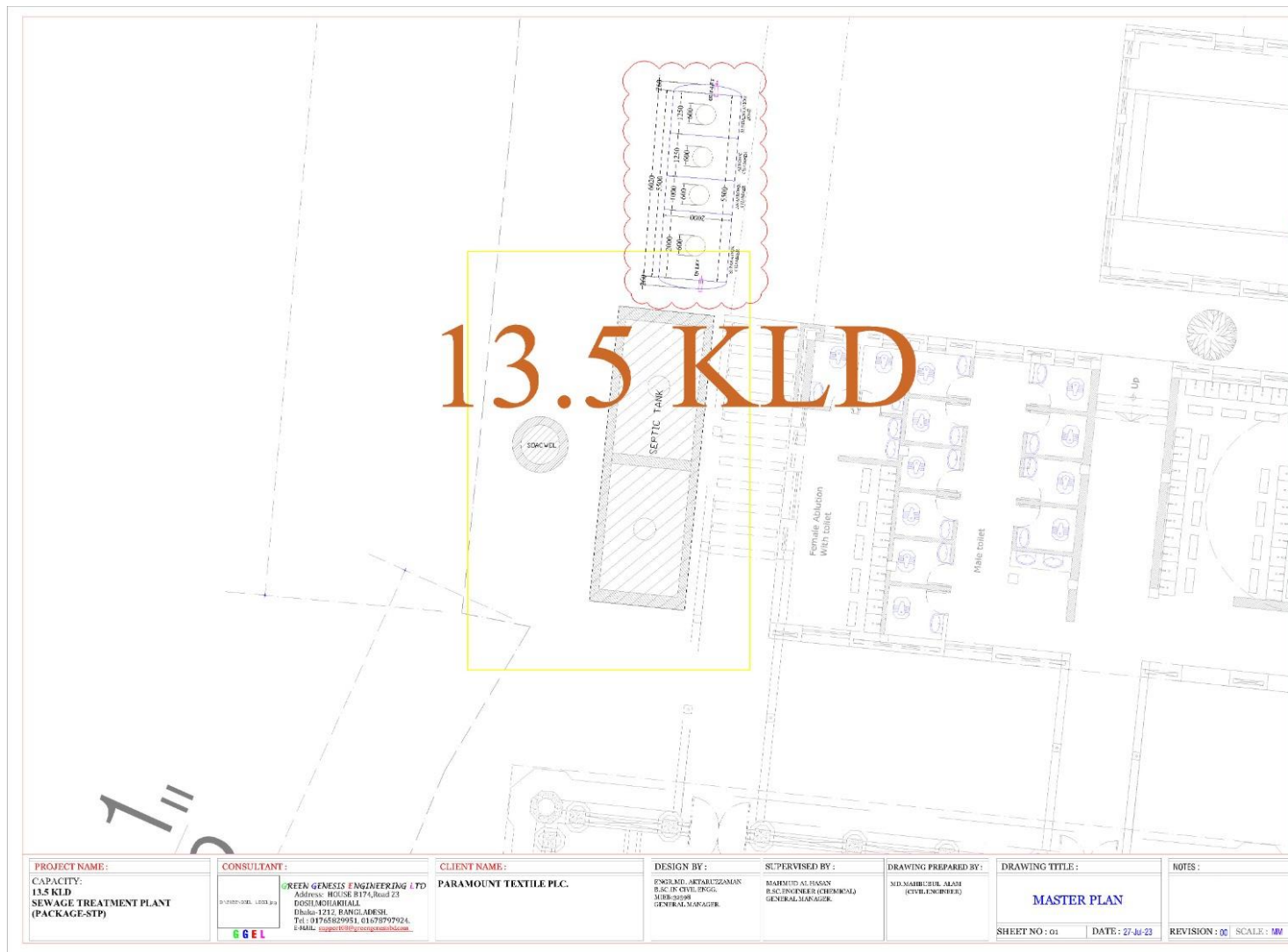
Figure 2: Location of Septic Tank















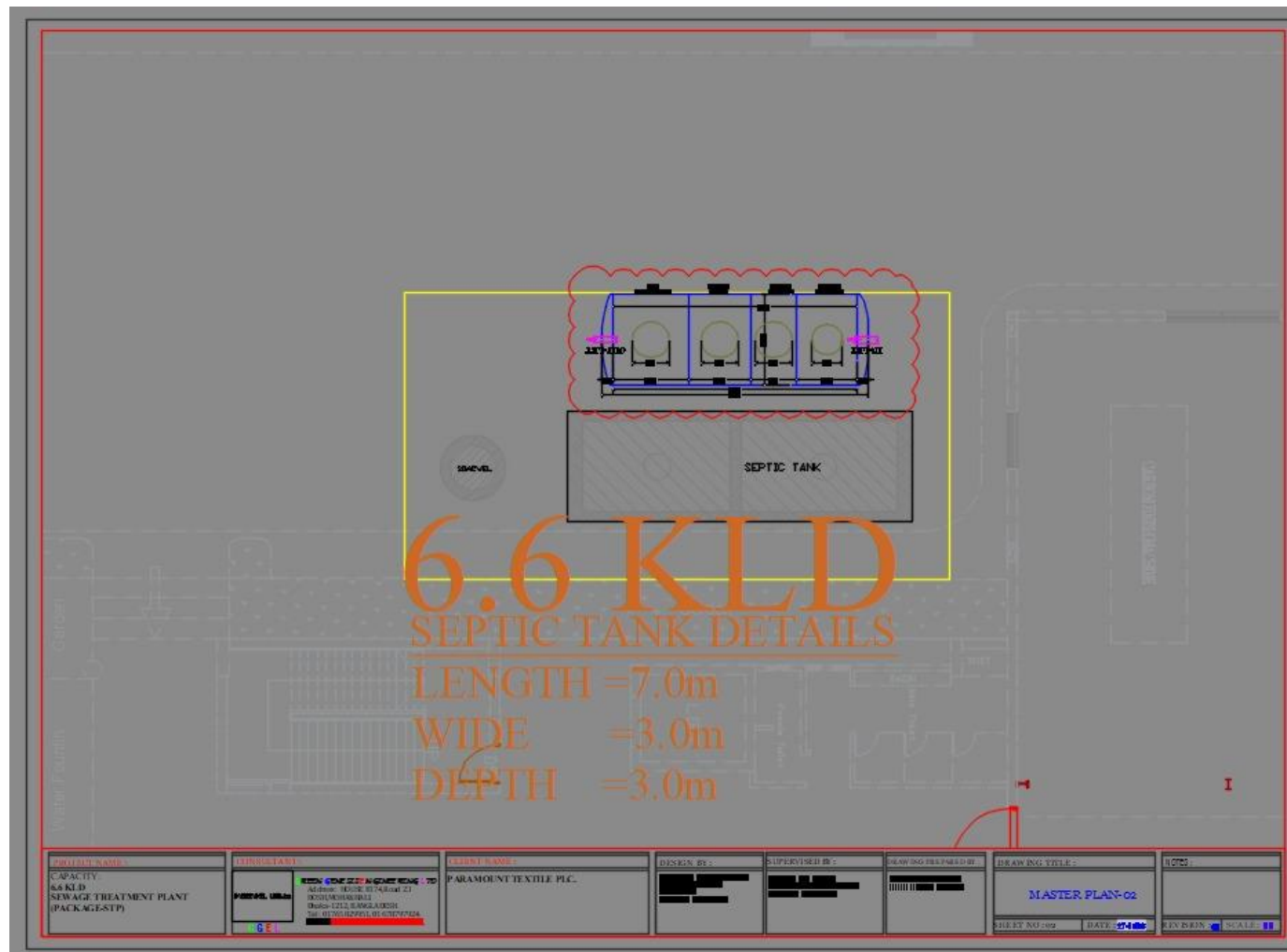


Figure 3: Layout of all STP



# **Annexure 15**

## **Fire Equipment List**

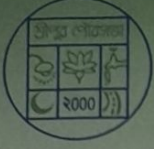
## FIRE EQUIPMENT LIST

SL No.	Equipment Name	Quantity
1.	ABC Fire Extinguisher	915
2.	CO2 Fire Extinguisher	380
3.	Foam Fire Extinguisher	110
4.	Fire Hook	12
5.	Fire Bitter	15
6.	Fire Bucket	12
7.	Fire Alarm	156
8.	Visual Fire alarm	162
9.	Fire Hose Rill	118
10.	Fire Hydrant Hose Box	15
11.	Piler Hydrant	18
12.	Landing Valve	114
13.	Emergency Light	138
14.	Fire Detector	2600
15.	Exit Light	185
16.	Gas Mask	60
17.	Hand Gloves	66
18.	Helmet	85
19.	Manual Call Point	180
20.	Sprinkler Zone Control Valve	7
21.	Fire Brigade Connection	3
22.	Sprinkler	690
23.	Vem Detector	40
24.	Fire Door	63
25.	Fire panel	4
26.	Riser	17

**Annexure 16**

**Ground Water**

**Withdrawal Permission**



# শ্রীপুর পৌরসভা কার্যালয়

(একটি স্থানীয় সরকার প্রতিষ্ঠান)

শ্রীপুর, গাজীপুর। ফোন : ০৬৮২৫-৫১৩১০-১১, মোবাইল : ০১৭১১-৬৯৪০৪১

স্মারক নং শ্রীপৌঃ/স্বাস্থ্য-৬১/২০২৩/০০২

তারিখঃ ১২/০২/২৩

প্রাপক,

ব্যবস্থাপনা পরিচালক,  
প্যারামাউন্ট টেক্সটাইল পিএলসি  
বেড়াইদের চালা, শ্রীপুর, গাজীপুর।

বিষয়ঃ- পৌরসভা আইন মোতাবেক পানির উৎস/কুপ খনন/ গভীর নলকূপ স্থাপনের অনুমতি পত্র।

সূত্রঃ- আপনার আবেদন পত্র তাং -১৩/০২/২০২৩ ইং।

উপর্যুক্ত বিষয় ও সূত্রের প্রেক্ষিতে স্থানীয় সরকার পৌরসভা আইন ২০০৯ সংশোধিত ২০১০ এর আলোকে পৌর এলাকায় জনস্বাস্থ্য উন্নয়ন ও শিল্পের অগ্রগতি বিবেচনা করে “০”-০৬” ইঞ্চি ডায়াপাইপের ০১ (এক) টি গভীর নলকূপ স্থাপনের অনুমতি প্রদান করা হইল।

শর্তাবলীঃ

- ❖ সরকারী বিধি অনুসরণ করে পানি উত্তোলন করতে হবে।
- ❖ উত্তোলিত পানি নিয়ম নীতি মোতাবেক ড্রেন/ক্যানেলে অবমুক্ত করতে হবে।
- ❖ জলাবদ্ধতা সৃষ্টি হয় এমন কোন কার্যক্রম পরিচালনা করা যাবে না।
- ❖ কোন শর্ত ভঙ্গ হলে এই অনুমতি পত্র বাতিল বলে গন্য হবে।

13-02-23

মোঃ আনিছুর রহমান  
আলিহাঙ্গুনোঃ আনিছুর রহমান  
মেয়র

শ্রীপুর পৌরসভা, গাজীপুর।

# **Annexure 16**

## **Application for the NOC from WARPO**

তারিখ: ১৫/০২/২০২৪ইং

ফরম-৭

[বিধি ৩১(২) দ্রষ্টব্য]

নলকূপ স্থাপনের নিমিত্তে অনাপত্তির জন্য আবেদন  
(গভীর/অগভীর)

প্রতি

নির্বাহী কমিটি

জাতীয় পানি সম্পদ পরিষদ

মাধ্যম: মহাপরিচালক, পানি সম্পদ পরিকল্পনা সংস্থা।

আমি বা আমরা, সাখাওয়াত হোসেন (ব্যবস্থাপনা পরিচালক) প্যারামাউন্ট টেক্সটাইল পিএলসি, নিম্নস্বাক্ষরকারী, গভীর বা অগভীর নলকূপ স্থাপন করিয়া সাকশান পদ্ধতি/ফোর্সমোডে ভূগর্ভস্থ পানি ধারক স্তর হইতে পানি আহরণ/ব্যবহার/সরবরাহের উদ্দেশ্যে অনাপত্তিপত্র ইস্যুর অনুরোধ জানাইয়া প্রয়োজনীয় কাগজপত্র ও বিবরণ সংযুক্তক্রমে আবেদন করিতেছি।

১। আবেদনকারীর পূর্ণ নাম ও ঠিকানা : প্যারামাউন্ট টেক্সটাইল পিএলসি, গিলারচালা, শ্রীপুর, গাজীপুর।

ক. সাধারণ তথ্য:

- (১) ন্যূনতম গভীর নলকূপ স্থাপনের শিরোনাম: প্যারামাউন্ট টেক্সটাইল পিএলসি, গিলারচালা, শ্রীপুর, গাজীপুর।
- (২) ভূগর্ভস্থ পানি উত্তোলনের লক্ষ্য ও উদ্দেশ্য: ভূগর্ভস্থ পানি কাপড় উৎপাদনের কাজে এবং ঘরোয়া প্রয়োজনে ব্যবহার করা হবে।
- (৩) নলকূপের অবস্থান: প্যারামাউন্ট টেক্সটাইল পিএলসি, গিলারচালা, শ্রীপুর, গাজীপুর।

খ. কারিগরি তথ্য

- (১) পানি উত্তোলনের লক্ষ্যমাত্রা (ঘনমিটার/ঘন্টা): ৪০৮ ঘনমিটার/ঘন্টা।
- (২) পানি উত্তোলনের পদ্ধতি: ডিপ টিউবওয়েল।
- (৩) ব্যবহৃত মটরের ক্ষমতা (অশ্ব শক্তি): ১১, ৩৬, ৪০, ৪০, ৪০, ৫০ এইচপি।
- (৪) নলকূপের গভীরতা (ফুট): ৩৮০, ৩৮০, ২৮০, ২৮০, ২৮০, ২৮০ ফুট।
- (৫) নলকূপে ব্যবহৃত পাইপের ব্যাস (ইঞ্চি): সাকশান = ২", ৪", ৪", ৪", ৪", ৬" ডায়া।
- (৬) প্রতিদিন পানি উত্তোলনের পরিমাণ (ঘনমিটার/দিন): ৩৮৪০ ঘনমিটার/দিন।
- (৭) পানির উৎসের বিবরণ: ভূগর্ভস্থ পানি।
- (৮) পরিত্যক্ত বা নির্গমিত পানির স্থানের বিবরণ: তরল বর্জ্য কারখানার নিজস্ব ইটিপিতে পরিশোধিত হয়ে পৌরসভার ড্রেনে যায়, এবং ঘরোয়া কাজে ব্যবহারিত পানি অন-সাইট সেপটিক ট্যাঙ্কে যায়।
- (৯) নিকটস্থ নলকূপের বিবরণ: আশেপাশে গভীর নলকূপ আছে।

গ. দালিলিক প্রতিপালন সম্পর্কিত তথ্য (গভীর নলকূপের ক্ষেত্রে)

- (১) জাতীয় পানি নীতি অনুসৃত হয়েছে কিনা।
- (২) জাতীয় পানি সম্পদ পরিকল্পনার সাথে সংগতিপূর্ণ কিনা।
- (৩) বিদ্যমান পঞ্চবার্ষিকী পরিকল্পনার উদ্দেশ্যের সহিত সংগতিপূর্ণ কিনা।
- (৪) টেকসই উন্নয়নের লক্ষ্যমাত্রা অর্জনে সহায়ক কিনা।
- (৫) আবেদনকারী প্রতিপালন আদেশ, অপসারণ আদেশ ও সুরক্ষা আদেশ এর শর্ত ভঙ্গকারী কিনা।

ঘ. প্রশাসক তথ্য

- (১) স্থানীয় কর্তৃপক্ষের অনাপত্তি (প্রযোজ্য ক্ষেত্রে)।
- (২) পানির মূল্য পরিশোধের বিবরণ (প্রযোজ্য ক্ষেত্রে)।

আমি বা আমরা হলফ করিয়া ঘোষণা করিতেছি যে, এই আবেদনপত্রে প্রদত্ত যাবতীয় তথ্য এবং সংযুক্ত সকল কাগজাদি আমার জ্ঞান ও বিশ্বাস মতে সত্য, সঠিক ও নির্ভুল।

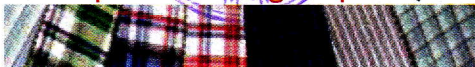


আবেদনকারীর স্বাক্ষর  
**Shakhawat Hossain**  
Managing Director  
Paramount Textile PLC.

Recd  
Sd/-  
15.02.24



[www.paramountgroupbd.com](http://www.paramountgroupbd.com)



Head Office:  
House # 22, Level-2, 5-8, Road # 113/A  
Gulshan-2, Dhaka-1212, Bangladesh

Tel : + 88 02 55049833-37  
Cell: + 88 01709631429, 01729242476  
e-mail: info@paramountgroupbd.com



# **Annexure 17**

## **Scientific Approach for Baseline Study**

## SCIENTIFIC APPROACH FOR BASELINE STUDY

### ➤ Particulate/Air Quality Monitoring

Particulate monitoring is accomplished with air quality detectors that deliver precise measurement data in real-time for a wide range of air pollutants in a discreet & compact package. For indoor air quality monitoring **Life Basis Formaldehyde Detector** is used and for outdoor ambient air monitoring **APM460 BL** air detector is used. Measurable parameters include: Ozone ( $O_3$ ), Nitrogen dioxide ( $NO_2$ ), Nitrogen oxide ( $NO_x$ ), Carbon monoxide (CO), Carbon dioxide ( $CO_2$ ); Sulphur dioxide ( $SO_2$ ), Volatile organic compounds (VOC), and particulate matter by mass ( $PM_{10}$  and  $PM_{2.5}$ ) or size distribution (0.3 to 10  $\mu m$ , 8 channels).



*(Life Basis Formaldehyde Detector)*



*APM460 BL*

**Figure 1: Particulate/Air Quality Monitoring Instrument**

### ➤ Monitoring of Noise Level

Noise level monitoring is performed for 24 hours (day and night) using Noise Meter (CEM Sound Level Meter). At the time of measurement, whenever there was an interfering effect like mike noise, human voice from house and bazaar, vehicular sound, sound of machine and tool from workshop etc., was also recorded.



**Figure 1.4: Noise Meter (CEM Sound Level Meter)**



### ➤ **Stack Intensity**

Stack intensity monitoring is performed by using Testo 350 meter. The testo 350 is a rugged, easy-to-use exhaust gas analyzer designed to meet the highest demands when it comes to carrying out precise industrial emission measurements and providing proper data administration.



**Figure 1.6: Stack Intensity Monitoring Meter (Testo 350)**

### ➤ **Water Sampling Method**

The procedures described are to be used by field personnel when collecting and handling water samples in the field. On the occasion that field personnel determine that any of the procedures described in this section are either inappropriate, inadequate or impractical and that another procedure must be used to obtain a water sample, the variant procedure will be documented in the field logbook, along with a description of the circumstances requiring its use. Prepare a Sampling and Analysis Plan (SAP) which describes the sampling locations, numbers and types of samples to be collected, and the quality control requirements of the assigned project.

### **Equipment**

1) Plastic Bottle 2) Gloves

### ➤ **Water sampling procedure**

1. Select a cold-water faucet for sampling which is free of contaminating devices such as screens, aeration devices, hoses, purification devices or swiveled faucets. Check the faucet to be sure it is clean. If the faucet is in a state of disrepair, select another sampling location;
2. Open the faucet and thoroughly flush. Generally, 2 to 3 minutes will suffice;
3. Do not rinse or overfill container. Close the plastic bottle cap and store in the icebox.

# **Annexure 18**

## **Drainage Layout**



# **Annexure 19**

## **Analytical Test Report**

## **AECL LABORATORY ANALYSIS REPORT** **AMBIENT AIR QUALITY TEST REPORT**

**Project Name** : Paramount Textile PLC

**Project Location** : Sreepur, Gazipur

**Description of Sample** : Ambient Air Quality Analysis Report

**Sample Collector** : Adroit Environment Consultants Ltd. (Monitoring team)

**Sampling date** : 9<sup>th</sup>-11<sup>th</sup> November, 2023

**Reporting date** : 23<sup>th</sup> November, 2023

### **Description of analysis**

Parameter	PM <sub>2.5</sub>	PM <sub>10</sub>	SPM	SO <sub>2</sub>	NO <sub>x</sub>
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
Duration (H)	24	24	8	24	1
Method	Gravimetric	Gravimetric	Gravimetric	West-Geake	Jacob and Hochheiser
AQ1	26	28	59	3.5	2.4
AQ2	33	38	75	3.8	4.2
AQ3	24	27	55	2.8	3.1
AQ4	39	32	68	4.01	3.5
AQ5	35	37	78	3.1	4.1
DoE Standard	65	150	200	80	NF
IFC Standard	75	150	NF	125	200

(NF – not found, DoE – Department of Environment))

Note: This monitoring report was usually accomplished by - (AQ-150 Monitor)

1. Fine Particulate Matter (PM<sub>2.5</sub>).
2. Respirable Dust Content (PM<sub>10</sub>).
3. Suspended Particulate Matter (SPM).
4. Oxides of Nitrogen (NO<sub>x</sub>).
5. Oxides of Sulfur (SO<sub>2</sub>).

**Comment:** From the aforementioned results it is discernible that, all the parameters are inside allowable limits.



**Md. Faisal Bin Mahmud**  
Sr. Chemist




**Md. Saiful Islam**  
General Manager

## **AECL LABORATORY ANALYSIS REPORT** **AMBIENT NOISE QUALITY TEST REPORT**

**Project Name** : Paramount Textile PLC

**Project Location** : Sreepur, Gazipur

**Description of Sample** : Ambient Noise Quality Analysis Report

**Sample Collector** : Adroit Environment Consultants Ltd. (Monitoring team)

**Sampling date** : 9<sup>th</sup> -11<sup>th</sup> November, 2023

**Reporting date** : 23<sup>th</sup> November, 2023

### **Description of Analysis**

ID	Latitude	Longitude	Specific Location	Concentration present (LAeq) dBA.	
				Day Time	Night Time
NL1	24°11'35.06" N	90°25'33.01"E	Entrance Gate near the Dhaka - Mymensingh highway	65.6	52.4
NL2	24°11'30.58" N	90°25'26.24"E	Near Dyeing Unit	56.3	40.8
NL3	24°11'26.95" N	90°25'23.65"E	Near Printing Section	54.1	40.3
NL4	24°11'24.42" N	90°25'19.20"E	Near the settlement at west side of the project boundary	50.1	36.4
NL5	24°11'20.04" N	90°25'20.74"E	Near the settlement at south - east side of the project	57.2	36.1
DoE (Bangladesh) Standard for Industrial area				75	60
IFC/International Standard for Industrial/Commercial Zone				70	70

**Note:** This noise data was usually accomplished by – CEM Sound Level Meter (Model – DT 8850).



**Md. Faisal Bin Mahmud**  
Sr. Chemist



**Md. Saiful Islam**  
General Manager



## **AECL LABORATORY ANALYSIS REPORT** **STACK EMISSION TEST REPORT**

**Project Name** : Paramount Textile PLC

**Project Location** : Sreepur, Gazipur

**Description of Sample** : Stack Emission Analysis Report

**Sample Collector** : Adroit Environment Consultants Ltd. (Monitoring team)

**Sampling date** : 9<sup>th</sup> November, 2023

**Reporting date** : 23<sup>th</sup> November, 2023

### **Description of analysis**

Description	O <sub>2</sub> %	CO	CO <sub>2</sub> %	NO <sub>x</sub>	SO <sub>x</sub>	SPM
<b>SE 1- Generator Room</b>						
Unit	(In mg/Nm <sup>3</sup> or as indicated)					
ECR' 1997 standards (in mg/Nm <sup>3</sup> or as indicated)	NYS	NYS	NYS	NYS	NYS	Gas 100 Oil 300
World Bank IFC Standard (mg/Nm <sup>3</sup> or as indicated)	Gas 15% Liquid 15%	NYS	NYS	Gas 1600 Liquid 1850	Gas NYS Liquid 2000	Gas NYS Liquid 50-100
Generator -01 (1064 KW)	7.2	210	6.10	60	0	21.4
Generator -02 (1064 KW)	7.8	240	6.50	58	0	24.3
Generator -03 (1415 KW)	7.5	230	7.00	65	0	23.9
Generator -04 (1415 KW)	7.1	252	6.21	54	0	26.1
Generator -05 (1415 KW)	6.8	222	7.10	70	0	20.01
Generator -06 (1067 KW)	6.9	228	6.8	55	0	21.5
Generator -07 (1501 KW)	8.1	220	6.5	61	0	25.1
<b>SE 2- Boiler Room</b>						
Unit	(In mg/Nm <sup>3</sup> or as indicated)					
ECR' 1997 standards (in mg/Nm <sup>3</sup> or as indicated)	NYS	NYS	NYS	NYS	NYS	Gas 100 Oil 300
World Bank IFC Standard (mg/Nm <sup>3</sup> or as indicated)	Gas 15% Liquid 15%	NYS	NYS	Gas 1600 Liquid 1850	Gas NYS Liquid 2000	Gas NYS Liquid 50-100
Boiler -01 (10000 Kg/hr)	6.9	200	4.5	60	0	18.3
Boiler -02 (10000 Kg/hr)	7.0	197	5.0	56	0	22.3
Boiler -03 (8000 Kg/hr)	6.1	220	4.8	71	0	24.9
Boiler -04 (6000 Kg/hr)	8.0	180	5.1	55	0	26.1
Boiler -05 (10000 Kg/hr)	6.8	166	5.5	62	0	23.5
Boiler -06 (8000 Kg/hr)	7.3	190	5.9	55	0	22.4
Boiler -07(EGB) (1960 Kg/hr)	7.5	205	4.2	101	0	14.2
Boiler -08 (EGB) (4200Kg/hr)	7.3	198	4.1	98	0	13.1

NYS – Not Yet Set, mg/Nm<sup>3</sup> – milligram per cubic meter



**Md. Faisal Bin Mahmud**  
Sr. Chemist




**Md. Saiful Islam**  
General Manager



## **AECL LABORATORY ANALYSIS REPORT** **GROUND WATER QUALITY TEST REPORT**

**Project Name** : Paramount Textile PLC

**Project Location** : Sreepur, Gazipur

**Description of Sample** : Ground Water Quality Analysis Report

**Sample Collector** : Adroit Environment Consultants Ltd. (Monitoring team)

**Sampling date** : 13<sup>th</sup> February, 2024

**Reporting date** : 22<sup>th</sup> February, 2024

### **Description of analysis**

Parameter	Concentration present	Unit	ECR'2023 Water Standard	WHO Standard	Method of analysis
pH	7.9	-	6.5-8.5	6.5-8.5	pH meter
TDS	410	mg/l	1000	<1000	TDS Meter
Dissolved Oxygen (DO)	6.9	mg/l	-	6	DO meter
Turbidity	0.84	NTU	5	<5	Nephelometric
Calcium	46	mg/l	75	<75	AAS
Iron	0.57	mg/l	0.3-1.0	<0.3	Spectrophotometer
Arsenic	<0.05	ppb	0.05	10	AAS
Chloride	28.5	mg/l	250	<250	Potentiometric
Total Coliform	0	n/100 mL	0	0	Membrane filtration
Fecal Coliform	0	n/100 mL	0	0	Membrane filtration



**Md. Faisal Bin Mahmud**  
**Sr. Chemist**



**Md. Saiful Islam**  
**General Manager**





## **AECL LABORATORY ANALYSIS REPORT** **DRINKING WATER QUALITY TEST REPORT**

**Project Name** : Paramount Textile PLC

**Project Location** : Sreepur, Gazipur

**Description of Sample** : Drinking Water Quality Analysis Report

**Sample Collector** : Adroit Environment Consultants Ltd. (Monitoring team)

**Sampling date** : 9<sup>th</sup> November, 2023

**Reporting date** : 23<sup>th</sup> November, 2023

**Table 1- Sampling locations ID and Name with Longitude-Latitude**

Identification of Location	GPS Co-ordinate		Specific Location
	X	Y	
Location-01, DW1	24°11'31.20"N	90°25'30.62"E	Weaving Section

### **Description of analysis**

Parameter	Concentration present	Unit	Bangladesh Standard	WHO Standard	Method of analysis
pH	7.1	-	6.5-8.5	6.5-8.5	pH meter
TDS	96	mg/l	1000	<1000	TDS Meter
Dissolved Oxygen (DO)	7.9	mg/l	6	6	DO meter
Turbidity	0.30	NTU	10	<5	Nephelometric
Calcium	29	mg/l	75	<75	AAS
Iron	0.41	mg/l	0.3-1.0	<0.3	Spectrophotometer
Arsenic	<0.05	ppb	0.05	10	AAS
Chloride	16	mg/l	150-600	<250	Potentiometric
Total Coliform	0	n/100 mL	0	0	Membrane filtration
Fecal Coliform	0	n/100 mL	0	0	Membrane filtration



**Md. Faisal Bin Mahmud**  
Sr. Chemist



**Md. Saiful Islam**  
General Manager



## AECL LABORATORY ANALYSIS REPORT WASTE WATER QUALITY TEST REPORT

**Project Name** : Paramount Textile PLC

**Project Location** : Sreepur, Gazipur

**Description of Sample** : Waste Water Quality Analysis Report

**Sample Collector** : Adroit Environment Consultants Ltd. (Monitoring team)

**Sampling date** : 9<sup>th</sup> November, 2023

**Reporting date** : 23<sup>th</sup> November, 2023

**Table 1- Sampling locations ID and Name with Longitude-Latitude**

Identification of Location	GPS Co-ordinate		Specific Location
	X	Y	
Location-01, Inlet	24.188424	90.422393	ETP Area
Location-02, Outlet	24.188363	90.42166	ETP Area

### Description of analysis

Parameter	Location		As per ECR'2023 Bangladesh Standard for Wastewater from Industrial Units, discharging to inland surface Water
	Inlet of ETP	Outlet of ETP	
pH	10.01	7.8	6-9
BOD <sub>5</sub> (20°C)	231	23	30
COD	685	165	200
DO	0.0	6.9	4.5-8.0
TSS	280	38.3	100
TDS	890	820	2100



**Md. Faisal Bin Mahmud**  
Sr. Chemist



**Md. Saiful Islam**  
General Manager



## Noise Monitoring Photographs



**NL1 (Day)**



**NL1 (Night)**



**NL2 (Day)**



**NL2 (Night)**



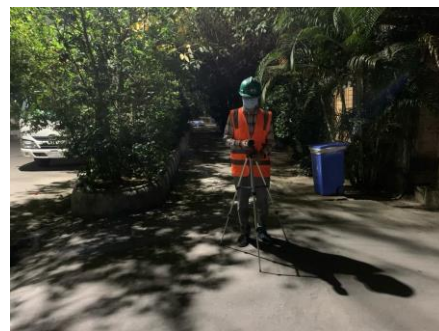
**NL3 (Day)**



**NL3 (Night)**



**NL4 (Day)**



**NL4 (Night)**



**NL5 (Day)**



**NL5 (Night)**



## Air Monitoring Photographs



**AQ1 (Day)**



**AQ1 (Night)**



**AQ2 (Day)**



**AQ2 (Night)**



**AQ3 (Day)**



**AQ3 (Night)**



**AQ4 (Day)**



**AQ4 (Night)**



**AQ5 (Day)**



**AQ5 (Night)**

# **Annexure 20**

## **Periodic Monitoring Test Report**

# Environmental Inspection Report

## Paramount Textile PLC

Inspection Ref. No.: **W/E 10011**

### Contact Us

#### Corporate Head Office:

Flat: 14A, Level: 14, Building No.: 02  
Confidence Center, Kha-09  
Shahjadpur, Gulshan, Dhaka-1212

☎ +88 02 55048399, 01977047336

✉ [info@greenbudbd.com](mailto:info@greenbudbd.com)




🌐 [www.greenbudbd.com](http://www.greenbudbd.com)

#### Chattogram Office:

House 64, Road 4, Block B,  
Chandgaon, Chattogram





General Information			
Invoice Reference No: GB/2023/07/22		Inspection Date: 10.08.2023	
Inspection Reference No: W/E 10011		Inspection Duration: 10am-9pm	
Report Generation Date:	13.08.2023	Report Submission Date:	14.08.2023
Inspection Standards:	2004/108/EEC	Number of Inspection Scope	10
<b>Company Name:</b>  <b>Paramount Textile PLC</b>  <i>Address: Mawna, Sreepur, Gazipur.</i>		<b>Contact Person:</b>  <b>Jibon Ahmmmed Raju</b>  <i>Manager (ETP, WTP &amp; ECR)</i>	
On Site Inspection Team			
<b>Engr. Sanjoy Das</b> <i>Energy Auditor (Operation)</i> <i>B.Sc. in Electrical &amp; Electronic Engineering</i> <i>MIEB No: A-23830</i>		<b>Arafat Hosen Sourob</b> <i>Jr. Executive (Operation)</i> <i>Environmental Engineer</i>	
<b>Report Prepared by:</b>		<b>Quality Checked:</b>	
			
<b>Imtiaz Ahmed Prince</b> <i>Energy Auditor (Operation)</i> <i>B.Sc. in Electrical &amp; Electronics Engineering</i>		<b>Fayeze Ahammad</b> <i>Sr. Executive (Operation)</i> <i>B.Sc. in Civil and Environmental Engineering</i>	
Report Approved by:			
			
<b>Engr. Syed Tasnem Mahmood</b> <i>Chief Environmental Engineer &amp; CEO,</i> <i>B.Sc. &amp; M.Sc. (Civil and Environmental Engineering)</i> <i>MIEB No.: M/35960</i>			

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## Stack Air Emission Inspection

Method of Sampling	TP-GB-04 (ISO17020 Certified Method)
Method of Analysis	Electrochemical & Gravimetric
Inspection location	Exhaust outlet

### Standard Permissible Limit:

Reference of Relevant Standard			Standards for Stack Emission from Industries or Projects (Generator)		
			SPM (mg/Nm <sup>3</sup> )	NO <sub>x</sub>	SO <sub>2</sub>
Air Pollution Control Rules-2022 <sup>1</sup>	Diesel	New (Running after 2020)	50	200	200
		Existing (Running before 2020)	80	400	400
	Natural Gas	New (Running after 2020)	-	200	-
		Existing (Running before 2020)	-	400	-
	LPG, LNG etc.	-	50	200	400
	IFC/World Bank 1F <sup>2</sup> (mg/Nm <sup>3</sup> )	Gas	NYS	200 (spark ignition) 400 (Dual Fuel) 1600 (Compressed ignition)	NYS
Liquid		NYS	1460	NYS	
Solid		NYS	NYS	NYS	

NYS= Not Yet Set; DoE: Department of Environment

### Relevant Standard Permissible limit for Boiler air emission is shown below:

Reference of Relevant Standard		Boiler of Industrial unit (Parameter Standard)		
		SPM (mg/Nm <sup>3</sup> )	NO <sub>x</sub> (mg/Nm <sup>3</sup> )	SO <sub>2</sub> (mg/Nm <sup>3</sup> )
DoE (Air Pollution Control) <sup>3</sup> (mg/Nm <sup>3</sup> )	Gas	-	150	250
	Oil	200	300	
	Coal	250	400	
	Husk	250	400	
IFC/World Bank <sup>4</sup> (mg/Nm <sup>3</sup> )	Gas	N/A	320	NYS
	Liquid	150	460	2000
	Solid	150	650	2000

[NYS= Not Yet Set; N/A= Not Applicable]

<sup>1</sup> Air Pollution Control Rules (2022), Schedule-05, Department of Environment, Govt. of Bangladesh

<sup>2</sup> IFC (2007), Environmental, Health and Safety Guidelines: Environmental Air Emissions and Ambient Air Quality, IFC/World Bank Group

<sup>3</sup> Air Pollution Control Rules (2022), Schedule-05, Department of Environment, Govt. of Bangladesh

<sup>4</sup> IFC (2007), Environmental, Health and Safety Guidelines: Environmental Air Emissions and Ambient Air Quality, IFC/World Bank Group

STeP-OEKO TEX STANDARD PERMISSIBLE LIMIT			
For Gas/ Diesel Generator >0.3MW			
Parameter	Minimum	Advanced	Excellent
<b>(Carbon Monoxide) CO: (mg/Nm<sup>3</sup>)</b>			
Gaseous Fuel	500	250	150
Diesel Fuel	500	250	100
<b>(Nitrogen oxides) NO<sub>x</sub>: (mg/Nm<sup>3</sup>)</b>			
Gaseous Fuel	500	300	100
Diesel Fuel	1000	500	200
<b>(Sulphur Dioxide) SO<sub>2</sub>: (mg/Nm<sup>3</sup>)</b>			
Gaseous Fuel	200	100	30
Diesel Fuel	900	400	60

### Description of Utilities:

Sl. No.	Brand Name	Model No	Made By	Fuel	Capacity
<b>Generator-01</b>	Jenbacher	JGS 320 GS-N. L	Austria	Natural Gas	1064 KW
<b>Generator-02</b>	Jenbacher	JGS 320 GS-N. L	Austria	Natural Gas	1064 KW
<b>Generator-03</b>	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW
<b>Generator-04</b>	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW
<b>Generator-05</b>	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW
<b>Generator-06</b>	Jenbacher	JGS 320 GS-N. L	Austria	Natural Gas	1064 KW
<b>Generator-07</b>	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW
<b>Boiler-01</b>	Loos International	UL-S-1000*10	Germany	Natural Gas	10000 Kg
<b>Boiler-02</b>	BOSCH	UL-S-10000	Germany	Natural Gas	10000 Kg
<b>Boiler-03 (EGB)</b>	EGB GETABEC	HRSG-1960/10	Germany	Exhaust Gas	1960 Kg
<b>Boiler-04</b>	BOSCH	UL-S-8000	Germany	Natural Gas	8000 Kg
<b>Boiler-05</b>	DAELIM ROYAL BOILER	DL-Z6000	Korea	Natural Gas	6000 kg
<b>Stenter-01</b>	Virock	LVK 400-200*8	China	Natural Gas	-
<b>Stenter-02</b>	Red Flag	MFS 338-200	China	Natural Gas	-
<b>Stenter-03</b>	Bruckner	-	Germany	Natural Gas	-
<b>Stenter-04</b>	Monforts Fong's	Montex- 6500	China	Natural Gas	-
<b>Stenter-05</b>	IL-SUNG (Sun Super-II)	ISST-II-08GP	South Korea	Natural Gas	-
<b>Singeing-1</b>	Red Flag	-	China	Natural Gas	-
<b>Singeing-2</b>	Osthoff	-	Germany	Natural Gas	-
<b>Singeing-3</b>	Osthoff	-	Germany	Natural Gas	-
<b>RF Dryer-1</b>	Stalam	SP02-170	China	Natural Gas	-

Sl. No.	Brand Name	Model No	Made By	Fuel	Capacity
RF Dryer-2	Stalam	SP02-170	China	Natural Gas	-
RF Dryer-3	Fong's	FTDW-170	China	Natural Gas	-
RF Dryer-4	-	SO 170TS	England	Natural Gas	-
Thermasol Dyeing	Monfongs	62T88402	China	Natural Gas	-
Loop steamer (Steam Ager) Machine	Arioli	VAPO 2015	Italy	Natural Gas	-
EGB-FB	---	FVPL	India	Exhaust Gas	4200 KG
Bosch Boiler	Bosch	Uls-10000	Germany	Natural Gas	10000 KG
Dailim Royel Boiler	Dailim Royel	DLZ-8000	Korea	Natural Gas	8000 KG

### Obtained Results:

SL./No	Obtained result from Utilities											
	SPM	PM <sub>2.5</sub>	PM <sub>10</sub>	O <sub>2</sub>	CO	NO	NO <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	SO <sub>2</sub>	Flue Temperature	Flow
	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(%)	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(%)	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(°C)	(m/s)
Generator-01	24.5	10.2	15.4	6.9	244	48.1	30.2	6.8	78.3	0	441	5.3
Generator-02	22.1	8.2	14.5	7.4	256	46.6	29.7	5.6	76.3	0	423	5.0
Generator-03	20.5	9.2	14.8	7.4	234	41.2	26.7	4.4	67.9	0	448	5.1
Generator-04	18.2	7.7	13.6	6.6	229	47.1	31.3	4.7	78.4	0	440	4.9
Generator-05	23.5	10.1	16.4	7.1	241	49.5	31.2	4.8	80.7	0	447	5.5
Generator-06	22.2	9.4	16.7	7.5	251	50.1	32.9	4.9	83	0	448	5.3
Generator-07	20.1	7.5	12.4	6.9	248	45.2	30.3	5.6	75.5	0	445	5.8
Boiler-01	15.2	6.4	11.2	7.2	196	68.5	31.8	4.3	100.3	0	219	4.1
Boiler-02	16.4	6.9	10.6	7.1	211	77.1	34.2	4.1	111.3	0	215	4.5
Boiler-03 (EGB)	12.4	5.5	9.2	7.4	195	72.5	33.5	3.6	106	0	228	4.4
Boiler-04	15.4	7.1	9.2	7.5	200	78.1	35.1	3.8	113.2	0	216	4.2
Boiler-05	11.6	5.1	7.5	6.8	188	84.5	31.5	3.4	116	0	212	4.2
Stenter-01	9.5	5.1	4	12.3	99.1	12.3	3	3.1	15.3	0	90.9	2.6
Stenter-02	8.8	5	4.4	11.9	87	8.9	2.3	2.8	11.2	0	81.3	3
Stenter-03	6.4	2.7	4.1	14.6	98.5	5.1	3.1	2.8	8.2	0	97.3	3.2

SL./No	Obtained result from Utilities											
	SPM	PM <sub>2.5</sub>	PM <sub>10</sub>	O <sub>2</sub>	CO	NO	NO <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	SO <sub>2</sub>	Flue Temperature	Flow
	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(%)	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(%)	(mg/Nm <sup>3</sup> )	(mg/Nm <sup>3</sup> )	(°C)	(m/s)
Stenter-04	7.3	2.3	5.3	13.2	85.4	3.5	2.3	2.9	5.8	0	88.9	2.9
Stenter-05	6.8	2.8	4.2	14.2	90.1	5.2	3	3.1	8.2	0	95.7	3.7
Singeing-1	7.2	3.1	4.8	11.4	80.4	5.2	3.5	4.2	8.7	0	88.2	4.1
Singeing-2	7.7	2.9	5.2	14.1	74	3.7	3	3.4	6.7	0	80.5	3.9
Singeing-3	6.4	3.1	4.4	13.7	70.4	4.7	2.6	1.92	7.3	0	75.4	4.2
RF Dryer-1	6.8	3.2	3.8	15.3	73.4	4.2	3.2	1.66	7.4	0	80.1	4
RF Dryer-2	6	2.8	4.1	16.3	81	6.5	2.7	1.3	9.2	0	78.1	3.3
RF Dryer-3	6.2	2.9	4.4	14.7	75.3	6	3.1	2.5	9.1	0	77.4	4.1
RF Dryer-4	5.4	3.1	5.2	13.9	70.1	4.9	2.1	1.9	7	0	77.3	4.2
Thermasol Dyeing	5.4	2.3	3.8	14.7	80.2	4	3.2	1.4	7.2	0	75.2	3
Loop steamer (Steam Ager) Machine	4.5	2	3.8	10.2	60.2	3.2	2	1.5	5.2	0	60.1	4.1
EGB-FB	20.2	10.1	16.5	8.2	257	4.2	3.1	3.2	134	0	258.5	4.8
Bosch	24.3	14	17.7	7.3	280	5.1	3.6	2.8	148.7	0	272.4	5.1
Daelim Royal	19.8	9.2	15.8	8.5	178	4.8	4	3.6	130.2	0	218.5	4.5

**\*\*Abbreviations and Acronyms:** SPM= Suspended Particulate Matter; PM<sub>2.5</sub>= Particulate Matter 2.5; PM<sub>10</sub>= Particulate Matter 10; CO = Carbon monoxide; CO<sub>2</sub> = Carbon dioxide; O<sub>2</sub> = Oxygen; SO<sub>2</sub>= Sulfur dioxide; NO<sub>x</sub> = Oxides of Nitrogen, NO<sub>2</sub> = Nitrogen Dioxide; mg/Nm<sup>3</sup> = milligram per normal cubic meter



## Indoor Air Quality Inspection

Method of Sampling	TP-GB-04 (ISO17020 Certified Method)
Method of Analysis	Electrochemical Sensor
Inspection Location	Inside Factory Building

### Inspection Results

Inspection Area					Inspections Status									
Sl. No.	Building No	Floor/Level	Section	Condition	PM <sub>1</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	PM <sub>10</sub> (µg/m <sup>3</sup> )	VOC (mg/m <sup>3</sup> )	CH <sub>2</sub> O (mg/m <sup>3</sup> )	CO (ppm)	CO <sub>2</sub> (ppm)	NO <sub>2</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (ppm)
1	Printing Shed	Ground Floor	Printing	Working	49	80	102	0.03	0.007	0	492	0	0	0
2			Engraving	Working	40	73	87	0.4	0.02	0	519	0	0	0
3			Office Area	Working	29	41	59	0	0	0	501	0	0	0
4			Color Mixing	Working	48	69	88	0.5	0.03	0	489	0	0	0
5			Sample	Working	39	75	86	0.02	0.004	0	487	0	0	0
6	Merchandising Shed	Ground Floor	Sunforoing Machine Area	Working	52	84	110	0.05	0.009	0	477	0	0	0
7			Stenter Area	Working	47	72	91	0.06	0.008	0	476	0	0	0
8			Desizing Area	Working	47	70	93	0.07	0.006	0	484	0	0	0
9			Merchandising Machine Area	Working	144	177	197	0.04	0.009	0	493	0	0	0
10		1 <sup>st</sup> Floor	Solid Dyeing Lab	Working	29	45	64	0.02	0.005	0	509	0	0	0
11	Main Chemical Shed	Ground Floor	Chemical Store	Working	50	84	105	0.3	0.05	0	548	0	0	0
12	Medical Shed	Ground Floor	Medical	Working	40	73	92	0.03	0.004	0	408	0	0	0

Inspection Area					Inspections Status									
Sl. No.	Building No	Floor/Level	Section	Condition	PM <sub>1</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	PM <sub>10</sub> (µg/m <sup>3</sup> )	VOC (mg/m <sup>3</sup> )	CH <sub>2</sub> O (mg/m <sup>3</sup> )	CO (ppm)	CO <sub>2</sub> (ppm)	NO <sub>2</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (ppm)
13	Medical Shed	Ground Floor	Dining	Working	50	82	107	0	0	0	399	0	0	0
14	Fabric Shed	Ground Floor	Fabric Store	Working	51	80	103	0.01	0.001	0	410	0	0	0
15	Weaving Building	Ground Floor	Wrapping	Working	46	78	103	0.03	0.002	0	419	0	0	0
16			Weaving	Working	38	65	87	0.2	0.009	0	462	0	0	0
17	Inspection Shed	Ground Floor	Final Inspection Area	Working	57	89	117	0.04	0.007	0	467	0	0	0
18	Pre-Treatment Shed	Ground Floor	Pre-Treatment	Working	44	75	99	0.07	0.003	0	484	0	0	0
19			Bleach	Working	40	71	93	0.06	0.004	0	459	0	0	0
20			Gray Inspection	Working	42	76	100	0.02	0.004	0	483	0	0	0
21		1 <sup>st</sup> Floor	Hard Winding	Working	33	57	76	0.02	0.001	0	440	0	0	0
22		2 <sup>nd</sup> Floor	Hard Winding	Working	30	55	79	0.02	0.003	0	436	0	0	0
23		3 <sup>rd</sup> Floor	Hard Winding	Working	31	54	75	0.02	0.002	0	432	0	0	0
24		4 <sup>th</sup> Floor	Soft Winding	Working	39	67	93	0.02	0.004	0	409	0	0	0
25		5 <sup>th</sup> Floor	Soft Winding	Working	40	66	90	0.02	0.003	0	414	0	0	0
26	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	Working	41	65	84	0.03	0.007	0	487	0	0	0
27			Dyeing	Working	44	73	97	0.04	0.006	0	428	0	0	0
28			EPB	Working	41	69	89	0.02	0.008	0	547	0	0	0
29			Dyeing	Working	39	70	86	0.02	0.004	0	493	0	0	0
30			Stenter Area	Working	43	67	90	0.04	0.007	0	453	0	0	0
31			Thermosol	Working	43	72	88	0.03	0.005	0	531	0	0	0
32			Sunforoing Machine Area	Working	50	79	112	0.03	0.005	0	429	0	0	0

Inspection Area					Inspections Status									
Sl. No.	Building No	Floor/Level	Section	Condition	PM <sub>1</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	PM <sub>10</sub> (µg/m <sup>3</sup> )	VOC (mg/m <sup>3</sup> )	CH <sub>2</sub> O (mg/m <sup>3</sup> )	CO (ppm)	CO <sub>2</sub> (ppm)	NO <sub>2</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	O <sub>3</sub> (ppm)
33	Yarn Dyeing Shed	Ground Floor	RFD Machine Area	Working	42	67	83	0.02	0.003	0	502	0	0	0
34			Chemical Sub Store	Working	64	115	146	0.2	0.07	0	523	0	0	0
35		1 <sup>st</sup> Floor	New Yarn Dyeing	Working	48	79	118	0.03	0.008	0	613	0	0	0
36	WTP Shed	Ground Floor	WTP Section	Working	89	155	198	0.3	0.05	0	476	0	0	0
37	Time Shed	Ground Floor	Time Section	Working	41	67	87	0	0	0	431	0	0	0
38	Weaving Shed	Ground Floor	Weaving	Working	43	65	81	0.02	0.004	0	465	0	0	0
39	Sizing Shed	Ground Floor	Sizing	Working	39	65	97	0.03	0.007	0	487	0	0	0
40	Admin Building	1 <sup>st</sup> Floor	Office Area	Working	11	20	32	0	0	0	546	0	0	0
41		2 <sup>nd</sup> Floor	Office Area	Working	17	29	46	0	0	0	572	0	0	0
42	Utility Building	Ground Floor	Generator	Working	21	36	48	0	0	0	620	0	0	0
43		1 <sup>st</sup> Floor	Boiler	Working	20	35	45	0	0	0	625	0	0	0
44		2 <sup>nd</sup> Floor	Compressor	Working	28	41	54	0	0	0	538	0	0	0
45	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	Working	39	58	77	0.01	0.002	0	463	0	0	0
46	Solid Dyeing Building	Ground Floor	Solid Dyeing	Working	43	69	88	0.02	0.008	0	456	0	0	0
47	ETP Building	Ground Floor	ETP Lab	Working	33	53	72	0.01	0.002	0	419	0	0	0

**\*\*Abbreviations and Acronyms:** CO=Carbon Monoxide; CO<sub>2</sub>=Carbon dioxide; O<sub>2</sub>=Oxygen; PM<sub>10</sub>=Particulate Matter 10; PM<sub>2.5</sub>= Particulate Matter 2.5; PM<sub>1</sub>= Particulate Matter 1; VOC=Volatile organic compound, .

## Indoor Volatile Organic Compound Level Inspection

Method of Sampling	TP-GB-04 (ISO17020 Certified Method)
Method of Analysis	Electrochemical Sensor
Inspection location	Inside Factory Building

### Inspection Result:

Inspection Area					Inspections Status
SL. NO.	Building No.	Floor	Section	Condition	VOC (mg/m <sup>3</sup> )
1	Printing Shed	Ground Floor	Printing	Working	0.03
2			Engraving	Working	0.4
3			Office Area	Working	0
4			Color Mixing	Working	0.5
5			Sample	Working	0.02
6	Merchandising Shed	Ground Floor	Sunforoing Machine Area	Working	0.05
7			Stenter Area	Working	0.06
8			Desizing Area	Working	0.07
9			Merchandising Machine Area	Working	0.04
10		1 <sup>st</sup> Floor	Solid Dyeing Lab	Working	0.02
11	Main Chemical Shed	Ground Floor	Chemical Store	Working	0.3
12	Medical Shed	Ground Floor	Medical	Working	0.03
13			Dining	Working	0
14	Fabric Shed	Ground Floor	Fabric Store	Working	0.01
15	Weaving Building	Ground Floor	Wrapping	Working	0.03
16			Weaving	Working	0.2
17	Inspection Shed	Ground Floor	Final Inspection Area	Working	0.04
18	Pre-Treatment Shed	Ground Floor	Pre-Treatment	Working	0.07
19			Bleach	Working	0.06
20			Gray Inspection	Working	0.02
21		1 <sup>st</sup> Floor	Hard Winding	Working	0.02
22		2 <sup>nd</sup> Floor	Hard Winding	Working	0.02

Inspection Area					Inspections Status
SL. NO.	Building No.	Floor	Section	Condition	VOC (mg/m <sup>3</sup> )
23	Pre-Treatment Shed	3 <sup>rd</sup> Floor	Hard Winding	Working	0.02
24		4 <sup>th</sup> Floor	Soft Winding	Working	0.02
25		5 <sup>th</sup> Floor	Soft Winding	Working	0.02
26	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	Working	0.03
27			Dyeing	Working	0.04
28			EPB	Working	0.02
29			Dyeing	Working	0.02
30			Stenter Area	Working	0.04
31			Thermosol	Working	0.03
32			Sunforing Machine Area	Working	0.03
33			RFD Machine Area	Working	0.02
34			Chemical Sub Store	Working	0.2
35		1 <sup>st</sup> Floor	New Yarn Dyeing	Working	0.03
36	WTP Shed	Ground Floor	WTP Section	Working	0.3
37	Time Shed	Ground Floor	Time Section	Working	0
38	Weaving Shed	Ground Floor	Weaving	Working	0.02
39	Sizing Shed	Ground Floor	Sizing	Working	0.03
40	Admin Building	1 <sup>st</sup> Floor	Office Area	Working	0
41		2 <sup>nd</sup> Floor	Office Area	Working	0
42	Utility Building	Ground Floor	Generator	Working	0
43		1 <sup>st</sup> Floor	Boiler	Working	0
44		2 <sup>nd</sup> Floor	Compressor	Working	0
45	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	Working	0.01
46	Solid Dyeing Building	Ground Floor	Solid Dyeing	Working	0.02
47	ETP Building	Ground Floor	ETP Lab	Working	0.01

## Ambient Air Quality Inspection

Method of Sampling	TP-GB-04 (ISO17020 Certified Method)
Method of Analysis	Electrochemical
Inspection location	Around Factory premises

### Reference Standard:

Parameters	PM <sub>2.5</sub>	PM <sub>10</sub>	VOC	CH <sub>2</sub> O	NO <sub>2</sub>	SO <sub>2</sub>	CO	CO <sub>2</sub>	O <sub>3</sub>
Air Pollution Control Rules 2022 <sup>5</sup>	65 (µg/m <sup>3</sup> )	150 (µg/m <sup>3</sup> )	NYS (mg/m <sup>3</sup> )	NYS (mg/m <sup>3</sup> )	80µg/m <sup>3</sup> (0.043 ppm)	80 µg/m <sup>3</sup> (0.031 ppm)	5mg/m <sup>3</sup> (4.36) ppm	NYS (ppm)	100 µg/m <sup>3</sup> (0.051) ppm

[NYS: Not Yet Set]

### Ambient Air Quality Inspection result:

Sl. No.	Inspection Area		SPM	PM <sub>1</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	VOC	CH <sub>2</sub> O	NO <sub>2</sub>	SO <sub>2</sub>	CO	CO <sub>2</sub>	O <sub>3</sub>
	Point	Sample	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(ppm)	(ppm)	(ppm)
1	Location 1 24°11'34.69"N 90°25'26.01"E	Sample-01	113	31	62	87	0	0	0	0	0	477	0
2		Sample-02	112	30	61	86	0	0	0	0	0	479	0
3	Location 2 24°11'30.84"N 90°25'30.47"E	Sample-01	117	34	64	90	0	0	0	0	0	482	0
4		Sample-02	114	33	62	88	0	0	0	0	0	480	0
5	Location 3 24°11'25.18"N 90°25'24.52"E	Sample-01	107	28	59	82	0	0	0	0	0	476	0
6		Sample-02	109	27	60	84	0	0	0	0	0	474	0
7	Location 4 24°11'23.56"N 90°25'19.00"E	Sample-01	104	26	58	80	0	0	0	0	0	467	0
8		Sample-02	101	24	56	78	0	0	0	0	0	465	0

**\*\*Abbreviations & Acronyms:** SPM= Suspended Particulate Matters; PM<sub>2.5</sub> = Particulate Matter 2.5; PM<sub>10</sub> = Particulate Matter 10; CO = Carbon monoxide; CO<sub>2</sub> = Carbon dioxide; SO<sub>2</sub> = Sulfur Dioxide; NO<sub>2</sub> = Nitrogen Dioxide.

<sup>5</sup> DOE, "Air Pollution Control Rules'2022" Schedule-01, Department of Environment, Govt. of Bangladesh





Figure: Ambient Air Quality Inspection Location

## Indoor Noise Level Inspection

Method of Sampling	TP-GB-02 (ISO17020 Certified Method)
Method of Analysis	Sensor
Inspection Location	Inside Factory Building

### Indoor Noise Level Inspection Result: (Day)

Inspection Area					Inspection Status			
Sl. No.	Building No	Floor/Level	Section	Condition	Reference Standard	Obtained Result (dB)	NIOSH	BLR
1	Printing Shed	Ground Floor	Printing	Working	<b>NIOSH (REL) = 85dB (8 hours TWA)</b> <b>Bangladesh Labor Rules, 2015 (Sec: 68) = 80dB</b>	75	√	√
2			Engraving	Working		72	√	√
3			Office Area	Working		58	√	√
4			Color Mixing	Working		74	√	√
5			Sample	Working		73	√	√
6	Merchandising Shed	Ground Floor	Sunforoing Machine Area	Working		78	√	√
7			Stenter Area	Working		79	√	√
8			Desizing Area	Working		79	√	√
9			Merchandising Machine Area	Working		79	√	√
10		1 <sup>st</sup> Floor	Solid Dyeing Lab	Working		58	√	√
11	Main Chemical Shed	Ground Floor	Chemical Store	Working		46	√	√
12	Medical Shed	Ground Floor	Medical	Working		53	√	√
13			Dining	Working		61	√	√
14	Fabric Shed	Ground Floor	Fabric Store	Working		53	√	√
15	Weaving Building	Ground Floor	Wrapping	Working		72	√	√
16			Weaving	Working		99	x	x
17	Inspection Shed	Ground Floor	Final Inspection Area	Working		63	√	√
18	Pre-Treatment Shed	Ground Floor	Pre-Treatment	Working		77	√	√
19			Bleach	Working		79	√	√
20			Gray Inspection	Working		63	√	√
21		1 <sup>st</sup> Floor	Hard Winding	Working		77	√	√



Inspection Area					Inspection Status			
Sl. No.	Building No	Floor/Level	Section	Condition	Reference Standard	Obtained Result (dB)	NIOSH	BLR
22	Pre-Treatment Shed	2 <sup>nd</sup> Floor	Hard Winding	Working	<b>NIOSH (REL) = 85dB (8 hours TWA)</b> <b>Bangladesh Labor Rules, 2015 (Sec: 68) = 80dB</b>	78	√	√
23		3 <sup>rd</sup> Floor	Hard Winding	Working		79	√	√
24		4 <sup>th</sup> Floor	Soft Winding	Working		79	√	√
25		5 <sup>th</sup> Floor	Soft Winding	Working		78	√	√
26	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	Working		57	√	√
27			Dyeing	Working		79	√	√
28			EPB	Working		79	√	√
29			Dyeing	Working		78	√	√
30			Stenter Area	Working		78	√	√
31			Thermosol	Working		79	√	√
32			Sunforing Machine Area	Working		79	√	√
33			RFD Machine Area	Working		78	√	√
34			Chemical Sub Store	Working		74	√	√
35		1 <sup>st</sup> Floor	New Yarn Dyeing	Working		79	√	√
36	WTP Shed	Ground Floor	WTP Section	Working		78	√	√
37	Time Shed	Ground Floor	Time Section	Working		68	√	√
38	Weaving Shed	Ground Floor	Weaving	Working		97	x	x
39	Sizing Shed	Ground Floor	Sizing	Working		77	√	√
40	Admin Building	1 <sup>st</sup> Floor	Office Area	Working		52	√	√
41		2 <sup>nd</sup> Floor	Office Area	Working		49	√	√
42	Utility Building	Ground Floor	Generator	Working		103	x	x
43		1 <sup>st</sup> Floor	Boiler	Working		79	√	√
44		2 <sup>nd</sup> Floor	Compressor	Working		78	√	√
45	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	Working		77	√	√
46	Solid Dyeing Building	Ground Floor	Solid Dyeing	Working		75	√	√
47	ETP Building	Ground Floor	ETP Lab	Working		64	√	√

## Indoor Noise Level Inspection Result: (Night)

Inspection Area					Inspection Status			
Sl. No.	Building No	Floor/Level	Section	Condition	Reference Standard	Obtained Result (dB)	NIOSH	BLR
1	Printing Shed	Ground Floor	Printing	Working	<b>NIOSH (REL) = 85dB (8 hours TWA)</b> <b>Bangladesh Labor Rules, 2015 (Sec: 68) = 80dB</b>	74	√	√
2			Engraving	Working		69	√	√
3			Office Area	Working		55	√	√
4			Color Mixing	Working		75	√	√
5			Sample	Working		70	√	√
6	Merchandising Shed	Ground Floor	Sunforoing Machine Area	Working		73	√	√
7			Stenter Area	Working		78	√	√
8			Desizing Area	Working		75	√	√
9			Merchandising Machine Area	Working		72	√	√
10		1 <sup>st</sup> Floor	Solid Dyeing Lab	Working		56	√	√
11	Main Chemical Shed	Ground Floor	Chemical Store	Working		45	√	√
12	Medical Shed	Ground Floor	Medical	Working		50	√	√
13			Dining	Working		57	√	√
14	Fabric Shed	Ground Floor	Fabric Store	Working		52	√	√
15	Weaving Building	Ground Floor	Wrapping	Working		71	√	√
16			Weaving	Working		91	x	x
17	Inspection Shed	Ground Floor	Final Inspection Area	Working		62	√	√
18	Pre-Treatment Shed	Ground Floor	Pre-Treatment	Working		70	√	√
19			Bleach	Working		76	√	√
20			Gray Inspection	Working		62	√	√
21		1 <sup>st</sup> Floor	Hard Winding	Working		76	√	√
22	Pre-Treatment Shed	2 <sup>nd</sup> Floor	Hard Winding	Working		77	√	√
23		3 <sup>rd</sup> Floor	Hard Winding	Working		77	√	√
24		4 <sup>th</sup> Floor	Soft Winding	Working		78	√	√
25		5 <sup>th</sup> Floor	Soft Winding	Working		76	√	√

Inspection Area					Inspection Status			
Sl. No.	Building No	Floor/Level	Section	Condition	Reference Standard	Obtained Result (dB)	NIOSH	BLR
26	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	Working	NIOSH (REL) = 85dB (8 hours TWA) Bangladesh Labor Rules, 2015 (Sec: 68) = 80dB	55	√	√
27			Dyeing	Working		76	√	√
28			EPB	Working		77	√	√
29			Dyeing	Working		75	√	√
30			Stenter Area	Working		77	√	√
31			Thermosol	Working		78	√	√
32			Sunforing Machine Area	Working		76	√	√
33			RFD Machine Area	Working		77	√	√
34			Chemical Sub Store	Working		70	√	√
35		1 <sup>st</sup> Floor	New Yarn Dyeing	Working		75	√	√
36	WTP Shed	Ground Floor	WTP Section	Working		76	√	√
37	Time Shed	Ground Floor	Time Section	Working		65	√	√
38	Weaving Shed	Ground Floor	Weaving	Working		90	x	x
39	Sizing Shed	Ground Floor	Sizing	Working		71	√	√
40	Admin Building	1 <sup>st</sup> Floor	Office Area	Working		51	√	√
41		2 <sup>nd</sup> Floor	Office Area	Working		48	√	√
42	Utility Building	Ground Floor	Generator	Working		101	x	x
43		1 <sup>st</sup> Floor	Boiler	Working		76	√	√
44		2 <sup>nd</sup> Floor	Compressor	Working		75	√	√
45	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	Working		74	√	√
46	Solid Dyeing Building	Ground Floor	Solid Dyeing	Working		74	√	√
47	ETP Building	Ground Floor	ETP Lab	Working		60	√	√

**\*\*Abbreviations and Acronyms:** BLR= Bangladesh Labor Rules, NIOSH= National Institute for Occupational Safety and Health; dB=Decibel.

## Ambient Noise Level Inspection

Method of Sampling	TP-GB-04 (ISO17020 Certified Method)
Method of Analysis	Sensor
Inspection Location	Outside Factory Building

### Ambient Noise Level Inspection Result:

Sl. No.	Inspection Area		Inspection Status (Day)				
			Reference of Relevant Standard		Obtained Result (dB)	SPCR, 2006 Limit	WHO Limit
	Point	Sample	Sound Pollution Control-2006 (dB)	WHO Guide Line (dB)			
1	Location 1 24°11'34.69"N 90°25'26.01"E	Sample-01	60	70	58	√	√
2		Sample-02	60	70	57	√	√
3	Location 2 24°11'30.84"N 90°25'30.47"E	Sample-01	60	70	59	√	√
4		Sample-02	60	70	60	√	√
5	Location 3 24°11'25.18"N 90°25'24.52"E	Sample-01	60	70	58	√	√
6		Sample-02	60	70	57	√	√
7	Location 4 24°11'23.56"N 90°25'19.00"E	Sample-01	60	70	57	√	√
8		Sample-02	60	70	56	√	√

Sl. No.	Inspection Area		Inspection Status (Night)				
			Reference of Relevant Standard		Obtained Result (dB)	SPCR, 2006 Limit	WHO Limit
	Point	Sample	Sound Pollution Control-2006 (dB)	WHO Guide Line (dB)			
1	Location 1 24°11'34.69"N 90°25'26.01"E	Sample-01	50	70	46	√	√
2		Sample-02	50	70	47	√	√
3	Location 2 24°11'30.84"N 90°25'30.47"E	Sample-01	50	70	48	√	√
4		Sample-02	50	70	49	√	√
5	Location 3 24°11'25.18"N 90°25'24.52"E	Sample-01	50	70	45	√	√
6		Sample-02	50	70	44	√	√
7	Location 4 24°11'23.56"N 90°25'19.00"E	Sample-01	50	70	44	√	√
8		Sample-02	50	70	43	√	√

**\*\*Abbreviations and Acronyms:** SPCR = Sound Pollution Control Rules; WHO = World Health Organization; dB = decibel.



Figure: Ambient Noise Level Inspection Location

## Indoor Light Level Inspection

Method of Sampling	TP-GB-03 (ISO17020 Certified Method)
Method of Analysis	Sensor
Inspection location	Inside Factory Building

### Illumination Level Standards:

Recommended Light Level (STeP OEKO-TEX)	
Area/Task/Process	Illuminance Level (lux)
<b>Spinning</b>	
Opening bales	200
Carding, combing, flyer, singeing etc.	300
Spinning, winding, twisting etc.	500
<b>Weaving/Knitting/Embroidery etc.</b>	
Sizing	200
Doubling	300
Wrapping, weaving, knitting, stitching etc.	500
Controlling (fabrics, color etc.)	1000
<b>Dyeing, printing, finishing etc.</b>	
Sewing, washing, dyeing, finishing, ironing etc.	300
Printing, cleaning etc.	750
Controlling (fabrics, color etc.)	1000
<b>Making up etc.</b>	
Ironing, packing etc.	300
Cutting, sewing etc.	500
Controlling	1000



### Indoor Light Level Inspection Result:

Inspection Area					Inspection Status		
Sl. No.	Building No	Floor/Level	Section	Condition	Bangladesh Labor Rules'2015 (lux)	Obtained Result	Height from Light source (cm)
1	Printing Shed	Ground Floor	Printing	Working	Minimum Illumination Level = 350 Lux	1486	CH
2			Engraving	Working		356	CH
3			Office Area	Working		353	CH
4			Color Mixing	Working		361	CH
5			Sample	Working		352	CH
6	Merchandising Shed	Ground Floor	Sunforing Machine Area	Working		501	DL
7			Stenter Area	Working		1729	DL
8			Desizing Area	Working		457	DL
9			Merchandising Machine Area	Working		451	CH
10		1 <sup>st</sup> Floor	Solid Dyeing Lab	Working		410	CH
11	Medical Shed	Ground Floor	Medical	Working		357	CH
12			Dining	Working		360	CH
13	Weaving Building	Ground Floor	Wrapping	Working		456	80
14			Weaving	Working		707	120
15	Inspection Shed	Ground Floor	Final Inspection Area	Working		787	CH
16	Pre-Treatment Shed	Ground Floor	Pre-Treatment	Working		355	CH
17			Bleach	Working		803	CH
18			Gray Inspection	Working		832	CH
19		1 <sup>st</sup> Floor	Hard Winding	Working		588	CH
20		2 <sup>nd</sup> Floor	Hard Winding	Working		594	CH
21		3 <sup>rd</sup> Floor	Hard Winding	Working		602	CH
22		4 <sup>th</sup> Floor	Soft Winding	Working		434	CH
23		5 <sup>th</sup> Floor	Soft Winding	Working		451	CH
24	Yarn Dyeing Shed	Ground Floor	Dyeing	Working		409	CH

Inspection Area					Inspection Status		
Sl. No.	Building No	Floor/Level	Section	Condition	Bangladesh Labor Rules'2015 (lux)	Obtained Result	Height from Light source (cm)
25	Yarn Dyeing Shed	Ground Floor	EPB	Working	Minimum Illumination Level = 350 Lux	924	CH
26			Dyeing	Working		411	CH
27			Stenter Area	Working		479	CH
28			Thermosol	Working		412	DL
29			Sunforoing Machine Area	Working		494	DL
30			RFD Machine Area	Working		389	CH
31			Chemical Sub Store	Working		351	CH
32		1 <sup>st</sup> Floor	New Yarn Dyeing	Working		432	DL
33	WTP Shed	Ground Floor	WTP Section	Working		354	CH
34	Time Shed	Ground Floor	Time Section	Working		687	DL
35	Weaving Shed	Ground Floor	Weaving	Working		1566	120
36	Sizing Shed	Ground Floor	Sizing	Working		498	120
37	Admin Building	1 <sup>st</sup> Floor	Office Area	Working		380	CH
38		2 <sup>nd</sup> Floor	Office Area	Working		362	CH
39	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	Working		432	DL
40	Solid Dyeing Building	Ground Floor	Solid Dyeing	Working		379	DL
41	ETP Building	Ground Floor	ETP Lab	Working		417	CH

**\*\*Abbreviations and Acronyms:** lux= light intensity measuring unit; CH= Ceiling Height; DL= Daylight.



## Indoor Temperature Level Inspection

Method of Sampling	TP-GB-05 (ISO17020 Certified Method)
Method of Analysis	Sensor
Inspection location	Inside Factory Building

### Indoor Temperature Level Inspection Result:

Inspection Area					Inspection Status		
SI No	Building No	Floor/Level	Section	Condition	Comparative Standard (°C)	Obtained Result (°C)	Within Limit
1	Printing Shed	Ground Floor	Printing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
2			Engraving	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
3			Office Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	25	√
4			Color Mixing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
5			Sample	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
6	Merchandising Shed	Ground Floor	Sunforoing Machine Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
7			Stenter Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
8			Desizing Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
9			Merchandising Machine Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
10		1 <sup>st</sup> Floor	Solid Dyeing Lab	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	25	√
11	Main Chemical Shed	Ground Floor	Chemical Store	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	28	√
12	Medical Shed	Ground Floor	Medical	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	26	√
13			Dining	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√
14	Fabric Shed	Ground Floor	Fabric Store	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√
15	Weaving Building	Ground Floor	Wrapping	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	29	√
16			Weaving	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	29	√
17	Inspection Shed	Ground Floor	Final Inspection Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
18	Pre-Treatment Shed	Ground Floor	Pre-Treatment	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
19			Bleach	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
20			Gray Inspection	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
21		1 <sup>st</sup> Floor	Hard Winding	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√

Inspection Area					Inspection Status		
SI No	Building No	Floor/Level	Section	Condition	Comparative Standard (°C)	Obtained Result (°C)	Within Limit
22	Pre-Treatment Shed	2 <sup>nd</sup> Floor	Hard Winding	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√
23		3 <sup>rd</sup> Floor	Hard Winding	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	29	√
24		4 <sup>th</sup> Floor	Soft Winding	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	28	√
25		5 <sup>th</sup> Floor	Soft Winding	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	28	√
26	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√
27			Dyeing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	32	√
28			EPB	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
29			Dyeing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
30			Stenter Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
31			Thermosol	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
32			Sunforing Machine Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
33			RFD Machine Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
34			Chemical Sub Store	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
35		1 <sup>st</sup> Floor	New Yarn Dyeing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
36	WTP Shed	Ground Floor	WTP Section	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	29	√
37	Time Shed	Ground Floor	Time Section	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	27	√
38	Weaving Shed	Ground Floor	Weaving	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	29	√
39	Sizing Shed	Ground Floor	Sizing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√
40	Admin Building	1 <sup>st</sup> Floor	Office Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	26	√
41		2 <sup>nd</sup> Floor	Office Area	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	25	√
42	Utility Building	Ground Floor	Generator	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
43		1 <sup>st</sup> Floor	Boiler	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
44		2 <sup>nd</sup> Floor	Compressor	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√
45	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	31	√
46	Solid Dyeing Building	Ground Floor	Solid Dyeing	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	30	√
47	ETP Building	Ground Floor	ETP Lab	Working	(20 <sup>0</sup> C-32 <sup>0</sup> C)	26	√

## Indoor Humidity Level Inspection

Method of Sampling	TP-GB-05 (ISO17020 Certified Method)
Method of Analysis	Sensor
Inspection location	Inside Factory Building

### Indoor Humidity Level Inspection Result:

Inspection Area					Inspection Status		
Sl. No.	Building No	Floor/Level	Section	Condition	Comparative Standard (%)	Obtained Result	Within Limit
1	Printing Shed	Ground Floor	Printing	Working	(30%-70%)	69	✓
2			Engraving	Working	(30%-70%)	68	✓
3			Office Area	Working	(30%-70%)	59	✓
4			Color Mixing	Working	(30%-70%)	66	✓
5			Sample	Working	(30%-70%)	69	✓
6	Merchandising Shed	Ground Floor	Sunforing Machine Area	Working	(30%-70%)	68	✓
7			Stenter Area	Working	(30%-70%)	69	✓
8			Desizing Area	Working	(30%-70%)	67	✓
9			Merchandising Machine Area	Working	(30%-70%)	69	✓
10		1 <sup>st</sup> Floor	Solid Dyeing Lab	Working	(30%-70%)	58	✓
11	Main Chemical Shed	Ground Floor	Chemical Store	Working	(30%-70%)	68	✓
12	Medical Shed	Ground Floor	Medical	Working	(30%-70%)	59	✓
13			Dining	Working	(30%-70%)	69	✓
14	Fabric Shed	Ground Floor	Fabric Store	Working	(30%-70%)	69	✓
15	Weaving Building	Ground Floor	Wrapping	Working	(30%-70%)	67	✓
16			Weaving	Working	(30%-70%)	68	✓
17	Inspection Shed	Ground Floor	Final Inspection Area	Working	(30%-70%)	65	✓
18	Pre-Treatment Shed	Ground Floor	Pre-Treatment	Working	(30%-70%)	68	✓
19			Bleach	Working	(30%-70%)	68	✓
20			Gray Inspection	Working	(30%-70%)	69	✓
21		1 <sup>st</sup> Floor	Hard Winding	Working	(30%-70%)	69	✓

Inspection Area					Inspection Status		
Sl. No.	Building No	Floor/Level	Section	Condition	Comparative Standard (%)	Obtained Result	Within Limit
22	Pre-Treatment Shed	2 <sup>nd</sup> Floor	Hard Winding	Working	(30%-70%)	68	✓
23		3 <sup>rd</sup> Floor	Hard Winding	Working	(30%-70%)	69	✓
24		4 <sup>th</sup> Floor	Soft Winding	Working	(30%-70%)	68	✓
25		5 <sup>th</sup> Floor	Soft Winding	Working	(30%-70%)	69	✓
26	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	Working	(30%-70%)	61	✓
27			Dyeing	Working	(30%-70%)	67	✓
28			EPB	Working	(30%-70%)	66	✓
29			Dyeing	Working	(30%-70%)	68	✓
30			Stenter Area	Working	(30%-70%)	69	✓
31			Thermosol	Working	(30%-70%)	65	✓
32			Sunforing Machine Area	Working	(30%-70%)	69	✓
33			RFD Machine Area	Working	(30%-70%)	68	✓
34			Chemical Sub Store	Working	(30%-70%)	69	✓
35		1 <sup>st</sup> Floor	New Yarn Dyeing	Working	(30%-70%)	68	✓
36	WTP Shed	Ground Floor	WTP Section	Working	(30%-70%)	63	✓
37	Time Shed	Ground Floor	Time Section	Working	(30%-70%)	68	✓
38	Weaving Shed	Ground Floor	Weaving	Working	(30%-70%)	69	✓
39	Sizing Shed	Ground Floor	Sizing	Working	(30%-70%)	59	✓
40	Admin Building	1 <sup>st</sup> Floor	Office Area	Working	(30%-70%)	56	✓
41		2 <sup>nd</sup> Floor	Office Area	Working	(30%-70%)	69	✓
42	Utility Building	Ground Floor	Generator	Working	(30%-70%)	68	✓
43		1 <sup>st</sup> Floor	Boiler	Working	(30%-70%)	59	✓
44		2 <sup>nd</sup> Floor	Compressor	Working	(30%-70%)	66	✓
45	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	Working	(30%-70%)	65	✓
46	Solid Dyeing Building	Ground Floor	Solid Dyeing	Working	(30%-70%)	61	✓
47	ETP Building	Ground Floor	ETP Lab	Working	(30%-70%)	62	✓

**\*\*Abbreviations and Acronyms:** RH= Relative Humidity.

## OZONE DEPLETION SUBSTANCE (ODS) INVENTORY

### Ozone Depletion Substance (ODS) Inventory

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
1	Carrier	Split	China	2 Ton	R-410A	2088	Common Service	0	0	No Leak Found
2	General	Split	Thailand	2.5 Ton	R-410A	2088	Conference -01	0	0	No Leak Found
3	General	Window	Thailand	2 Ton	R-410A	2088	Executive Dining	0	0	No Leak Found
4	General	Split	Thailand	2 Ton	R-410A	2088	Conference -02	0	0	No Leak Found
5	General	Split	Thailand	1 Ton	R-410A	2088	Medical Office	0	0	No Leak Found
6	Samsung	Split	South Korea	2 Ton	R-410A	2088	Medical Staff Office	0	0	No Leak Found
7	General	Split	Thailand	2 Ton	R-410A	2088	Sizing 02	0	0	No Leak Found
8	General	Split	Thailand	2 Ton	R-410A	2088	Weaving Electronic Lab	0	0	No Leak Found
9	General	Window	Thailand	2 Ton	R-410A	2088	Weaving Electronic Lab	0	0	No Leak Found
10	Gree	Split	China	1.5 Ton	R-410A	2088	General Electrical	0	0	No Leak Found
11	Gree	Split	China	2 Ton	R-410A	2088	General Electrical	0	0	No Leak Found
12	General	Split	Thailand	2.5 Ton	R-410A	2088	Peepatore office	0	0	No Leak Found
13	General	Split	Thailand	1.5 Ton	R-410A	2088	Sizing 01	0	0	No Leak Found
14	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	A/C Plant 01	0	0	No Leak Found
15	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
16	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
17	Gree	Split	China	2.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
18	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
19	American Air	-	Thailand	5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
20	General	Thailand	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
21	General	Split	Thailand	1.5 Ton	R-22	1810	Generator Control Room	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
22	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
23	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Generator Control Room	0	0	No Leak Found
24	General	Ceiling	Thailand	2.0 Ton	R-22	1810	Time Section	0	0	No Leak Found
25	General	Ceiling	Thailand	2.0 Ton	R-32	1810	C.E. I	0	0	No Leak Found
26	General	Ceiling	Thailand	2.0 Ton	R-22	1810	C.E. I	0	0	No Leak Found
27	General	Ceiling	Thailand	4.5 Ton	R-22	1810	New Training Center	0	0	No Leak Found
28	General	Ceiling	Thailand	4.5 Ton	R-22	1810	New Training Center	0	0	No Leak Found
29	General	Split	Thailand	2.0 Ton	R-22	1810	Dyes Store Office	0	0	No Leak Found
30	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Fabric Store	0	0	No Leak Found
31	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Fabric Store	0	0	No Leak Found
32	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Dyes Store	0	0	No Leak Found
33	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Dyes Store	0	0	No Leak Found
34	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Dyes Q.C Room	0	0	No Leak Found
35	General	Cassette	Thailand	1.5 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
36	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
37	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
38	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
39	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
40	General	Ceiling	Thailand	2.0 Ton	R-410A	2088	Dyeing Lab	0	0	No Leak Found
41	General	Cassette	Thailand	4.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
42	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Dyeing Lab	0	0	No Leak Found
43	General	Split	Thailand	1.5 Ton	R-22	1810	New Dyeing	0	0	No Leak Found
44	General	Split	Thailand	1.5 Ton	R-22	1810	New Dyeing	0	0	No Leak Found
45	General	Split	Thailand	2.0 Ton	R-22	1810	Dyes Office	0	0	No Leak Found
46	General	Window	Thailand	2.0 Ton	R-22	1810	Dyes Office	0	0	No Leak Found



S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
47	General	Split	Thailand	2.5 Ton	R-410A	2088	Dyeing Electronics	0	0	No Leak Found
48	Gree	Split	China	2.5 Ton	R-410A	2088	Hanks Dyeing Office	0	0	No Leak Found
49	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Hanks Lab	0	0	No Leak Found
50	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Hanks Lab	0	0	No Leak Found
51	Carrier	Split	China	2.0 Ton	R-410A	2088	Dyeing Mechanical	0	0	No Leak Found
52	General	Split	Thailand	1.5 Ton	R-410A	2088	IT Office 02	0	0	No Leak Found
53	Gree	Split	China	2.5 Ton	R-410A	2088	Production Planning	0	0	No Leak Found
54	General	Split	Thailand	2.0 Ton	R-410A	2088	Production Planning	0	0	No Leak Found
55	General	Split	Thailand	2.0 Ton	R-22	1810	Q.C Office	0	0	No Leak Found
56	Gree	Split	China	2.5 Ton	R-22	1810	Yarn Dyeing Planning	0	0	No Leak Found
57	General	Split	Thailand	1.5 Ton	R-22	1810	Y/D Office	0	0	No Leak Found
58	Gree	Split	China	2.5 Ton	R-22	1810	Y/D Office	0	0	No Leak Found
59	General	Split	Thailand	1.5 Ton	R-22	1810	Data Collection Room	0	0	No Leak Found
60	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
61	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
62	General	Split	Thailand	1.5 Ton	R-410A	2088	Dyeing Control Panel Room	0	0	No Leak Found
63	General	Split	Thailand	1.5 Ton	R-410A	2088	Dyeing Control Panel Room	0	0	No Leak Found
64	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
65	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
66	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
67	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
68	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
69	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
70	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
71	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
72	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
73	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
74	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
75	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
76	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
77	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
78	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
79	General	Split	Thailand	1.5 Ton	R-410A	2088	Dyeing Control Panel Room	0	0	No Leak Found
80	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
81	General	Window	Thailand	2.0 Ton	R-22	1810	Dyeing Mechanical Section	0	0	No Leak Found
82	General	Split	Thailand	2.0 Ton	R-410A	2088	Stenter Panel Room	0	0	No Leak Found
83	General	Split	Thailand	2.5 Ton	R-410A	2088	Admin Reception	0	0	No Leak Found
84	General	Split	Thailand	2.0 Ton	R-410A	2088	Soft Wending	0	0	No Leak Found
85	General	Split	Thailand	2.0 Ton	R-410A	2088	Hard Wending 02	0	0	No Leak Found
86	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Hard wending 02	0	0	No Leak Found
87	General	Split	Thailand	2.0 Ton	R-410A	2088	Hard wending 01	0	0	No Leak Found
88	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Hard wending 01	0	0	No Leak Found
89	General	Split	Thailand	2.5 Ton	R-410A	2088	Yarn Store office	0	0	No Leak Found
90	General	Split	Thailand	2.5 Ton	R-410A	2088	General Store	0	0	No Leak Found
91	General	Split	Thailand	2.5 Ton	R-410A	2088	Yarn Store office	0	0	No Leak Found
92	Carrier	Split	China	2.0 Ton	R-410A	2088	Dyes Staff Office	0	0	No Leak Found
93	General	Split	Thailand	2.0 Ton	R-410A	2088	Final Inspection	0	0	No Leak Found
94	General	Split	Thailand	2.5 Ton	R-410A	2088	Final Inspection	0	0	No Leak Found
95	General	Split	Thailand	2.0 Ton	R-22	1810	Red Flag Stenter	0	0	No Leak Found
96	General	Window	Thailand	2.0 Ton	R-410A	2088	Red Flag Stenter	0	0	No Leak Found



S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
97	General	Window	Thailand	2.0 Ton	R-410A	2088	Red Flag Stenter	0	0	No Leak Found
98	Gree	Window	China	2.5Ton	R-410A	2088	Bruckner Stenter	0	0	No Leak Found
99	General	Split	Thailand	2.5 Ton	R-410A	2088	Bruckner Stenter	0	0	No Leak Found
100	General	Split	Thailand	2.0 Ton	R-410A	2088	Marcharizing Pannel	0	0	No Leak Found
101	General	Split	Thailand	2.0 Ton	R-22	1810	Marcharizing Pannel	0	0	No Leak Found
102	Gree	Window	China	1.5 Ton	R-22	1810	Sunforizing Office	0	0	No Leak Found
103	Gree	Ceiling	China	3.0 Ton	R-22	1810	On Line Q.C Office	0	0	No Leak Found
104	General	Cassette	Thailand	2.5 Ton	R-22	1810	yarn testing room	0	0	No Leak Found
105	General	Cassette	Thailand	2.0 Ton	R-410A	2088	yarn testing office	0	0	No Leak Found
106	General	Split	Thailand	2.5 Ton	R-410A	2088	Wet Lab	0	0	No Leak Found
107	General	Split	Thailand	2.5 Ton	R-22	1810	Solid Dyeing	0	0	No Leak Found
108	General	Split	Thailand	1.0 Ton	R-410A	2088	Color Fastnees	0	0	No Leak Found
109	General	Split	Thailand	1.0 Ton	R-22	1810	Color Fastnees	0	0	No Leak Found
110	General	Split	Thailand	1.5 Ton	R-22	1810	Color Fastnees Office	0	0	No Leak Found
111	General	Split	Thailand	1.5 Ton	R-22	1810	Q.C Office-2	0	0	No Leak Found
112	General	Split	Thailand	1.5 Ton	R-22	1810	Drak room	0	0	No Leak Found
113	General	Split	Thailand	1.5 Ton	R-22	1810	Solid Lab	0	0	No Leak Found
114	General	Split	Thailand	1.5 Ton	R-410A	2088	Solid Lab	0	0	No Leak Found
115	General	Split	Thailand	1.5 Ton	R-22	1810	Solid Lab	0	0	No Leak Found
116	General	Split	Thailand	2.0 Ton	R-22	1810	E T P Lab	0	0	No Leak Found
117	Gree	Split	China	1.5 Ton	R-22	1810	E T P Lab	0	0	No Leak Found
118	Gree	Split	China	2.0 Ton	R-22	1810	Printing Q.C	0	0	No Leak Found
119	General	Split	Thailand	2.0 Ton	R-410A	2088	Flatbed 02	0	0	No Leak Found
120	General	Split	Thailand	2.0 Ton	R-22	1810	Flatbed 01	0	0	No Leak Found
121	General	Split	Thailand	2.0 Ton	R-22	1810	Zimmer C. P	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
122	General	Split	Thailand	2.0 Ton	R-22	1810	P.Zimmer C.P	0	0	No Leak Found
123	General	Split	Thailand	2.0 Ton	R-22	1810	Red Flag Washing	0	0	No Leak Found
124	General	Split	Thailand	2.0 Ton	R-22	1810	Red Flag Washing	0	0	No Leak Found
125	General	Split	Thailand	2.0 Ton	R-22	1810	Sun Super Standat	0	0	No Leak Found
126	General	Split	Thailand	2.0 Ton	R-22	1810	Sun Super Standat	0	0	No Leak Found
127	Hitachi	Ceiling	Thailand	4.5 Ton	R-22	1810	Loopsteamer M/C	0	0	No Leak Found
128	General	Window	India	4.5 Ton	R-22	1810	Loopsteamer M/C	0	0	No Leak Found
129	General	Window	Thailand	4.5 Ton	R-22	1810	Loopsteamer M/C	0	0	No Leak Found
130	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
131	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
132	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
133	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
134	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Printing Lab	0	0	No Leak Found
135	General	Split	Thailand	1.5 Ton	R-410A	2088	PrintingStore Section	0	0	No Leak Found
136	General	Split	Thailand	1.5 Ton	R-22	1810	Printing Design Section	0	0	No Leak Found
137	General	Split	Thailand	1.5 Ton	R-22	1810	Printing Design Section	0	0	No Leak Found
138	Hitachi	Cassette	Japan	4.5 Ton	R-22	1810	Digital Print M/C	0	0	No Leak Found
139	Hitachi	Cassette	Japan	4.5 Ton	R-22	1810	Digital Print M/C	0	0	No Leak Found
140	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
141	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
142	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
143	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
144	General	Split	Thailand	2.0 Ton	R-410A	2088	New Flat Bed M/C	0	0	No Leak Found
145	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	New Flat Bed M/C	0	0	No Leak Found
146	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	NewPrinting Store room	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
147	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	New Printing Conference	0	0	No Leak Found
148	Panasonic	Split	Japan	2.0 Ton	R-22	1810	IT Maen Server room	0	0	No Leak Found
149	General	Split	Thailand	1.5 Ton	R-410A	2088	printing 2nd Floor Lab	0	0	No Leak Found
150	General	Split	Thailand	1.5 Ton	R-410A	2088	printing 2nd Floor Lab	0	0	No Leak Found
151	Panasonic	Split	Japan	1.5 Ton	R-410A	2088	Dyeing	0	0	No Leak Found
152	Panasonic	Split	Japan	1.5 Ton	R-410A	2088	Dyeing	0	0	No Leak Found
153	Panasonic	Split	Japan	1.5 Ton	R-410A	2088	Dyeing	0	0	No Leak Found
154	General	Split	Thailand	1.0 Ton	R-410A	2088	Final Inspection	0	0	No Leak Found
155	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 1st Floor	0	0	No Leak Found
156	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 1st Floor	0	0	No Leak Found
157	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Ground Floor	0	0	No Leak Found
158	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Ground Floor	0	0	No Leak Found
159	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Ground Floor	0	0	No Leak Found
160	General	Split	Thailand	1.5 Ton	R-410A	2088	Banglo bari Guest Room	0	0	No Leak Found
161	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 2 Bed Room	0	0	No Leak Found
162	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 2 Bed Room	0	0	No Leak Found
163	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
164	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
165	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
166	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
Total Yearly Emission (Kg)								0	0	

**\*\*Abbreviations and Acronyms:** GWP = Global Warming Potential.

## AIR EMISSION INVENTORY

### Annual Air Emission from Production process (Non-point or Fugitive Emission Source):

#### VOC Emission:

Air Emissions Inventory									
Paramount Textile PLC									
Basic Information				Concentration of Pollutants Emitted (Kg/Yr)		Standards and Testing			
Sl No	Building No	Floor	Emission Source	VOC (Kg/Yr)	Run Time	Determined By	Control Devices In Place	Applicable Regulations	Testing Required
1	Printing Shed	Ground Floor	Printing	0.181	8400	Estimated	N/A	1. DoE (APCR-2022) 2. IFC/World Bank 3. ZDHC Air Emissions Guidelines	Annually
2			Engraving	1.210	8400	Estimated	N/A		Annually
3			Color Mixing	1.512	8400	Estimated	N/A		Annually
4			Sample	0.060	8400	Estimated	N/A		Annually
5	Merchandising Shed	Ground Floor	Sunforoing Machine Area	0.302	8400	Estimated	N/A		Annually
6			Stenter Area	0.181	8400	Estimated	N/A		Annually
7			Desizing Area	0.212	8400	Estimated	N/A		Annually
8			Merchandising Machine Area	0.242	8400	Estimated	N/A		Annually
9		1 <sup>st</sup> Floor	Solid Dyeing Lab	0.121	8400	Estimated	N/A		Annually
10	Main Chemical Shed	Ground Floor	Chemical Store	0.907	8400	Estimated	N/A		Annually
11	Medical Shed	Ground Floor	Medical	0.091	8400	Estimated	N/A		Annually
12	Fabric Shed	Ground Floor	Fabric Store	0.030	8400	Estimated	N/A		Annually
13	Weaving Building	Ground Floor	Wrapping	0.091	8400	Estimated	N/A		Annually
14			Weaving	0.605	8400	Estimated	N/A		Annually
15	Inspection Shed	Ground Floor	Final Inspection Area	0.121	8400	Estimated	N/A		Annually
16	Pre-Treatment Shed	Ground Floor	Pre-Treatment	0.212	8400	Estimated	N/A		Annually
17			Bleach	0.181	8400	Estimated	N/A		Annually
18			Gray Inspection	0.060	8400	Estimated	N/A		Annually
19		1 <sup>st</sup> Floor	Hard Winding	0.060	8400	Estimated	N/A		Annually
20		2 <sup>nd</sup> Floor	Hard Winding	0.060	8400	Estimated	N/A		Annually
21		3 <sup>rd</sup> Floor	Hard Winding	0.060	8400	Estimated	N/A		Annually

Air Emissions Inventory									
Paramount Textile PLC									
Basic Information				Concentration of Pollutants Emitted (Kg/Yr)		Standards and Testing			
Sl No	Building No	Floor	Emission Source	VOC (Kg/Yr)	Run Time	Determined By	Control Devices In Place	Applicable Regulations	Testing Required
22	Pre-Treatment Shed	4 <sup>th</sup> Floor	Soft Winding	0.060	8400	Estimated	N/A	1. DoE (APCR-2022) 2. IFC/World Bank 3. ZDHC Air Emissions Guidelines	Annually
23		5 <sup>th</sup> Floor	Soft Winding	0.060	8400	Estimated	N/A		Annually
24	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	0.091	8400	Estimated	N/A		Annually
25			Dyeing	0.121	8400	Estimated	N/A		Annually
26			EPB	0.060	8400	Estimated	N/A		Annually
27			Dyeing	0.060	8400	Estimated	N/A		Annually
28			Stenter Area	0.121	8400	Estimated	N/A		Annually
29			Thermosol	0.091	8400	Estimated	N/A		Annually
30			Sunforing Machine Area	0.091	8400	Estimated	N/A		Annually
31			RFD Machine Area	0.060	8400	Estimated	N/A		Annually
32			Chemical Sub Store	0.605	8400	Estimated	N/A		Annually
33		1 <sup>st</sup> Floor	New Yarn Dyeing	0.091	8400	Estimated	N/A		Annually
34	WTP Shed	Ground Floor	WTP Section	0.907	8400	Estimated	N/A		Annually
35	Weaving Shed	Ground Floor	Weaving	0.060	8400	Estimated	N/A		Annually
36	Sizing & Wrapping Shed	Ground Floor	Wrapping	0.030	8400	Estimated	N/A		Annually
37			Sizing	0.091	8400	Estimated	N/A		Annually
38	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	0.030	8400	Estimated	N/A		Annually
39	Solid Dyeing Building	Ground Floor	Solid Dyeing	0.060	8400	Estimated	N/A		Annually
40	ETP Building	Ground Floor	ETP Lab	0.030	8400	Estimated	N/A		Annually
Total Emission of VOC in Kg per Year				9.042					

## Dust Emission:

<i>Air Emission Inventory</i>										
Paramount Textile PLC										
Basic Information				Concentration of Pollutants Emitted (Kg/Yr)			Standards and Testing			
Sl No	Building No	Floor	Emission Source	PM <sub>2.5</sub> (Kg/Yr)	PM <sub>10</sub> (Kg/Yr)	Run Time	Determined By	Control Devices In Place	Applicable Regulations	Testing Required
1	Printing Shed	Ground Floor	Printing	0.484	0.617	8400	Estimated	N/A	1. DoE (APCR-2022) 2. IFC/World Bank 3. ZDHC Air Emissions Guidelines	Annually
2			Engraving	0.221	0.263	8400	Estimated	N/A		Annually
3			Office Area	0.124	0.178	8400	Estimated	N/A		Annually
4			Color Mixing	0.208	0.266	8400	Estimated	N/A		Annually
5			Sample	0.227	0.260	8400	Estimated	N/A		Annually
6	Workshop Shed	Ground Floor	Workshop	0.145	0.197	8400	Estimated	N/A		Annually
7	Merchandising Shed	Ground Floor	Sunforing Machine Area	0.508	0.665	8400	Estimated	N/A		Annually
8			Stenter Area	0.218	0.276	8400	Estimated	N/A		Annually
9			Desizing Area	0.212	0.281	8400	Estimated	N/A		Annually
10			Merchandising Machine Area	1.070	1.191	8400	Estimated	N/A		Annually
11		1 <sup>st</sup> Floor	Solid Dyeing Lab	0.272	0.387	8400	Estimated	N/A		Annually
12	Main Chemical Shed	Ground Floor	Chemical Store	0.254	0.318	8400	Estimated	N/A		Annually
13	Medical Shed	Ground Floor	Medical	0.221	0.278	8400	Estimated	N/A		Annually
14			Dining	0.248	0.323	8400	Estimated	N/A		Annually
15	Fabric Shed	Ground Floor	Fabric Store	0.242	0.312	8400	Estimated	N/A		Annually
16	Weaving Building	Ground Floor	Wrapping	0.236	0.312	8400	Estimated	N/A		Annually
17			Weaving	0.197	0.263	8400	Estimated	N/A		Annually
18	Inspection Shed	Ground Floor	Final Inspection Area	0.269	0.354	8400	Estimated	N/A		Annually
19	Pre-Treatment Shed	Ground Floor	Pre-Treatment	0.227	0.299	8400	Estimated	N/A		Annually
20			Bleach	0.215	0.281	8400	Estimated	N/A		Annually
21			Gray Inspection	0.230	0.302	8400	Estimated	N/A		Annually
22		1 <sup>st</sup> Floor	Hard Winding	0.172	0.230	8400	Estimated	N/A		Annually
23		2 <sup>nd</sup> Floor	Hard Winding	0.166	0.239	8400	Estimated	N/A		Annually
24		3 <sup>rd</sup> Floor	Hard Winding	0.163	0.227	8400	Estimated	N/A		Annually



Air Emission Inventory										
Paramount Textile PLC										
Basic Information				Concentration of Pollutants Emitted (Kg/Yr)			Standards and Testing			
Sl No	Building No	Floor	Emission Source	PM <sub>2.5</sub> (Kg/Yr)	PM <sub>10</sub> (Kg/Yr)	Run Time	Determined By	Control Devices In Place	Applicable Regulations	Testing Required
25	Pre-Treatment Shed	4 <sup>th</sup> Floor	Soft Winding	0.202	0.281	8400	Estimated	N/A	1. DoE (APCR-2022) 2. IFC/World Bank 3. ZDHC Air Emissions Guidelines	Annually
26		5 <sup>th</sup> Floor	Soft Winding	0.200	0.272	8400	Estimated	N/A		Annually
27	Yarn Dyeing Shed	Ground Floor	Old Yarn Store	0.197	0.254	8400	Estimated	N/A		Annually
28			Dyeing	0.221	0.293	8400	Estimated	N/A		Annually
29			EPB	0.208	0.269	8400	Estimated	N/A		Annually
30			Dyeing	0.212	0.260	8400	Estimated	N/A		Annually
31			Stenter Area	0.202	0.272	8400	Estimated	N/A		Annually
32			Thermosol	0.218	0.266	8400	Estimated	N/A		Annually
33			Sunforing Machine Area	0.239	0.339	8400	Estimated	N/A		Annually
34			RFD Machine Area	0.202	0.251	8400	Estimated	N/A		Annually
35			Chemical Sub Store	0.348	0.442	8400	Estimated	N/A		Annually
36		1 <sup>st</sup> Floor	New Yarn Dyeing	0.239	0.357	8400	Estimated	N/A		Annually
37	WTP Shed	Ground Floor	WTP Section	0.469	0.599	8400	Estimated	N/A		Annually
38	Time Shed	Ground Floor	Time Section	0.202	0.263	8400	Estimated	N/A		Annually
39	Weaving Shed	Ground Floor	Weaving	0.197	0.245	8400	Estimated	N/A		Annually
40	Sizing & Wrapping Shed	Ground Floor	Wrapping	0.208	0.314	8400	Estimated	N/A		Annually
41			Sizing	0.197	0.293	8400	Estimated	N/A		Annually
42	Admin Building	1 <sup>st</sup> Floor	Office Area	0.060	0.097	8400	Estimated	N/A		Annually
43		2 <sup>nd</sup> Floor	Office Area	0.087	0.139	8400	Estimated	N/A		Annually
44	Soft Flow Dyeing Building	Ground Floor	Soft Flow Dyeing	0.176	0.233	8400	Estimated	N/A		Annually
45	Solid Dyeing Building	Ground Floor	Solid Dyeing	0.208	0.266	8400	Estimated	N/A		Annually
46	ETP Building	Ground Floor	ETP Lab	0.160	0.218	8400	Estimated	N/A		Annually
Total Emission of Particulate Matter in Kg per Year				11.180	14.542					

## Stack Air Emission from Exhaust Outlet:

Sl. No.	Brand Name	Model No	Made By	Fuel	Capacity	Flue Temperature (°C)	Flow (m/s)
Generator-01	Jenbacher	JGS 320 GS-N. L	Austria	Natural Gas	1064 KW	441	5.3
Generator-02	Jenbacher	JGS 320 GS-N. L	Austria	Natural Gas	1064 KW	423	5
Generator-03	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW	448	5.1
Generator-04	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW	440	4.9
Generator-05	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW	447	5.5
Generator-06	Jenbacher	JGS 320 GS-N. L	Austria	Natural Gas	1064 KW	448	5.3
Generator-07	Jenbacher	JGS 420 GS-N. L	Austria	Natural Gas	1415 KW	445	5.8
Boiler-01	Loos International	UL-S-1000*10	Germany	Natural Gas	10000 Kg	219	4.1
Boiler-02	BOSCH	UL-S-10000	Germany	Natural Gas	10000 Kg	215	4.5
Boiler-03 (EGB)	EGB GETABEC	HRSG-1960/10	Germany	Exhaust Gas	1960 Kg	228	4.4
Boiler-04	BOSCH	UL-S-8000	Germany	Natural Gas	8000 Kg	216	4.2
Boiler-05	DAELIM ROYAL BOILER	DL-Z6000	Korea	Natural Gas	6000 kg	212	4.2
Stenter-01	Virock	LVK 400-200*8	China	Natural Gas	-	90.9	2.6
Stenter-02	Red Flag	MFS 338-200	China	Natural Gas	-	81.3	3
Stenter-03	Bruckner	-	Germany	Natural Gas	-	97.3	3.2
Stenter-04	Monforts Fong's	Montex- 6500	China	Natural Gas	-	88.9	2.9
Stenter-05	IL-SUNG (Sun Super-II)	ISST-II-08GP	South Korea	Natural Gas	-	95.7	3.7
Singeing-1	Red Flag	-	China	Natural Gas	-	88.2	4.1
Singeing-2	Osthoff	-	Germany	Natural Gas	-	80.5	3.9
Singeing-3	Osthoff	-	Germany	Natural Gas	-	75.4	4.2
RF Dryer-1	Stalam	SP02-170	China	Natural Gas	-	80.1	4



Sl. No.	Brand Name	Model No	Made By	Fuel	Capacity	Flue Temperature (°C)	Flow (m/s)
RF Dryer-2	Stalam	SP02-170	China	Natural Gas	-	78.1	3.3
RF Dryer-3	Fong's	FTDW-170	China	Natural Gas	-	77.4	4.1
RF Dryer-4	-	SO 170TS	England	Natural Gas	-	77.3	4.2
Thermasol Dyeing	Monfongs	62T88402	China	Natural Gas	-	75.2	3
Loop steamer (Steam Ager) Machine	Arioli	VAPO 2015	Italy	Natural Gas	-	60.1	4.1
EGB-FB	---	FVPL	India	Exhaust Gas	4200 KG	258.5	4.8
Bosch Boiler	Bosch	Uls-10000	Germany	Natural Gas	10000 KG	272.4	5.1
Dailim Royel Boiler	Dailim Royel	DLZ-8000	Korea	Natural Gas	8000 KG	218.5	4.5

Air Emission Inventory										
Paramount Textile PLC										
Basic Information	Concentration of Pollutants Emitted (Kg/Yr)					Standards and Testing				
ID Number	SPM	NO <sub>x</sub>	SO <sub>2</sub>	CO	CO <sub>2</sub>	Determined By	Run Time	Control Devices In Place	Applicable Regulations	Testing Required
Generator-01	26.96762685	87.38652923	0	272.764903	146909.86	Calculated	8352	N/A	1. DoE (APCR-2022) 2. IFC/World Bank 3. STeP BY OEKO-TEX 4. ZDHC Air Emissions Guidelines	Annually
Generator-02	10.34299579	36.20634579	0	121.679119	51440.7732	Calculated	8256	N/A		Annually
Generator-03	1.316872712	4.422479153	0	15.2660897	5547.63655	Calculated	8184	N/A		Annually
Generator-04	101.2690071	442.3105612	0	1294.08458	513296.625	Calculated	8376	N/A		Annually
Generator-05	104.9476386	365.4133637	0	1093.05966	420737.704	Calculated	8232	N/A		Annually
Generator-06	95.96067528	363.7680031	0	1101.88446	415720.832	Calculated	8280	N/A		Annually
Generator-07	66.68786796	253.9825095	0	835.650105	364673.487	Calculated	8328	N/A		Annually
Boiler-01	205.0805742	1372.106913	0	2685.70943	1138714.31	Calculated	8208	N/A		Annually
Boiler-02	243.4167439	1674.973142	0	3180.61477	1194416.64	Calculated	8160	N/A		Annually
Boiler-03 (EGB)	259.8397722	2252.142621	0	4149.92807	1480648.02	Calculated	8400	N/A		Annually
Boiler-04	258.3664786	1925.608325	0	3407.74788	1251308.6	Calculated	8184	N/A		Annually
Boiler-05	165.9682957	1682.795016	0	2731.78811	954797.887	Calculated	8376	N/A		Annually
Stenter-01	89.26547498	145.7664001	0	945.704782	571724.753	Calculated	8232	N/A		Annually
Stenter-02	98.27903219	126.8242505	0	986.77802	613764.291	Calculated	8256	N/A		Annually
Stenter-03	45.62098063	59.26585817	0	713.087607	391749.148	Calculated	8160	N/A		Annually
Stenter-04	34.49049038	27.78501178	0	409.785319	268930.398	Calculated	8304	N/A		Annually
Stenter-05	39.77021321	48.62604432	0	535.174995	355857.47	Calculated	8208	N/A		Annually
Singeing-1	106.8553215	130.9148747	0	1211.83007	1223427.78	Calculated	8184	N/A		Annually
Singeing-2	89.55902381	79.01317461	0	874.122626	776180.862	Calculated	8352	N/A		Annually
Singeing-3	45.62098063	52.76106886	0	509.658554	268627.987	Calculated	8328	N/A		Annually
RF Dryer-1	44.89353499	49.53506001	0	492.144875	215103.94	Calculated	8208	N/A		Annually
RF Dryer-2	33.5386246	52.14202675	0	459.83395	142627.325	Calculated	8376	N/A		Annually

Air Emission Inventory										
Paramount Textile PLC										
Basic Information	Concentration of Pollutants Emitted (Kg/Yr)					Standards and Testing				
ID Number	SPM	NO <sub>x</sub>	SO <sub>2</sub>	CO	CO <sub>2</sub>	Determined By	Run Time	Control Devices In Place	Applicable Regulations	Testing Required
RF Dryer-3	29.87536988	44.45996089	0	368.500934	236443.292	Calculated	8352	N/A	1. DoE (APCR-2022) 2. IFC/World Bank 3. STeP BY OEKO-TEX 4. ZDHC Air Emissions Guidelines	Annually
RF Dryer-4	26.20303302	34.43990358	0	345.460055	180957.585	Calculated	8208	N/A		Annually
Thermasol Dyeing	12.15644924	16.43431323	0	183.362012	61859.4998	Calculated	8280	N/A		Annually
Loop steamer (Steam Ager) Machine	2.023351399	2.370654293	0	27.4901625	13237.7887	Calculated	8232	N/A		Annually
EGB-FB	301.4120974	2027.310131	0	3894.61425	937183.589	Calculated	8376	N/A		Annually
Bosch	721.0950767	4474.075495	0	8438.52039	1630833.69	Calculated	8208	N/A		Annually
Daelim Royal	106.8977892	712.7227148	0	975.990412	381479.69	Calculated	8304	N/A		Annually
Total Stack Air Emission in Kg per Year	3367.721393	18545.56275	0	42262.2362	16208201.5					

## Emission from Refrigerant Device / Cooling System:

The annual air emission caused by **Paramount Textile PLC** by refilling refrigerant in the year 2023 is presented below:

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
1	Carrier	Split	China	2 Ton	R-410A	2088	Common Service	0	0	No Leak Found
2	General	Split	Thailand	2.5 Ton	R-410A	2088	Conference -01	0	0	No Leak Found
3	General	Window	Thailand	2 Ton	R-410A	2088	Executive Dining	0	0	No Leak Found
4	General	Split	Thailand	2 Ton	R-410A	2088	Conference -02	0	0	No Leak Found
5	General	Split	Thailand	1 Ton	R-410A	2088	Medical Office	0	0	No Leak Found
6	Samsung	Split	South Korea	2 Ton	R-410A	2088	Medical Staff Office	0	0	No Leak Found
7	General	Split	Thailand	2 Ton	R-410A	2088	Sizing 02	0	0	No Leak Found
8	General	Split	Thailand	2 Ton	R-410A	2088	Weaving Electronic Lab	0	0	No Leak Found
9	General	Window	Thailand	2 Ton	R-410A	2088	Weaving Electronic Lab	0	0	No Leak Found
10	Gree	Split	China	1.5 Ton	R-410A	2088	General Electrical	0	0	No Leak Found
11	Gree	Split	China	2 Ton	R-410A	2088	General Electrical	0	0	No Leak Found
12	General	Split	Thailand	2.5 Ton	R-410A	2088	Peepatore office	0	0	No Leak Found
13	General	Split	Thailand	1.5 Ton	R-410A	2088	Sizing 01	0	0	No Leak Found
14	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	A/C Plant 01	0	0	No Leak Found
15	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
16	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
17	Gree	Split	China	2.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
18	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
19	American Air	-	Thailand	5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
20	General	Thailand	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found
21	General	Split	Thailand	1.5 Ton	R-22	1810	Generator Control Room	0	0	No Leak Found
22	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Generator Control Room	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
23	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Generator Control Room	0	0	No Leak Found
24	General	Ceiling	Thailand	2.0 Ton	R-22	1810	Time Section	0	0	No Leak Found
25	General	Ceiling	Thailand	2.0 Ton	R-32	1810	C.E. I	0	0	No Leak Found
26	General	Ceiling	Thailand	2.0 Ton	R-22	1810	C.E. I	0	0	No Leak Found
27	General	Ceiling	Thailand	4.5 Ton	R-22	1810	New Training Center	0	0	No Leak Found
28	General	Ceiling	Thailand	4.5 Ton	R-22	1810	New Training Center	0	0	No Leak Found
29	General	Split	Thailand	2.0 Ton	R-22	1810	Dyes Store Office	0	0	No Leak Found
30	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Fabric Store	0	0	No Leak Found
31	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Fabric Store	0	0	No Leak Found
32	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Dyes Store	0	0	No Leak Found
33	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Dyes Store	0	0	No Leak Found
34	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Dyes Q.C Room	0	0	No Leak Found
35	General	Cassette	Thailand	1.5 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
36	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
37	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
38	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
39	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
40	General	Ceiling	Thailand	2.0 Ton	R-410A	2088	Dyeing Lab	0	0	No Leak Found
41	General	Cassette	Thailand	4.0 Ton	R-22	1810	Dyeing Lab	0	0	No Leak Found
42	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Dyeing Lab	0	0	No Leak Found
43	General	Split	Thailand	1.5 Ton	R-22	1810	New Dyeing	0	0	No Leak Found
44	General	Split	Thailand	1.5 Ton	R-22	1810	New Dyeing	0	0	No Leak Found
45	General	Split	Thailand	2.0 Ton	R-22	1810	Dyes Office	0	0	No Leak Found
46	General	Window	Thailand	2.0 Ton	R-22	1810	Dyes Office	0	0	No Leak Found
47	General	Split	Thailand	2.5 Ton	R-410A	2088	Dyeing Electronics	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
48	Gree	Split	China	2.5 Ton	R-410A	2088	Hanks Dyeing Office	0	0	No Leak Found
49	General	Ceiling	Thailand	4.5 Ton	R-22	1810	Hanks Lab	0	0	No Leak Found
50	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Hanks Lab	0	0	No Leak Found
51	Carrier	Split	China	2.0 Ton	R-410A	2088	Dyeing Mechanical	0	0	No Leak Found
52	General	Split	Thailand	1.5 Ton	R-410A	2088	IT Office 02	0	0	No Leak Found
53	Gree	Split	China	2.5 Ton	R-410A	2088	Production Planning	0	0	No Leak Found
54	General	Split	Thailand	2.0 Ton	R-410A	2088	Production Planning	0	0	No Leak Found
55	General	Split	Thailand	2.0 Ton	R-22	1810	Q.C Office	0	0	No Leak Found
56	Gree	Split	China	2.5 Ton	R-22	1810	Yarn Dyeing Planning	0	0	No Leak Found
57	General	Split	Thailand	1.5 Ton	R-22	1810	Y/D Office	0	0	No Leak Found
58	Gree	Split	China	2.5 Ton	R-22	1810	Y/D Office	0	0	No Leak Found
59	General	Split	Thailand	1.5 Ton	R-22	1810	Data Collection Room	0	0	No Leak Found
60	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
61	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
62	General	Split	Thailand	1.5 Ton	R-410A	2088	Dyeing Control Panel Room	0	0	No Leak Found
63	General	Split	Thailand	1.5 Ton	R-410A	2088	Dyeing Control Panel Room	0	0	No Leak Found
64	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
65	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
66	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
67	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
68	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
69	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
70	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
71	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
72	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
73	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
74	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
75	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
76	General	Split	Thailand	2.0 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
77	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
78	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
79	General	Split	Thailand	1.5 Ton	R-410A	2088	Dyeing Control Panel Room	0	0	No Leak Found
80	General	Split	Thailand	1.5 Ton	R-22	1810	Dyeing Control Panel Room	0	0	No Leak Found
81	General	Window	Thailand	2.0 Ton	R-22	1810	Dyeing Mechanical Section	0	0	No Leak Found
82	General	Split	Thailand	2.0 Ton	R-410A	2088	Stenter Panel Room	0	0	No Leak Found
83	General	Split	Thailand	2.5 Ton	R-410A	2088	Admin Reception	0	0	No Leak Found
84	General	Split	Thailand	2.0 Ton	R-410A	2088	Soft Wending	0	0	No Leak Found
85	General	Split	Thailand	2.0 Ton	R-410A	2088	Hard Wending 02	0	0	No Leak Found
86	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Hard wending 02	0	0	No Leak Found
87	General	Split	Thailand	2.0 Ton	R-410A	2088	Hard wending 01	0	0	No Leak Found
88	General	Ceiling	Thailand	4.5 Ton	R-410A	2088	Hard wending 01	0	0	No Leak Found
89	General	Split	Thailand	2.5 Ton	R-410A	2088	Yarn Store office	0	0	No Leak Found
90	General	Split	Thailand	2.5 Ton	R-410A	2088	General Store	0	0	No Leak Found
91	General	Split	Thailand	2.5 Ton	R-410A	2088	Yarn Store office	0	0	No Leak Found
92	Carrier	Split	China	2.0 Ton	R-410A	2088	Dyes Staff Office	0	0	No Leak Found
93	General	Split	Thailand	2.0 Ton	R-410A	2088	Final Inspection	0	0	No Leak Found
94	General	Split	Thailand	2.5 Ton	R-410A	2088	Final Inspection	0	0	No Leak Found
95	General	Split	Thailand	2.0 Ton	R-22	1810	Red Flag Stenter	0	0	No Leak Found
96	General	Window	Thailand	2.0 Ton	R-410A	2088	Red Flag Stenter	0	0	No Leak Found
97	General	Window	Thailand	2.0 Ton	R-410A	2088	Red Flag Stenter	0	0	No Leak Found



S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
98	Gree	Window	China	2.5Ton	R-410A	2088	Bruckner Stenter	0	0	No Leak Found
99	General	Split	Thailand	2.5 Ton	R-410A	2088	Bruckner Stenter	0	0	No Leak Found
100	General	Split	Thailand	2.0 Ton	R-410A	2088	Marcharizing Pannel	0	0	No Leak Found
101	General	Split	Thailand	2.0 Ton	R-22	1810	Marcharizing Pannel	0	0	No Leak Found
102	Gree	Window	China	1.5 Ton	R-22	1810	Sunforizing Office	0	0	No Leak Found
103	Gree	Ceiling	China	3.0 Ton	R-22	1810	On Line Q.C Office	0	0	No Leak Found
104	General	Cassette	Thailand	2.5 Ton	R-22	1810	yarn testing room	0	0	No Leak Found
105	General	Cassette	Thailand	2.0 Ton	R-410A	2088	yarn testing office	0	0	No Leak Found
106	General	Split	Thailand	2.5 Ton	R-410A	2088	Wet Lab	0	0	No Leak Found
107	General	Split	Thailand	2.5 Ton	R-22	1810	Solid Dyeing	0	0	No Leak Found
108	General	Split	Thailand	1.0 Ton	R-410A	2088	Color Fastnees	0	0	No Leak Found
109	General	Split	Thailand	1.0 Ton	R-22	1810	Color Fastnees	0	0	No Leak Found
110	General	Split	Thailand	1.5 Ton	R-22	1810	Color Fastnees Office	0	0	No Leak Found
111	General	Split	Thailand	1.5 Ton	R-22	1810	Q.C Office-2	0	0	No Leak Found
112	General	Split	Thailand	1.5 Ton	R-22	1810	Drak room	0	0	No Leak Found
113	General	Split	Thailand	1.5 Ton	R-22	1810	Solid Lab	0	0	No Leak Found
114	General	Split	Thailand	1.5 Ton	R-410A	2088	Solid Lab	0	0	No Leak Found
115	General	Split	Thailand	1.5 Ton	R-22	1810	Solid Lab	0	0	No Leak Found
116	General	Split	Thailand	2.0 Ton	R-22	1810	E T P Lab	0	0	No Leak Found
117	Gree	Split	China	1.5 Ton	R-22	1810	E T P Lab	0	0	No Leak Found
118	Gree	Split	China	2.0 Ton	R-22	1810	Printing Q.C	0	0	No Leak Found
119	General	Split	Thailand	2.0 Ton	R-410A	2088	Flatbed 02	0	0	No Leak Found
120	General	Split	Thailand	2.0 Ton	R-22	1810	Flatbed 01	0	0	No Leak Found
121	General	Split	Thailand	2.0 Ton	R-22	1810	Zimmer C. P	0	0	No Leak Found
122	General	Split	Thailand	2.0 Ton	R-22	1810	P.Zimmer C.P	0	0	No Leak Found



S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
123	General	Split	Thailand	2.0 Ton	R-22	1810	Red Flag Washing	0	0	No Leak Found
124	General	Split	Thailand	2.0 Ton	R-22	1810	Red Flag Washing	0	0	No Leak Found
125	General	Split	Thailand	2.0 Ton	R-22	1810	Sun Super Standat	0	0	No Leak Found
126	General	Split	Thailand	2.0 Ton	R-22	1810	Sun Super Standat	0	0	No Leak Found
127	Hitachi	Ceiling	Thailand	4.5 Ton	R-22	1810	Loopsteamer M/C	0	0	No Leak Found
128	General	Window	India	4.5 Ton	R-22	1810	Loopsteamer M/C	0	0	No Leak Found
129	General	Window	Thailand	4.5 Ton	R-22	1810	Loopsteamer M/C	0	0	No Leak Found
130	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
131	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
132	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
133	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Engraving M/C	0	0	No Leak Found
134	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	Printing Lab	0	0	No Leak Found
135	General	Split	Thailand	1.5 Ton	R-410A	2088	PrintingStore Section	0	0	No Leak Found
136	General	Split	Thailand	1.5 Ton	R-22	1810	Printing Design Section	0	0	No Leak Found
137	General	Split	Thailand	1.5 Ton	R-22	1810	Printing Design Section	0	0	No Leak Found
138	Hitachi	Cassette	Japan	4.5 Ton	R-22	1810	Digital Print M/C	0	0	No Leak Found
139	Hitachi	Cassette	Japan	4.5 Ton	R-22	1810	Digital Print M/C	0	0	No Leak Found
140	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
141	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
142	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
143	Hitachi	Cassette	Japan	4.5 Ton	R-410A	2088	Digital Print M/C	0	0	No Leak Found
144	General	Split	Thailand	2.0 Ton	R-410A	2088	New Flat Bed M/C	0	0	No Leak Found
145	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	New Flat Bed M/C	0	0	No Leak Found
146	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	NewPrinting Store room	0	0	No Leak Found
147	General	Ceiling	Thailand	3.0 Ton	R-410A	2088	New Printing Conference	0	0	No Leak Found

S/N	Brand	AC Type	Made by	Capacity	Refrigerant type	GWP	Installation Location	Yearly Emission (Kg)	CO <sub>2</sub> e (Kg)	Remarks
148	Panasonic	Split	Japan	2.0 Ton	R-22	1810	IT Maen Server room	0	0	No Leak Found
149	General	Split	Thailand	1.5 Ton	R-410A	2088	printing 2nd Floor Lab	0	0	No Leak Found
150	General	Split	Thailand	1.5 Ton	R-410A	2088	printing 2nd Floor Lab	0	0	No Leak Found
151	Panasonic	Split	Japan	1.5 Ton	R-410A	2088	Dyeing	0	0	No Leak Found
152	Panasonic	Split	Japan	1.5 Ton	R-410A	2088	Dyeing	0	0	No Leak Found
153	Panasonic	Split	Japan	1.5 Ton	R-410A	2088	Dyeing	0	0	No Leak Found
154	General	Split	Thailand	1.0 Ton	R-410A	2088	Final Inspection	0	0	No Leak Found
155	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 1st Floor	0	0	No Leak Found
156	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 1st Floor	0	0	No Leak Found
157	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Ground Floor	0	0	No Leak Found
158	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Ground Floor	0	0	No Leak Found
159	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Ground Floor	0	0	No Leak Found
160	General	Split	Thailand	1.5 Ton	R-410A	2088	Banglo bari Guest Room	0	0	No Leak Found
161	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 2 Bed Room	0	0	No Leak Found
162	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari 2 Bed Room	0	0	No Leak Found
163	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
164	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
165	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
166	Panasonic	Split	Japan	2.0 Ton	R-410A	2088	Banglo bari Boat House	0	0	No Leak Found
Total Yearly Emission (Kg)								0	0	

### Discussion and Recommendation:

**Paramount Textile PLC** has hired GREENBUD Testing & Inspection Services Private Limited to inspect their workplace environmental conditions. Where the scope of work was stack air inspection, indoor air quality inspection, noise level inspection, light level inspection, temperature & humidity level inspection, ambient air & ambient noise inspection, VOC emission, and ODS inventory. GREENBUD has inspected all the required parameter according to the Air Pollution Control Rules-2022, Sound Pollution Control Rules-2006, Bangladesh Labor Rules-2015, WHO, STeP-OEKO TEX, the IFC/World Bank emission standard and all industry accepted standards.

From the result of the inspection, it has been found that all the parameters in most of the sections are in compliance with the permissible limit. However, noise level in some section such as Generator room and weaving was found beyond the standard limit.

The factory is suggested to assess the Workplace Environmental Quality at least annually if all other setups are constant.



Engr. Syed Tashem Mahmood  
CEO and Chief Environmental Engineer  
GREENBUD  
MIEB No.: M/35960  
ISO 14001 certification Number.: EA/15/IN/16050  
ISO 50001 certification Number.: ENMS/16/IN/533



# ACCREDITATION CERTIFICATE

Issued under the authority of Bangladesh Accreditation Act, 2006  
by Bangladesh Accreditation Board (BAB), Ministry of Industries to

**GREENBUD Testing & Inspection Services**

**14A, Level-14, Building 2, Confidence center  
Kha-09, Sahajadpur, Gulshan, Dhaka-1212, Bangladesh**

This is to certify that this

**Inspection Body(Type-A)**

is accredited in accordance with the international standard

**ISO/IEC 17020:2012**

in respect of the associated scope, subject to the terms and  
conditions governing the relevant conformity assessment  
body (CAB) accreditation.

Certificate Number : 05.003.18  
Accreditation Date : 28 June 2018  
Date of Issuance : 28 June 2021  
Date of Expiration : 27 June 2024



  
**Md. Monwarul Islam**  
Director General

This certificate must be returned on request; reproduction must follow BAB guidelines. For the specific  
scopes to which this accreditation applies, please refer to the Directory of CABs at BAB website.

# **Annexure 21**

## **Ecological Data**

## TERRESTRIAL FLORA

**Table 1: Terrestrial Flora around the Study Area**

SL No.	Local Name	Scientific name	English Name	Family
1.	Amra	<i>Spondias pinnata</i>	Hog plum	Anacardiaceae
2.	Aam	<i>Mangifera indica</i>	Mango	Anacardiaceae
3.	Kathal	<i>Artocarpus heterophyllus</i>	Jackfruit	Moraceae
4.	Boroi	<i>Ziziphus mauritiana</i>	Indian jujube	Rhamnaceae
5.	Peyara	<i>Psidium guajava</i>	Guava	Myrtaceae
6.	Kala	<i>Musa Sepientum</i>	Banana	Musaceae
7.	Neem	<i>Azadirachta indica</i>	Neem Tree	Meliaceae
8.	Narikel	<i>Cocos nucifera</i>	Coconut	Arecaceae
9.	Jam	<i>Syzygium cumini</i>	Black berry	Myrtaceae
10.	Pepe	<i>Carica papaya</i>	Papaya	Caricaceae
11.	Tal	<i>Borassus flabellifer</i>	Palmyra palm	Arecaceae
12.	Lichu	<i>Lichi chinensis</i>	Lichi	Sapindaceae
13.	Kumro	<i>Cucurbita pepo</i>	Pumpkin	Cucurbitaceae
14.	Khejur	<i>Phoenix sylvestris</i>	Date Palm	Arecaceae
15.	Shimul	<i>Bombax ceiba</i>	Cotton Tree	Bombacaceae
16.	Boroi	<i>Zizyphus mauritiana</i>	Indian jujube	Rhamnaceae
17.	Togor	<i>Allamanda cathartica</i>	Golden trumpet	Apocynaceae
18.	Supari	<i>Areca Catechu</i>	Betel nut	Arecaceae
19.	Bel	<i>Aegle marmelos</i>	Stone apple	Rutaceae
20.	Kamranga	<i>Averrhoa carambola</i>	Star Fruit	Averrhoaceae
21.	Tentul	<i>Tamarindus indica</i>	Tamarind	Fabaceae
22.	Debdaru	<i>Polyalthia longifolia</i>	Indian mast tree	Annonaceae
23.	Mahagoni	<i>Swietenia macrophylla</i>	Honduras Mahogany	Meliaceae
24.	Jarul	<i>Lagerstroemia speciosa</i>	Pride of India	Lythraceae
25.	Akashmoni	<i>Acacia auriculiformis</i>	Earleaf acacia	Mimosaceae
26.	Kadam	<i>Anthocephalus cadamba</i>	Kadamba	Rubiaceae
27.	Dalim	<i>Punica granatum</i>	Pomegranate	Punicaceae
28.	Lebu	<i>Citrus limon</i>	Lemon	Rutaceae
29.	Kachamorich	<i>Capsicum frutescens</i>	Pepper	Solanaceae
30.	Rongon	<i>Ixora coccinea</i>	Jungle flame	Rubiaceae
31.	Golap	<i>Rosa sinensis</i>	Rose	Rosaceae
32.	Jambura	<i>Citrus maxima</i>	Pummelo	Rutaceae

SL No.	Local Name	Scientific name	English Name	Family
33.	Jhinga	<i>Luffa cylindrica</i>	Dishrag gourd	Cucurbitaceae
34.	Koroi	<i>Albizia chinensis</i>	Koroi Tree	Mimosaceae
35.	Nayantara	<i>Catharanthus roseus</i>	Rose periwinkle	Apocynaceae

**Source:** Field survey of AECL team





*Catharanthus roseus*



*Cocos nucifera*



*Musa Sapientum*



*Mangifera indica*



*Ixora coccinea*



*Rosa sinensis*





*Borassus flabellifer*



*Citrus maxima*



*Artocarpus heterophyllus*



*Phoenix sylvestris*



*Ziziphus mauritiana*



*Psidium guajava*

Figure 1: Terrestrial Flora around the project area

# TERRESTRIAL FAUNA

**Table 2: List of Terrestrial Fauna Identified in and around the Project Area**

Sl. No.	English name	Scientific name	Local Name	Conservational status	
				IUCN Bangladesh status	IUCN Global status
Amphibians					
1.	Skipper Frog	<i>Rana cyanophlyctis</i>	Kotkoti Bang	NT	LC
2.	Bull Frog	<i>Rana tigrina</i>	Sona Bang, Kola Bang	NT	LC
3.	Common Toad	<i>Bufo melanostictus</i>	Kuno Bang	NT	LC
Reptiles					
1.	House Lizard	<i>Hemidactylus brookii</i>	Goda Tiktiki	NT	LC
2.	Common House Gecko	<i>Hemidactylus frenatus</i>	Mosrin Tiktiki	NT	LC
Birds					
1.	Common Myna	<i>Acridotheres tristis</i>	Bhat Shalik	NT	LC
2.	Jungle Myna	<i>Acridotheres fuscus</i>	Jhuti Shalik	NT	LC
3.	Red-vented bulbul	<i>Pycnonotus cafer</i>	Bangla Bulbul	NT	LC
4.	Tailor Bird	<i>Orthotomus sutorious</i>	Tuntuni	NT	LC
5.	House Sparrow	<i>Passer domesticus</i>	Pati Chorui	NT	LC
6.	Common Tailorbird	<i>Orthotomus sutorius</i>	Pati Tuntuni	NT	LC
7.	Common Kingfisher	<i>Alcedo atthis</i>	Machranga	NT	LC
8.	Cuckoos	<i>Cuculus micropterus</i>	Kokil	NT	LC
9.	King Crows	<i>Dicrurus adsimilis</i>	Kak	NT	LC
10.	House Crows	<i>Corvus splendens</i>	Pati Kak	NT	LC
11.	Magpie Robin	<i>Copsychus saularis</i>	Doel	NT	LC
12.	Rose-ringed Parakeet	<i>Psittacula krameri</i>	Shobuj Tia	NT	LC
Mammalian					
1.	Field Mouse	<i>Mus booduga</i>	Metho Idur	NT	LC
2.	House mouse	<i>Mus musculus</i>	Nengti Indur	NT	LC
3.	Large bandicoot	<i>Bandicota indica</i>	Dhari Indur	NT	LC
*Not Evaluated (NE), Data Deficient (DD), Least Concern (LC), Not Threatened (NT), Vulnerable (VU), Endangered (EN), Critically Endangered (CR), Not Added (N/A)					

**Source:** Field survey of AECL team

## AQUATIC FAUNA

There are different types of fishes in the project area. Some of the commonly available fishes in the project influence area are mentioned below in **Table 3**.

**Table 3: List of Aquatic fauna in the project area**

Sl. No.	Common English Name	Scientific Name	Local Name	Red List Category	
				IUCN Bangladesh status	IUCN Global status
Fish Fauna					
1.	Rohu	<i>Labeo Rohita</i>	Rui	NT	LC
2.	Catla	<i>Catla catla</i>	Katla	NT	LC
3.	Stinging Catfish	<i>Heteropneustes fossilis</i>	Shing	NT	LC
4.	Bleeker’s Mystus	<i>Mystus bleekeri</i>	Tengra	NT	LC
5.	Walking Catfish	<i>Clarias batrachus</i>	Magur	NT	LC
6.	Snakehead Murrel	<i>Channa striatus</i>	Shol	NT	LC
7.	Climbing Perch	<i>Anabas testudineus</i>	Koi	N/A	LC
8.	Chola Barb	<i>Puntius chola</i>	Chola Punti	NT	LC
9.	Spotted Snakehead	<i>Channa punctatus</i>	Taki	NT	LC
10.	Fresh Water Goby	<i>Glossogobius giuris</i>	Baila	NT	LC
11.	Silver Carp	<i>Hypophthalmichthys molitrix</i>	Silver Carp	N/A	-

**Source:** Field survey of AECL team



**Amphibian**



*Rana cyanophlyctis*



*Bufo melanostictus*

**Reptile**



*Hemidactylus brooki*

**Aves**



*Corvus splendens*



*Passer domesticus*



*Acridotheres tristis*



*Ploceus philippinus*



*Alcedo atthis*



*Psittacula krameri*



*Copsychus saularis*



*Orthotomus sutorius*

**Mammals**



*Mus musculus*



*Bandicota indica*

**Figure 2: Terrestrial Fauna around the project area**





*Catla catla*



*Puntius chola*



*Channa punctatus*



*Labeo Rohita*



*Clarias batrachus*



*Mystus bleekeri*



*Channa striatus*



*Glossogobius giuris*



*Heteropneustes fossilis*

Figure 3: Aquatic Fauna around the project area

# **Annexure 22**

## **Impact Checklist**

### Assessing Magnitude of Impact

Extent	Duration	Impact Scale	Magnitude
Local	Short term	No impact	None
Regional	Short term	No impact	None
National	Short term	No impact	None
Local	Medium term	No impact	None
Regional	Medium term	No impact	None
National	Medium term	No impact	None
Local	Long term	No impact	None
Regional	Long term	No impact	None
National	Long term	No impact	None
Local	Short term	Small	Minor
Regional	Short term	Small	Minor
Local	Medium term	Small	Minor
Local	Short term	Medium	Minor
National	Short term	Small	Minor
Local	Long term	Small	Minor
Local	Short term	Large	Minor
Regional	Medium term	Small	Minor
Regional	Short term	Medium	Minor
Local	Medium term	Medium	Minor
National	Medium term	Small	Moderate
National	Short term	Medium	Moderate
Regional	Long term	Small	Moderate
Regional	Short term	Large	Moderate
Local	Long term	Medium	Moderate
Local	Medium term	Large	Moderate
Regional	Medium term	Medium	Moderate
National	Long term	Small	Moderate
National	Short term	Large	Moderate
Local	Long term	Large	Moderate
National	Medium term	Medium	Major
Regional	Long term	Medium	Major
Regional	Medium term	Large	Major
National	Long term	Medium	Major
National	Medium term	Large	Major
Regional	Long term	Large	Major
National	Long term	Large	Major



# **Annexure 23**

## **Environmental Policy**

## Environmental Policy

Reference Number	PTL-EMS - Policy - 0020 -r05-211208 (f#0060)
Responsible for Implementation	<b>Environment Management Committee</b> (as instructed by Top Management)
Number of Page	03
First Version Effective Date	01-01-16
Version & Final revision date	Version 05, 08-12-2021
Next Revision Date	07-12-2022 or as required



Signature	Prepared By	Document Manager	Approved By
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## Environmental Policy

**Paramount Textile** Paramount Textile is committed to ensure Environmentally Friendly & Safe Workplace to produce Quality Product. We are committed to minimize the impact on environment concerning our activities, products & services.

We care our environment by :

- Performing responsibly in every aspect of our operations. We comply with applicable environmental laws and regulations and voluntary commitments to which the company subscribes.
- Identifying significant environmental aspects that affect our business at a local, regional and global level and continuously seeking to reduce the environmental impact of our production processes.
- Reducing, re-using or recycling materials wherever practicable and using sustainable materials & technology in our product development;
- Taking Long Term Plan to reduce the consumption of non- renewable energy, to reduce the GHG emissions & to reduce the water consumption.
- Providing appropriate information, training and resources to every member of the company to ensure that, we continually improve our environmental performance
- Encouraging our suppliers and contractors to reduce their environmental impact
- Play necessary role (where applicable) to improve environment in company surroundings.

The Company is committed to continual improvement of environmental performance. This Policy will be communicated to all worker, staff, sub-contractors and suppliers, and be available for the public.

Endorsed by



Director  
Paramount Textile





## পরিবেশগত নীতিমালা

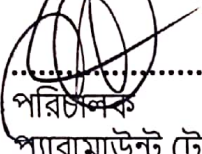
প্যারামাউন্ট টেক্সটাইল পরিবেশ বান্ধব এবং নিরাপদ কর্মক্ষেত্র নিশ্চিতকরণের মাধ্যমে মানসম্পন্ন পণ্য উৎপাদনে বদ্ধ পরিকর। আমাদের কর্মকাণ্ড, পণ্য এবং অন্যান্য সেবার কারণে সৃষ্ট পরিবেশগত প্রভাব কমানোর লক্ষ্যে আমরা অঙ্গীকারবদ্ধ।

পরিবেশগত প্রভাব কমানোর লক্ষ্যে -

- আমরা আমাদের প্রতিটি কাজ দায়িত্বশীলতার সাথে সম্পন্ন করব। আমরা প্রযোজ্য পরিবেশগত আইন, প্রবিধান এবং প্রতিশ্রুতি মেনে চলব।
- স্থানীয়, আঞ্চলিক এবং বৈশ্বিক স্তরে আমাদের ব্যবসাকে প্রভাবিত করে এমন উল্লেখযোগ্য পরিবেশগত প্রভাব গুলো সনাক্ত করব এবং উৎপাদন প্রক্রিয়া পরিবেশগত প্রভাবকে ক্রমাগত হ্রাস করার চেষ্টা করব।
- সম্ভাব্য সকল ক্ষেত্রে উপকরণের ব্যবহার হ্রাস করব, সম্ভব হলে পুনঃ ব্যবহার করব এবং রিসাইকেল করব। টেকসই উপকরণ এবং প্রযুক্তি ব্যবহার করব।
- অ-নবায়নযোগ্য শক্তির ব্যবহার হ্রাস, GHG নির্গমন হ্রাস এবং পানির ব্যবহার হ্রাস করার লক্ষ্যে দীর্ঘমেয়াদী পরিকল্পনা গ্রহণ করব।
- সকল কর্মকর্তা কর্মচারীদের পরিবেশ বিষয়ক তথ্য, প্রশিক্ষণ এবং প্রেরণা প্রদানের মাধ্যমে আমাদের পরিবেশগত কর্মদক্ষতা ক্রমাগতভাবে উন্নত করা নিশ্চিত করব।
- পরিবেশগত সচেতনতা তৈরীতে সাপ্লায়ার এবং সাব-কন্ট্রাক্টরদের উৎসাহিত করব।
- প্রযোজ্য ক্ষেত্রে কারখানার বাইরের পরিবেশের উন্নতিকল্পে অবদান রাখব।

এই কারখানাটি সর্বদা পরিবেশগত উন্নয়নের দক্ষতা বৃদ্ধিতে অঙ্গীকারবদ্ধ। এই পলিসি বা নিয়মানুবর্তিতা সকল শ্রমিক, কর্মকর্তা, কর্মচারী, সাব-কন্ট্রাক্টর, সাপ্লায়ার এবং সর্বসাধারণের জন্য প্রকাশ করা হবে।

অনুমোদনক্রমে,

  
পরিচালক  
প্যারামাউন্ট টেক্সটাইল



# **Annexure 24**

## **Health & Safety Policy**



PTPLC/POLICY/16

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Next Review Date: 01.01.2024

## স্বাস্থ্য ও নিরাপত্তা নীতিমালা (Health & Safety Policy)

প্যারামাউন্ট টেক্সটাইল পিএলসি বাংলাদেশে একটি অনন্য রপ্তানী মুখী শিল্প প্রতিষ্ঠান। গুণগত মানের জন্য এর যথেষ্ট সুনাম রয়েছে। পোশাক শিল্প থেকে এদেশের প্রচুর বৈদেশিক মুদ্রা অর্জিত হয়ে থাকে। একবিংশ শতাব্দীর সূচনা লগ্নে এই শিল্পের উত্তরোত্তর প্রসার ও ব্যাপ্তি বেশ উৎসাহব্যাঞ্জক। বর্তমানে বাংলাদেশের পোশাক খাতে প্যারামাউন্ট টেক্সটাইল পিএলসি নিজ গুণ ও কর্ম দক্ষতায় একটি সক্রিয় পোশাক শিল্প প্রতিষ্ঠান। এই প্রতিষ্ঠানের উত্তরোত্তর উন্নতিকল্পে এবং কারখানার উৎপাদন বৃদ্ধির লক্ষ্যে একটি সুন্দর ও নিরাপদ কাজের পরিবেশ সৃষ্টি করতে প্যারামাউন্ট কর্তৃপক্ষ দৃঢ় প্রতিজ্ঞ। আর সেই লক্ষ্যেই একটি সুষ্ঠু ও পরিপূর্ণ স্বাস্থ্য ও নিরাপত্তা নীতি প্রণয়ন এবং তা কার্যে পর্যবসিত করার কোন বিকল্প নেই।

**উদ্দেশ্য (Objective) :** প্যারামাউন্ট টেক্সটাইল পিএলসি এর জন্য একটি সু-পরিকল্পিত বাস্তবতা সম্পন্ন স্বাস্থ্য ও নিরাপত্তা নীতি প্রণয়ন করা। আর সেই লক্ষ্যে কর্তৃপক্ষের উদ্দেশ্য গুলো নিম্নে আলোকপাত করা হলঃ

- কারখানায় ভালো ভাবে কাজ করার একটি স্বাস্থ্যসম্মত পরিবেশ সৃষ্টি করা।
- কারখানা ও পার্শ্ববর্তী এলাকা পরিষ্কার পরিচ্ছন্ন রাখা।
- কারখানার প্রতিটি ষ্টাফ ও শ্রমিককে স্বাস্থ্য সচেতন করে তোলা।
- স্বাস্থ্যবিধি মোতাবেক প্রতিটি শ্রমিকের জন্য প্রয়োজনীয় হাসপাতাল, ডাক্তার ও প্রাথমিক চিকিৎসার ব্যবস্থা করা।
- ফ্যাক্টরীর প্রতিটি শ্রমিকের জান ও মালের নিরাপত্তা নিশ্চিত করা।
- অনাকাজিত বৈদ্যুতিক ও অগ্নি দুর্ঘটনার জন্য পর্যাপ্ত প্রতিরোধ ব্যবস্থা, প্রশিক্ষণ ও নিয়মিত অনুশীলন করা।

**এই স্বাস্থ্য ও নিরাপত্তা নীতিটি দুইটি পর্বে উপস্থাপন করা হবে।**

- প্রথম পর্ব : স্বাস্থ্য নীতি
- দ্বিতীয় পর্ব : নিরাপত্তা নীতি।

### স্বাস্থ্য নীতি

বাংলাদেশ শ্রম আইন-২০০৬-এর ধারা ৫১ থেকে ধারা ৬০ এর মধ্যে স্বাস্থ্য ও স্বাস্থ্য বিধির বিভিন্ন দিক গুলি বিশদভাবে বিশ্লেষণ করা আছে। এছাড়াও শ্রমিকদের জন্য সুষ্ঠু স্বাস্থ্য বিধি নিশ্চিত করার লক্ষ্যে নিম্নে বর্ণিত বিষয় গুলির ব্যবস্থা করা হয়েছে।

ক) ডাক্তার ও নার্সের ব্যবস্থা : প্রতিদিন কারখানা চলাকালীন সময়ে কারখানাতে কর্মরত ডাক্তার ও নার্স-এর মাধ্যমে সার্বক্ষণিক শ্রমিকদের চিকিৎসা প্রদান করা হবে। তাছাড়া ডাক্তার ও নার্সগণ শ্রমিক, কর্মকর্তা ও কর্মচারীদের স্বাস্থ্য ও নিরাপত্তা বিষয়ে বিভিন্ন প্রশিক্ষণ ও সচেতনতামূলক কর্মশালার আয়োজন করবেন।

খ) প্রাথমিক চিকিৎসা : কারখানাতে প্রতি ১৫০ জন শ্রমিকের জন্য একটি করে প্রাথমিক চিকিৎসার বাক্স রয়েছে এবং প্রতিটি বাক্সে নিম্ন লিখিত দ্রব্যাদি মজুদ থাকবে।

1. Antiseptic Solution (Savlon)/2% Alcoholic Solution of Iodine/Rectified Spirit
2. Cotton (Sterilized)
3. Antiseptic Ointment (e.g. Nebanol Ointment)
4. Furasep Cream/Burnol-Plus Cream
5. Sterilized Bandages/Dressing (Surgical Gauge)
6. Roller Bandages
7. Adhesive Plaster/Surgical Tape (e.g. Micro pore/Leucoplast)
8. Surgical Gloves
9. Analgesic Tablet (Pain Relieving Tablet e.g. Napa)
10. Surgical Scissors
11. Clofenac Gel/Nix (Pain Relieving Gel)
12. OR Saline
13. Tourniquet
14. One Time Bandage (e.g. Neostrip)
15. Burn Dressing

প্রতিটি First Aid Box এ উল্লেখিত ঔষধ পত্রের সাথে তাদের ব্যবহার বিধি লেখা থাকবে। প্রতিটি বাক্সের প্রত্যেক শিফটে দায়িত্ব প্রাপ্ত প্রাথমিক চিকিৎসায় পারদর্শী শ্রমিকের নাম ও ছবি বাক্সের উপরে থাকবে। কারখানাতে যে কোন অনাকাঙ্ক্ষিত দুর্ঘটনায় শ্রমিকদেরকে প্রশিক্ষণ প্রাপ্ত শ্রমিকরা প্রাথমিক চিকিৎসা প্রদান করবে।

গ) এ্যাম্বুলেন্স : ফ্যাক্টরীর প্রয়োজনে এ্যাম্বুলেন্স-এর বিষয়টি কর্তৃপক্ষের বিবেচনাবীন আছে। বিকল্প ও তড়িৎ ব্যবস্থার জন্য কোম্পানীর মাইক্রোবাসগুলো প্রয়োজনীয় সহায়তা প্রদান করবে।

ঘ) পরিষ্কার পরিচ্ছন্নতা : সুষ্ঠু কাজের পরিবেশ সৃষ্টির জন্য কারখানার আভ্যন্তরীণ ও পারিপার্শ্বিক পরিষ্কার পরিচ্ছন্নতা একান্ত প্রয়োজন। কারখানার বিভিন্ন সেকশন, ও যাতায়াতের স্থান সার্বক্ষণিক পরিষ্কারের ব্যবস্থা রাখতে হবে এবং সপ্তাহে অন্ততঃ একবার জীবাণু নাশক দিয়ে ধৌত করতে হবে। কর্মস্থলের দেয়াল ও কার্নিশ প্রয়োজনানুযায়ী বছরে অন্ততঃ একবার রং করতে হবে। শ্রমিকদেরকে সচেতন করার লক্ষ্যে কারখানার বিভিন্ন স্থানে পরিষ্কার পরিচ্ছন্নতা





সংক্রান্ত বিভিন্ন লিফলেট টানাতে হবে। বর্জিত দ্রব্য, জঞ্জাল বা নির্গত ময়লা থেকে সর্বদা কারখানাকে পরিষ্কার রাখতে হবে এবং এগুলো কারখানা থেকে পৃথক অগ্নিরোধক বর্জ্য দ্রব্যের জন্য নির্ধারিত ষ্টোরে রাখতে হবে।

- ঙ) আলো, বায়ু চলাচল ও তাপমাত্রা : আমাদের আবহাওয়া নাতিশীতোষ্ণ হলেও গরমের সময় বায়ু চলাচল (Ventilation) এবং শীতের সময় সহনীয় তাপমাত্রা সংরক্ষণের মাধ্যমে কারখানাতে শ্রমিকদের কাজের অনুকূল পরিবেশ বজায় রাখতে হবে। যাতে করে প্রতিটি শ্রমিক আরামদায়ক পরিবেশে কাজ করতে পারে। সেই সাথে পর্যাপ্ত আলোর ব্যবস্থা কাজের সৃষ্টি ও প্রয়োজনীয় পরিবেশের সাথে সাথে গুণগত মান রক্ষার ক্ষেত্রেও সহায়ক হবে। সহনীয় তাপমাত্রা সংরক্ষণের সে লক্ষ্যে আলো, বায়ু ও তাপমাত্রা মিটারের মাধ্যমে পরিমাপ করে রেজিস্টারে সংরক্ষণ করা হবে।
- চ) খাবার পানি : কারখানাতে কর্মরত শ্রমিকদের জন্য প্রয়োজনীয় পান করার বিশুদ্ধ পানির ব্যবস্থা করতে হবে। পাত্রের ক্ষতি পানি অবশ্যই টয়লেট এবং বেসিন থেকে কম পক্ষে ২০ ফুট দূরে থাকবে এবং বিশুদ্ধ ও আর্সেনিকমুক্ত খাবার পানি সরবরাহ করার জন্য প্রয়োজনীয় পরিমাণ পানি বিশুদ্ধকরণ ট্যাবলেট ব্যবহার ও পানির আর্সেনিক পরীক্ষা করতে হবে। পানির পাত্রগুলি ফ্যান্টারীর বিভিন্ন সুবিধাজনক স্থানে রাখতে হবে। যেন শ্রমিকরা সেখানে বসে প্রয়োজনীয় পানি পান করতে পারে।
- ছ) পায়খানা ও প্রস্রাব খানা : কারখানাতে কর্মরত শ্রমিকদের সংখ্যার অণুপাতে প্রয়োজনীয় সংখ্যক পৃথক পুরুষ ও মহিলা টয়লেট থাকবে। টয়লেটের বেসিনে ও পানি নির্গমনের স্থানে সুগন্ধি নেপথলিন ব্যবহার করতে হবে এবং প্রয়োজনীয় তোয়ালে, সাবান, বদনা ও ওয়েস্টেজ রাখার জন্য বাক্সেট থাকবে। মহিলা টয়লেটে ঢাকনায়ুক্ত ওয়েস্টেজ বাক্সেট থাকবে। সার্বক্ষণিক পানির ব্যবস্থা সহ টয়লেটে ফ্লাশিং সিস্টেম অবশ্যই থাকতে হবে। কোন অবস্থাতেই টয়লেটে পানি জমতে দেয়া যাবে না। কোন নল দিয়ে কোন অবস্থাতেই পানি লিকেজ হতে পারবে না। প্রতিটি টয়লেটে প্রয়োজনীয় সংখ্যক স্পি-পার থাকবে যেগুলো শ্রমিকরা শুধু টয়লেটের ভেতরে ব্যবহার করবে।
- জ) অতিরিক্ত ভীড় : প্রতিটি শ্রমিকের কাজের সুবিধার জন্য কোন অবস্থাতেই যেন অতিরিক্ত ভীড় (Over Crowded) না হয় সেদিকে খেয়াল রাখতে হবে। প্রতিটি শ্রমিকের চারিপাশে অন্ততঃ ৯.৫ কিউবিক মিটার জায়গা ফাঁকা থাকতে হবে। তা ছাড়া প্রয়োজনীয় যন্ত্রপাতি, টেবিল ও অন্যান্য দ্রব্যাদি এমন ভাবে রাখতে হবে যেন প্রতিটি শ্রমিক প্রয়োজনীয় খোলামেলা পরিবেশে স্বাচ্ছন্দে কাজ করতে পারে।

\*\* উল্লেখিত বিষয় গুলি ছাড়াও কারখানাতে কাজের জন্য স্বাস্থ্য সম্মত পরিবেশ রক্ষার্থে প্রয়োজনীয় পরিমাণ পিকদানী স্থাপন, কারখানাকে ধুলোবালি মুক্ত রাখা এবং আর্দ্রতা মুক্ত রাখার সাথে সাথে সংশ্লিষ্ট সকল বিষয়ে কর্তৃপক্ষের সচেতনতার সাথে সাথে প্রতিটি শ্রমিককে এই বিষয়ে জ্ঞান দানের মাধ্যমে সচেতন করতে হবে।

### নিরাপত্তা নীতি।

কারখানার উৎপাদন বৃদ্ধির লক্ষ্যে স্বাস্থ্যবিধি ও স্বাস্থ্যসম্মত পরিবেশের পাশাপাশি কারখানাতে অবস্থিত যন্ত্রপাতি এবং বিশেষ করে শ্রমিকদের ব্যক্তিগত নিরাপত্তার ব্যাপারটি অগ্রাধিকার যোগ্য বিষয়, এ ব্যাপারে নিম্নে বর্ণিত বিষয়গুলো করণীয় বলে গণ্য করতে হবে।





ক) অগ্নিকাণ্ড থেকে নিরাপত্তা :

- (১) অগ্নিকাণ্ড থেকে নিরাপত্তার জন্য একটি স্বয়ং সম্পূর্ণ নীতি মালা প্রনয়ন করা আছে যা সংশ্লিষ্ট সবাইকে অবহিত করতে হবে।
- (২) ফ্যাক্টরীর আয়তন অনুযায়ী প্রতি ৫৫০ বর্গ ফুটের জন্য একটি অগ্নি নির্বাপক যন্ত্র থাকবে যে গুলো প্রতিমাসে রক্ষণাবেক্ষণ করতে হবে এবং কারখানার লক্ষ্যণীয় জায়গায় টানানো থাকবে।
- (৩) কারখানার কাজ চলাকালীন কোন অবস্থাতেই কারখানার নির্গমন পথ বন্ধ রাখা যাবে না।
- (৪) আগুন লাগার সাথে সাথে ফায়ার এ্যালার্ম ও গং বেল বাজাতে হবে।
- (৫) মাসে অন্ততঃ একবার অগ্নি প্রতিরোধের অনুশীলনের মাধ্যমে শ্রমিকদেরকে এই অনাকাঙ্ক্ষিত দুর্ঘটনার মোকাবেলার জন্য প্রস্তুত করতে হবে।
- (৬) বহিঃগমন পথ ও লেন গুলি হলুদ ও লাল রং দিয়ে স্পষ্ট ভাবে চিহ্নিত করতে হবে।
- (৭) জরুরী বহিঃগমন পরিকল্পনা লিখিত ও স্কেচের মাধ্যমে উল্লেখযোগ্য জায়গায় টানাতে হবে এবং সে ব্যাপারে সংশ্লিষ্ট সবার সম্যক ধারণা থাকতে হবে।

খ) PPE এর ব্যবহার : প্রতিটি শ্রমিককে PPE এর ব্যবহার বিধি এবং এর উপকারিতা সম্পর্কে পরিষ্কার ধারণা দিতে হবে যাতে তারা স্বতঃস্ফূর্তভাবে এগুলো ব্যবহার করতে পারে। বিশেষ করে মুখোশ (Mask), হ্যান্ড গ্লাভস, এয়ার প্রাণ, গাম বুট, গগলস নিশ্চিত করতে হবে। সাথে সাথে এগুলোর ব্যবহারের মাধ্যমে শ্রমিকদের নিরাপত্তার ব্যবস্থা করতে হবে।

গ) বৈদ্যুতিক যন্ত্রপাতি :

- ১) সমস্ত বৈদ্যুতিক সংযোগ নিরাপদভাবে করতে হবে।
- ২) কোথাও কোন খোলা তার, ইনসুলিশন টেপযুক্ত তার থাকবেনা।
- ৩) কোথাও কোন বাতি ফিউজ হলে তা সাথে সাথে বদলাতে হবে যেন আলোর স্বল্পতা না হয়।
- ৪) মেইন সুইচ বোর্ড গুলি যথাযথ ভাবে চিহ্নিত করে সেগুলো সব সময় Accessible (সুগম) রাখতে হবে যেন প্রয়োজনের সময় ব্যবহার করতে কেউ বাধা প্রাপ্ত না হয়।
- ৫) মেইন সুইচ বোর্ডের উলে-খ যোগ্য সুইচ গুলোর “ON” এবং “OFF” এর Direction মার্কিং করে রাখতে হবে।
- ৬) মেশিনের সাথে সংযুক্ত তার এবং অন্যান্য বৈদ্যুতিক তার এমন ভাবে বিন্যস্ত করতে হবে যেন অপারেটরদের স্বাভাবিক কাজ বাধাগ্রস্ত না হয়।
- ৭) সমস্ত এ্যালার্ম সিস্টেম যথাযথ ভাবে চিহ্নিত করতে হবে এবং বৈদ্যুতিক সংযোগ কেটে দেয়া অবস্থায় এগুলোর বিকল্প ব্যবস্থা রাখতে হবে।
- ৮) বিদ্যুৎ চলে গেলে ফ্যাক্টরীতে পর্যাপ্ত আলোর জন্য প্রয়োজনীয় সংখ্যক Emergency Light এর ব্যবস্থা করতে হবে।


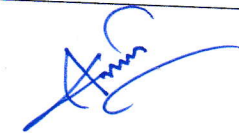



ঘ) বিভিন্ন ষ্টোর :

- ১) কারখানাতে অবস্থিত Fabric, Yarn এবং Chemical Store সুন্দর ও পরিপাটি করে রাখতে হবে।
- ২) ষ্টোরে অগ্নি নির্বাপক যন্ত্র রাখতে হবে।
- ৩) ষ্টোরের র‍্যাক যেন বেশী উঁচুতে না হয় সেদিকে লক্ষ্য রাখতে হবে।
- ৪) ষ্টোরে বৈদ্যুতিক তার সংযুক্ত আলোর ব্যবস্থা থাকবে না।

সভ্যতার ক্রমবিকাশের সাথে সাথে পোশাক শিল্পের চাহিদা দিন দিন বেড়েই চলছে। বাংলাদেশের পোশাক শিল্পের মান ইতিমধ্যেই বহিঃ বিশ্বে একটি স্বতন্ত্র পরিচয় খুঁজে পেতে সক্ষম হয়েছে। তাই এই শিল্পের মাধ্যমে বৈদেশিক মুদ্রা অর্জনের এই গতিকে ত্বরান্বিত করতে হলে, এই শিল্পকে বাঁচিয়ে রাখতে হলে প্রথমেই দৃষ্টিপাত করতে হবে এর প্রাণ শক্তির দিকে। আর তা হলো এই শিল্পে কর্মরত শ্রমিক-কর্মচারী। একটি স্বাস্থ্য সম্মত পরিবেশ, জান-মালের নিরাপত্তা - প্রতিটি শ্রমিক-কর্মচারীকে নিজকর্মে আরো অনুপ্রাণিত করবে, বাড়বে উৎপাদন। আর এটাই হলো স্বাস্থ্য ও নিরাপত্তা নীতির মূলনীতি।

এই নীতিমালা বাস্তবায়নের ক্ষেত্রে যদি কোন সমস্যা পরিলক্ষিত হয় এবং যদি কোন প্রক্রিয়ার পবিত্রন, পরিবর্তন, সংযোজন, বিয়োজন এর প্রয়োজন হয় তাহলে কার্যকারী পরিষদের সদস্যবৃন্দ উদ্বর্তন কর্তৃপক্ষের সাথে আলোচনা সাপেক্ষে তা সংশোধনী আনতে পারবে।

প্রস্তুতকারী	উপ-ব্যবস্থাপক (কমপ্লায়েন্স)	
যাচাইকারী	উপ-মহাব্যবস্থাপক (সিভিল ও কমপ্লায়েন্স)	
অনুমোদনকারী	কারখানা অবধায়ক	

**Annexure 25**

**Emergency Medical  
Support Contract**



৳ ১০০



৳ ১০০

একশত টাকা

খজ. ৯১৮৫০৪৬

## Agreement on Emergency Medical Service

Paramount Textile PLC.....1<sup>st</sup> Party  
Gilarchala, Sreepur, Gazipur

Versus

Al-Hera Hospital.....2<sup>nd</sup> Party  
Mawna Chowrasta, Sreepur, Gazipur-1740.

The 1<sup>st</sup> party is a 100% Export Oriented Textile Industries who would like to provide proper medical facilities to its employees in case of emergencies. The 2<sup>nd</sup> party is registered non-government hospital who is providing medical service to the peoples of the country. The 1<sup>st</sup> party approaches to the 2<sup>nd</sup> party for emergency medical facilities for the employees of the factory.

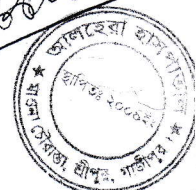
This agreement has been signed between the two parties on this terms and conditions:

### Terms & Conditions:

1. That the 1<sup>st</sup> party will send its employee by a medical pass to the hospital and second party will provide all necessary treatment to the employee.
2. The second party will provide all emergency medical services to the 1<sup>st</sup> party upon getting information of any kind of industrial accident, fire accident, natural disaster etc.
3. That the 2<sup>nd</sup> party will provide ambulance to the 1<sup>st</sup> party end to pick up the 1<sup>st</sup> party employees in case of emergencies.
4. The 1<sup>st</sup> party can use hospital bed for the employees
5. That the 2<sup>nd</sup> party will provide priority treatment to the 1<sup>st</sup> party employees.
6. That the 2<sup>nd</sup> party will provide stretcher, Oxygen cylinder and other medical equipment if necessary to save lives of the 1<sup>st</sup> party.
7. That the 2<sup>nd</sup> party will submit actual bills to the 1<sup>st</sup> party of the service provides for.
8. That the 1<sup>st</sup> party will be liable to pay the bills to the 2<sup>nd</sup> party within 30 days upon submission of bill.
9. 1<sup>st</sup> party generates a small quantity of medical wastes which requires disposal by a qualified waste disposer; in this case 2<sup>nd</sup> party offers medical waste disposal services and is qualified to dispose of the wastes generated by the 1<sup>st</sup> party.
10. All the treatment cost will base per attached price list and the 2<sup>nd</sup> party will provide 25% discount. Without x-ray. If there is any service need to provide by the 2<sup>nd</sup> party which is not available in the attached price list, 2<sup>nd</sup> party will negotiate the price with 1st party prior to provide the service.

11. This Type of services 2<sup>nd</sup> party will provide to 1<sup>st</sup> party those are listed below

“দেশপ্রেমের শপথ নিম্নলিখিতকি বিদায় দিন”







(a) Outdoor service (b) Indoor service (c) Emergency service (d) Specialized Consultancy (e) Operation (f) Others service (g) Digital X-ray (h) All pathology Test (i) E.C.G (j) USG (Whole abdomen) (k) USG other (l) Nebulization (m) Oxygen (n) Suction (o) Vaccination (p) Medical Check up (q) Physiotherapy (r) Laparoscopic (s) Baby Incubator (t) Dental unit. (u) Endoscopy (v) Eye Unit (w) Hearing Aid Unit (x) EEG (y) Hormone Test (z) C.T Scan (aa) O.P.G (ab) Hemo Dialysis etc..

12. The discount opportunity of 2<sup>nd</sup> party according to this under flowing commandment.

SL No	Types of Services	Rate From Hospital	Rate for Company
01	Medical Officer Fee	200.00	50% TK
1.2	(Not applicable to other consultant	.....	.....
02	Operation		25% discount
03	X-Ray (Digital)		25% discount
04	All Pathology		25% discount
05	Endoscopy	1500.00	25% discount
06	ECG	320.00	20% discount
07	USG (Colour)		25% discount
08	ECHO (Colour)	2500.00	20% discount
09	Bed Charge (Normal)	800.00	25% discount
10	Bed Charge (Single)	1200.00	25% discount
11	Bed Charge (Double)	2000.00	25% discount
12	Bed Charge Deluxe	5000.00	20% discount
13	Bed Charge Supriore Deluxe	7000.00	20% discount
14	Ambulance Service		10% discount
15	Hemo Dialysis	2500.00	Fixed Rate

13. This agreement is signed to 15/03/2023 and will continue for a period up-to 16/03/2024

14. Additional service

- 24 hours Hospital Open.
- 24 hours Pharmacy open
- 24 hours Ambulance service.

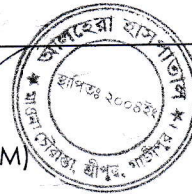
Signature of 1<sup>st</sup> Party-

Mobile:



Signature of 2<sup>nd</sup> Party-

Md. Abdur Rahim  
Deputy General Manager(DGM)  
Marketing Department  
Al-Hera Hospital  
Mawna Chowrasta, Sreepur, Gazipur.-1740  
Mobile:01321-128077



“দেশপ্রেমের শপথ নিন, দুর্নীতিকে বিদায় দিন”

# **Annexure 26**

## **OHS Plan**

# OCCUPATIONAL HEALTH & SAFETY MANAGEMENT PLAN

An Occupational Health and Safety (OHS) plan outlines procedures for ensuring the health, safety, and well-being of its employees, visitors, contractors, and anyone else who may be affected by its operations. The primary goal of an OHS plan is to prevent workplace accidents, injuries, illnesses, and potential hazards. Such a plan is essential for maintaining a safe and productive work environment while complying with legal and regulatory requirements. This OHS Plan has been developed according to National Occupational Health and Safety Policy, 2013 and World Bank Group's General Environmental, Health, and Safety (EHS) Guidelines, 2007.

## 1.1 Possible Occupational Health Hazards

**Table 1** describes the possible occupational hazards during factory operation and suggested mitigation measures.



**Table 1: Possible Occupational Health Hazard with Control Mitigation Measure**

Activity Description	Hazard	Who is at Risk	Controls	Additional Controls
<b>Contact with machines</b>				
Workers working near heavy machineries in production unit	Finger injury	Employees working in production unit	By wearing proper PPE during machineries operation	<ul style="list-style-type: none"> <li>• Providing training to the workers on machineries usage</li> <li>• Ensure workers are using proper PPE.</li> </ul>
	Eye injury	Employees working in dyeing and chemical section	By wearing proper PPE during machineries operation	<ul style="list-style-type: none"> <li>• Providing training to the workers on machineries usage</li> <li>• Ensure workers are using proper PPE.</li> </ul>
<b>Contact with Chemical</b>				
<b>Handling of chemicals and chemical waste</b>	Eye	Workers in chemical section	<ul style="list-style-type: none"> <li>• Must wear PPE before chemical handling;</li> <li>• There should be an eye-wash station for quick eye wash in case of chemical contact.</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate fire extinguishers should available to control the fire;</li> <li>• Adequate light and ventilation should available in chemical stores to prevent explosions;</li> <li>• There should be system for storing incompatible chemicals separately to avoid explosion;</li> <li>• Adequate respiratory masks need to be attached in case of respiratory distress in chemical stores.</li> </ul>
	Skin	Workers in chemical section	<ul style="list-style-type: none"> <li>• There should be a shower adjacent to the chemical store;</li> <li>• Proper PPE must wear before entering in chemical section</li> <li>• chemical store should have a first aid kit box for emergency;</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical Spillage Kits should be available for quick removal of spilled chemicals on the ground;</li> <li>• Safety pictogram should be installing chemical storage area;</li> <li>• Adequate fire extinguishers should available to control the fire;</li> </ul>

Activity Description	Hazard	Who is at Risk	Controls	Additional Controls
			<ul style="list-style-type: none"> <li>Staff members who regularly handle chemicals should have an easy access to Material Safety Data Sheets (MSDS)</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient sand should be kept adjacent to the chemical store to extinguish a chemical fire.</li> </ul>
<b>Falling object from height</b>				
Falling of material from racks while handling	Major injury	Employees who handle material	<ul style="list-style-type: none"> <li>Materials should be arranged in horizontally sequence.</li> <li>Materials should be placed in racks with proper hinged hooks with the wall</li> </ul>	<ul style="list-style-type: none"> <li>Training should be provided</li> <li>Use proper PPE during material handling</li> <li>Employ skilled workers.</li> </ul>
<b>Fire /explosive</b>				
Fire due to boiler explosion	Major	Workers near the Boiler section	<ul style="list-style-type: none"> <li>Safety valves should be included in boiler for pressure control;</li> <li>Give clearance for cutting/welding etc. after ensuring that there is no leakage of gas;</li> <li>Adoption of fire safety for each of the equipment's and machinery subject to fire hazard;</li> </ul>	<ul style="list-style-type: none"> <li>Regular inspection and monitoring of pressure parts;</li> <li>Conduct mock drills on a routine basis to make workers and staffs aware of fire emergency response;</li> <li>Staffs should be trained on emergency handling procedures;</li> </ul>
Fire due to electrical short circuit	Major	All employees	<ul style="list-style-type: none"> <li>Arrangement of firefighting equipment's should be available with training to the all the staffs;</li> </ul>	<ul style="list-style-type: none"> <li>Safe handling and storage of flammable chemicals and fuels;</li> <li>Conduct mock drills on a routine basis to make workers and staffs aware of fire emergency response;</li> </ul>

Activity Description	Hazard	Who is at Risk	Controls	Additional Controls
			<ul style="list-style-type: none"> <li>Prevent the loose electrical connections and multiple connections from one source;</li> </ul>	<ul style="list-style-type: none"> <li>Regular inspection of the fire extinguishing system should be made to see if they are functioning properly or not. Any defect should be reported to the manger and should be replaced immediately</li> </ul>
Fire due to Hazardous Waste storage	Major	Employees in chemical store and hazardous waste handling area	<ul style="list-style-type: none"> <li>The hazardous waste will be stored on hard standing floor and roofing with a secondary containment facility;</li> <li>Regular inspections of machinery, equipment, pipe work, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;</li> </ul>	<ul style="list-style-type: none"> <li>Training should be provided;</li> <li>Use proper PPE during hazardous material handling;</li> <li>Employ skilled workers.</li> </ul>
<b>Electrical</b>				
Main control panel	Electrical shock	Electrical maintenance employee	All safety gadgets are needed to be provided	<ul style="list-style-type: none"> <li>Awareness given to employees about the handling and</li> <li>Regular maintenance of electrical lines</li> </ul>
<b>Noise</b>				

Activity Description	Hazard	Who is at Risk	Controls	Additional Controls
Generator and Boiler	Hearing damage	Employee working in generator and boiler room	<ul style="list-style-type: none"> <li>No workers need to stay in boiler and generator room during machineries operation</li> <li>Should wear earplugs if need to visit generator and boiler room</li> <li>Noise proof insulator should use on door of the room</li> </ul>	Proponent should ensure that the workers wear proper PPE
Weaving area	Hearing damage	Employees working in this department	<ul style="list-style-type: none"> <li>Proper PPE is needed to be provided</li> <li>Must wear ear plugs when machineries are in operation</li> </ul>	Awareness given to employees about the importance of PPE
<b>Psychological, Social and Medical</b>				
Excessive time	Tiredness	All employees/workers	Working hours need to be restricted and educate employees about health issues	HR department should be instructed to monitor the working hours regularly
Responsibility	Mental stress	All employees/workers	Work pressure need to be divided properly	HR department should be instructed to monitor and distribute responsibility
First aid kit	Injury	All employees/workers	First aid kit is needed to be placed	Instructed to supervising department to place first aid kit in proper place
<b>Facility &amp; infrastructure</b>				
Floor lighting	Injury	All employees/workers	Adequate lighting needs to be provided	Preventive maintenance will ensure safe working area
Insufficient vehicle parking area	Injury	All employees/workers	Inspected in regular basis and action will be taken for reasons	Preventive maintenance will ensure safe working area

## **1.2 Provide Personal Protective Equipment (PPE)**

The purpose of personal protective equipment (PPE) is to provide an effective barrier between a worker and potentially dangerous objects, substances, and processes. Paramount textile PLC will ensure all personnel have the right PPE while perform the job.

### **1.2.1 Basic Personal Protective Equipment**

At a minimum, basic PPE for all workers involved in project activities must include:

- Hard hat;
- Ear plugs
- Mask;
- Gloves (applicable to task); and
- Safety footwear.

Supervisor of each work task should ensure suitable PPE for each task is worn at all times, and Paramount Textile PLC EHS team will conduct site inspection to ensure PPE is worn.

*Note: All personal protective equipment must meet the applicable standard as defined by legislation and policy.*

### **1.2.2 Inspection Defective/Damaged PPE**

Workers must inspect PPE prior to use to verify it is fit for use. Defective or damaged PPE must be immediately removed from use. All PPEs removed from service will be tagged as out of service.

### **1.2.3 Selecting Personal Protective Equipment**

PPE will be selected based on the following information:

- Hazard assessments;
- Material safety data sheet (MSDS);
- Legislative jurisdictional

### **1.2.4 Mandatory Full Time PPE Requirements**

#### **❖ Head Protection**

- Personnel should wear hard hats that are in good condition and meet legislative jurisdictional requirements and standards.
- Only head apparel designed to be worn under a hard hat should be allowed.
- Hardhats are required while welding. They are to be fitted with the appropriate shield
- Eye and Face Protection
- All personnel must wear properly fitting eye and face protection commensurate with on active work sites.
- Face and eye protection should be kept clean and in good repair.
- If a worker cannot wear safety glasses, as documented by a physician's note, alternate arrangements must be made to verify the individual's face and eyes are protected.

- All components of prescription glasses that are being used for eye protection must meet approved applicable regulatory standards.
- The prescription glasses will include side-shields that must meet the applicable regulatory standards.
- Coverall glasses or goggles shall be required for prescription glasses that do not meet the standard.
- Face shields are required when grinding/cutting steel, concrete, chemical use.
- When using a face shield, safety glasses are also required under the face shield.

#### ❖ **Hand Protection**

- All personnel must have appropriate gloves available for their task on their persons.
- Gloves should be worn when conducting work activities with hazards that may cause injury to hands.
- Chemical resistant gloves should be used during working in the chemical store.

#### ❖ **Hearing Protection**

- Personnel should receive an overview of hearing protection requirements during the project orientation.
- Workers and staffs should always wear earplugs during machineries operation.
- The training should include identification of any hearing protection required areas, the hazards associated with noise exposure, and the purpose, use, maintenance, and limitations of the protective equipment provided on site.
- Personnel should not be exposed to noise in excess of the occupational exposure limits (OEL) listed below: 85 dBA Lex daily noise exposure level; 140 dBC peak sound level.

#### ❖ **Limb and Body Protection**

- Where there is risk of injury to a worker's limb and/or body, adequate limb and body protection must be worn and equipment designed to protect employees from injury to their limbs and body must be used (i.e., chainsaw chaps).
- Where there is risk of injury due to congested work area and/or the movement of heavy equipment in and/or around the work area, all employees must wear high visibility apparel. When work is being done in extreme hot or cold temperatures, the protective clothing being worn must be reviewed to verify that it is adequate.
- Personnel must be informed of any special precautions that need to be taken or special protective clothing that needs to be worn. At a minimum a 4-inch sleeve is required (no tank tops / muscle shirts are permitted).

#### ❖ **Fire Retardant Clothing**

- Fire retardant clothing (FRC) must be used where there is risk of fire (i.e., welding, working near furnace, rolling machine) or explosion, legislative requirements dictate, or client requirements dictate.
- Workers who handling flammable chemicals must wear Fire retardant clothing (FRC) for protection.

- Where FRC is required, the outer layer of worker's clothes, including rain gear, must be made of fire-retardant material.

#### ❖ **Clothing and Jewelry**

For personal protection and to limit the spread of construction related contaminants throughout the facility, workers will not be permitted to wear:

- loose fitting clothing or jewelry
- greasy or oily clothing;
- torn or ragged clothing;
- cut-off or "muscle" shirts (4" sleeve shirt is the minimum sleeve length allowed);  
or
- short pants

Work site personnel wearing shirts, other clothing and stickers displaying any offensive language or opinion will be asked to remove the offensive material or leave the site immediately.

### **1.3 Identification of Possible Risk**

In the ESIA, risk assessment has been carried out to identify the potential hazard associated with or inherent in the design process and to identify possible measures to avoid the hazard along with the safety plan for minimizing the risk. Incorporating these measures and safety plan in design, planning and operational procedure of the proposed project, the potential hazard points can be eliminated. The identified hazards for the proposed project are listed in **Table 2** and **Table 3**.



**Table 2: Possible Risk/ Hazards in Construction Stage**

Risk/ Hazard	Sources	Consequences	Safety measures
<b>Stuck by</b>	Falling/moving machineries, tools/ debris dropped from elevated location, vehicles	Health injury and loss of life	<ul style="list-style-type: none"> <li>Fall protection, use of Personal Protection Equipment's (PPEs).</li> </ul>
<b>Falls</b>	Fall from elevated areas, high heights, etc.	Health injury and loss of life	<ul style="list-style-type: none"> <li>Fall protection, awareness, use of PPEs.</li> </ul>
<b>Electrocution</b>	Cutting and welding, switchyard etc.	Health injury and loss of life	<ul style="list-style-type: none"> <li>Use of PPEs, proper training, awareness, keeping safe distance from hazardous points, maintaining safety of high switchyard etc.</li> </ul>
<b>Fire and Explosion</b>	Generator and its ancillary components, flammable chemical, power transformer etc.	Health injury and loss of life	<ul style="list-style-type: none"> <li>Arrangement of firefighting equipment's with training to the staffs from workers to officers;</li> <li>Staffs should be trained on emergency handling procedures;</li> <li>Adoption of fire safety for each of the equipment's and machinery subject to fire hazard;</li> <li>Safe handling and storage of flammable chemicals and fuels;</li> <li>Regular inspection and monitoring of pressure parts and units;</li> <li>Use of PPEs and Consciousness during working period.</li> </ul>
<b>Noise and Vibration</b>	Noise and vibration from machinery, traffic etc.	Hearing complexity; vomiting to the pregnant women; scaring to wildlife, livestock, human being, etc.	<ul style="list-style-type: none"> <li>Compliance with the national Noise Control Rules and Regulations and IFC occupational health and safety standards;</li> <li>Equipment to be used by competent operatives;</li> <li>Provision of equipment with low noise and vibration outputs where possible;</li> <li>Personal protective equipment's (PPEs) provided and used where necessary;</li> <li>Consider suitable timing of the work to reduce disturbance;</li> <li>Appropriate choice of modern equipment and machinery to reduce noise.</li> </ul>

Risk/ Hazard	Sources	Consequences	Safety measures
<b>Traffic Accident</b>	Onsite and off site	Health injury, life loss, property damage, etc.	<ul style="list-style-type: none"> <li>• Driver should strictly follow the traffic rules and regulations of the country;</li> <li>• Proper traffic marking on the road and effective signaling system should be implemented in and around the Project site;</li> <li>• Traffic safety should be ensured for long vehicle;</li> <li>• Provision and use of high visibility clothing;</li> <li>• Provision of walkways.</li> </ul>
<b>Unsafe Working Place</b>	Lack of safe working condition, employee having contagious disease	Health injury, electrocution, organ disease outburst, loss of health, loss of life	<ul style="list-style-type: none"> <li>• Keeping all safety &amp; precaution measure in order, maintaining first aid &amp; well-equipped primary health center &amp; training on awareness;</li> <li>• Monthly health inspection, provision of medical leave for labor, awareness, etc.</li> </ul>

**Table 3: Possible Risk/ Hazard during Operation Stage**

Risk/ hazard	Source	Consequences	Safety Measures
<ul style="list-style-type: none"> <li>• Mechanical hazard</li> <li>• Fire hazard/explosion</li> <li>• Electrical hazard</li> <li>• Noise generation</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanical failure</li> <li>• Lack of sound buffers</li> </ul>	<ul style="list-style-type: none"> <li>• Health injury</li> <li>• Fatalities</li> <li>• Property damage</li> <li>• Environmental damage</li> </ul>	<ul style="list-style-type: none"> <li>• Arrangement of firefighting equipment's with training to the staffs from workers to officers;</li> <li>• Staffs should be trained on emergency handling procedures;</li> <li>• Compliance with the national Noise Control Rules and Regulations and IFC occupational health and safety standards;</li> <li>• Use of PPEs, proper training, awareness, keeping safe distance from hazardous points, maintaining safety of high switchyard etc.</li> </ul>
<ul style="list-style-type: none"> <li>• Safety in conveyors</li> <li>• Structural Failure</li> </ul>	<ul style="list-style-type: none"> <li>• Raw material section and production unit</li> </ul>	<ul style="list-style-type: none"> <li>• Health injury</li> <li>• Fatalities</li> <li>• Property damage</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid sitting, standing, or walking on conveyors;</li> <li>• Periodic testing of safety valves and ensure regular inspection and maintenance;</li> <li>• All conveyor to be provided with proper guards;</li> <li>• Never perform maintenance while a conveyor is in operation;</li> <li>• Ensure correct operation of conveyor controls;</li> </ul>

Risk/ hazard	Source	Consequences	Safety Measures
			<ul style="list-style-type: none"> <li>• Avoid loose clothing, long hair, jewelry, and other loose items near conveyor;</li> <li>• Emergency "shut-off" devices to be provided;</li> <li>• Follow lock-out/tag-out procedures for maintenance;</li> <li>• Only authorized/trained personnel to operate or maintain the conveyor.</li> </ul>
<ul style="list-style-type: none"> <li>• Fire due to boiler explosion</li> <li>• Other electric hazard due to unprotected cables</li> <li>• Slips and trips from unorganized/ lose cables lying in the floor</li> </ul>	<ul style="list-style-type: none"> <li>• Over pressure in the boiler</li> <li>• Short circuit in control room and switch gears</li> <li>• Faulty cables and wires</li> <li>• No safe connection to earth</li> <li>• Using cables with different voltage and current ratings</li> <li>• Unorganized cables</li> </ul>	<ul style="list-style-type: none"> <li>• Health injury from electric shock, fires etc.</li> <li>• Fatality from electrocution, fires etc.</li> <li>• Electric burns</li> </ul>	<ul style="list-style-type: none"> <li>• Safety valves should be included in boiler for pressure control;</li> <li>• Give clearance for cutting/welding etc. after ensuring that there is no leakage of gas;</li> <li>• Staffs should be trained on emergency handling procedures;</li> <li>• Adoption of fire safety for each of the equipment's and machinery subject to fire hazard;</li> <li>• Safe handling and storage of flammable chemicals and fuels;</li> <li>• Regular inspection and monitoring of pressure parts and units.</li> </ul>
<ul style="list-style-type: none"> <li>• Noise from machineries</li> </ul>	<ul style="list-style-type: none"> <li>• Production unit</li> </ul>	<ul style="list-style-type: none"> <li>• Hearing complexity; vomiting to the pregnant women; scaring to wildlife, livestock, human being, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with the national Noise Control Rules and Regulations and IFC occupational health and safety standards;</li> <li>• Equipment to be used by competent operatives;</li> <li>• Provision of equipment with low noise and vibration outputs where possible;</li> <li>• Personal protective equipment's (PPEs) provided and used where necessary;</li> <li>• Consider suitable timing of the work to reduce disturbance;</li> <li>• Appropriate choice of modern equipment and machinery to reduce noise.</li> </ul>

# **Annexure 27**

## **Labor Management Plan**

# LABOUR MANAGEMENT PLAN

A labour management plan, also known as a workforce management plan, is a strategic approach that an organization employs to effectively manage its workforce. This plan outlines the strategies, policies, and practices that ensure the organization has the right number of employees with the right skills in the right place and at the right time to meet its operational needs and goals. The plan aims to optimize labour resources while ensuring employee satisfaction and compliance with labour laws and regulations.

This Labour Management Plan has been developed according to Bangladesh Labour Act, 2006 (Amended in 2013 and 2018), ILO Core Labour standards and IFC Performance Standard 2: Labour and Working Conditions, 2012 for all workers and labourers involved in the proposed and the existing project.

## 1.1 Overview of Labour Involved in the Project

The LMP applies to all Project workers whether full-time, part-time, temporary, seasonal or migrant workers. The LMP is applicable to the Project in the following manner:

- Direct Workers: People employed or engaged directly by the Project Implementation Unit (PIU) on its behalf to work specifically in relation to the Project;
- Contracted Workers: People employed or engaged by contractors to perform work related to core function i.e. construction of buildings, driving piles etc. for the project, regardless of location;

The project will engage primary suppliers, skilled and unskilled labor (local and international), security forces. However, in case of workers are engaged, it should be ensured that no child and/or force labor are engaged and OHS plan for the labors should be followed.

## 1.2 Policies and Procedures

This section outlines main policies and procedures to be followed during the implementation of the project.

As specified in the Bangladesh Labour Act, 2006 and ILO Core Labour standards the employment of project workers will be based on the principles of non-discrimination and equal opportunity. There will be no discrimination with respect to any aspects of the employment relationship, such as recruitment, compensation, working conditions and terms of employment, access to training, promotion or termination of employment. The following measures will be developed and monitored by the proponent to ensure fair treatment of all employees:

- As per Labour Code requirements, recruitment procedures will be transparent, public and non-discriminatory with respect to ethnicity, religion, disability, gender, and other grounds included in the Labour Code;
- Applications for employment will be considered in accordance with the application procedures established by the proponent;
- Labour will be preferentially recruited from the local areas;

- The contracted workers will not pay any hiring fees. If any hiring fees are to be incurred, these will be paid by the proponent.
- The labour contracts will be developed in Bangla so as to be understandable by all workers;
- In addition to written documentation, an oral explanation of conditions and terms of employment will be provided to workers who may have difficulties with understanding the documentation;
- While communicating with women workers, it is to be ensured that they understand their rights and process of raising issues and grievances related to their employment.

### **1.2.1 Age of Employment**

In the Bangladesh Labor Act, 2006, Section 34, it is mentioned that no child shall be employed to work in any occupation. Section 44 mentions that anyone under age 14 is considered as child and under 18 but over 14 is considered as adolescent. World Bank strictly prohibits child labor and clearly mentioned that the minimum age of 18 years is required for anyone to get employment in such works. Section 37 of the act suggests a fitness certificate required for adolescents to get employed and they can be appointed to do the light works.

According to the World Bank standards and guidelines, the minimum age of employment for this project shall be 18 years (given the potential hazardous situation posed by COVID-19) and to ensure compliance, all employees will be required to produce National Identification Cards as proof of their identity and age which is the national identification document required for employment.

### **1.2.2 Working Hours**

- No adult worker should ordinarily be required or allowed to work in a workplace for more than eight hours in any day.
- No adult worker should ordinarily be required or allowed to work in a workplace for more than forty-eight hours in any week. Provided that the total hours of work of an adult worker shall not exceed sixty hours in any week and on the average fifty-six hours per week in any year.
- There should be entitled one day in a week holiday in the case of a factory and establishment.
- Any worker in any workplace should not be liable to work either-
  - for more than six hours in any day unless he has been allowed an interval of at least one hour during that day for rest or meal;
  - for more than five hours in any one day unless he has been allowed an interval of at least half an hour during that day for rest or meal; or
  - for more than eight hours unless he has had an interval under clause (a) or two such intervals under clause (b) during that day for rest or meal.
- No women should, without her consent, be allowed to work in a site between the hours of 10.00 PM and 6.00 AM.

### **1.2.3 Time of Payment of Wages**

- The wages of every worker should be paid before the expiry of the seventh day after the last day of the wage period in respect of which the wages are payable.

### **1.2.4 Extra-allowance for overtime**

- Where a worker works in a workplace on any day or week for more than the hours fixed under this Plan, he should, in respect of overtime work, be entitled to allowance at the rate of twice his ordinary rate of basic wage and dearness allowance and ad-hoc or interim pay, if any.

### **1.2.5 Shelter and Rooms for Child**

- In every workplace wherein more than fifty workers are ordinarily employed, adequate and suitable shelters or rest rooms, and a suitable lunch room, with provision for drinking water, where workers can eat meals brought by them, should be provided and maintained for the use of the workers.
- In the workplaces wherein more than 25 female workers are employed, separate shelter rooms are to be maintained and in site wherein less than 25 female workers are employed, separate and adequate spaces with screen should be provided.
- In every workplace, wherein forty or more workers are ordinarily employed, there should be provided and maintained a suitable room or rooms for the use of children under the age of six years of such women.

### **1.2.6 Drinking Water Facilities**

- In every workplace effective arrangement should be made to provide and maintain at a suitable point conveniently situated for all workers employed therein, a sufficient supply of wholesome drinking water;
- In every workplace wherein two hundred fifty or more workers are ordinarily employed, provision should be made for cooling the drinking water during the hot weather by effective means and for distribution thereof;
- In every workplace, there should be provision of 80-180 liter per capita per day for potable use.

### **1.2.7 Latrines and Urinals**

During construction and operation phase, every establishment should have-

- Conveniently situated and accessible sufficient latrines and urinals at the ratio of 1:15 should be provided to workers at all times while they are in the workplace;
- such latrines and urinals should be provided separately for male and female workers;
- such latrines and urinals should be adequately lighted and ventilated.



#### **1.2.8 Dust and Fume**

- Effective measures should be taken to prevent its accumulation in any work-room and its inhalation by workers, and if any exhaust appliance is necessary for this purpose, it should be applied as near as possible to the point of origin of the dust, fume or other impurity, and such point shall be enclosed so far as possible.

#### **1.2.9 First-Aid Appliances**

- In every workplace there should be provided and maintained first-aid appliances, so as to be readily accessible during all working hours first-aid boxes or cupboards equipped with the contents prescribed by rules.
- Every first-aid box or cupboard should be kept in charge of a responsible person who is trained in first-aid treatment and who should always be available during the working hours of the workplace site.
- In every workplace wherein three hundred or more workers are ordinarily employed, there should be provided and maintained a sick room with dispensary of the prescribed size, containing the prescribed equipment or similar facilities, in the charge of such medical and nursing staff as may be prescribed.

#### **1.2.10 Right to, and liability for, payment of maternity benefit**

- Every woman employed in a workplace site shall be entitled to and her employer shall be liable for, the payment of maternity benefit in respect of the period of eight weeks preceding the expected day of her delivery and eight weeks immediately following the day of her delivery.

#### **1.3 Grievance Redress Mechanism**

An internal grievance redress mechanism should be formed to resolve workers' and staffs' complaints or problems regarding the workplace or any other issues. A complaint box should be set near the working site, where workers' can provide their grievances in written format. This internal grievance redress committee will consult properly with workers and staffs to ensure issues are managed in an amicable way. Any grievance should be addressed and resolved within the shortest possible time to avoid unrest in workplace among workers and staffs. Details provided in **Annexure 28** .

# **Annexure 28**

## **Grievance Policy for Workers**

PTPLC/POLICY/12

Effective Date: 01.01.2023

Expire Date: 31.12.2023

Next Review Date: 01.01.2024

## অভিযোগ / অনুযোগ নীতিমালা

১। **নীতিমালার বক্তব্য :** প্যারামাউন্ট টেক্সটাইল পিএলসি নিম্নলিখিত সূত্রসমূহের ভিত্তিতে অভিযোগ / অনুযোগ নীতিমালা বাস্তবায়ন করতে বদ্ধপরিকর এবং এর সাথে সম্পূর্ণ ঐক্যমত পোষণ করে সকল অভিযোগ / অনুযোগ নীতি পরিচালনা করে।

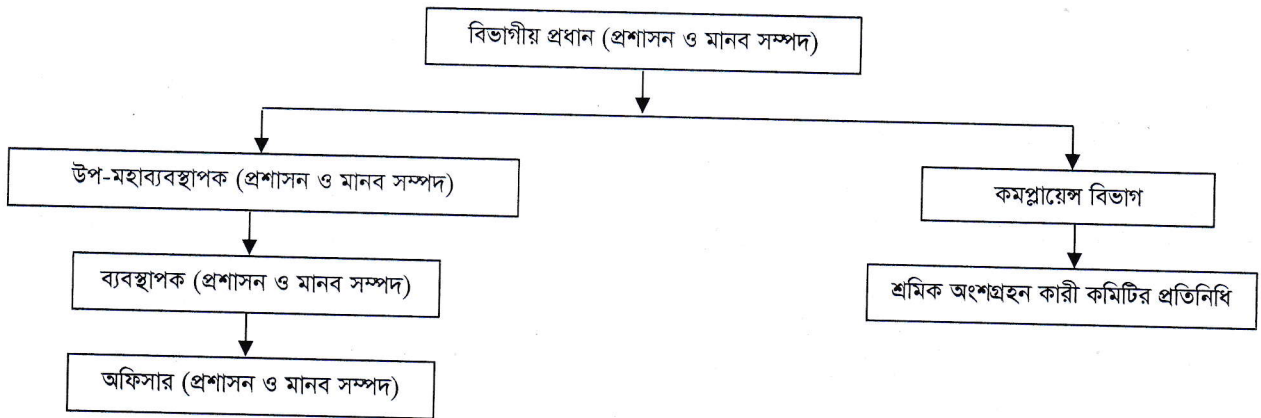
- ১.১। **সূত্র:**
- ১.১.১। রাষ্ট্রীয় আইন (বাংলাদেশ শ্রম আইন ২০০৬ ও এর সংশোধনীসমূহ)।
  - ১.১.২। রাষ্ট্রীয় বিধি (বাংলাদেশ শ্রম বিধি ২০১৫ ও এর সংশোধনী)।
  - ১.১.৩। ক্রেতাদের আচরণ বিধি (Buyer Code of Conduct)।
  - ১.১.৪। কোম্পানীর আচরণ বিধি (Company Code of Conduct)।
  - ১.১.৫। আইএলও (ILO) কনভেনশন বিবেচনা পূর্বক গৃহীত হয়েছে।

১.২। **উদ্দেশ্য :** অত্র কারখানার শ্রমিকদের সুষ্ঠু ও সুন্দর কর্ম পরিবেশ সৃষ্টি করার লক্ষ্যে উল্লিখিত সূত্রসমূহের ভিত্তিতে অভিযোগ / অনুযোগ নীতিমালা গ্রহন করা।

১.৩। **লক্ষ্য :** আইনুযায়ী অভিযোগ / অনুযোগ নীতিমালা অনুসারে কর্মপরিবেশ নিশ্চিত করা।

১.৪। **প্রতিশ্রুতি :** প্যারামাউন্ট টেক্সটাইল পিএলসি অভিযোগ / অনুযোগ নীতিমালা যথাযতভাবে বাস্তবায়নের লক্ষ্যে সম্পূর্ণ নিরপেক্ষ ও প্রভাবমুক্ত, প্রলোভন, হয়রানি ও বৈষম্য মুক্ত এবং শান্তিপূর্ণ ও নির্ভরযোগ্য কর্ম-পরিবেশ সৃষ্টি করতে অঙ্গীকারাবদ্ধ।

২। **দায়িত্বপ্রাপ্ত জনবল কাঠামো :** অত্র নীতিমালার সকল ধারা, উপধারা বা নির্দেশনাসমূহ অনুসারণ ও বাস্তবায়নের জন্য দায়িত্বপ্রাপ্ত জনবল নিম্নোক্ত কাঠামো অনুযায়ী দায়িত্বপালন করে :



২.১। দায়িত্বাবলীঃ ক্রমিক ৩ অনুসারে।

[পাতা ১/৫]



**২.১.১। বিভাগীয় প্রধান (প্রশাসন ও মানব সম্পদ):**

- ১) অভ্যন্তরীণ টিম দ্বারা অভিযোগ / অনুযোগ গ্রহণকরা।
- ২) অভিযোগ / অনুযোগ গ্রহণশেষে প্রয়োজনীয় যাচাই বাছাই করে ব্যবস্থা নেয়া।
- ৩) অভিযোগ / অনুযোগ এর ব্যাপারে চূরন্ত সিদ্ধান্ত প্রধান।

**২.১.২। উপ-মহাব্যবস্থাপক (প্রশাসন ও মানব সম্পদ):**

- ১) অভিযোগ / অনুযোগ নীতিমালা গ্রহণের বিষয়ে সকল নীতিমালা বাস্তবায়নের জন্য সংশ্লিষ্ট কর্তৃপক্ষকে দ্রুত সিদ্ধান্ত দিবেন।
- ২) উৎপাদন সংশ্লিষ্ট ও অন্যান্য কর্মকর্তা, কর্মচারী ও শ্রমিকবৃন্দের অভিযোগ / অনুযোগ নীতিমালা বিষয়ে কোন অভিযোগ/সমস্যা থাকলে অবশ্যই সহ-মহাব্যবস্থাপক (প্রশাসন, মানব সম্পদ ও কমপ্লায়েন্স) দ্রুত সিদ্ধান্ত দিবেন।

**২.১.৩। ব্যবস্থাপক (প্রশাসন ও মানব সম্পদ):**

- ১) সকল প্রকার অভিযোগ বিষয়ক কর্মকাণ্ডের সুষ্ঠু সমাধান তদারকি করবেন।
- ২) অভিযোগ / অনুযোগের কারনে সৃষ্ট সকল প্রকার আইনানুগ সমাধান প্রধান করেন।
- ৩) পলিসি বাস্তবায়নের ব্যাপারে সকল সেকশনের সাথে সমন্বয় করা।
- ৪) পলিসি বাস্তবায়নের ব্যাপারে কোন বিচ্যুতি ঘটলে প্রশাসনিক ব্যবস্থা গ্রহণ করেন।

**২.১.৪। কমপ্লায়েন্স বিভাগ:**

- ১) শ্রমিক/কর্মচারীদের কর্মসংস্থান, বেতন, সুযোগ-সুবিধা, অগ্রিম প্রদানের ক্ষেত্রে জাতি, ধর্ম, বর্ণ, গোত্র, লিঙ্গ, বৈবাহিক বা গর্ভাবস্থা বা বয়সের কারনে ভেদাভেদ সৃষ্টি করা বিষয়ক অভিযোগ পর্যবেক্ষণ করা।
- ২) শ্রমিক/কর্মচারীদের নিরপেক্ষ ও প্রভাবমুক্ত, প্রলোভন, হয়রানি, বৈষম্য, যৌন হয়রানি, অশালিনভাষা, অন্তসত্ত্বা বিষয়ে জিজ্ঞাসা ও পরীক্ষা নীরিক্ষা করা হয় না এ বিষয়ে পর্যবেক্ষণ করা।
- ৩) শ্রমিক/কর্মচারীদের যৌন হয়রানী, শারীরিক নির্যাতন, গালিগালাজ বা ছমকি প্রধান করা, অযৌক্তিক ভাবে কর্মচারীদের চলাফেরায় বাধা প্রধান করা এ সকল বিষয়ে তীক্ষ্ণভাবে পর্যবেক্ষণ করা।
- ৪) শ্রমিক/কর্মচারীদের নিয়োগের ক্ষেত্রে জাতি, ধর্ম, বর্ণ, গোত্র, লিঙ্গ, বৈবাহিক বা গর্ভাবস্থা বা বয়সের কারনে ভেদাভেদ সৃষ্টি করা বিষয়ক অভিযোগ পর্যবেক্ষণ করা।
- ৫) শ্রমিক/কর্মচারীদের বেতন ও ওভারটাইম সংক্রান্ত বিষয়ক অভিযোগ পর্যবেক্ষণ করা।
- ৬) শ্রমিক অংশগ্রহনকারী কমিটির মাসিক সভা আয়োজনের ব্যাপারে সহযোগিতা করা।
- ৭) মৌলিক আধিকার সম্পর্কে শ্রমিক/কর্মচারীদের সচেতন করা।
- ৮) পলিসি বাস্তবায়নের ব্যাপারে যে কোন অভিযোগ লিপিবদ্ধ করা।

**২.১.৫। অফিসার (প্রশাসন ও মানব সম্পদ):**

- ১) শ্রমিক/কর্মচারীদের নিরপেক্ষ ও প্রভাবমুক্ত, প্রলোভন, হয়রানি, বৈষম্য, যৌন হয়রানি, অশালিনভাষা, অন্তসত্ত্বা বিষয়ে জিজ্ঞাসা ও পরীক্ষা নীরিক্ষা করা হয় না এ বিষয়টি নিশ্চিত করা।
- ২) কোম্পানী কর্তৃক গৃহীত নীতিমালা বাস্তবায়নে যেকোন লঙ্গন পরিলক্ষিত হলে তা কর্তৃপক্ষের নজরে আনা।

**২.১.৬। শ্রমিক অংশগ্রহনকারী কমিটির প্রতিনিধি:**

- ১) শ্রমিক ও মালিক পক্ষের মধ্যে পারস্পরিক আস্থা ও বিশ্বাস, সমঝোতা এবং সহযোগিতা বৃদ্ধিও প্রচেষ্টা করা।

[পাতা ২/৫]





PTPLC/POLICY/12

- ২) শ্রম আইনের প্রয়োগ নিশ্চিত করা।
- ৩) মালিক প্রদত্ত বিভিন্ন সুযোগ সুবিধা শ্রমিকদের জানানো।
- ৪) কোন প্রকার হয়রানীর শিকার হলে শ্রমিক/কর্মচারীদের সাজেসন বক্স/ কমপ্লায়েন্স/ শ্রমিক অংশগ্রহন কারী কমিটি বা কর্তৃপক্ষকে জানানোর বিষয়ে অবহিত করা।

**অনুযোগ, অভিযোগ ও পরামর্শ ফ্লো চার্ট**

**অনুযোগ, অভিযোগ ও পরামর্শ: মৌখিক বা লিখিত**

**পদ্ধতি: ০১**

**অধঃস্তন-উর্ধ্বতন শৃংখলা পদ্ধতি:** যে কোন শ্রমিক-কর্মচারী তার উর্ধ্বতন কর্মচারী ও কর্মকর্তা, যেমন- সুপারভাইজার, সেকশন ইনচার্জ বা নির্বাহী পরিচালক এর মাধ্যমে ব্যবস্থাপনা কর্তৃপক্ষকে তার সমস্যা, অভিযোগ বা অনুযোগ অবহিত করে প্রতিকার চাইতে পারবে।

**পদ্ধতি: ০২**

**কল্যাণ কর্মকর্তার মাধ্যমে পদ্ধতি:** কোন সমস্যা, অভিযোগ বা অনুযোগ এর কারন ঘটলে তা সাথে সাথে কল্যাণ কর্মকর্তা, কমপ্লায়েন্স কর্মকর্তা বা ব্যবস্থাপক কমপ্লায়েন্সকে অবহিত করার মাধ্যমেও ব্যবস্থাপনা কর্তৃপক্ষের নিকট প্রতিকার চাইতে পারবে।

**পদ্ধতি: ০৩**

**অংশগ্রহনকারী কমিটির, যৌন ও হয়রানি নিরসন কমিটি মাধ্যমে পদ্ধতি:** কোন সমস্যা, অভিযোগ বা অনুযোগ এর কারন ঘটলে শ্রমিক অংশগ্রহনকারী সভার, যৌন ও হয়রানি নিরসন কমিটি সদস্যদের মাধ্যমে ব্যবস্থাপনা কর্তৃপক্ষের নিকট প্রতিকার চাইতে পারবে।

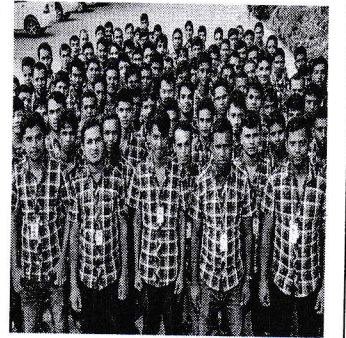
**পদ্ধতি: ০৪**

**অভিযোগ/পরামর্শ বক্স পদ্ধতি:** যে কোন সমস্যা, অভিযোগ বা অনুযোগ এর কারন ঘটলে যা শ্রমিক প্রতিনিধি/কল্যাণ কর্মকর্তার মাধ্যমে প্রতিকার চাইলে সমস্যা হতে পারে এমন কেউ অনুধাবন করলে যে কোন শ্রমিক-কর্মচারী অভিযোগ/পরামর্শ বক্সে তার সমস্যা, অভিযোগ বা অনুযোগ এর প্রকৃত কারন সহ লিখিত ভাবে প্রতিকার চাইতে পারবে।

**পদ্ধতি: ০৫**

**খোলা দরজা নীতির মাধ্যমে পদ্ধতি:** কোন সমস্যা, অভিযোগ বা অনুযোগ এর কারন ঘটলে যে কোন শ্রমিক-কর্মচারীর জন্য সরাসরি/অনুযোগ প্রদানের জন্য সব সময় সেকশন প্রধান/সংশ্লিষ্ট সেকশনের প্রশাসনিক প্রধান/অফিস ভবনে উপ-ব্যবস্থাপক (কমপ্লায়েন্স)/ বিভাগীয় প্রধান (প্রশাসন, মানব সম্পদ ও কমপ্লায়েন্স) /পরিচালকের দরজা খোলা থাকবে। অর্থাৎ যে কোন শ্রমিক-কর্মচারী ইচ্ছা করলে সরাসরি তার কন্টের প্রকৃত কারণ লিখিত বা মৌখিকভাবে উক্ত সকলের বা যে কোন একজনের কাছে প্রতিকার চাইতে পারবে এবং যে কোন মাধ্যমে (বক্স, আইনজীবী, স্থানীয় প্রতিনিধী, এনজিও, সমাজকর্মী, সরকারী প্রতিষ্ঠান, বায়ার, আইন প্রয়োগকারী সংস্থা, স্বাস্থ্য ক্লিনিক ইত্যাদি) বা অন্য যে কোন মাধ্যমে অভিযোগ প্রদান করতে পারবেন।

**শ্রমিক**



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### ৩। সময়সূচী ও কর্মপদ্ধতি :

#### ৩.১। বাস্তবায়ন :

ক্রমিক	করণীয়	পদ্ধতি	দায়িত্বপ্রাপ্ত ব্যক্তি	সময়	কারণ
৩.১.১	আইনসিদ্ধ অভিযোগ / অনুযোগ গ্রহন।	শ্রমিক/কর্মচারীদের সাজেসন বক্স/ কমপ্লায়েন্স/ শ্রমিক অংশগ্রহন কারী কমিটি বা কর্তৃপক্ষের মাধ্যমে অভিযোগ / অনুযোগ গ্রহন।	কমপ্লায়েন্স বিভাগ / প্রশাসন ও মানবসম্পদ বিভাগ	নিয়োগের দিন।	কর্মক্ষেত্রে দক্ষ কর্মী নিয়োগের মাধ্যমে প্রতিষ্ঠানের উৎপাদন গতিশীলতা বৃদ্ধি করা।

#### ৩.২। অবহিতকরণ :

ক্রমিক	করণীয়	পদ্ধতি	দায়িত্বপ্রাপ্ত ব্যক্তি	সময়	কারণ
৩.২.১	অনুলিপি প্রদান	দায়িত্বপ্রাপ্ত ব্যক্তিবর্গ, প্রশাসন ও মানব সম্পদ এবং কমপ্লায়েন্স বিভাগের সকল সদস্য, সকল বিভাগীয় প্রধানগণকে এই নীতিমালার অনুলিপি প্রদান করতে হবে।	কমপ্লায়েন্স বিভাগ / প্রশাসন ও মানবসম্পদ বিভাগ	নীতিমালা প্রণয়ণ, পরিবর্তন ও পরিবর্ধন শেষে তিন কর্মদিবসের মধ্যে।	কারখানার সকলে যেন অভিযোগ / অনুযোগ নীতিমালা বুঝে তা অনুসরণ করে।

#### ৩.৩। মতামত/সুপারিশ গ্রহণ ও নিয়ন্ত্রণ :

অভিযোগ / অনুযোগ নীতিমালা ২০০৬ সনের বাংলাদেশ শ্রম আইন (সর্ব শেষ সংস্কার সহ) স্বীকৃত একটি প্রক্রিয়া বলে কর্তৃপক্ষ এর প্রতি শ্রদ্ধাশীল। এর বাস্তবায়নের জন্য শ্রমিক ও কর্তৃপক্ষ উভয়কেই সমভাবে দায়িত্ব নিতে হবে যাতে উৎপাদন গতিশীলতা এবং অগ্রগতি বিদ্যমান থাকে, সেই লক্ষ্যে অত্র কারখানায় নির্ধারিত পন্থাগুলো অবলম্বন করা হয়।

এই নীতিমালার সঠিক প্রয়োগ এবং ব্যবহারের লক্ষ্যে একটি আভ্যন্তরীণ অভিযোগ নিরসন কমিটি গঠন করবেন। আভ্যন্তরীণ অভিযোগ নিরসন কমিটি কারখানার সকল সেকশন পর্যবেক্ষণ করবেন। পর্যবেক্ষণ কালে কারখানার সকল শ্রমিক ও কর্মচারীদের সাথে ব্যক্তিগত ভাবে কথোপকথন এর মাধ্যমে সমস্যা সনাক্ত করবেন। অত্র প্রতিবেদন প্রশাসন ও মানব সম্পদ বিভাগে দাখিল করবেন।

[পাতা ৪/৫]





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অভিযোগ/অনুযোগ নীতিমালা প্রয়োগ, ব্যবহার, নিয়ন্ত্রণ ও বাস্তবায়নের ক্ষেত্রে কোন সমস্যা দেখা দিলে অভিযোগ নিরসন কমিটি তা সনাক্ত করে প্রশাসন ও মানব সম্পদ বিভাগে দাখিল করবেন। মতামত / সুপারিশ গ্রহণ শেষে অভিযোগ নিরসন কমিটি অথবা কর্তৃপক্ষের সাথে মিটিং করবেন। অতঃপর সমস্যা চিহ্নিত করে অনতিবিলম্বে সমাধানে দ্রুত পদক্ষেপ গ্রহণ করবেন।




এই নীতিমালা বাস্তবায়নের ক্ষেত্রে যদি কোন সমস্যা প্ররিলক্ষিত হয় এবং যদি কোন প্রক্রিয়ার পবিত্রন, পরিবর্ধন, সংযোজন, বিয়োজন এর প্রয়োজন হয় তাহলে কার্যকারী পরিষদের সদস্যবৃন্দ উদ্ধৃতন কর্তৃপক্ষের সাথে আলোচনা সাপেক্ষে তা সংমোধনী আনতে পারবে।

৪। নির্ধারিত কর্মপদ্ধতি ও সময়সূচী অবহিতকরণ ও বাস্তবায়নঃ-

৪.১। অবহিতকরণঃ অবহিতকরণ রুটিন ৩.২ অনুসারে।

৪.২। বাস্তবায়নঃ বাস্তবায়ন রুটিন ৩.১ অনুসারে।

৫। মতামত/সুপারিশ গ্রহণ ও নিয়ন্ত্রণঃ মতামত/সুপারিশ গ্রহণ ও নিয়ন্ত্রণ রুটিন ৩.৩ অনুসারে।

প্রস্তুতকারী	উপ-ব্যবস্থাপক (কমপ্লায়েন্স)	
যাচাইকারী	উপ-মহাব্যবস্থাপক (সিভিল ও কমপ্লায়েন্স)	
অনুমোদনকারী	কারখানা অবধায়ক	

[পাতা ৫/৫]





# **Annexure 29**

## **PTPLC Fire & Safety Policy**



## অগ্নিকান্ড দূর্ঘটনা বা জরুরী সময়কালীন নীতিমালা

পোশাক শিল্প ইতিমধ্যেই বাংলাদেশের একটি স্বনামধন্য রপ্তানী শিল্প হিসাবে আত্মপ্রকাশ করেছে। পোশাক শিল্পের প্রসার খুবই ব্যাপক ও আশাব্যঞ্জক যা প্রতিবছর প্রচুর বৈদেশিক মুদ্রা অর্জনে সহায়তা করে। অতীতে এই পোশাক শিল্পের বিভিন্ন ধরনের জরুরী পরিস্থিতি মোকাবেলা করার নিমিত্তে সুস্থ নীতিমালা থাকা একান্ত বাঞ্ছনীয়।

**উদ্দেশ্যঃ** পোশাক শিল্পে যে কোন জরুরী অবস্থায় (অগ্নিকান্ড বা দূর্ঘটনা) করণীয়, প্রতিরোধ এবং প্রতিকার প্রসঙ্গে কি কি ব্যবস্থা গ্রহণ করতে হবে সেই সম্বন্ধে যথাযথ নীতিমালার মাধ্যমে আলোকপাত করা।

**জরুরী অবস্থার প্রকারঃ** জরুরী অবস্থা বিভিন্ন ধরনের হতে পারেঃ

- ১) অগ্নিকান্ড।
- ২) ভূমিকম্প।
- ৩) বন্যা/সুনামি।
- ৪) দূর্ঘটনা।
- ৫) কেমিক্যাল উপচে পড়া।
- ৬) আকস্মিক প্রবল বিস্ফোরন।
- ৭) খাবার বিষক্রিয়া।
- ৮) ত্রুটিপূর্ণ ক্রিয়াকলাপ (তরল বর্জ্য শোধনাগার)।
- ৯) বয়লার বিস্ফোরন।
- ১০) জেনারেটর বিস্ফোরন।
- ১১) গ্যাস বিস্ফোরন।
- ১২) লিফট দূর্ঘটনা।

### ১। অগ্নিকান্ডঃ অগ্নিকান্ড বা দূর্ঘটনা প্রতিরোধে সতর্কতামূলক ব্যবস্থাসমূহঃ

- ☞ অগ্নিকান্ড ঘটনার সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ পর্যাপ্ত পরিমাণ সচল অগ্নিনির্বাপন সরঞ্জামাদী বিভিন্ন সুবিধাজনক স্থানে মজুদ রাখা এবং নিয়মিত পরিদর্শন করা।
- ☞ অগ্নিকান্ডের সময় আত্মবিশ্বাসী হয়ে অগ্নি নির্বাপন সরঞ্জামাদী ব্যবহার করা।
- ☞ কারখানার ভিতরে বিড়ি, সিগারেট তথা ধূমপান সম্পূর্ণরূপে নিষিদ্ধ করা।
- ☞ দিয়াশলাই বা সিগারেটের লাইটার সমেত কারখানাতে প্রবেশ নিষিদ্ধ করা।
- ☞ গ্যাস লাইন, বৈদ্যুতিক লাইন তথা বিভিন্ন ফিটিংস নিয়মিত পরিদর্শন করা এবং পরিদর্শন বইতে তা লিপিবদ্ধ করা।
- ☞ কারখানায় কেমিক্যাল ব্যবহারে সতর্কতামূলক ব্যবস্থা গ্রহণ করা।
- ☞ অগ্নিনির্বাপনের উপর নিয়মিত অনুশীলন/মহড়ার ব্যবস্থা গ্রহণ করতঃ সকলকে সচেতন করা।
- ☞ প্রত্যেক ফ্লোর/সেকশনে অগ্নি নির্বাপক দল এবং উদ্ধারকারী দল গঠন করা।
- ☞ কারখানা চলাকালীন প্রত্যেক গেটের/দরজার তালা খোলা রাখা এবং তালাচাবি প্রশাসনিক কর্মকর্তার নিকট জমা রাখা। প্রশাসনিক কর্মকর্তা অবশ্যই তা নিশ্চিত করবেন।
- ☞ কারখানা বন্ধ হয়ে যাবার পর রুটিন মাসিক নিয়মিত চেক করা। উক্ত চেকের সময় এডমিন, সিকিউরিটি, ইলেকট্রিক এবং স্টোরের প্রতিনিধি থাকবে।
- ☞ প্রত্যেক ফ্লোরের উভয় প্রান্তে জরুরী বাতি/চার্জার লাইটের ব্যবস্থা রাখতে হবে।
- ☞ কারখানাতে অবস্থানরত গাড়ীগুলো সবসময় বহিমুখী করে পার্ক করতে হবে। যাতে সল্প সময়ের নিরাপদ অবস্থান গ্রহণসহ গাড়ী কর্তৃক কোন প্রতিবন্ধকতার সৃষ্টি না হয়।
- ☞ প্রত্যেক ফ্লোরে নিয়ন্ত্রণের সুবিধার্থে হ্যান্ড মাইকের ব্যবস্থা রাখতে হবে।

## ২। ভূমিকম্পঃ ভূমিকম্পের জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ ভূমিকম্পের আগাম খবর নেয়ার ব্যবস্থা।
- ☞ ভূমিকম্পের সময় আত্মবিশ্বাসী হয়ে কাজ করা।
- ☞ সময়মত লোকজনকে নিরাপদ আশ্রয়ের ব্যবস্থা করা।
- ☞ দাহ্য পদার্থ সাবধানে সংরক্ষণ করা যেন ভূমিকম্পের সময় পড়ে গিয়ে কোন ধরনের দুর্ঘটনা না ঘটাতে পারে।
- ☞ একের অধিক দাহ্য পদার্থ একই সঙ্গে না রাখা।
- ☞ ভূমিকম্পের উপর অনুশীলন/মহড়ার ব্যবস্থা গ্রহণ করতঃ সকলকে সচেতন করা।
- ☞ প্রত্যেক ফ্লোরে উদ্ধারকারী দল চিহ্নিত করা।
- ☞ কারখানা চলাকালীন অবস্থায় সকল গেট খোলা থাকবে।
- ☞ ভূমিকম্প পরবর্তী পরিস্থিতি মোকাবেলা করার জন্য প্রয়োজনীয় ব্যবস্থা গ্রহণ করা।

## ৩। বন্যা/সুনামিঃ বন্যা/সুনামির জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ বন্যার/সুনামির আগাম খবর এবং সর্বশেষ পরিস্থিতি জানার ব্যবস্থা করা।
- ☞ সময়মত লোকজনকে নিরাপদ আশ্রয়ের ব্যবস্থা করা।
- ☞ যাবতীয় জিনিসপত্র, যন্ত্রপাতি বন্যার পানির বিপদ সীমার উপরের উচ্চতায় কোন স্থানে রাখার ব্যবস্থা করা।
- ☞ বন্যার/সুনামির সময় আত্মবিশ্বাসী হয়ে কাজ করা।
- ☞ প্রত্যেক ফ্লোরে উদ্ধারকারী দল চিহ্নিত করা।
- ☞ বন্যা/সুনামি পরবর্তী পরিস্থিতি মোকাবেলার জন্য প্রয়োজনীয় ব্যবস্থা গ্রহণ করা।

## ৪। দুর্ঘটনাঃ দুর্ঘটনার জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ কর্মক্ষেত্রে দুর্ঘটনা কমানোর জন্য ব্যক্তিগত সুরক্ষা সরঞ্জামাদী ব্যবহারের প্রশিক্ষণ প্রদান।
- ☞ কোন দৈব দুর্ঘটনা, প্রাকৃতিক দুর্যোগ কিংবা আপদকালীন সময়ে কোন আহত ব্যক্তিকে ডাক্তারের নিকট অথবা হাসপাতালে বা অন্য কোন চিকিৎসা কেন্দ্রে প্রেরণের পূর্বে তার অবস্থার যাতে অবনতি না ঘটে তার জন্য অভ্যন্তরীণ প্রাথমিক চিকিৎসক দ্বারা যথাযথ ব্যবস্থা গ্রহণ করা।
- ☞ জীবন রক্ষা / ত্রাণ বা উপসমের ব্যবস্থা করা।
- ☞ রোগীর অবস্থা যাতে আরও অবনতির দিকে না যায় তার ব্যবস্থা গ্রহণ করা, আরোগ্য লাভ বা পুনরুদ্ধারের অগ্রগতিসাধনে সহায়তা করা।
- ☞ কী ঘটেছে এবং কেন ঘটেছে তাহা খুঁজে বের করা।
- ☞ যে কোন বিপদাপদ থেকে সাবধান হওয়া এবং এদের মোকাবেলায় সঠিক ব্যবস্থা গ্রহণ করা।
- ☞ রোগীর জখম বা অবস্থার সাথে শান্তভাবে এবং দক্ষভাবে মোকাবেলা করা।

## ৫। কেমিক্যাল উপচে পড়াঃ কেমিক্যাল উপচে পড়ার জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ কেমিক্যাল উপচে পড়ার সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ প্রতিটি কেমিক্যালের ড্রাম আলাদা আলাদা পাত্রে রাখা।
- ☞ যে স্থানে কেমিক্যাল থাকবে সেখানে তাপমাত্রা নিয়ন্ত্রণে রাখার জন্য পর্যাপ্ত আলো বাতাসের ব্যবস্থা রাখা।
- ☞ কারখানায় কেমিক্যাল ব্যবহারে সতর্কতামূলক ব্যবস্থা গ্রহণ করা।
- ☞ কেন কেমিক্যাল উপচে উঠেছে তাহা খুঁজে বের করা।
- ☞ কেমিক্যাল উপচে পড়লে সাথে সাথে সঠিক পাত্রে সরিয়ে ফেলা।
- ☞ কেমিক্যাল উপচে পড়লে যাতে অন্য কোন কেমিক্যালের সংস্পর্শে না যায় সে ব্যবস্থা করা।
- ☞ কেমিক্যাল ব্যবহার সম্পর্কে সংশ্লিষ্ট সকলের প্রশিক্ষণের ব্যবস্থা করা।







## ৬। আকস্মিক প্রবল বিস্ফোরনঃ আকস্মিক প্রবল বিস্ফোরনের জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ বিস্ফোরনের সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ বিস্ফোরন হলে যাতে বড়ধরনের অগ্নিকাণ্ড না ঘটে সেইজন্য পর্যাপ্ত পরিমান সচল অগ্নিনির্বাপন যন্ত্র বিভিন্ন সুবিধাজনক পয়েন্টে মজুদ রাখা।
- ☞ কারখানার ভিতরে বিড়ি, সিগারেট তথা ধূমপান সম্পূর্ণরূপে নিষিদ্ধ করা।
- ☞ দিয়াশলাই বা সিগারেটের লাইটার সমেত কারখানাতে প্রবেশ নিষিদ্ধ করা।
- ☞ গ্যাস লাইন, বৈদ্যুতিক লাইন তথা বিভিন্ন ফিটিংস নিয়মিত পরিদর্শন করা এবং পরিদর্শন বইতে তা লিপিবদ্ধ করা।
- ☞ কারখানায় কেমিক্যাল ব্যবহারে সতর্কতামূলক ব্যবস্থা গ্রহন করা।
- ☞ যদি আকস্মিক প্রবল বিস্ফোরন ঘটে যায় তাহলে সেফটি কমিটির নির্ধারিত ব্যক্তি বর্গ উদ্ধারকার্য ও পরিস্থিতি নিয়ন্ত্রনে আনার চেষ্টা করবেন এবং নিকটস্থ ফায়ার সার্ভিসে খবর দিবেন।
- ☞ ফায়ার সার্ভিস আসলে তাদের কাজে সহযোগিতা করা।

## ৭। খাবার বিষক্রিয়াঃ যে কোন প্রকার বিষক্রিয়ার জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ বিষক্রিয়ার সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ কারখানার চার পাশ পরিষ্কার পরিচ্ছন্ন রাখতে হবে।
- ☞ ডাইনিং রুম পরিষ্কার পরিচ্ছন্ন রাখতে হবে যাতে কোন বাসি বা নষ্ট হওয়া কোন খাবার ডাইনিং রুমে না থাকে সেই দিকে লক্ষ্য রাখতে হবে।
- ☞ প্রতিদিন খাবার পানি রাখার পাত্র ভলো ভাবে পরিষ্কার করে খাবার পানি দিতে হবে।
- ☞ খাবার রাখার জন্য নিরাপদ স্থান দিতে হবে।
- ☞ যদি যে কোন প্রকার বিষক্রিয়া হয় তা হলে সাথে সাথে অভ্যন্তরীণ চিকিৎসক দ্বারা প্রাথমিক চিকিৎসা দিয়ে নিকটস্থ চিকিৎসা কেন্দ্রে নিয়ে যওয়া।
- ☞ কি কারনে বিষক্রিয়া হয়েছে তা খোঁজে বের করা এবং প্রতিকার করা।

## ৮। ট্রেটিপূর্ণ ক্রিয়াকলাপ (তরল বর্জ্য শোধনাগার)ঃ ট্রেটিপূর্ণ ক্রিয়াকলাপ (তরল বর্জ্য শোধনাগার) এর জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ ট্রেটিপূর্ণ ক্রিয়াকলাপ (তরল বর্জ্য শোধনাগার) এর সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ ইটিপি সুষ্ঠু ভাবে পরিচালনার জন্য বা ট্রেটিপূর্ণ ক্রিয়াকলাপ না ঘটে সেই জন্য নিম্নলিখিত প্রক্রিয়া গুলো লক্ষ্য রাখতে হবে:
  - স্ক্রিনিং চেম্বার সঠিক ভাবে কাজ করছে কিনা।
  - ইকুয়লাইজেশন ট্যাংক এ সঠিক সময় নিয়ে বর্জ্য পানির সম-মিশ্রণ তৈরী করা এবং ইকুয়লাইজেশন ট্যাংক থেকে পানি ট্রান্সফার পাম্প এর সাহায্যে অক্সিডেশন ট্যাংকে পাঠানো হচ্ছে কিনা।
  - এসিড ডজিং ট্যাংক থেকে প্রয়োজন অনুপাতে এসিড নিউট্রালাইজেশন ট্যাংকে সঠিক ভাবে যাচ্ছে কিনা।
  - ক্লোরিফেয়ার এর মাধ্যমে স্লাজ আলাদা করা হচ্ছে কিনা।
  - সঠিক ভাবে স্লাজ ব্যবস্থাপনা করা হচ্ছে কিনা।
- ☞ যদি উপরোক্ত কার্যাদি সঠিক ভাবে সম্পাদন না হয় তাহলে তাৎক্ষনিক ব্যবস্থা নিতে হবে।
- ☞ কোথায় সমস্যা, কেন সমস্যা তা খোঁজে বের করতে হবে এবং তা সমাধান করতে হবে।
- ☞ ইটিপির সম্পূর্ণ প্রক্রিয়া ইটিপিতে দক্ষ জনবল দ্বারা সার্বক্ষনিক পরিচালনা করতে হবে।

## ৯। বয়লার বিস্ফোরনঃ বয়লার বিস্ফোরনের জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ বয়লার বিস্ফোরনের সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।



- ☞ বয়লার প্রত্যয়ন পত্রে উল্লেখিত সর্বোচ্চ চাপ অপেক্ষা অধিকতর চাপে বয়লার ব্যবহার না করা।
- ☞ বয়লারের সেফটি ভাল্ব চাপের অধিকতর চাপে না বাঁধা।
- ☞ বয়লার চালু করার পূর্বে প্রয়োজনীয় ইলেকট্রিক পাওয়ার, গ্যাস, বাতাস সেফটি ভাল্ব বয়লারে পানির লেভেল সব ঠিক আছে কি-না তা নিশ্চিত করে যো।
- ☞ বয়লার চালুর পর স্টীম এর প্রেসার ঠিক মত উঠানো।
- ☞ স্টীম প্রয়োজন অনুসারে ধীরে ধীরে বিভিন্ন সেকশনে স্টীম সরবরাহ করা।
- ☞ প্রতি ঘন্টার ডাটা সংগ্রহ করা।
- ☞ নিয়মিত বয়লার পরিদর্শন করা।

#### ১০। জেনারেটর বিস্ফোরনঃ জেনারেটর বিস্ফোরনের জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ জেনারেটর বিস্ফোরনের সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ ইঞ্জিন চালু করার পূর্বে প্রয়োজনীয় (গ্যাস, পানি, তৈল, বাতাস) তাপ ও চাপ নিশ্চিত করা।
- ☞ ব্যাটারীর পানির মাত্রা এবং ভোল্টেজ চেক করা।
- ☞ ইঞ্জিন চালু হওয়ার পর ভোল্টেজ, ফ্রিকুয়েন্সি, আর.পি.এম এর তাপ ও চাপ চেক করা।
- ☞ ইঞ্জিন লোডশেয়ারিং এর উপযুক্ত হলে সিনেকানাইজ এর মাধ্যমে বিদ্যুৎ সরবরাহ চালু করা।
- ☞ ইঞ্জিন বন্ধ করার পূর্বে লোড কার্ড অফ করা এবং সতর্কতার সাথে বন্ধ করা।

#### ১১। গ্যাস বিস্ফোরনঃ গ্যাস বিস্ফোরনের জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ গ্যাস বিস্ফোরনের সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ গ্যাসের চাপের প্রতি লক্ষ্য রাখতে হবে।
- ☞ নিয়মিত গ্যাস লাইন চেক করা।

#### ১২। লিফট দুর্ঘটনাঃ লিফট দুর্ঘটনার জন্য সতর্কতামূলক ব্যবস্থা সমূহঃ

- ☞ লিফট দুর্ঘটনার সুযোগ না দেয়াই এর প্রতিরোধের প্রধান উপায়।
- ☞ লিফট নিয়মিত রক্ষনাবেক্ষনের ক্জ করা।
- ☞ নিয়মিত লিফট এর বৈদ্যুতিক লাইনসহ সকল সংযোগ পরিষ্কা করা।

#### জরুরী অবস্থায় দলসমূহঃ

- ইলেকট্রিক্যাল দল
- অগ্নি দল
- উদ্ধারকারী দল
- প্রাথমিক চিকিৎসা দল
- জরুরী দল
- শিশু কক্ষ্য উদ্ধারকারী দল
- অসুস্থ/শারীরিক অক্ষমদের উদ্ধারকারী দল
- গর্ভপতি মহিলাদের উদ্ধারকারী দল
- পিএ সিস্টেমে যোগাযোগ
- সমবেত হওয়ার স্থান নিয়ন্ত্রন
- সর্বদিক অনুসরণ করা।

#### জরুরী অবস্থায় দায়িত্ব ও কর্তব্যঃ

যদি কোন ফ্লোরে আগুন লাগে তাহলে আগুন লাগা দেখা মাত্রই নিকটস্থ ফায়ার এলার্ম সুইচ চেপে সকলকে সতর্কীকরণের নিমিত্তে সাইরেন/ঘন্টা বাজিয়ে সতর্ক করতে হবে।

[www.paramountgroupbd.com](http://www.paramountgroupbd.com)



Head Office :  
House # 22, Level-2, 5-8, Road # 113/A  
Gulshan-2, Dhaka-1212, Bangladesh.

Tel : +88 02 55049833-37  
Cell : +88 01709 631429, 01729 242476  
E-mail : [info@paramountgroupbd.com](mailto:info@paramountgroupbd.com)



➤ ইলেকট্রিক্যাল দলঃ

☞ মোঃ কামারুসাকিব

❖ সকল ফ্লোরের ইলেকট্রিক্যাল ইনচার্জ।

**দায়িত্ব ও কর্তব্যঃ** এই দলের দায়িত্ব সকল বৈদ্যুতিক সুইচ বন্ধ করা। যে ফ্লোরে আগুন লেগেছে সে ফ্লোরের বৈদ্যুতিক মেইন সুইচ অফ করে দিবেন উক্ত ফ্লোরের ঐ সময়ে কর্তব্যরত ইলেকট্রিক্যাল ইনচার্জ এবং যত তাড়াতাড়ি সম্ভব কারখানার প্রধান বৈদ্যুতিক সুইচ অফ করতে হবে। উক্ত কাজটি পরিচালনা করবেন জনাব মোঃ কামারুসাকিব।

➤ অগ্নিনির্বাপন দলঃ

☞ আজাদ আল মামুন

❖ সকল ফ্লোরের অগ্নি নির্বাপন কর্মী।

**দায়িত্ব ও কর্তব্যঃ** এই দলের দায়িত্ব অগ্নি সরঞ্জাম ব্যবহার করে আগুনের সাথে লড়াই করা। যে ফ্লোরে আগুন লেগেছে সে ফ্লোরের অগ্নিনির্বাপক দল কর্তৃক ফ্লোর/সেকশনে রক্ষিত অগ্নিনির্বাপন সরঞ্জামাদি ব্যবহার করে আগুন নিয়ন্ত্রনে আনার চেষ্টা করবেন। প্রয়োজন সাপেক্ষে পাশবর্তী ফ্লোরের অগ্নিনির্বাপন কর্মী প্রয়োজনীয় অগ্নিনির্বাপন সরঞ্জামাদি নিয়ে সহযোগিতা করবেন। উক্ত কাজটি পরিচালনা করবেন জনাব আজাদ আল মামুন।

➤ উদ্ধারকারী দলঃ

☞ মোঃ আব্দুস সালাম

❖ সকল ফ্লোরের উদ্ধার কর্মী।

**দায়িত্ব ও কর্তব্যঃ** এই দলের দায়িত্ব সুরক্ষা নির্দেশাবলী অনুসারে লোকজনকে দ্রুত ফ্লোর খালি করতে সহায়তা করা এবং মেঝেতে আটকা পড়া লোকদের উদ্ধার করে নিরাপদ স্থানে রাখার জন্য কাজ করবে। যে ফ্লোরে আগুন লেগেছে সে ফ্লোরের দায়িত্ব প্রাপ্ত উদ্ধার কর্মী দ্বারা উদ্ধার কার্যসম্পাদন করবে, প্রয়োজন সাপেক্ষে পাশবর্তী ফ্লোরের উদ্ধার কর্মী তাদের সহযোগিতা করবেন। উক্ত কাজটি পরিচালনা করবেন জনাব এ,এফ,এম ফায়জুজ্জামান।

➤ প্রাথমিক চিকিৎসা দলঃ

☞ ডাঃ এ. এইচ. আল মারুফ

❖ সকল ফ্লোরের প্রাথমিক চিকিৎসার মনোনীত কর্মী।

**দায়িত্ব ও কর্তব্যঃ** এই দলের দায়িত্ব যে কোন দুর্ঘটনায় আহতদের প্রাথমিক চিকিৎসা প্রদান করা এবং যদি কারও উন্নত চিকিৎসার প্রয়োজন হয় তাহলে আহতের অবস্থার যেন অবনতি না হয় সেই ব্যবস্থা করে উন্নত চিকিৎসার জন্য হাসপাতালে পাঠানো।

➤ জরুরী দলঃ

☞ মোঃ মাইন উদ্দিন

❖ প্রশাসনিক কর্মকর্তাবৃন্দ ও সকল অংশগ্রহণকারী কমিটির সদস্যবৃন্দ।

**দায়িত্ব ও কর্তব্যঃ** এই দলের দায়িত্ব হলো যে কোন দুর্ঘটনায় জরুরী সহযোগিতার প্রদান করা। গাড়ী ও অ্যাম্বুলেন্সের ব্যবস্থা করা, ফায়ার সার্ভিসের গাড়ী আসা-যাওয়া ও উদ্ধারকারী যাতে সহজে উদ্ধারকার্য সম্পন্ন করতে পাও সেই ব্যবস্থা করা।

➤ শিশু কক্ষ্য উদ্ধারকারী দলঃ

☞ সুমাইয়া

❖ শিশু কক্ষ্য পরিচর্যাকারী।

**দায়িত্ব ও কর্তব্যঃ** এই দলের দায়িত্ব সুরক্ষা নির্দেশাবলী অনুসারে শিশুদের দ্রুত ফ্লোর খালি করতে সহায়তা করা এবং যদি কোন শিশু মেঝেতে আটকা পড়ে তাদের উদ্ধার করে নিরাপদ স্থানে রাখার জন্য কাজ করবে।



➤ অসুস্থ/শারীরিক অক্ষমদের উদ্ধারকারী দলঃ

☞ মোঃ মাসুদ রানা

❖ পিসি সদস্য বৃন্দ

দায়িত্ব ও কর্তব্যঃ এই দলের দায়িত্ব সুরক্ষা নির্দেশাবলী অনুসায়ে প্রথমে অসুস্থ/শারীরিক অক্ষমদের দ্রুত ফ্লোর খালি করতে সহায়তা করা।

➤ গর্ভবতী মহিলাদের উদ্ধারকারী দলঃ

☞ সাবানা খাতুন

❖ মহিলা পিসি সদস্য

দায়িত্ব ও কর্তব্যঃ এই দলের দায়িত্ব সুরক্ষা নির্দেশাবলী অনুসারে প্রথমে গর্ভপতি মহিলাদের দ্রুত নিরাপদে ফ্লোর খালি করতে সহায়তা করা।

➤ পিএ সিষ্টেমে যোগাযোগঃ

☞ মোঃ সাজ্জাদ হোসেন

❖ মোঃ আলামিন

দায়িত্ব ও কর্তব্যঃ এই দলের দায়িত্ব হচ্ছে যে কোন জরুরী মুহূর্তের সংবাদসমূহ ঘোষণা দেওয়া, আর কোন জরুরী নির্দেশনা ঘোষণা করা।

➤ সমবেত হওয়ার স্থান নিয়ন্ত্রনঃ

☞ মোঃ গোলাম সারওয়ার

❖ নিরাপত্তা কর্মকর্তা ও সময় নিয়ন্ত্রনকারী কর্মকর্তাবৃন্দ।

দায়িত্ব ও কর্তব্যঃ এই দলের দায়িত্ব হচ্ছে যে কোন জরুরী মুহূর্তে সমাবেত হওয়ার স্থান নিয়ন্ত্রন করা। সেকশন ভিত্তিক সারিবদ্ধ ভাবে দাড়করানো এবং গননা করা, উক্ত দিনের উপস্থিতির সাথে সমাবেত স্থানে উপস্থিতির মিলিয়ে দেখা, প্রতিবেদন তৈরি করা।

➤ সর্বদিক অনুসরণ করাঃ

☞ মোঃ আব্দুল আলীম, উপ-মহাব্যবস্থাপক

☞ মোঃ মাইন উদ্দীন, উপ-মহাব্যবস্থাপক

দায়িত্ব ও কর্তব্যঃ এই দলের দায়িত্ব হচ্ছে যে কোন জরুরী মুহূর্তে সকল দলসমূহ ঠিক মত তাদের কার্যক্রম পরিচালনা করতে পরছে কিনা, তাদের কোন সহযোগিতা প্রয়োজন কিনা, কোন সিদ্ধান্ত হীনতায় কার্যক্রমের প্রতিবন্ধকতার সৃষ্টি হচ্ছে কিনা, অভ্যন্তরীণ ও বাহিরের যোগাযোগ করা এবং সকলকে সহযোগিতা করা।

জরুরী অবস্থার প্রতিকার সমূহঃ

- ১) যদি কোন ফ্লোরে আগুন লাগে তাহলে আগুন লাগার সাথে সাথে সকলকে সতর্কীকরণের নিমিত্তে সাইরেন/ঘন্টা বাজিয়ে সতর্ক করতে হবে।
- ২) যে ফ্লোরে আগুন লেগেছে সে ফ্লোরের বৈদ্যুতিক মেইন সুইচ অফ করে দিতে হবে এবং যত তাড়াতাড়ি সম্ভব কারখানার প্রধান সুইচসহ অফ করে দিতে হবে।
- ৩) অগ্নিনির্বাপক দল ও উদ্ধারকারী দল ব্যতীত মহিলা ও পুরুষগণ ১/২ মিনিটে ফ্লোর থেকে দ্রুত বের হয়ে যাবে।
- ৪) নিরাপত্তায় নিয়োজিত ব্যক্তিগণ তৎক্ষণাৎ কারখানার গেটের ভিতর এবং বাহিরে অবস্থান নিবে। বাহির থেকে কেহ যেন অনুপ্রবেশ করতে না পারে তার ব্যবস্থা নিবে। তাছাড়া মানুষ ও গাড়ী চলাচলের জন্য সম্মুখের রাস্তা উন্মুক্ত রাখবে।
- ৫) অগ্নিনির্বাপক দল কর্তৃক ফ্লোর/সেকশনে রক্ষিত অগ্নিনির্বাপন যন্ত্রের ব্যবহার নিশ্চিত করতে হবে।
- ৬) অগ্নিনির্বাপক দল এবং উদ্ধারকারী দলকে আত্মবিশ্বাসী হয়ে কাজ করতে হবে।





- ৭) ফ্লোর বা সেকশন থেকে লোকজন নেমে যাওয়ার পর উদ্ধারকারী দল দ্রুত দুর্ঘটনা কবলিতদের উদ্ধার কওে প্রাথমিক চিকিৎসক দলের কাছে নিয়ে যাবে এবং প্রয়োজনে কারখানার চিকিৎসা কেন্দ্রে পৌঁছে দিবে।
- ৮) কারো গায়ের কাপড়ে আগুন লেগে গেলে তৎক্ষণাৎ ফ্লোরে গড়াগড়ি দিতে হবে। কোন ক্রমেই দৌড়ানো যাবে না।
- ৯) বাথরুম/টয়লেট চেক করতে হবে যাতে কোন লোক আটকা পড়ে না থাকে।
- ১০) অত্যন্ত ক্ষিপ্ততার সঙ্গে উদ্ধারকারী দল দুর্ঘটনায় কবলিত মালামাল উদ্ধার করবে।
- ১১) বন্যার সময় পানি ঢুকার পূর্বেই সমস্ত যন্ত্রপাতি, জিনিসপত্র, জরুরী কাগজপত্র নিরাপদ উচ্চতায়, নিরাপদ স্থানে সরিয়ে নিতে হবে।
- ১২) পানিপূর্ণ বা পানির কাছাকাছি স্থানে বৈদ্যুতিক সংযোগ বিচ্ছিন্ন করতে হবে।
- ১৩) বিশুদ্ধ খাবার পানির ব্যবস্থা করতে হবে।
- ১৪) বন্যা পরবর্তী পরিস্থিতি মোকাবেলা করার প্রয়োজনীয় ব্যবস্থা করা।
- ১৫) ভূমিকম্পের সময় মহিলা এবং পুরুষগণ তাড়াতাড়ি বের হয়ে যাবে।
- ১৬) ভূমিকম্পের পর উদ্ধারকারী দল দুর্ঘটনায় কবলিত লোকজন এবং জিনিসপত্র উদ্ধার করবে।
- ১৭) উদ্ধারকারী দলকে আত্মবিশ্বাসী হয়ে কাজ করতে হবে।
- ১৮) ভূমিকম্প পরবর্তী পরিস্থিতি মোকাবেলা করার প্রয়োজনীয় ব্যবস্থা করা।
- ১৯) কারখানা বন্ধ থাকা অবস্থায় রাত্রিকালীন যে কোন জরুরী অবস্থায় কর্তব্যরত ব্যক্তি অতি সত্ত্বর নিবেদিত দায়িত্ববান ব্যক্তিকে এবং প্রয়োজনীয় সকল জায়গায় অবহিত করবেন।
- ২০) যে কোন জরুরী অবস্থা মুখোমুখী হওয়ার সাথে সাথে সতর্কীকরণের নিমিত্তে সাইরেন/ঘন্টা বাজিয়ে সকলকে সতর্ক করতে হবে।

### প্রশাসনিক শাখা কর্তৃক গ্রহণীয় বিবিধ ব্যবস্থাঃ

- ক) আহত লোকজনকে প্রয়োজন অনুযায়ী ফ্যাক্টরীর চিকিৎসা কেন্দ্রে বা নিকটবর্তী হাসপাতালে প্রেরণ করতে হবে।
- খ) অনতিবিলম্বে ফায়ার বিগ্রেডকে প্রয়োজনীয় সহায়তার জন্য টেলিফোন করতে হবে।

### জরুরী অবস্থা/প্রস্তুতি পরিকল্পনাঃ

কারখানায় যে কোন জরুরী অবস্থায়, অগ্নিকাণ্ড বা দুর্ঘটনা, বজ্রপাত, বন্যা, মারাত্মক আহত, বিস্ফোরন, বিষকৃয়া, বৈদ্যুতিক দুর্ঘটনা ও কেমিক্যাল উচ্ছলে পরাসহ বিভিন্ন প্রকার প্রতিকূল পরিস্থিতিতে মোকাবেলা করার উদ্দেশ্যে নিম্ন লিখিত ব্যক্তি বর্গগণ দায়িত্ব পালন করবেন।

### জরুরী অবস্থা এবং বিবরণ পেশকরাঃ

যে কোন জরুরী অবস্থা এবং বিবরণ পেশকরবেন জনাব, এ এইচ এম আব্দুর রহমান (হাসান), পরিচালক।

### ঘটনার পরীক্ষা ও অনুসন্ধানে আবিস্কৃত তথ্য সংগ্রহঃ

যে কোন জরুরী ঘটনার পরীক্ষা ও অনুসন্ধানে আবিস্কৃত তথ্য সংগ্রহ ও সংরক্ষণ করবেন নিম্নলিখিত ব্যক্তিবর্গঃ

- ০১। মোঃ মাইন উদ্দীন, উপ-মহাব্যবস্থাপক (প্রশাসন ও মানবসম্পদ)
- ০২। মোঃ সাজ্জাদ হোসেন, ব্যবস্থাপক (প্রশাসন ও মানবসম্পদ)
- ০৩। মোঃ জাহিদুল ইসলাম, উপ-ব্যবস্থাপক (প্রশাসন ও মানবসম্পদ)



**জুরুরী অবস্থার জন্য প্রশিক্ষণঃ**

যে কোন জুরুরী অবস্থা মোকাবেলার জন্য প্রশিক্ষণ ও রেকড সংরক্ষণ করবেন, মোঃ আজাদ আল মামুন, উপ-ব্যবস্থাপক (ফায়ার এন্ড সেফটি)




**জুরুরী অবস্থার পরিকল্পনা মূল্যায়নের জন্য নিয়মিত মহড়া (যেমন: অগ্নি মহড়া)**

যে কোন জুরুরী অবস্থার পরিকল্পনা মূল্যায়নের জন্য নিয়মিত মহড়ার ব্যবস্থা ও রেকড সংরক্ষণ করবেন, আজাদ আল মামুন, উপ-ব্যবস্থাপক (ফায়ার সেফটি)

**জুরুরী অবস্থায় যন্ত্রপাতি ব্যবহারের জন্য শ্রমিকদের প্রশিক্ষণের ব্যবস্থাঃ**

- ০১। বাংলাদেশ ফায়ার সার্ভিস ও সিভিল ডিফেন্স এর প্রশিক্ষণদলের মাধ্যমে জুরুরী অবস্থায় যন্ত্রপাতি ব্যবহারের জন্য শ্রমিকদের প্রশিক্ষণের ব্যবস্থা করতে হবে।
- ০২। অভ্যন্তরীণ প্রশিক্ষণের মাধ্যমে জুরুরী অবস্থায় যন্ত্রপাতি ব্যবহারের জন্য শ্রমিকদের প্রশিক্ষণ দেওয়া হবে।

যে কোন জুরুরী অবস্থায় আমাদের সকলকে একাত্ম হয়ে কাজ করতে হবে। এ ধরনের পরিস্থিতিতে সাধারনত ক্ষতি হবে ভয়াবহ ও অপূরণীয়। তাই সম্মিলিত ভাবে আমাদের চেষ্টা করতে হবে বিপদ থেকে উদ্ধার পাওয়ার জন্য। জান ও মালের হেফাজত করা আমাদের নৈতিক দায়িত্ব ও কর্তব্য।

প্রস্তুতকারী	উপ- ব্যবস্থাপক (ফায়ার এন্ড সেফটি)	
যাচাইকারী	উপ-মহাব্যবস্থাপক (সিভিল এন্ড কমপ্লায়েন্স)	
অনুমোদনকারী	কারখানা অবধায়ক	



# **Annexure 30**

## **Working Hour Policy**



Effective Date: 01.01.2023

Expire Date: 31.12.2023

Next Review Date: 01.01.2024

## কর্মঘণ্টার নীতিমালা (Working Hour Policy)

**নীতিমালার বক্তব্য :** প্যারামাউন্ট টেক্সটাইল পিএলসি নিম্নলিখিত সূত্রসমূহের ভিত্তিতে কর্মঘণ্টা নীতিমালা বাস্তবায়ন করতে বদ্ধপরিকর এবং এর সাথে সম্পূর্ণ ঐক্যমত পোষণ করে কর্মঘণ্টা ঘণ্টা নীতিমালা পরিচালনা করে।

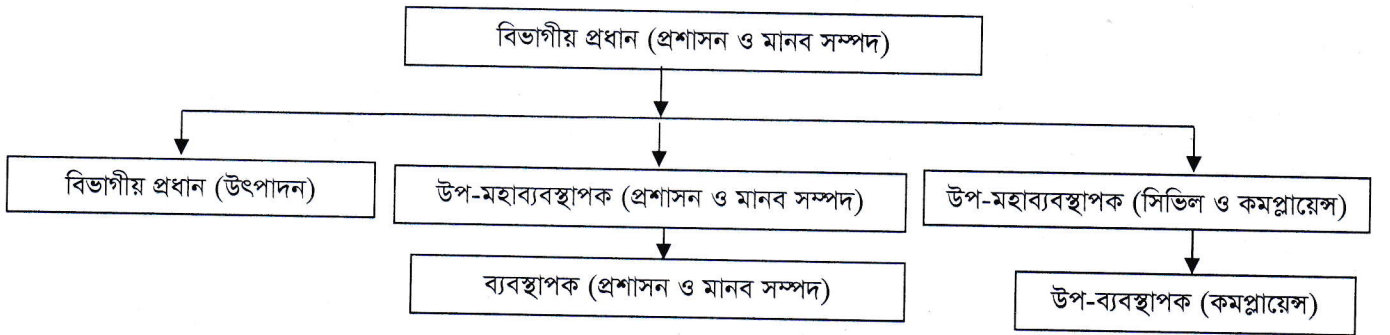
- ১.১। সূত্রঃ**
- ১.১.১। রাষ্ট্রীয় আইন (বাংলাদেশ শ্রম আইন ২০০৬ ও এর সংশোধনসমূহ)।
  - ১.১.২। রাষ্ট্রীয় বিধি (বাংলাদেশ শ্রম বিধি ২০১৫ ও এর সংশোধনী)।
  - ১.১.৩। ক্রেতাদের আচরণ বিধি (Buyer Code of Conduct)।
  - ১.১.৪। কোম্পানীর আচরণ বিধি (Company Code of Conduct)।
  - ১.১.৫। আইএলও (ILO) কনভেনশন বিবেচনা পূর্বক গৃহীত হয়েছে।

**উদ্দেশ্য :** অত্র কারখানা সুষ্ঠু ও সুন্দর ভাবে পরিচালনা করার লক্ষ্যে উল্লিখিত সূত্রসমূহের ভিত্তিতে কর্মঘণ্টা পরিচালনা করা।

**লক্ষ্য :** আইনুযায়ী কর্মঘণ্টা নীতিমালা অনুসারে কর্মপরিবেশ নিশ্চিত করা। কর্মঘণ্টার নীতিমালা যথাযতভাবে বাস্তবায়নের লক্ষ্যে সম্পূর্ণ নিরপেক্ষ ও প্রভাবমুক্ত এবং অশালীনভাষা মুক্ত, ও শান্তিপূর্ণ, নির্ভরযোগ্য কর্ম- পরিবেশ সৃষ্টি করতে অঙ্গীকারাবদ্ধ।

**প্রতিশ্রুতি :** প্যারামাউন্ট টেক্সটাইল পিএলসি এর উত্তরোত্তর উন্নতিকল্পে এবং কারখানার উৎপাদন বৃদ্ধির লক্ষ্যে একটি সুন্দর ও নিরাপদ কাজের পরিবেশ সৃষ্টি করতে প্যারামাউন্ট কর্তৃপক্ষ প্রতিশ্রুতিবদ্ধ। আর সেই লক্ষ্যেই বাংলাদেশ শ্রম আইন-২০০৬ এবং আই এল ও কনভেনশন এর আলোকে প্যারামাউন্ট টেক্সটাইল পিএলসি কর্মঘণ্টা পরিচালনা করে।

**দায়িত্বপ্রাপ্ত জনবল কার্ঠামো :** অত্র নীতিমালার সকল ধারা, উপধারা বা নির্দেশনাসমূহ অনুসরণ ও বাস্তবায়নের জন্য দায়িত্বপ্রাপ্ত জনবল নিম্নোক্ত কার্ঠামো অনুযায়ী দায়িত্বপালন করে :



### কোম্পানীর কাজের সময় সূচী

- ০১। দৈনিক কাজের সময় ৮ ঘণ্টা (In a Day 8 Hours)
- ০২। সপ্তাহে ৬ দিন (In a Week 6 Days)
- ০৩। সপ্তাহিক সাধারণ কাজের সময় ৪৮ ঘণ্টা (In a Week 48 Hours)
- ০৪। অতিরিক্ত কাজের সময় দৈনিক সর্বোচ্চ ২ ঘণ্টা (In a Day Maximum 2 Hours OT)
- ০৫। সপ্তাহে অতিরিক্ত কাজের সময় সর্বোচ্চ ১২ ঘণ্টা (Maximum 12 Hours per Week OT)।

কারখানার ব্যবস্থাপক/কর্তৃপক্ষ যদি সপ্তাহের নির্দিষ্ট দিনে ছুটি প্রদানে ব্যর্থ হন, তবে অবশ্যই যত দ্রুত সম্ভব ১(এক) দিনের ছুটি দিতে হইবে এবং উক্ত সাপ্তাহিক ছুটির দিন অতিরিক্ত কাজ হিসাবে গণ্য হইবে।



Head Office :  
House # 22, Level-2,5-8, Road # 113/A  
Gulshan-2, Dhaka-1212, Bangladesh.

Tel : +88 02 55049833-37  
Cell : +88 01709 631429, 01729 242476  
E-mail : info@paramountgroupbd.com






## শিফটঃ

বিভাগ / সেকশন	নিয়মিত সময়					
	শিফট - এ		শিফট - বি		শিফট - সি	
	শুরু	শেষ	শুরু	শেষ	শুরু	শেষ
উৎপাদন	ভোর ০৬:০০ টা	দুপুর ০২:০০টা	দুপুর ০২:০০টা	রাত ১০:০০টা	রাত ১০:০০টা	ভোর ০৬:০০ টা
অফিস/জেনারেল						
সকাল ৯:০০টা			সন্ধ্যা ৬:০০টা			

বিঃ দ্রঃ নামাজ, আহার ও বিশ্রামের জন্য বেলা ০১:০০টা থেকে বেলা ০২:০০টা পর্যন্ত বিরতি। উৎপাদন কাজে জড়িত শ্রমিকদের প্রতি ৪ থেকে ৫ ঘন্টা কাজের জন্য ৩০ মিনিট পর্যন্ত বিরতি দেওয়া হয়।

এই নীতিমালা বাস্তবায়নের ক্ষেত্রে যদি কোন সমস্যা পরিলক্ষিত হয় এবং যদি কোন প্রক্রিয়ার পরিবর্তন, পরিবর্ধন, সংযোজন, বিয়োজন এর প্রয়োজন হয় তাহলে কার্যকরী পরিষদের সদস্যবৃন্দ উদ্ধৃতন কর্তৃপক্ষের সাথে আলোচনা সাপেক্ষে তা সংশোধনী আনতে পারবে।

প্রস্তুতকারী	উপ-ব্যবস্থাপক (কমপ্লায়েন্স)	
যাচাইকারী	উপ-মহাব্যবস্থাপক (সিভিল এন্ড কমপ্লায়েন্স)	
অনুমোদনকারী	কারখানা অবধায়ক	



# **Annexure 31**

## **PTPLC Waste Management Policy & Procedure**



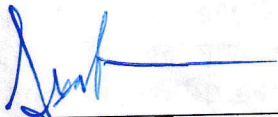


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**বর্জ্য ব্যবস্থাপনা নীতিমালা ও পদ্ধতি**  
**Waste Management Policy & Procedure**

রেফারেন্স নং	PTPLC-Waste-SOP-0019-ver05-221201 (F#0015)
বাস্তবায়নকারী	সেকশন ৩.১ এ বর্ণিত ব্যক্তিবর্গ
পৃষ্ঠার সংখ্যা	১১
কার্যকরের (প্রথম বার) তারিখ	০১/০১/২০১২
সংস্করণ নং ও তারিখ	পঞ্চম, ০১/১২/২০২২ ইং
পরবর্তী সংশোধনের তারিখ	৩০/১১/২০২৩ বা প্রয়োজন সাপেক্ষে বা আইনের পরিবর্তন সাপেক্ষে

ETP Department.

স্বাক্ষর		প্রস্তুতকারী		বিভাগীয় প্রধান		অনুমোদনকারী
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## PARAMOUNT TEXTILE PLC

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### ক) বর্জ্য ব্যবস্থাপনা নীতিমালা:

#### ১.০ কারখানার বর্জ্য ব্যবস্থাপনা নীতিমালা:

১.১ উদ্দেশ্য: কারখানার উৎপাদন প্রক্রিয়া দূষণমুক্ত ও পরিবেশ বান্ধব উপায়ে সম্পন্ন করার জন্য বর্জ্য ব্যবস্থাপনা নীতিমালা প্রণয়ন করা হয়েছে।

১.২ লক্ষ্য: দূষণ হ্রাসকরণ, শক্তি ও সম্পদের অপচয় কমিয়ে সঠিক ব্যবহারের মাধ্যমে পরিবেশের উপর ক্ষতিকর প্রভাব হ্রাস করা।

১.৩ পরিধি: এই নীতিমালা অত্র কারখানার সংশ্লিষ্ট সকল সেকশন ও বিভাগের জন্য পযোজ্য।

১.৪ অঙ্গীকার: কারখানার সকল প্রকার বর্জ্য পরিবেশ বান্ধব উপায়ে ডিসপোজ করতে অঙ্গীকারবদ্ধ। খোলা জায়গায় কোনওভাবেই বর্জ্য অপসারণ করা যাবে না। খোলা স্থানে কোনওভাবেই বর্জ্য অপসারণ করা যাবে না।

১.৫ আইনের তথ্য-নির্দেশ: বাংলাদেশ পরিবেশ সংরক্ষন আইন-১৯৯৫, পরিবেশ সংরক্ষন বিধিমালা-১৯৯৭, বাংলাদেশ শ্রম আইন-২০০৬ এর ধারা-৫৪, ৬০ নং ধারা, বাংলাদেশ শ্রম বিধিমালা-২০১৫ এর বিধি-৪০, ৪৭ ও সংশ্লিষ্ট বর্জ্য ব্যবস্থাপনা ও পরিবেশ আইন মোতাবেক।

#### ২.০ নীতিমালা বর্ণনা:

২.১ কারখানার পরিবেশ স্বাস্থ্যসম্মত রাখতে বর্জ্য ব্যবস্থাপনা পদ্ধতি অনুসরণ করে বর্জ্য সমূহকে তাদের ক্ষতির ধরন ও প্রকারভেদ অনুযায়ী নির্দিষ্ট সংগ্রহকারীর মাধ্যমে ভিন্ন ভিন্ন ওয়েস্টেজ কর্পারে/স্টোরে জমা করা।

২.২ চুক্তি অনুযায়ী শক্ত বর্জ্য দ্বিতীয় পক্ষের নিকট পরিবেশ বান্ধব উপায়ে হস্তান্তর করে পরিবেশ সুরক্ষিত রাখা। দ্বিতীয় পক্ষ এই বর্জ্য কিভাবে অপসারণ করে বা কি কাজে ব্যবহার করা হয় তা পর্যবেক্ষণ করা। দ্বিতীয় পক্ষের লাইসেন্স সমূহ পর্যবেক্ষণ করা।

২.৩ তরল বর্জ্যের জন্য নিজস্ব ইটি.পি তে সকল প্রকার পরীক্ষার সুব্যবস্থা করা ZDHC waste water guideline - অনুসরণ করা এবং স্লাজ সঠিকভাবে স্টোরেজ করা। এক্ষেত্রে স্লাজ ব্যবস্থাপনা পদ্ধতি অনুসরণ করা।

২.৪ কেমিক্যালের সঠিক প্রয়োগ নিশ্চিতকরণের মাধ্যমে কেমিক্যাল দূষণ হ্রাস করা, শ্রমিকের স্বাস্থ্যগত নিরাপত্তা প্রদান করা এবং বিপদজনক বর্জ্য যেমন- কেমিক্যাল বর্জ্য, ইটিপি স্লাজ ব্যবস্থাপনার সময় পি.পি.ই এর যথাযথ ব্যবহার করা। কেমিক্যালের বর্জ্য অপসারণের ক্ষেত্রে "রাসায়নিক পদার্থ ব্যবস্থাপনা পলিসি" এবং এম এস ডি এস-এ বর্ণিত নির্দেশনা মেনে চলা।

২.৫ সরাসরি উন্মুক্ত জায়গায় কোন কিছু পোড়ানো ও ফেলে দেওয়া নিষেধ।

২.৬ বর্জ্যের পরিমাণ কমাতে দীর্ঘ মেয়াদী পরিকল্পনা গ্রহন করতে হবে।

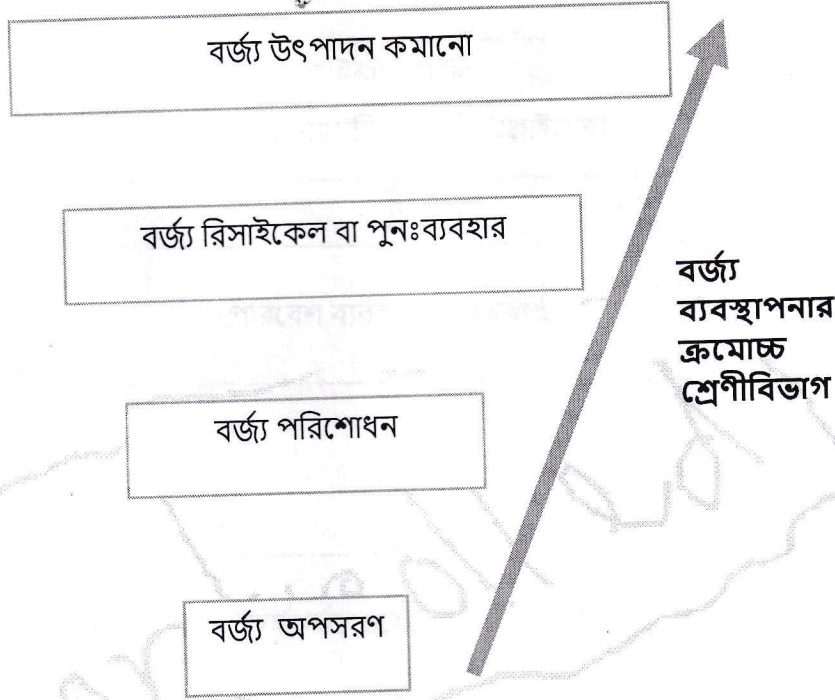
২.৭ বর্জ্য ব্যবস্থাপনা সম্পর্কে সকল/কর্মচারী ও শ্রমিককে সচেতন করতে হবে।

২.৮ বিশেষ ধরনের বিপদজনক বর্জ্য যেমন- মেডিকেল বর্জ্য ব্যবস্থাপনার সময় পি.পি.ই এর যথাযথ ব্যবহার করা। যথাযথভাবে পৃথক রাখা। যে হাসপাতালের সাথে চুক্তি রয়েছে তাদের কাছে প্রেরণ করা। চুক্তি অনুযায়ী পরিবেশ বান্ধব উপায়ে সকল বর্জ্য অপসারণ করতে হবে।

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### ২.৯ বর্জ্য ব্যবস্থাপনার ক্রমোচ্চ শ্রেণীবিভাগঃ



### ২.৯ যথাযথ বর্জ্য গুদাম ও তার ব্যবস্থাপনা ০ঃ

১. বর্জ্য গুদামে যথাযথ বায়ু চলাচল করতে হবে, তা শুষ্ক এবং খোলা আবহাওয়া ও আগুনের উৎস থেকে দূরে রাখতে হবে।
২. বর্জ্য গুদামে যথাযথভাবে বন্ধ রাখতে হবে।
৩. বর্জ্য গুদামে যথাযথভাবে মার্ক (চিহ্নিত) করে রাখতে হবে।
৪. গুদামের সকল কন্টেইনার যথাযথভাবে লেবেলিং করে রাখতে হবে।
৫. তরল বর্জ্য যেখানে রাখা হবে সেখানে ফ্লোর অবশ্যই ছিঁদ্রবিহীন হতে হবে, কোনও ধরনের স্পিল থাকা যাবে না।
৬. দাহ্য বর্জ্য তাপ বা আগুনের উৎস থেকে দূরে রাখতে হবে।

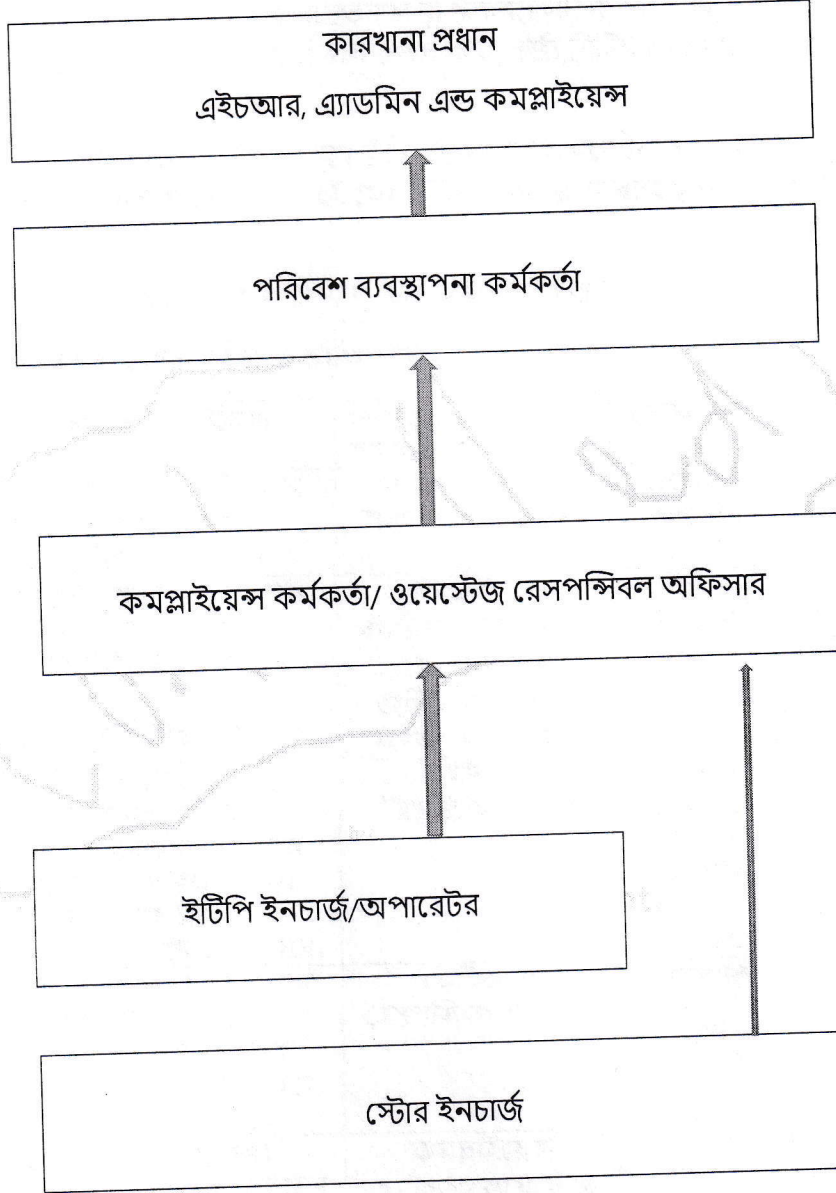


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### ৩. অর্গানাইজেশন

#### ৩.১ বাস্তবায়নকারী বা দায়িত্বপ্রাপ্ত ব্যক্তিবর্গঃ



৩.২ কারখানা প্রধান (এইচআর, এডমিন এন্ড কমপ্লাইয়েন্স) এর দায়িত্বঃ বর্জ্য ব্যবস্থাপনার সার্বিক দিক সমন্বয় ও বাস্তবায়নে প্রয়োজনীয় পদক্ষেপ গ্রহণ করবেন।

৩.৩ পরিবেশ ব্যবস্থাপনা কর্মকর্তা এর দায়িত্বঃ মাসিক ও বার্ষিক বর্জ্যের ইনভেন্টরি হালনাগাদ করা বা তদারকি করা, বর্জ্য নির্দিষ্ট জায়গায় সংরক্ষণ করা হচ্ছে কি না তা সহ সামগ্রিক ব্যবস্থাপনা পর্যবেক্ষণ ও

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তদারকি করা। কেমিক্যাল দূষণ কমাতে প্রয়োজনীয় পদক্ষেপ নিবেন ও ব্যক্তিগত নিরাপত্তা মূলক সামগ্রী যথাযথভাবে ব্যবহার নিশ্চিত করবেন।

৩.৪ কমপ্লাইয়েন্স কর্মকর্তা/ ওয়েস্টেজ রেসপন্সিবল অফিসার এর দায়িত্বঃ বর্জ্য ব্যবস্থাপনা ও অপচয় রোধ বিষয়ে প্রশিক্ষণ দেওয়া ও সচেতনতা বৃদ্ধি করা। সঠিকভাবে কেমিক্যাল সংরক্ষণ ও স্থানান্তর নিশ্চিত করে বর্জ্যের ইনভেন্টরি হালনাগাদ করা, বর্জ্য নির্দিষ্ট জায়গায় সংরক্ষণ করা করার ব্যাপারে পদক্ষেপ নেয়া।

৩.৬ ই.টি.পি ইনচার্জ/অপারেটর এর দায়িত্বঃ ই.টি.পি, এর তরল বর্জ্যের প্রয়োজনীয় টেস্ট করা ও স্লাজ সঠিকভাবে সোটারেজ করা ও রেজিস্টার বই মেইন্টেন করা। স্লাজ ব্যবস্থাপনা পলিসি যথাযথ ভাবে মেনে চলা।

৩.৭ স্টোর ইনচার্জ এর দায়িত্বঃ গেইট পাস / চালান মেইন্টেন করা।

৪. নীতিমালা বাস্তবায়ন করার রুটিন ও কর্মপদ্ধতিঃ

কাজ	বাস্তবায়ন প্রক্রিয়া	দায়িত্বপ্রাপ্ত কর্মকর্তা/বিভাগ	বাস্তবায়নের সময়	সময় সীমা	কারণ/ কেন
৪.১ বর্জ্য ব্যবস্থাপনা নীতি বাস্তবায়ন ও ট্রেইনিং	বর্জ্য ব্যবস্থাপনা নীতিমালার সঠিক বাস্তবায়ন করা ও প্রয়োজনীয় ব্যবস্থা নেয়া	সহ-ব্যবস্থাপক বা ব্যবস্থাপক (গ্র্যাডমিন)	প্রয়োজন অনুসারে	পরবর্তী নীতিমালা প্রণয়ন হওয়া পর্যন্ত	সকল সেকশন ও ২.৭
৪.২ বর্জ্য ব্যবস্থাপনা	পরিবেশ বান্ধব উপায়ে বর্জ্য ব্যবস্থাপনার জন্য প্রয়োজনীয় কার্য সম্পাদন, 3R - পলিসি অনুসরণ করা।	কমপ্লাইয়েন্স কর্মকর্তা/ ওয়েস্টেজ রেসপন্সিবল অফিসার/পরিবেশ ব্যবস্থাপনা কর্মকর্তা	প্রতিদিনের সূচী অনুযায়ী	সকল সময়ের জন্য প্রযোজ্য।	২.১, ২.২
৪.৩ ই.টি.পির তরল বর্জ্য পরিশোধনের পর পরীক্ষা করে পরিবেশ ছাড়া ও স্লাজ সঠিকভাবে সংরক্ষণ করা	ই.টি.পির তরল বর্জ্য পরিশোধনের পর পরীক্ষা করে পরিবেশ ছাড়া ও স্লাজ সঠিকভাবে সংরক্ষণ করা। এক্ষেত্রে স্লাজ ব্যবস্থাপনা পদ্ধতি অনুসরণ করতে হবে।	ইটিপি ইনচার্জ/অপারেটর	প্রতিদিনের চাহিদা ও কর্মঘণ্টা অনুযায়ী	সকল সময়ের জন্য প্রযোজ্য।	২.৪
৪.৪ কেমিক্যালের সঠিক প্রয়োগ	কেমিক্যালের সঠিক প্রয়োগ নিশ্চিতকরনের মাধ্যমে কেমিক্যাল দূষণ হ্রাস করা, শ্রমিকের স্বাস্থ্যগত নিরাপত্তা প্রদান করা।	কেমিক্যাল রেসপন্সিবল অফিসার	সবসময়	সবসময়	২.৪, ২.৫
৪.৫ বর্জ্য (কঠিন) হ্যান্ডেলিং করা	চুক্তি অনুযায়ী শক্ত বর্জ্য দ্বিতীয় পক্ষের নিকট হস্তান্তর করা।	কমপ্লাইয়েন্স কর্মকর্তা/ ওয়েস্টেজ রেসপন্সিবল অফিসার	সর্বদা	সর্বদা	২.৩
৪.৬ বর্জ্যের পরিমাণ কমানো	বর্জ্যের পরিমাণ কমাতে দীর্ঘ মেয়াদী পরিকল্পনা গ্রহণ	পরিবেশ ব্যবস্থাপনা কর্মকর্তা	প্রয়োজন অনুসারে	পরবর্তী নীতিমালা প্রণয়ন হওয়া পর্যন্ত	২.৬
৪.৭ বিশেষ ধরনের বিপদজনক বর্জ্য	যার সাথে চুক্তি রয়েছে তাদের কাছে প্রেরণ করা।	পরিবেশ ব্যবস্থাপনা কর্মকর্তা, ওয়েলফেয়ার অফিসার/ কারখানার হাসপাতাল মেডিকেল সহকারী	প্রয়োজন অনুসারে	সকল সময়ের জন্য প্রযোজ্য।	২.৮



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### ৫. যোগাযোগ পদ্ধতি:

কাজ	বাস্তবায়ন প্রক্রিয়া	দায়িত্বপ্রাপ্ত কর্মকর্তা/বিভাগ	বাস্তবায়নের সময়	সময় সীমা
৫.১ কারখানার সকল শ্রমিক, কর্মচারী ও কর্মকর্তাদের উক্ত নীতিমালা সম্পর্কে অবহিত করা হবে।	সাধারণ মিটিং, ট্রেনিং ও নোটিশ বোর্ড এর মাধ্যমে সবাইকে অবহিত করা।	পরিবেশ ব্যবস্থাপনা কর্মকর্তা/কেমিক্যাল রেসপন্সিবল অফিসার/ওয়েলফেয়ার অফিসার	মাসিক ট্রেনিং বা ত্রি-মাসিক মিটিং এর মাধ্যমে	সব সময় বলবৎ থাকবে।
৫.২ প্রতিষ্ঠানের প্রশাসন বিভাগ ও পরিবেশ ব্যবস্থাপনা কর্মকর্তা/কেমিক্যাল রেসপন্সিবল অফিসার এর মাধ্যমে উক্ত নীতিমালা সম্পর্কে ধারণা প্রদান করা হয়ে থাকে।	আলোচনা ও মিটিং এর মাধ্যমে সবাইকে অবহিত করা।	প্রশাসন ও কমপ্লাইয়েন্স	অসামঞ্জস্য পরিলক্ষিত হলে	সব সময় বলবৎ থাকবে।

### ৬. ফিডব্যাক এবং কন্ট্রোল:

ফিডব্যাক এবং কন্ট্রোল:	কার্য পদ্ধতি	দায়িত্ব প্রাপ্ত কর্মকর্তা	সময় সীমা/পর্যায়কাল
৬.১ রিপোর্টিং	পরিবেশ ও বর্জ্য ব্যবস্থাপনা সংক্রান্ত সমস্যার রিপোর্ট তৈরী করে বিভাগীয় প্রধান (এইচ/আর, এ্যাডমিন এন্ড কমপ্লাইয়েন্স)কে অবহিত করা।	পরিবেশ ব্যবস্থাপনা কর্মকর্তা/কেমিক্যাল রেসপন্সিবল অফিসার	বছরে দুইবার
৬.২ সমাধান	সমস্যা সমূহ আলোচনা করে মূলকারণ অনুসন্ধান ও প্রয়োজনীয় ব্যবস্থা গ্রহণ।	কারখানা প্রধান (এইচআর, এ্যাডমিন এন্ড কমপ্লাইয়েন্স)-এর নির্দেশ অনুযায়ী	প্রয়োজনকালীন সময়।

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### খ) বর্জ্য ব্যবস্থাপনা পদ্ধতি:

#### বর্জ্য ও প্রকারভেদ:

বর্জ্য হল যে কোন অপ্রয়োজনীয় ব্যবহার অনুপযোগী উপাদান অথবা বস্তু যে গুলোকে ফেলে দেয়া হয় বা ফেলে দেয়া হবে। বিভিন্ন প্রক্রিয়া থেকে মেয়াদ উত্তীর্ণ অপ্রয়োজনীয় কাঁচামাল, মেয়াদ উত্তীর্ণ তৈরীকৃত পণ্য সামগ্রী, উৎপাদন প্রক্রিয়া এবং উৎপাদন প্রক্রিয়ার সাথে জড়িত নয় (নন প্রসেস) এমন ক্ষেত্রের উপজাত সমূহ, ক্রেতা হতে ফেরত প্রাপ্ত উপাদান এবং অপ্রয়োজনীয় যন্ত্রপাতি সমূহ বর্জ্যের অন্তর্গত।

#### বর্জ্যের প্রকারভেদ:

যে কোন প্রক্রিয়া থেকে উৎপাদিত বর্জ্যকে ঝুঁকি অনুসারে দুই ভাগে ভাগ করা হয়:

#### ১. ঝুঁকপূর্ণ বর্জ্য ২. ঝুঁকিমুক্ত বর্জ্য

#### ঝুঁকিপূর্ণ বর্জ্য:

ঝুঁকিপূর্ণ বর্জ্য অর্থ যে কোন বর্জ্য যা নিজের ভৌত বা রসায়নিক গুণের কারণে অথবা অন্য কোন বর্জ্য বা পদার্থের কারণে, বিষক্রিয়া, সংক্রান্ত, দহন, বিস্ফোরনক্রিয়া, তেজস্ক্রিয়া বা অন্য কোন ক্ষতিকর ক্রিয়ার কারণে পরিবেশের/স্বাস্থ্যগত ক্ষতি সাধন করে থাকে।

ঝুঁকিপূর্ণ বর্জ্য-সমূহের উদাহরণ: খালি কেমিকেলের ড্রাম, ভারী ধাতু, মেডিকেল বর্জ্য ইত্যাদি।

ঝুঁকিমুক্ত বর্জ্য যে গুলো রিসাইকেল/পুনঃ-ব্যবহার করা যায়। ঝুঁকিমুক্ত বর্জ্য সমূহের উদাহরণ (How to Higg অনুসারে): বর্জ্য ফেব্রিক্স, প্লাস্টিক।

প্রসেস/প্রক্রিয়া অনুযায়ী বর্জ্য সমূহকে আরও দুই ভাগে ভাগ করা হয়ে থাকে:

#### ১. প্রসেস/প্রক্রিয়াকৃত বর্জ্য,

#### ২. নন-প্রসেস/অ-প্রক্রিয়াকৃত বর্জ্য

#### প্রসেস/প্রক্রিয়াকৃত বর্জ্য:

ঝুঁকিপূর্ণ বা ঝুঁকিমুক্ত বর্জ্য সমূহ যেসব উৎপাদন প্রক্রিয়া থেকে সরাসরি উৎপন্ন হয়।

নন-প্রসেস/অ-প্রক্রিয়াকৃত বর্জ্য: নন-প্রসেস/অ-প্রক্রিয়াকৃত বর্জ্য অথবা বিভিন্ন ক্ষেত্রে উৎপাদিত বর্জ্য সমূহের মিশ্রণ। যে গুলো সরাসরি কোন উৎপাদন প্রক্রিয়ায় জড়িত নয়।



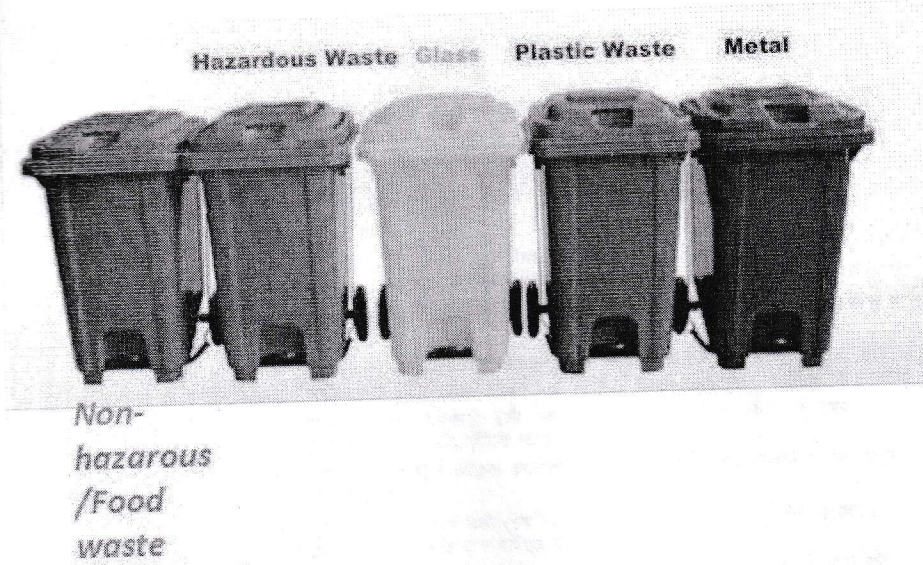
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কালার কোড:

যেহেতু সাধারণ বর্জ্য ব্যবস্থাপনার ক্ষেত্রে কোনও বিধিবদ্ধ/নির্ধারিত/ নির্দিষ্ট কালার কোড নেই সেহেতু সাধারণ বর্জ্য ব্যবস্থাপনার ক্ষেত্রে অত্র কারখানায় নিম্নোক্ত কালার কোড ব্যবহার করা হবে:

বর্জ্যের ধরণ	কালার	মন্তব্য
ঝুঁকিমুক্ত বর্জ্য	সবুজ	ড্রাম বা জারের গায়ে নির্দিষ্ট বর্জ্য পদার্থের নাম উল্লেখ করতে হবে
ঝুঁকিপূর্ণ বর্জ্য	লাল	
গ্লাস বর্জ্য	হলুদ	
প্লাস্টিক বর্জ্য	নীল	
ধাতব বর্জ্য	ধূসর	



চিত্র: সাধারণ বর্জ্য ব্যবস্থাপনার ক্ষেত্রে কালার কোড

এই ডকুমেন্টে যাহা কিছুই থাকুক না কেন, মেডিকেলের বর্জ্য ব্যবস্থাপনার ক্ষেত্রে অবশ্যই চিকিৎসা বর্জ্য (ব্যবস্থাপনা ও প্রক্রিয়াজাতকরণ) বিধিমালা ২০০৮ অনুসরণ করতে হবে।



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তকসিস-৩

[বিধি-৭ (২) দ্রষ্টব্য]

চিকিৎসা-বর্জ্যের ক্ষুরক্ষণ ও অপসারণের জন্য পাত্র ও কাশার কোড

কাশার কোড	বর্জ্যের বিভাগ	বর্জ্যের শ্রেণী	বর্জ্যের ধরণ	পাত্র
কাল	সাধারণ বর্জ্য	শ্রেণী-১, ১১	অক্ষতিকারক, অসংক্রামিত, জীবাণুশূন্য বর্জ্য	হিমবিহীন প্লাস্টিক বিন
হজুদ	ক্ষতিকারক বর্জ্য	শ্রেণী-২, ৩, ৪, ৫, ৬	এনটিমিক্যাল, প্যামলিডিক্যাল, সংক্রামক/জীবাণুশূন্য বর্জ্য	হিমবিহীন প্লাস্টিক বিন
জাল	ধারাল বর্জ্য	শ্রেণী-৮	সংক্রামিত, অসংক্রামিত, জীবাণুশূন্য, জীবাণুশূন্য বর্জ্য	হিমবিহীন অচেদ্য পুরু প্লাস্টিক বিন, বাস্ক
নীল	তরল বর্জ্য	শ্রেণী-১০, ৪	ক্ষতিকারক, অক্ষতিকারক, সংক্রামিত, অসংক্রামিত, জীবাণুশূন্য, জীবাণুশূন্য, কেমিক্যাল বর্জ্য	হিমবিহীন প্লাস্টিক গামলা, বিন
সিগভার	তেজস্ক্রিয় বর্জ্য	শ্রেণী-৬	মিক্সডবোণা বর্জ্য	হিমবিহীন শিড বস্ক
সবুজ	পুনঃ ব্যবহারযোগ্য সাধারণ বর্জ্য	শ্রেণী-৯	অক্ষতিকারক, অসংক্রামিত, জীবাণুশূন্য বর্জ্য	হিমবিহীন প্লাস্টিক বিন

- তেজস্ক্রিয় বর্জ্য সংরক্ষণ বা পরিবহনের জন্য সিগভার বর্জ্য এর হিমবিহীন শিড এর তৈরী বস্ক বা বাংলাদেশ শক্তি কমিশনের নির্দেশিত নিয়ম অনুসরণ করিতে হইবে।
- তরল ক্যান্সিউটিক্যাল বর্জ্য অল্প পরিমাণ হইলে তরল বর্জ্য রাখার নীল পাত্রে রাখা হইতে পারে।
- ক্যান্সিউটিক্যাল বর্জ্য অল্প পরিমাণ হইলে ক্ষতিকারক বর্জ্য রাখার হজুদ পাত্রে রাখা হইতে পারে।
- বিভিন্ন প্রকার কেমিক্যাল বর্জ্য এক সাথে এক পাত্রে রাখা হইবে না, কারণ রাসায়নিক বিক্রিয়ার জন্য দুর্ঘটনা ঘটিতে পারে।
- পিউ পদ্ধতিতে পঁচন প্রক্রিয়া ত্বরান্বিত করার জন্য অল্প পরিমাণ রাসায়নের বর্জ্য হজুদ পাত্রে রাখা হইবে।
- পুনঃ ব্যবহার সাধারণ বর্জ্য (শ্রেণী-৯) এর পরিমাণ অল্প হইলে, সাধারণ বর্জ্যের (শ্রেণী-৮) এর সাথে কাল পাত্রে রাখা হইতে পারে।
- প্রতিটি বর্জ্য রাখার পাত্রে স্পষ্ট বাংলা ভাষায় বর্জ্যের ধরণ লিখিতে হইবে এবং বিশ্ব স্বাস্থ্য সংস্থা অনুমোদিত সাংকেতিক চিহ্ন/সেবেল ব্যবহার করিতে হইবে।

## গ) কারখানার পরিষ্কার পরিচ্ছন্নতার জন্য অনুসৃত পদ্ধতি:

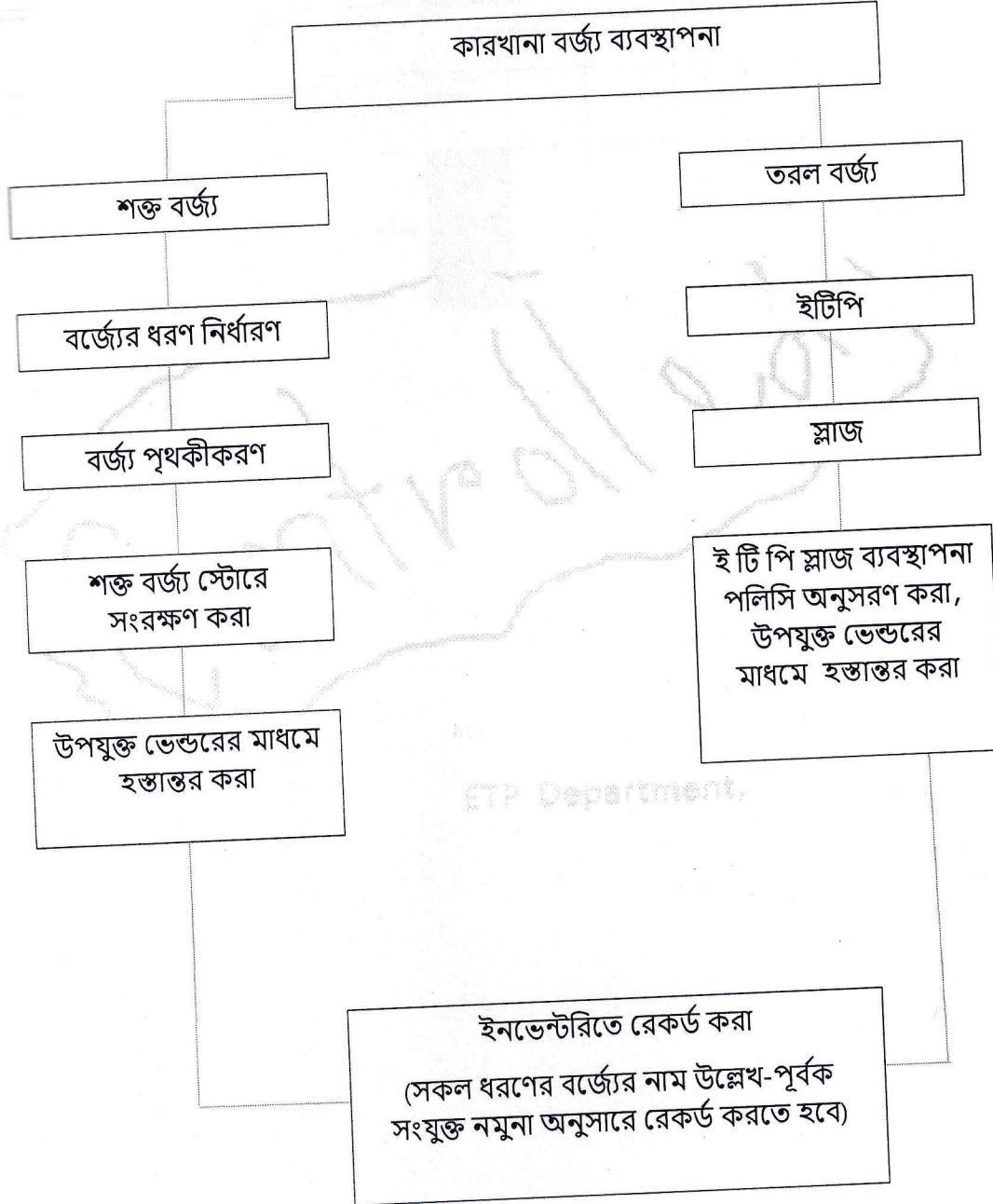
১. ময়লা ও কফ থুথু ফেলার জন্য পিকদানি (Spittoon) দেওয়া রয়েছে।
২. প্রতি ফ্লোরে যথেষ্ট সংখ্যক ময়লা ফেলার বুড়ি দেওয়া আছে।
৩. ময়লা এবং নষ্ট জিনিসপত্র পরিষ্কারের জন্য পর্যাপ্ত পরিমাণে ক্লিনার রয়েছে।
৪. টয়লেট পরিষ্কার সহ অন্যান্য ময়লা পরিষ্কারের জন্য পর্যাপ্ত পরিমাণে সুইপার দেওয়া আছে।

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ঘ) কারখানার বর্জ্য ব্যবস্থাপনা পদ্ধতির সাধারণ প্রবাহ চিত্রঃ

নিম্নের প্রবাহ চিত্র অনুযায়ী কারখানার দায়িত্বশীল কর্মকর্তাগণ যথাযথভাবে বর্জ্য ব্যবস্থাপনা সম্পন্ন করে থাকে।



**PARAMOUNT TEXTILE PLC**  
Gilarchala, Sreepur, Gazipur

**বর্জ্য ইনভেন্টরির নমুনা**

Sl	Waste Name	Description of Waste	Source of Waste	Classification (Hazardous/ Non-hazardous)	Characteristics of Waste	Waste Quantity in kg	Total production in 2018 (kg)	Wastage Production (in Kg) per Kg production in 2018	Percentage of Wastage (of total Hazardous or Non-hazardous)	Reuse, Reduce, Recycle Scope	Reuse, Reduce, Recycle Action plan	Performed Action: Disposal/ 3R/ Sale	Performed Action by Contractor: Disposal/ 3R/ Sale
Example	loot, machine oil, broken needles	How this waste generated	From which process generated e.g. Cutting, sewing, knitting etc.	e.g. Hazardous/ Non-hazardous	(e.g. Ignitive, Corrosive, reactive, toxic etc.)	(e.g. Mass/ Volume)				Feasible scope	How to implement 3R	How the action was performed	How the action was performed
	Wastage Fabric	Produced during dyeing & Weaving	Produced from weaving floor	Non-hazardous	Combustible					Reduce	Reducing jhut production by using auto cutter in cutting section. (already implemented)	Sale	Sale for Reuse

ETP Department

# **Annexure 32**

## **Waste Inventory**



SL	Waste Name	Waste Classification	Code	Hazardous Characteristics of Waste		PPE	Formation from which production process	Storage Location	Volume of Waste (Qty-kg)	Opening Stock	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Delivery Up to 31st August-2023	Stock as on 31st August-23
				Hazard	Non Haz.															
1	Wasteage paper cone	Waste Paper	WP 001		Non Haz.		VD Process	Wastage Godown	kg											
	Wasteage paper carton		WP 002		Non Haz.		VD Process	Wastage Godown	kg	10,270	16,324.00	14,250.00	16,150.00	12,970.00	11,210.00	10,700.00	10,900.00	11,000.00	10,134.00	12,320
	Wasteage loose paper		WP 003		Non Haz.		VD Process	Wastage Godown	kg											
	Sub Total																			
2	Wasteage color string yarn	Waste Yarn	WY 002		Non Haz.		Weaving process	Wastage Godown	kg											
	Wasteage color knary yarn		WY 003		Non Haz.		Weaving process	Wastage Godown	kg											
	Wasteage color loose yarn		WY 004		Non Haz.		VD Process	Wastage Godown	kg											
	Wasteage kala yarn		WY 005		Non Haz.		VD Process	Wastage Godown	kg											
	Wasteage grey string&Gore		WY 006		Non Haz.		Weaving process	Wastage Godown	kg											
	Excess grey yarn		WY 007		Non Haz.		VD Process	Wastage Godown	kg	7,120	17,850	15,370	16,960	13,568	12,410	11,950	11,460	11,510	113,848	4,350
	Excess dyed yarn		WY 010		Non Haz.		VD Process	Wastage Godown	kg											
	Excess dyed double yarn		WY 011		Non Haz.		VD Process	Wastage Godown	kg											
	Excess dyed Gara yarn		WY 012		Non Haz.		VD Process	Wastage Godown	kg											
	Excess left over yarn(Ba		WY 013		Non Haz.		VD Process	Wastage Godown	kg											
	Color yarn defective		WY 014		Non Haz.		VD Process	Wastage Godown	kg											
	Wasteage bath yarn		WY 015		Non Haz.		RND Process	Wastage Godown	kg											
Sub Total																				
3	Wasteage jut fabric-heml	Waste Fabrics	WF 001		Non Haz.		Finishing Process	Wastage Godown	kg	3,252	13,610	12,120	13,720	10,976	9,370	9,110	9,300	9,410	86,287	4,531
	Wasteage Grey & Finishhe		WF 002		Non Haz.		VD Process	Wastage Godown	kg											
Sub Total																				
4	Empty plastic drum-200	Waste Chemical Drum	WCD 001	Hazard		Mask, Protective Gloves,Safety Glasses,Gumboo	VD Process	Wastage Godown	kg											
	Empty plastic drum-150		WCD 002	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic drum-120		WCD 003	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic drum-50X		WCD 004	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic jar can top		WCD 005	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic drum-50X		WCD 006	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic drum-50X		WCD 007	Hazard		Mask, Protective Gloves,Safety Glasses,Gumboo	VD Process	Wastage Godown	kg	452	7,360	6,112	7,590	6,024	5,300	5,150	5,290	5,370	45,458	3,020
	Empty plastic drum-30X		WCD 008	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic can-35 kg		WCD 009	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic can 30 kg		WCD 010	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic can-25 kg		WCD 012	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic can-18 kg		WCD 013	Hazard			VD Process	Wastage Godown	kg											
	Empty plastic can-10 kg		WCD 011		Non Haz.		VD Process	Wastage Godown	kg											
	Empty steel drum		WCD 015		Non Haz.		Utility process	Wastage Godown	kg											
Sub Total																				
5	Wasteage burnt lub oil fu	Waste oil	WO 014	Hazard		Mask, Protective Gloves,Safety Glasses,Gumboo	Utility process	Wastage Godown	kg	60	80	75	82	66	60	55	59	61	548	50
	Wasteage textile wax		WO 001				VD Process	Wastage Godown	kg											
Sub Total																				
6	Wasteage dust poly bags	Waste Poly	WPY 001		Non Haz.	Mask, Protective Gloves,Safety Glasses,Gumboo	VD Process	Wastage Godown	kg	52	580	535	570	456	450	440	465	475	3,873	150
	Wasteage roll poly		WPY 004		Non Haz.		Finishing Process	Wastage Godown	kg											
	Chemicals poly bags (dy)		WPY 002	Hazard			VD Process	Wastage Godown	kg											
	Sub Total																			
7	Chemicals bags Global sg	Waste Plastic Bags	WB 001	Hazard		Mask, Protective Gloves,Safety Glasses,Gumboo	VD Process	Wastage Godown	kg	180	460	410	465	372	365	360	370	385	3,323	44
	Chemicals bags Nina		WB 002	Hazard			VD Process	Wastage Godown	kg											
	Reject plastic bags		WB 001		Non Haz.		VD Process	Wastage Godown	kg											
Sub Total																				
8	Plastic belt	Waste Plastic	WPI 001		Non Haz.		VD Process	Wastage Godown	kg											
	Plastic Ring		WPI 002		Non Haz.		VD Process	Wastage Godown	kg	160	240	230	250	200	195	190	195	190	1,826	24
	Wasteage plastic white		WPI 003		Non Haz.		Cut Process	Wastage Godown	kg											
	Wasteage plastic(black)		WPI 004		Non Haz.		Cut Process	Wastage Godown	kg											
	Wasteage plastic bobbin		WPI 005		Non Haz.		VD Process	Wastage Godown	kg											
Sub Total																				





# **Annexure 33**

## **Waste Management Plan**



# WASTE MANAGEMENT PLAN

A waste management plan outlines how waste materials should be handled, collected, treated, and disposed of in an environmentally responsible and efficient manner. This waste management plan has been developed according to Solid Waste Management Rules, 2021, E-waste Management Rules, 2021 and World Bank Group's Environmental, Health, and Safety (EHS) Guidelines for Waste Management Facilities (2007).

In a broad sense, the solid waste of the project can be classified into three categories. They are:

- (i) Municipal Waste/Kitchen Waste/Office Waste
- (ii) Hazardous Waste
- (iii) E-Waste

## 1.1 Municipal Waste/Kitchen Waste/Office Waste

**(a) Segregation:** Project management should implement a good house-keeping practice, such as, sorting and placing loose materials generated from different activities in the established areas away from common workspace, cleaning up excessive waste debris and oil from generator regularly, metal scraps and paint containers. The production of waste materials should be minimized by 3R (Reduce, Recycle and Reuse) approach. Suppliers should be requested to minimize packaging where practicable. All solid waste should be segregated properly in different colored bins. Refuse containers should be provided at each worksite. Wastes should be segregated into Biodegradable waste, Recyclable waste and non-recyclable waste;

- **Biodegradable waste:** food waste, dry leaves, etc. for composting and reuse;
- **Recyclable waste:** paper, wood, cotton, reusable hardware, glass, metal scrap, etc.
- **Non-recyclable waste:** Polythene and plastics which cannot be treated for reuse.

Difficult to dispose wastes (plastic and hazardous waste) should be minimized and where practicable and avoided such as plastic wastes. Potable water should be supplied in bulk containers to reduce the quantity of plastic waste (plastic bins). Plastic bag use should be avoided in kitchen and offices. All metals, scrap and other recyclable materials should be recycled to authorized dealers and records should be maintained. The waste should be finally collected and handed over a licensed/authorized (by DoE) waste handler.

**(b) Storage:** All sites should be maintained clean, tidy and safe and be provided and maintained with appropriate facilities as temporary storage of all wastes before transporting to final disposal. All wastes generated during construction should be disposed of in the designated disposal sites approved by the Project management. All type of solid waste which should be sold or disposed to the disposal site should have proper movement register from the site for waste transfer.

- (c) Dumping:** Prior to the disposal sites reach their full capacity, all wastes should be transferred to the designated waste dumping yard of Upazila parishad. Vehicles transporting solid waste should be via an enclosed vehicle or should be fully covered with a tarp to prevent spilling waste along the route. All personnel in waste management practices and procedures should be trained and instructed as a component of the environmental induction process. Waste which could be sold or donated or recycled/reused by construction companies, local community groups or institutions should prioritise such opportunity. All type of solid waste which should be sold or disposed to the disposal site should have proper movement register and waste transfer challan.
- (d) Waste Inventory:** A waste inventory should be maintained to keep records of wastes being dumped, transferred or replaced from the project site. Amount of the wastes, dumping date with time, transferring or replacing date with time, type of waste, dumping truck number etc. should be recorded in the inventory.

Head of Environmental management System should be responsible to maintain this waste management plan in the project site with the coordination of workers, staffs and project management, and requires that construction contractor apply the same.

## **1.2 Hazardous Waste**

- (a) Segregation:** Hazardous components should be segregated having regard to their eventual destinations and the compatibility of the component types. Slag waste should be disposed off at the designed location after treated.
- (b) Storage:** An appropriate hazardous waste storage should be provided for all hazardous waste including slag waste, disassembled spare parts (e.g., motors and compressors) that contain oil or other types of fluids.
- (c) Dumping:** Skilled labourers should be appointed for unloading work. Oil sludge, spent lubricating oil should be sold only to the DoE approved vendors. All type of hazardous waste which should be sold or disposed to the disposal site should have proper movement register and waste transfer challan.
- (d) Waste Inventory:** A waste inventory should be maintained to keep records of wastes being dumped, transferred or replaced from the project site. Amount of the wastes, dumping date with time, transferring or replacing date with time, type of waste, dumping truck number etc. should be recorded in the inventory.

Head of Environmental management System should be responsible to implement the hazardous waste management plan in the project site with the coordination of workers, staffs and project management.

# **Annexure 34**

## **Hazardous Waste Management Plan**

## HAZARDOUS MATERIAL MANAGEMENT PLAN

All hazardous materials should be kept in a container which has facility of secondary containment. They should be stored in containers that are secured that should not allow oil and other fluids to escape with an impermeable surface and a sealed drainage system. In case of any spillage, it should be immediately acted up on using spill kits. To combat spillage equipment i.e., safety goggles, gloves, PPE, disposal bags, containers, suction pump, boom skimmer etc. should be available at the site. MSDS should be available in both storage area and main office building so that every staff and workers should be aware of the material storage, MSDS is provided in **Annexure 8**. An inventory should be maintained to record the amount of usage and newly stored material. Head of Environmental management System should be responsible to monitor the inventory once in a week.

# **Annexure 35**

## **Community Engagement Plan**

# COMMUNITY HEALTH AND SAFETY MANAGEMENT PLAN

Community Health & Safety management plan comprises protection of vulnerable groups and local people around the project site from project related activities. This management plan will cover the following points;

- Local people should be given the first priority in case of employment in different project activities;
- FGDs, public meeting, KII, workshop need to be conducted with different group of people for addressing their comments related to this project and during these meetings all the project related information need to be disclosed;
- Special attention needs to be provided to the project affected persons, women and vulnerable groups (VGs) around the project area;
- Safety measures (installation of boundary, installation of warning signs, etc.) need to be implemented before starting of construction work;
- Comply with speed limits when using the local roads;
- Construction work and factory operation work need to be limited from 7 p.m. to 7 a.m.;
- Before starting any heavy machineries work the local community need to be informed via notice;
- Trained all workers and local people in basic sanitation and health care issues (e.g., how to avoid malaria, transmission of sexually transmitted infections (STI), and HIV/AIDS) to protect them from the risk of communicable diseases;
- Provide educational programmes / information campaigns for local communities (especially children) on health and safety risks associated with construction period;
- Provide educational programmes / trainings for workers on community health and safety aspects during operation phase;
- An external GRM system need to be formed for addressing the issues/complaints from the local community and need to solve the complaints;
- Proponent will be responsible for providing safety to the local communities from any emergency situation or accidents (fire accident, uncontrolled discharge of waste water etc.) from project activity.

# **Annexure 36**

## **Sludge Management Policy**





# PARAMOUNT TEXTILE P L C

## [Sludge Management Policy]

ETP type: Biological, Capacity: 4800 m<sup>3</sup>/day

The **sludge is separated** from the water in the sedimentation phase (by Secondary Clarifier)

**Recycled to the Distribution tank.** Sludge recycling is an essential phase of the entire waste water treatment cycle to maintain required MLSS & Sludge Age.

If sludge volume (SV) of recycle stream in Imhoff cone will be above 60%, or MLSS more than 6000 ppm, then excess sludge (depending plant condition) is **discharged to thickening tank**

**Dehydrating excess sludge** by using centrifuge machine

**Weathering sludge cake for six months** in sludge bed/store room

Laboratory analysis of dry sludge cake or influent waste water or treated waste water will be carried out by third party for **heavy metal content & other required hazardous substances**

If heavy metal content is within the legal limit according to local regulation (if A category according to Do.E guideline) then go for **Land Application or Composting.**  
**Or, sell to third party (LafargeHolcim Bangladesh Limited).**

If heavy metal content is above the legal limit according to local regulation then go for **sell to third party (LafargeHolcim Bangladesh Limited).**



# **Annexure 37**

## **Emergency Response Plan for Chemical Spill**

# **Paramount Textile Ltd.**

**Gilarchala, Sreepur, Gazipur**

## **Emergency Response Plan for Chemical Store**

<b><u>Incident Name</u></b>	<b><u>Emergency Situations</u></b>	<b><u>Emergency Response Plan</u></b>
Accidental chemical splash on eyes.	Serious damage can be possible in eyes (For Ex: to be blind).	We have eye wash station nearby chemical store for immediate eye wash purpose.
Accidental chemical spillage on the floor.	Burn or blast can be occurred if fire ignition happens.	We have chemical spillage kits in the chemical store for immediate absorb of that spillage.
Chemical drums are placed one top on the other.	Drums can be fallen down on the head/body of any worker.	We keep plate on one drums top and other drum is kept on that plate.
Electric line is passed through chemical store.	Spark ignition can be occurred. This may occur blast of chemicals	We have no electric line through chemical store. Lights are installed in the outside and light is coming through the hole in the wall.
Acidic and Alkaline/Basic material is stored together.	Blast may be occurred if the opposite natured chemicals are contacted themselves.	We keep separately these different natured chemicals.

**PARAMOUNT TEXTILE LTD.**

Gilarchala, Sreepur, Gazipur

**রাসায়নিক পদার্থ নিঃসরিত হলে জরুরী প্রতিক্রিয়া পদ্ধতি**  
**(Chemical Spill Emergency Response Procedure)**

রেফারেন্স নং	PTL-CH-Procedure- 0087 -r01 -220105
বাস্তবায়নকারী	প্রোডাকশন, এডমিন এন্ড কমপ্লায়েন্স, ই টি পি বিভাগ এবং এম এম (ম্যাটেরিয়াল ম্যানেজমেন্ট- কেমিক্যাল স্টোর) বিভাগ।  কারখানার কেমিক্যাল ও পরিবেশ ব্যবস্থাপনার কাজে নিয়োজিত ব্যক্তি নির্দেশনা প্রদান, নিয়মিত পর্যবেক্ষণ ও পদ্ধতি প্রণয়নে মুখ্য ভূমিকা পালন করবে।
পৃষ্ঠার সংখ্যা	০২
কার্যকরের (প্রথম বার) তারিখ	০৫/০৭/২০২২
পরবর্তী সংশোধনের তারিখ	০৫/০৭/২০২৩

ETP Department,

## জরুরী অবস্থার নাম:

রাসায়নিক পদার্থ নিঃসরিত হলে জরুরী প্রতিক্রিয়া পদ্ধতি।

## সম্ভাব্য জরুরী পরিস্থিতি:

- ১। রাসায়নিক পদার্থ থেকে আগুন লাগতে পারে,
- ২। রাসায়নিক পদার্থ চোখে লাগতে পারে,
- ৩। রাসায়নিক পদার্থ ত্বকে/চামড়ায় লাগতে পারে,
- ৪। রাসায়নিক পদার্থ থেকে ত্বক পুড়ে যেতে পারে,
- ৫। রাসায়নিক পদার্থ থেকে শ্বাসকষ্ট হতে পারে,
- ৬। রাসায়নিক পদার্থ থেকে আশে-পাশের পরিবেশের ক্ষতি হতে পারে,
- ৭। রাসায়নিক পদার্থ থেকে বিস্ফোরণ হতে পারে।

## প্রতিকারের উপায়:

- ১। চোখে কেমিক্যাল লাগলে দ্রুত চোখ ধোয়ার জন্য আই-ওয়াশ স্টেশন আছে,
- ২। শরীরের অন্যান্য জায়গায় কেমিক্যাল লাগলে কেমিক্যাল স্টোর সংলগ্ন শাওয়ার আছে,
- ৩। মাটিতে পড়ে যাওয়া কেমিক্যাল দ্রুত অপসারণের জন্য কেমিক্যাল স্পিলেজ কিট আছে,
- ৪। কেমিক্যাল থেকে আগুন লাগলে তা নিভানোর জন্য কেমিক্যাল স্টোর সংলগ্ন পর্যাপ্ত বালি রাখা আছে,
- ৫। আগুন নিয়ন্ত্রণের জন্য পর্যাপ্ত ফায়ার এক্সটিংগুইশার আছে,
- ৬। বিস্ফোরণ যাতে বন্ধ জায়গায় না হয় সে জন্য কেমিক্যাল স্টোরে পর্যাপ্ত আলো-বাতাস প্রবেশের সুযোগ আছে,
- ৭। বিস্ফোরণ এড়ানোর জন্য পরস্পর বিপরীতধর্মী কেমিক্যাল আলাদাভাবে সংরক্ষণের ব্যবস্থা আছে,
- ৮। কেমিক্যাল স্টোরে পর্যাপ্ত পিকটোগ্রাম সংযুক্ত আছে,
- ৯। কেমিক্যাল স্টোরে শ্বাসকষ্ট হলে পর্যাপ্ত রেসপিরেটরি মাস্ক সংযুক্ত আছে,
- ১০। কেমিক্যাল স্টোরে শরীরে কাঁটা-ছেড়া জাতীয় ঘটনা ঘটলে তা প্রতিকারের জন্য ফার্স্ট এইড কিটবক্স আছে,
- ১১। শরীরের কোন অংশ আগুনে পুড়ে গেলে প্রাথমিক চিকিৎসা দেবার জন্য মেডিকেল সেন্টার আছে।

# **Annexure 38**

## **ZLD Implementation Plan**

# ZERO LIQUID DISCHARGE (ZLD) PLAN

Minimizing the use of resources in the manufacture, distribution and use of products consumed by factories with maximum water re-used is embodied as Zero Liquid Discharge (ZLD) Plan. Paramount Textile PLC is planning to install a treatment plant where 100 m<sup>3</sup>/h water from existing ETP (Total discharge is 200 m<sup>3</sup>/h) will be treated and reused in their project operation process where 30% of the total waste water will be reused. MBR & RO Technology has been proposed for this ZLD plan.

## ❖ MBR - Membrane Bio-Reactor:

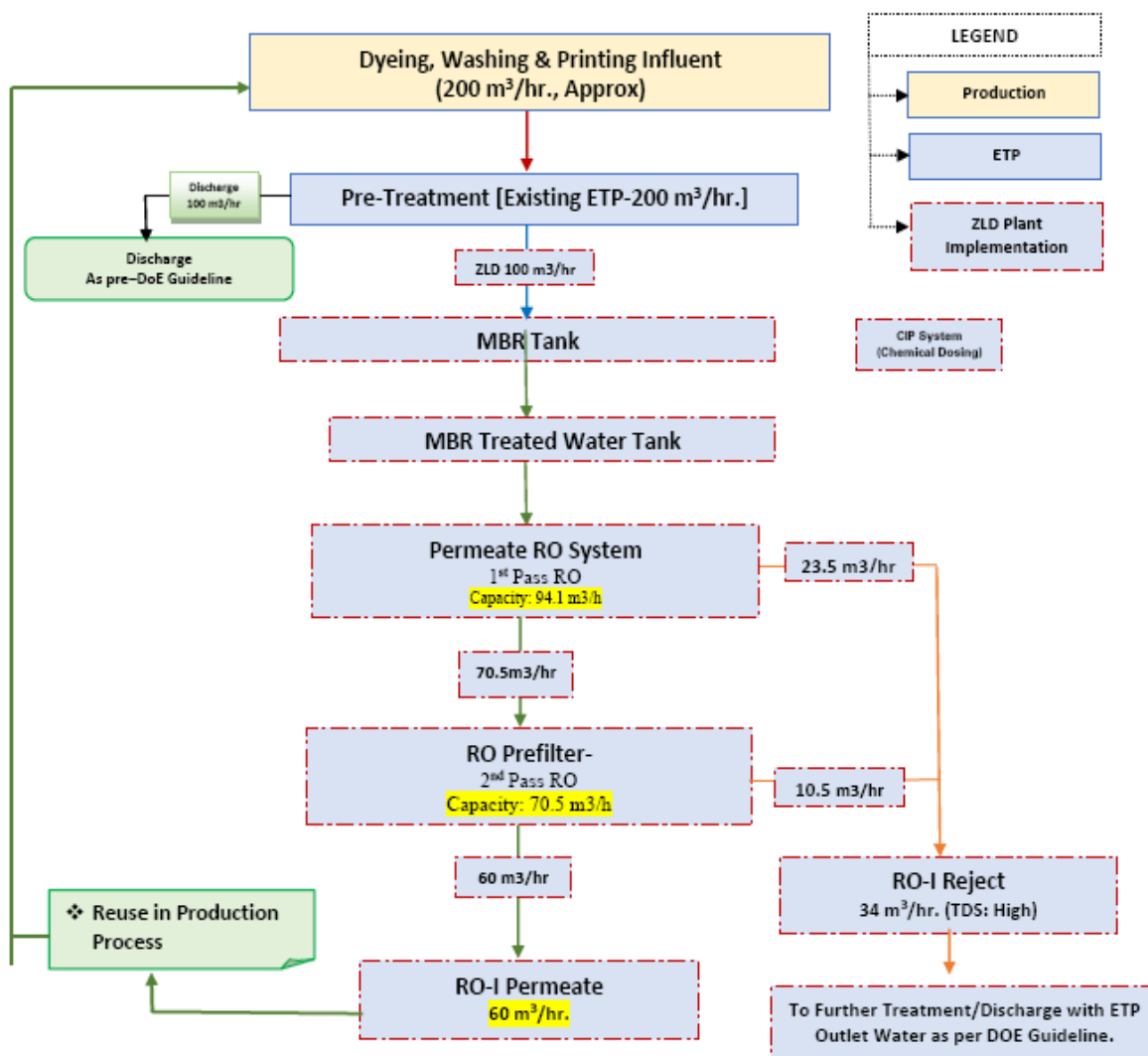
Membrane bioreactor (MBR) is a combination of membrane processes like microfiltration or ultrafiltration with a biological wastewater treatment process. Mixed liquor suspended solids after pre-aeration tank will overflow to MBR system to separate water and suspended solids. Sludge in MBR will be returned to sludge tank and then to pre aeration tank to keep concentration of MLVSS. Mixed liquor is drawn through the Micro Clear membranes, which act as a physical barrier to suspended solids, bacteria, viruses and protozoa. After filtration by MBR the filtered water will be stored in filtrated water tank for reuse in production process.

## ❖ Reverse Osmosis Membrane:

Reverse Osmosis is the diffusion of water molecules across a semi-permeable membrane against the potential gradient when subject to a hydrostatic pressure greater than osmosis pressure. The minimum pressure applied on the concentrated side (feed) that keeps most of the salts in the concentrated side while moving water molecules to the side with the high-water potential is called Osmotic Pressure. Most of the Reverse Osmosis (RO) membrane are housed in fiberglass reinforced (FRP) pressure vessels that are specially manufactured to within high operating pressures. RO membrane is housed safely and securely protected within this vessel. Water is fed through the inlet of the vessel where physical separation is achieved, leaving two outlet streams of permeate (fresh water) and brine (high TDS).

MBR & RO Process Flow Diagram for 100m<sup>3</sup>/h ZLD has been described below:



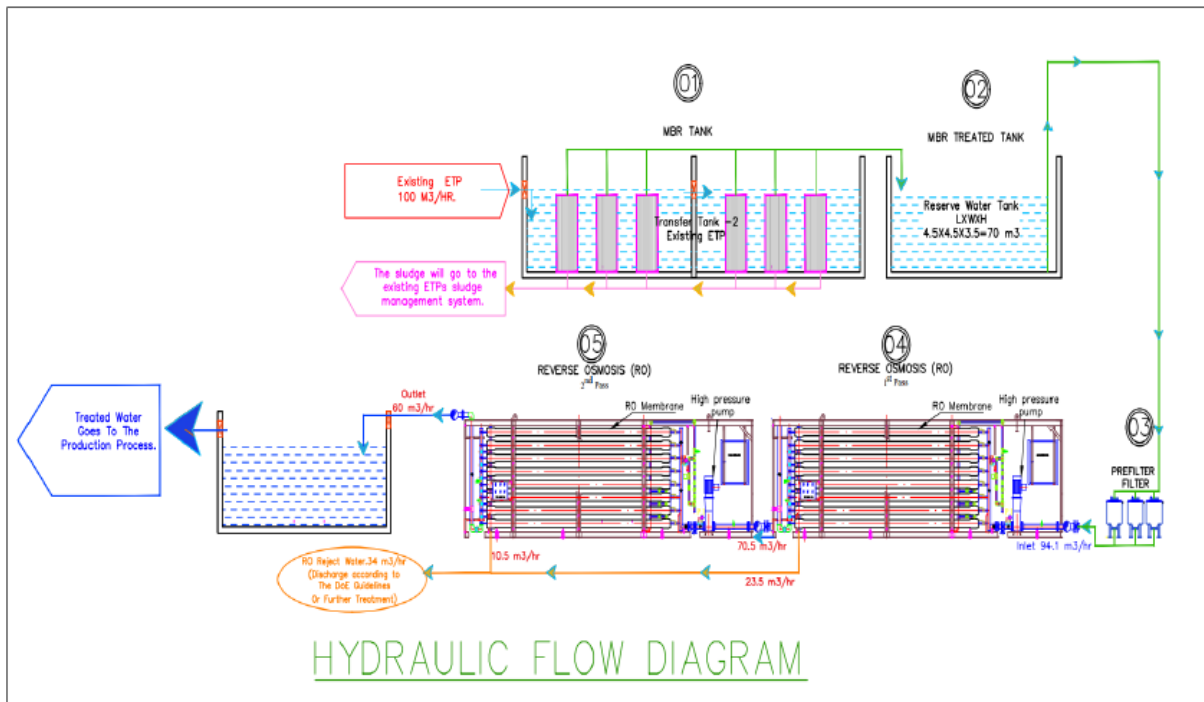


**Figure 1: MBR & RO Process Flow Diagram**

Total capacity of existing ETP of paramount Textile is 200m<sup>3</sup>/h. ZLD will be implemented for 100m<sup>3</sup>/hr discharged water. Firstly, 100 m<sup>3</sup>/hr discharge water from ETP will flow to the MBR Tank. Initially Water (100 m<sup>3</sup>/h) will be treated by MBR and recovered water will be 94.1 m<sup>3</sup>/h, after that, the water will be treated in 1<sup>st</sup> RO system where 70.5 m<sup>3</sup>/h water will be recovered and send to 2<sup>nd</sup> RO system. Water rejection rate at 1<sup>st</sup> RO system is 23.5 m<sup>3</sup>/h. From the 2<sup>nd</sup> RO system recovered water will be 60 m<sup>3</sup>/h and water rejection in this stage will be 10.5 m<sup>3</sup>/h. So, finally 60 m<sup>3</sup>/hr of water will be recovered which will be re-used for production. TDS of rejected water may vary 3000-3500 mg/L and TDS of discharge water of ETP may vary 15-20 mg/L. So, the rejected water will be mixed with the remaining 100 m<sup>3</sup>/hr water of the existing ETP. After mixing those water TDS will be 1000-1200 mg/L which will be below the DoE standard value for TDS i.e., 2100 mg/L. Then the treated water from existing ETP will be discharge to the municipal drain line. Paramount Textile will implement ZLD in next 5years, according to the ZLD schedule provided in **Table 1**.

**Table 1: ZLD Implementation Schedule**

S.L. No.	ZLD Plan Implementation rate	Time Scheduled				
		01 Jan,2024-01 Dec, 2024	01 Jan,2025-01 Dec, 2025	01 Jan,2026-01 Dec, 2026	01 Jan,2027-01 Dec, 2027	01 Jan,2028-01 Dec, 2028
1	10% of plan					
2	20% of plan					
3	20% of plan					
4	20% of plan					
5	30% of plan					



**Figure 2: Hydraulic Flow Diagram of Proposed ZLD**

# **Annexure 39**

## **Green Belt Development**

## GREEN BELT DEVELOPMENT

Even after taking stringent measures for pollution control, in different stages, a significant number of pollutants is produced such as dust, noise and NO<sub>x</sub> during the operational phase. A sustainable and green solution for this problem could be minimized by developing a "Green Belt". In the surrounding areas, trees of specific species can reduce the pollution as well as can provide enhanced oxygen for the surrounding area. In addition, trees can create a noise barrier which will dampen the noise generated from the project operation. About 33% of the total project area will be covered with greenbelt. **Table 1** presents suitable plant species for green belt development and for this the following guidelines during green belt development will be considered. PTPLC have open area of about 0.28 acres which should be brought under green belt development for the sustainable project operation.

- Limiting vegetation clearance and base stripping within project boundary;
- In green belt plant composition should be made considering plant of different height (Figure 1);
- The green belt should be of at least 3.5 m width consisting two rows of plantation with the gradual increase of height of plant from inside row to outside row.



Figure 1: A Typical Greenbelt Arrangement

Table 1: Suitable plant Species for "Green Belt Development"

Sl No.	Name of the Plant	Name in Bangla	Type	Function
1.	Australian Wattle	আকাশমণি	Tree	Reduces Particulate Matter
2.	Bael tree	বেলগাছ	Tree	Reduces Particulate Matter
3.	The Siris Tree	শিরিষগাছ	Tree	Reduces Particulate Matter
4.	White Siris	করই	Tree	Reduces Particulate Matter
5.	Sugar Apple	আতাগাছ	Tree	Reduces Particulate Matter
6.	Kadam	কদম	Tree	Reduces Particulate Matter

SI No.	Name of the Plant	Name in Bangla	Type	Function
7.	Nim	নিম	Tree	Reduces Particulate Matter
8.	Bamboo	বাঁশ	Tree	Reduces Particulate Matter
9.	Australian Whistling Pine	ঝাউ	Tree	Reduces Particulate Matter
10.	Rangan	রঙ্গন	Shrub	Noise Attenuation
11.	Kamini	কামিনী	Shrub	Noise Attenuation
12.	Karabi	করবি	Shrub	Noise Attenuation
13.	Guava tree	পেয়ারা	Shrub	Noise Attenuation
14.	Tagar	টগর	Shrub	Noise Attenuation
15.	Mastered Green	সরিষা	Forb/Herb	NO <sub>x</sub> Absorption

# **Annexure 40**

## **Emergency Response Plan**

# EMERGENCY RESPONSE PLAN

## 1.1 Emergency Response

The initial response to an incident is a critical step in the overall emergency response. Like all other Industries and installations, the project must have adequate measures against accidents or incidents to meet the emergency. The purpose of having an Emergency Response Plan (ERP) is to:

- Assist personnel in determining the appropriate response to emergencies;
- Provide personnel with established procedures and guidelines;
- Notify the appropriate Company Emergency Response Team personnel and regulatory/ Govt. agencies;
- Manage public and media relations;
- Minimize the effects that disruptive events can have on company operations by reducing recovery times and costs;
- Respond to immediate requirements to safeguard the subtending environment and community.

Generally, the initial response is guided by three priorities Ranked in importance these priorities are:

1. People
2. Property
3. Environment

Emergency Response Procedures will identify who does what and when in the event of an emergency. Responsibility for who is in charge and their coordination of emergency actions shall be identified. Nature of Emergency & Hazardous Situations may be of any or all of the following categories:

### **I. Emergency**

- ❖ Fire,
- ❖ Electric shock,
- ❖ Abnormal operation,
- ❖ Medical emergency.

### **II. Natural Disasters**

- ❖ Flood,
- ❖ Earthquake/ cyclone,
- ❖ Storm/ typhoon/ tornados, and
- ❖ Cloud burst lightning.

### **III. External Factors**

- ❖ Food poisoning/water poisoning
- ❖ Sabotage, and
- ❖ War



### 1.1.1 Six Steps in Emergency Response

#### Step-1

- a) Determine the potential hazards associated with the incident, substance or circumstances and take appropriate action identify the type and qualities of dangerous goods involved and any known associated hazards;
- b) Determine potential hazards stemming from local conditions such as inclement weather water bodies etc. and ensure that the initial response team is aware of these conditions.

#### Step-2

Determine the source/ cause of the event resulting to the emergency and prevent further losses.

#### Step-3

Conduct an assessment of the incident site for any further information on hazards or remedies.

#### Step-4

Initiate redress procedures.

#### Step-5

Report the incidence; its nature, impact, applied redress procedures and any further assistance required etc to the appropriate company, government and/or land owner.

#### Step-6

Take appropriate steps with respect to hazards to wildlife, other resources and addressing public and media concerns and issues, as applicable. Response priorities are to protect human lives, property and the environment.

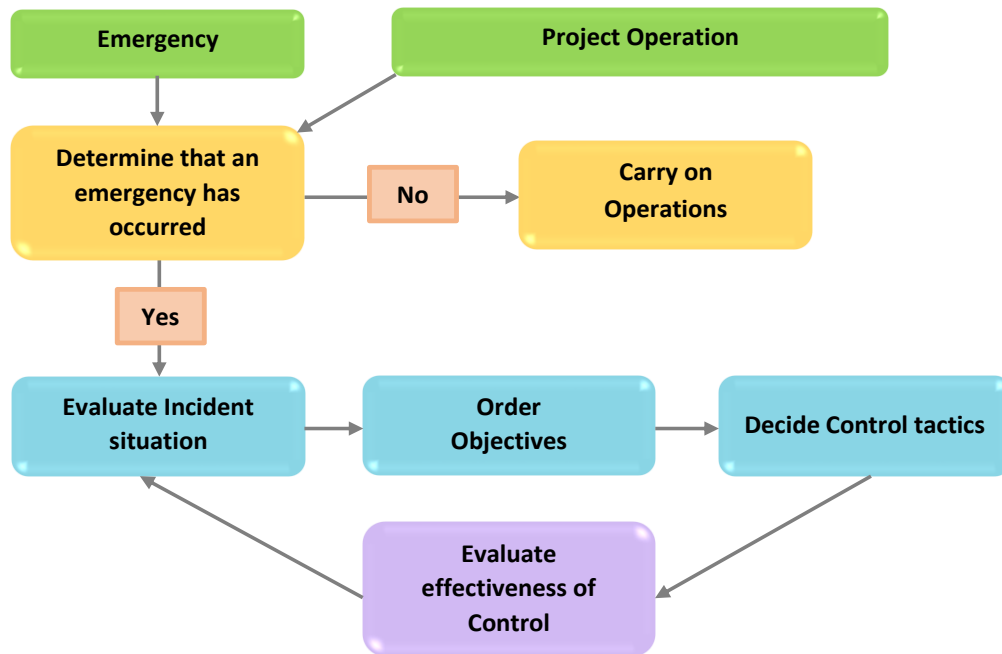
## 1.2 Reporting Incidents and Accidents

All accidents and near-miss incidents will be investigated by the EMP implementation team as per the communication matrix given in **Table 9.1** to determine what caused the problem and what action is required to prevent a recurrence. Employees involved in investigations shall be trained in accident investigation techniques. The incident/accident investigation should be a fact-finding exercise rather than fault finding. The investigations will focus on collection of evidence to find out the “root cause” of the incident. The recommendations of the investigation report are implemented in phases.

## 1.3 Approaches to Emergency Response

For this project, emergency response systems should be in place to deal with dangerous goods, uncontrolled releases of dust and gaseous emission, natural calamities, fires burns and injuries. There should be trained emergency response teams, specific contingency plans and incidence specific equipment packages in place to cope with these types of emergencies. In case of an emergency incident occur, immediate action must be taken to mitigate the impacts. In order to minimize the possibility of injury to the responders and others, it is

important that emergency responders follow a specific sequence of actions as stepped out in the preceding paragraphs.



**Figure 1.1: Illustrates an Example System Approach to Project Operations**

#### 1.4 Emergency Response Plan

An Emergency Response Plan (ERP) is to provide a systematic approach to the protection of employees, assets and the environment from impact of serious incidents. A well-constructed ERP will prevent a minor incident from becoming a disaster, save lives, prevent injuries and minimize damage to property and the environment. The goals of the ERP are to:

- Provide for clear lines of authority, responsibilities and communication during incident and crisis events;
- Provide a means by which trained people and resources are available to those managing the incident or crisis event;
- Possible emergency events that have been identified for this Project are; immediate medical evacuation due to personnel injury, traffic accidents (road), leakage of hazardous chemicals, fire, earthquake, flooding, civil disturbance/riot, terrorist events/threats and gas leak/explosion.

During any kind of emergency situation all the personnel related to PLC will follow the relevant chapter below.

### 1.4.1 Emergency Prevention

Project risks are prevented through implementation of risk mitigation measures to address events such as traffic accidents, leak of hazardous material, fire accident, boiler blowup, abnormal situation and other minor structural issues. The potential risks and measures to reduce each type of risk are given in the **Table 9.2** below.

**Table 1.2: Risk and Preventative Mitigation Measures**

Risk		Preventative Mitigation Measure
<b>Traffic Accidents (Road)</b>		<ul style="list-style-type: none"> <li>• Traffic Control devices (road signs and markings, speed signs, stop signs, speed bumps and safety barriers);</li> <li>• Escort the big vehicles by motorbike for avoiding unnecessary congestion and easier movement of them.</li> </ul>
<b>Spill/leak of Hazardous Materials in Land and Water</b>		<ul style="list-style-type: none"> <li>• All hazardous materials will be kept in a tank which has facility of secondary containment;</li> <li>• The hazardous waste will be stored on hard standing floor and roofing with a secondary containment facility;</li> <li>• Regular inspections of machinery, equipment, pipe work, storage areas are needed to ensure that poor maintenance is not responsible for a spillage occurring;</li> </ul>
<b>Fire</b>		<ul style="list-style-type: none"> <li>• Keep good conditioned fire hoses and Fire Extinguishers readily available;</li> <li>• Arrangement of firefighting equipment's should be available with training to the all the staffs;</li> <li>• Adoption of fire safety measures for each of the equipment's and machinery subject to fire hazard;</li> <li>• Prevent the loose electrical connections and multiple connections from one source;</li> <li>• Safe handling and storage of flammable chemicals and fuels;</li> <li>• Regular inspection of the fire extinguishing system should be made to see if they are functioning properly or not. Any defect should be reported to the manger and should be replaced immediately.</li> </ul>
<b>Sudden Attack /Threats</b>		<ul style="list-style-type: none"> <li>• There should be strict security check at the key points of the power factory area</li> <li>• CCTV cameras should be installed at all the crucial points and 24-hour monitoring facilities should be implemented</li> <li>• Regular contact and updates from National intelligence agencies regarding threats</li> <li>• Project authority should maintain regular contact and liaison with the law enforcement authority and Police personnel so that they quickly respond to terrorist emergency events;</li> </ul>

Risk	Preventative Mitigation Measure
	<ul style="list-style-type: none"> <li>Regular contact and updates from National intelligence agencies regarding threats.</li> </ul>
<b>Boiler Blowup</b>	<ul style="list-style-type: none"> <li>Safety valves should be included in boiler for pressure control;</li> <li>Give clearance for cutting/welding etc. after ensuring that there is no leakage of gas;</li> <li>Staffs should be trained on emergency handling procedures;</li> <li>Adoption of fire safety for each of the equipment's and machinery subject to fire hazard;</li> <li>Safe handling and storage of flammable chemicals and fuels;</li> <li>Regular inspection and monitoring of pressure parts and units.</li> </ul>
<b>Abnormal Situation</b>	<ul style="list-style-type: none"> <li>Arrangement of firefighting equipment's with training to the staffs from workers to officers;</li> <li>Staffs should be trained on emergency handling procedures;</li> <li>Use of PPEs, proper training, awareness, keeping safe distance from hazardous points, maintaining safety of high switchyard etc.</li> <li>Avoid sitting, standing, or walking on conveyors;</li> <li>Periodic testing of safety valves and ensure regular inspection and maintenance;</li> <li>All conveyor to be provided with proper guards;</li> <li>Avoid loose clothing, long hair, jewelry, and other loose items near conveyor;</li> <li>Emergency "shut-off" devices to be provided.</li> </ul>

#### 1.4.2 Emergency Preparedness

Preparedness is a set of actions that are taken as precautionary measures during the potential disasters or emergencies. For this, it is required to provide training install different safety equipment in the project area and made a preparedness plan for different emergency situation. The following **Table 9.3** includes the list of preparedness measures to be included:

**Table 1.2: Risk and Preparedness Measures**

Risk	Preparedness Measures
<b>Traffic Accidents (Road)</b>	<ul style="list-style-type: none"> <li>Identify the amount of loss due to the accident;</li> <li>Identify the cause of accident to minimize same type of incidents further;</li> <li>Provide compensation to the injured personnel;</li> <li>Make drivers aware of traffic rules and signage.</li> </ul>
<b>Spill/leak of Hazardous Materials in Land and Water</b>	<ul style="list-style-type: none"> <li>In case of any spillage, it should be immediately acted up on. To combat spillage equipment i.e., safety goggles, gloves, PPE, disposal bags,</li> </ul>

Risk	Preparedness Measures
	<p>containers, suction pump, boom skimmer etc. should be available at the site;</p> <ul style="list-style-type: none"> <li>• Damaged machineries should be temporarily stored in the hazardous waste storage area and the proponent will contact with licensed waste treatment agencies to collect and treat the panels as well as hazardous solid waste in compliance with national regulations.</li> </ul>
<b>Fire</b>	<ul style="list-style-type: none"> <li>• An automatic Carbon Dioxide (CO<sub>2</sub>) gas fire protection system should be provided in all machinery enclosures. The Protection System should consist of a fire detector and an automated fire extinguishing mechanism once fire/smoke is detected.</li> <li>• High risk areas should be marked as “fire protection zones” and should have a separate fire protection system independent of others.</li> <li>• Emergency firefighting system should be ensured in the project site;</li> <li>• Firefighting equipment should be available at strategic locations i.e., hazardous storage area, production area, raw material storage area kitchen, dining area within the factory area;</li> <li>• Fire exit passages should always be easily accessible and usable and free of any kind of obstructions.</li> </ul>
<b>Sudden Attack /Threats</b>	<ul style="list-style-type: none"> <li>• The law enforcement authority and Police personnel will be appropriately resourced and will train the project personnel to quickly respond to terrorist emergency events.</li> </ul>

### 1.4.3 E&S Orientation and Training Plan

All employees and contractors shall attend E&S orientation. The Head of EMS, supported by the Head of compliance, HR and members, will be responsible for the development of an E&S training plan. Head of Environmental management System is responsible for ensuring that the appropriate employees receive training required under the plan.

#### 1.4.3.1 E&S Training Procedure

- A critical first step in developing a training program is to assess employee training needs. The Head of Environmental management System and Head of HR will review past training and the nature of the employee’s work. Based on this review, specific training requirements for each employee or type of employee will be documented.
- The Head of EMS will document the EMP Training Program.
- The training plan will be implemented by the Head of EMS, compliance and HR in conjunction with the members. Upon completion of training by employees, the members shall make the top management aware of the training completed.

- The top management will document the training completed form and Training Log and review the detail documentation on the Training Program prepared by head of EMS.
- Training effectiveness will be evaluated to ensure that the changes made to significant risks, objectives, targets or operational controls are working effectively. Improvements to the training plan will be made accordingly by head of EMS.

#### 1.4.3.2 E&S Training Plan

The training plan shall be updated whenever changes are made to the significant risks, objectives, targets, or operational controls. E&S training shall be made available on a continual basis to ensure that new employees are made aware of the EMP.

**Table 9.3: Proposed E&S Training Plan**

Training Subject	Target Personnel	Duration	Instructor/Trainer
<b>Construction Phase</b>			
Health & Safety: Use of PPE	All construction staff	One Training (quarterly)	Head of EMS and Compliance
Health & Safety: Safe way to work & hazard awareness	All construction staff	One Training (quarterly)	Head of EMS and Compliance
Handling, use & disposal of hazardous material	Construction workers with authorized access to hazardous material storage areas and who uses hazardous material during their works.	One training (quarterly)	Head of EMS & Member of Material Management
Pollution prevention: Best practice (Actions to be taken in the event of major or minor pollution)	All construction staff	One Training (monthly)	Head of EMS
<b>Operation Phase</b>			
Health & Safety: Use of PPE	Identified required staff	Two Trainings (bi-annually)	Head of EMS and Compliance
Health & Safety: Safe way to work & hazard awareness	All staff	One Trainings (annually)	Head of EMS and Compliance
Health & Safety: Safe use of factory & equipment	Operators of factory & equipment	One Trainings (bi-annually)	Head of EMS and Compliance
Health & Safety: ETP unit	Designated workers	Two Trainings (annually)	Members of ETP
Handling, use & disposal of hazardous material	Workers with authorized access to hazardous material storage areas and who uses hazardous	One training (bi-annually)	Head of EMS & Member of Material Management

Training Subject	Target Personnel	Duration	Instructor/Trainer
	material during their works.		
Waste Management	All staff (factory site and dormitory staff)	One Trainings (bi-annually)	Head of EMS & Member of Material Management
Defensive and Evasive training- Efficient & safe driving practices, including road & vehicle restrictions	Drivers	One Trainings (bi-annually)	Member of EMS and compliance
Pollution prevention: Best practice (Actions to be taken in the event of major or minor pollution)	All staff	Two Trainings (annually)	Head of EMS
<b>Both Phase</b>			
Emergency procedures and evacuation	All staff	One Training (monthly)	Head of EMS and Member of fire and safety
Fire Fighting Mock Drill	All staff	One Training (monthly)	Head of EMS and Member of fire and safety
Earthquake Mock Drill	All staff	Two Trainings (yearly)	head of EMS and Member of EMS and Compliance
Heavy Flood/Typhoon Response	All staff	Four Trainings (yearly)	head of EMS and Member of EMS and Compliance
Emergency response and management – Detailed	Rescue Team, Fire-Fighting Team and Medical Team	One Trainings (monthly)	head of EMS and Member of EMS and Compliance
Site Security	Security Guards	Two Training (monthly)	Member of utility
Housekeeping, Dining & Washroom Areas - Basic	All staff	One Training (monthly)	Member of utility
Housekeeping, Kitchen, Dining & Washroom Areas - Detailed	Designated cleaners, cook and staff	One Training (monthly)	Member of utility
Culturally sensitive awareness rising on HIV/AIDS and sexually transmitted diseases. Awareness raising on Gender Based Violence (GBV) and vector-borne diseases	All staff	One Training (monthly)	Head of EMS, Member of compliance

In case of an emergency fire breakout, the Head of EMS should be notified immediately who will delineate the information and responsibilities to other staff member. An emergency contact list should be prepared



by the Members of EMS consisting of Hospitals, Police, Ambulance services and other relevant contact details.

#### **1.4.4 Emergency Recovery**

After the emergency situation had passed, the Head of EMS assess and categorize the damage and would provide for compensations for the injured; provide provisions for temporary services; reinstate normal environmental and working standards; initiating investigation process for the cause of disaster; evaluating response procedure and providing a recommendation to mitigate future emergencies.

# **Annexure 41**

## **Emergency Evacuation Plan**



Soft Winding Floor



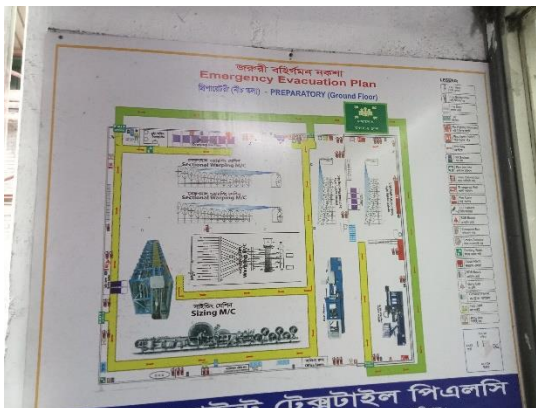
Soft Flow Dyeing



Yarn Dyeing



Hard Winding



Preparatory Section



Dyeing Sub-Chemical Store



Printing Section



Finishing Section



Solid Dyeing Lab



Boiler Room



Printing Finishing Section



CRP Section

Figure 1: Emergency Evacuation Plan of Various Section of Factory

# **Annexure 42**

## **Emergency Response Plan for Fire Hazard**

# EMERGENCY RESPONSE PLAN FOR FIRE HAZARD

## ❖ Fire Hazard

Fire hazards such as electrical hazards, combustible dusts, sparks, voltage up/down are common in electrical interconnection facility. Although fires are not a daily occurrence, they usually will cause severe property damage and business interruption. Sometimes the fire protection equipment systems have not received attention since they were installed. If these systems are needed, however, they are counted upon to perform reliably and protect vital factory equipment from fire. Fire protection systems are a combination of mechanical and electrical components and, like power generation equipment, need regular attention.

In addition, some people in charge of fire protection do not have an adequate knowledge of necessary inspection and testing frequencies, or they use the minimum frequencies prescribed by their authority having jurisdiction. Suitable fire protection and detection systems shall be provided designed to the requirements of National Fire Protection Association (NFPA) standards. Gas detection systems and alarms shall also be included.

Fire protection shall consist of wet pipe, automatic deluge systems, hydrants, CO<sub>2</sub> gas flooding systems, and portable extinguishers of CO<sub>2</sub> and dry powder in sufficient quantities. Fire & Safety Policy of Paramount Textile is attached in **Annexure 27**.

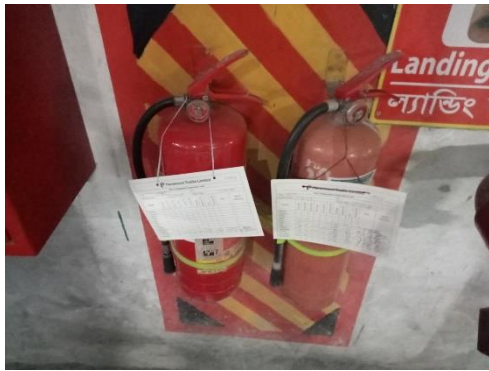
## ❖ Fire Evacuation Plan

Paramount textile has prepared their evacuation plan. The evacuation layout plan for each unit has been prepared showing all the possible emergency fire exits and the location of the evacuation zone. The evacuation layout plan for fire accident is provided in **Annexure 42**. All the staffs and workers in the factory should follow the evacuation plan during any fire accidents.

## ❖ Fire Safety Equipment

There are fire extinguishers, fire alarms, fire hose pipe, Emergency Fog Light and different firefighting equipment in the project site, shown in **Figure 1**. In addition to that firefighting equipment which is available in the premises of the project site for the management of fire safety equipment are described in **Table 1**.





**Fire Extenguisher**



**Landing valve**



**Fire Ball**



**Fire Door**



**Fire Fighting Equipment**



**Fire Hose Box**



**Emergency Light**



**Sand Bucket**





**Fire Alarm**



**PA System**

**Figure 1: Fire Preventive Equipment at project area**

**Table 9.5** shows the types of fire extinguishers which are suggested to be provided in specific locations of the project site, so that fire can be prevented as soon as possible.

**Table 1: Types of Fire Extinguishers and their Uses**

Type	Solid combustibles (such as wood, paper & textiles)	Flammable liquids (such as petrol, diesel & paraffin)	Flammable gases (such as methane, propane & hydrogen)	Flammable metals (such as magnesium, aluminum & lithium)	Electricals (such as computers & electric heaters)	Cooking oil (such as deep fat fryers & chip pans)
Water	✓	✗	✗	✗	Only if di-electrically tested	✗
Water Mist	✓	✓	✓	✗	✓	✓
AFFF Foam	✓	✓	✗	✗	Only if di-electrically tested	✗
ABC Powder	✓	✓	✓	✗	✓	✗
Carbon Dioxide (CO2)	✗	✓	✗	✗	✓	✗
Wet Chemical	Sometimes	✗	✗	✗	✗	✓

#### ❖ Guideline for Fire and Explosion Emergency Plan

- All employees must know how to report an emergency. This may include the activation of pull alarms or notifying the facility security center. The facility information should describe key elements of the facility that is useful for new employees and response agencies, such as local fire departments;

- Alarms and signals to alert employees must be identifiable; this may include audio alarms, highly visible lights, and/or a public address system. Management and employees must know what actions to take when an emergency alarm is activated;
- All emergency phone numbers should be identified, listed in the emergency preparedness plan, and posted/displayed at different emergency locations. Emergency phone numbers should include any facility numbers, local agencies and any emergency-facility personnel;
- All responsibilities should be clearly defined for management and employees. Management must determine its strategy for responding to fire emergencies. A chain of command should be maintained to minimize any confusion;
- Diagrams should be developed for critical information. Evacuation routes, exit doors, fire extinguishers, and other critical elements should be visually displayed for all employees. If the fire sprinkler system or fire suppression system is used, all critical controls/valves should be clearly identified;
- Assembly areas should be established for all employees. Accounting for employees can be performed at assembly areas. All assembly areas should be established at safe distances from fire hazards and clear of emergency vehicle traffic and activities;
- Search and rescue procedures must be established. Only trained and authorized personnel should attempt search and rescue;
- Operators must know their specific procedures when an emergency arises. Safe shutdown procedures for equipment should be established to prevent equipment damage and additional hazards. Equipment operators must know the proper actions to take during an emergency;
- Employees must know the emergency routes in their work areas and be familiar with the project layout. All employees must receive a guided tour of evacuation routes and emergency exits during orientation;
- Emergency routes and exit doors should be clearly posted on a wall diagram to show employees the primary and secondary emergency routes for evacuating the building. The diagram should show the employee's current position and emergency routes. Each department should display this diagram in a highly visible area.

# **Annexure 43**

## **Emergency Response Plan For ETP**

# **Paramount Textile Ltd.**

**Gilarchala, Sreepur, Gazipur**

## **ETP Preventive and Corrective actions in Emergency**

<b><u>Emergency</u></b>	<b><u>Items</u></b>	<b><u>Emergency Situations</u></b>	<b><u>Emergency Response Plan</u></b>
Mechanical	Pump	Effluent Feed Pump of Neutralization Tank can be damaged or out of order.	We have two Feed Pumps there. When one pump is damaged, other is stand-by. If one is damaged, other will run till the damaged one is repaired.
	Blower	Blower may not be functioning.	Each tank containing blower air line (Equalization Tank, Oxidation Tank, DO Increase Tank) have two blowers. If one is damaged, other will run till the damaged one is repaired.
Electrical	Power	Power may be failed.	We immediately stop the production unit. Equalization Tank HRT is huge (22.5 hrs). Until power comes, we have back-up of 22.5 hrs.
Outlet Parameter	pH	pH can be high.	Check the pH meter first and calibrate and check again. If pH is not in range, then use Sulfuric Acid manually.
	TSS	TSS can be high.	We have to increase sludge waste amount until TSS of outlet is reached in the range.

<b><u>Emergency</u></b>	<b><u>Items</u></b>	<b><u>Emergency Situations</u></b>	<b><u>Emergency Response Plan</u></b>
Outlet Parameter	Color	Color can be high.	We have ready stock of decolorant. If color range goes beyond range, we will use decolorant.
	DO	DO can be low.	Check any leakage on blower line and also check the diffuser functioning.
	BOD and COD	BOD and COD not meet the required limit.	Stop Production Unit until the parameters are reached in the normal condition.
	Sludge	Sludge may be high.	Collect the Sludge by Centrifuge machine. Fix Return Activated Sludge (RAS) Flow 1.2 times of Inlet Flowrate.
ETP Drainline Leakage	Drainline	ETP Drainline Leakage can be occurred.	Immediately repair the drainline leakage and stop the effluent discharge. Frequently monitor the drainline leakage periodically. If effluent is discharged from leakage, then collect that effluent by mud-pump, then discharge that water into ETP inlet.

# **Annexure 44**

## **Disaster Management Plan**

# DISASTER MANAGEMENT PLAN

## 1.1 Earthquake

Bangladesh National Building Code widely known as BNBC Code, is the ultimate code that is followed in Bangladesh to build safe houses and buildings. Earthquakes and wind effect of different building systems are incorporated in this code. Moreover, this code is almost similar to ACI code which is recognized as one of the most practiced building codes of the world. Socio-economic factors have also been taken into consideration while preparing this code. This code is very helpful to the related professionals like architects and town planners as it takes into account the conditions specific to Bangladesh. This code should be followed in designing the structures. The below mentioned plan should be implemented during the operation of this project.

- ✓ In case of earth quake, all the personnel inside the project are instructed to shut down their operations and come to open yard and assemble at the assembly points;
- ✓ If required, transportation will be arranged for sending the people to safer places;
- ✓ Rescue operation will be carried out by security personnel for any possible casualties and the same are given first aid treatment and will be sent to the nearest hospitals in case of requirement.



Figure 1: Activity during Earthquake



## **1.2 Flooding (Heavy rains)**

When floods are caused due to heavy rains, those who will work in the project area should move to safer places and should stay in safe place until the water recedes. Actions to be taken:

- ✓ Monitor conditions and escape routes;
- ✓ Shut off all operation activities if flooding is imminent;
- ✓ Call fire services, if needed.

## **1.3 Cyclones / heavy winds**

- ✓ Know about the severity / direction of the cyclone from news bulletins / meteorological dept.;
- ✓ Review the activities / operations planned and stop operations which may create an emergency situation due to cyclone / high winds;
- ✓ Ensure emergency equipment such as batteries / torches etc., are in availability;
- ✓ Ensure food supplies to the work force;
- ✓ Ensure readiness of emergency vehicles / medicines, medical center with staff etc.

## **1.4 Pandemic**

Generally, media (Newspapers/ TV) provides alerts of such situation. If any person working on project site is suffering from or has symptoms of or someone else at site suspects co-worker of having pandemic/epidemic/outbreaks of communicable disease, immediately inform HR. HR and Admin will take immediate action to protect the workforce at site. The objectives of Paramount Textile PLC authority during COVID-19 pandemic are the following:

- Establish and mark an entrance gate and an exit gate, separated by at least 3m, and a one-way circulation flow inside the workplace to avoid face-to-face contacts;
- Maintain Social distance/Safe distance by marking circle at a distance of at least 1 meter;
- Implement the use of masks, airtight goggles, gloves, glasses, face shields, waterproof clothing, personal protective equipment (PPE), unless, due to an oxygen-deficient atmosphere, it is necessary to provide workers with specialized equipment;
- Establish of hand-washing stations with water, soap and disposable towels available near working sites and one hand-washing sink for every 20 workers, equipped with soap and disposable paper towels;
- Take random temperature measurements throughout the day;
- Raise awareness and training of workers about hygiene measures, especially social distancing, frequent hand washing before and after using any tool and machinery and disinfect cell phones, glasses, watches and other personal products;
- Isolate suspected cases in isolation center to avoid possible infection;
- Establish covid-19 information and signs in visible locations- one on each information board, one at each hand washing station, on in local accommodation area and one on each entry and exit stations about COVID-19 prevention;
- Implement COVID-19 vaccination campaign.

Precautionary measures of COVID-19 taken by Paramount Textile PLC authority is shown in **Figure 9.5**.



**Figure 2: COVID-19 Precautions taken by Paramount Textile Authority**

### 1.5 Terrorist attack / Sabotage

Terrorism/ Sabotage is the unlawful use of force or violence by a person or group. These attacks can take many forms and could happen at any time in any place without warning. If an event of terrorism/ sabotage occurs, it is important to remain calm and follow instructions from emergency officials and emergency service personnel. Listen to radio or television for news and instructions. Affected personnel should follow the communication matrix mentioned in **Table 7.1(chapter 7)** and act accordingly. It is the responsibility of Head of EMS to check for injuries and give first aid and get help for seriously injured people and check the location of the emergency exits. The Head of EMS and admin need to gather and record the information available regarding the Terrorist attack/ Sabotage in line with checklist attached below.

### 1.6 Bomb Threat

The bomb threat has been used by various groups who want to disrupt business. In all circumstances the first thing that must be done is to determine the nature of the threats to the organization. Affected personnel should follow the communication matrix mentioned in **Table 7.1** and act accordingly. The Head of EMS is to gather and record the information available regarding the Bomb Threat in line with checklist see **below**.

### 1.7 Kidnap and/or Extortion

Kidnap and/or extortion require some different methods to address them. In some case the information may need to be retained by a very small core team and the negotiations may take place over a protracted period of time. Affected personnel should follow the communication matrix mentioned in **Table 7.1** and act accordingly. The Head of EMS need to gather and record the information available regarding the kidnap/extortion situation in line with checklist see **below**.

Due to the extreme sensitive nature of a kidnap and/or extortion negotiation it is imperative that the Project management makes immediate contact. The Project management will either take over the responsibility for the negotiations or will provide guidance to the Head of EMS.

# **Checklist of Terrorist Attack, Bomb Threat and Kidnapping**

## Attachment 1 - Kidnap and Extortion Checklist

This checklist supplements the normal ERT checklists where Kidnap or other extortion is occurring or is possible.

Kidnap And Extortion Checklist	Responsibility
1. Call-out - EHS Manager - ERT - Human Resources Coordinator	Project Director
2. Establish secure communications link with ERT	EHS Manager
3. Ensure secure meeting room for ERT.	EHS Manager
4. Maintain effective logs	ERT
5. Establish:  - The current situation - The political and operational background - If any contacts or demands have been made by the instigators. - Who is aware of the incident? • Government • Security Forces/Police of country • Embassy/High Commission • Local employees • Relatives - What the country's policy is concerning negotiation with kidnappers etc.	EHS Manager
6. Notify Project Management and pass on details	PD
7. Consult with professional advisors/security consultants. PD to make final decision upon confirmation from APSCL Authority.	PD
8. Consider the need to bring in other internal and external expertise, or reduce the team. In general, confine knowledge to minimum team.	EMP Implementation Team
9. Evaluate the situation ▪ Is there positive evidence of kidnap? ▪ How reliable is the available information? ▪ Are the instigators known to be criminals, psychopaths or terrorists? ▪ What are the likely future actions of the instigators? - What is the risk? ▪ What threats have been made? Likely to be carried out? ▪ Is there a threat to life - hostage or others?	EHS Manager

Kidnap And Extortion Checklist	Responsibility
<ul style="list-style-type: none"> <li>▪ Are other employees/families at risk?</li> <li>▪ What is the business risk?</li> <li>▪ What is the local Government likely to do if you negotiate?</li> </ul>	
10. <ul style="list-style-type: none"> <li>- Need for containment of information</li> <li>- Is containment of information possible, likely to last and appropriate?</li> <li>- What time scale may the Company have to work to?</li> <li>- What is likelihood rescue?</li> <li>- What attitude is local Government likely to take?</li> <li>- What are the immediate implications on operations?</li> </ul>	EMP Implementation Team
11. Confirm Company objectives <ul style="list-style-type: none"> <li>- Remove threat to life</li> <li>- Display Company's determinations to show firm resolves and remain</li> <li>- a responsible corporate citizen</li> </ul>	EMP Implementation Team
12. Advise ERT on local laws and potential liabilities relating to communication and negotiation with kidnappers etc. and other liabilities.	Legal
13. Consider basic Company policies/strategies <ul style="list-style-type: none"> <li>a. Response</li> <li>b. Control/secretcy</li> <li>c. Risk</li> </ul>	Project Management
14. Confirm roles, powers and delegated authority of both the ERG and the ERT <ul style="list-style-type: none"> <li>- Who is to be the ultimate Decision Maker?</li> <li>- Who is to conduct any negotiations?</li> <li>- Who will make up the Negotiating team locally?</li> <li>- Is additional support required in Country?</li> </ul>	Project Management
15. Decide basic policies and initial way ahead. How much is to be proactive, and how much sit-and-wait?	Project Management

## **Attachment 2 - Bomb Threat Response Actions**

### ***CONTROL***

The Project Director is responsible for directing the action to be taken in response to any bomb threat. Responsibilities include the following:

- ✓ Producing a risk assessment.
- ✓ Devising and maintaining a search plan of the office.
- ✓ Devising and maintaining an evacuation plan.
- ✓ Liaising with the responsible authorities.
- ✓ Arranging staff awareness and bomb threat practices.

### ***Bomb Threat***

The person receiving the call will:

- ✓ Activate recording equipment if fitted and the threat is received by telephone. This could be mobile phone and have telephone on speaker phone.
- ✓ Adopt helpful attitude and be conciliatory.
- ✓ Make written notes using guidelines issued for that purpose.
- ✓ Report immediately to Security Focal Point.
- ✓ The Project Director should inform project management who must assess the credibility of the threat and possible consequences and consider whether to:
  - ✓ Do nothing, evacuate or stay and search.
  - ✓ Notify law enforcement agencies/emergency services.
  - ✓ Alert neighboring business/residents.
  - ✓ Implement emergency shutdown procedures.

Search (only if search is not a Police responsibility)

Searches may be undertaken in response to a specific warning. Attention points:

- ✓ Know the police policy and role on search and evacuation.
- ✓ Prepare search plans in advance to ensure that premises are checked as quickly and effectively as possible.

- ✓ Divide the area into manageable-sized sectors
- ✓ Form search teams familiar with the area.
- ✓ Define search priorities.
- ✓ Search in a logical and thorough manner so that no part of the sector is left unchecked.

**"Do not touch or move any suspicious object"**

***Suspicious Object***

If a suspicious object is found:

- ✓ If possible, leave a marker near the device.
- ✓ Inform the Security Focal Point.
- ✓ Stay out of sight of the object at a safe distance (normally at least 25 meters) and report every possible detail to the Security Focal Point.

***Evacuation***

The decision to evacuate will be taken by management on the advice of the EHS Manager. The police will be consulted for advice:

- ✓ Evacuate as quickly and efficiently as possible using all available exits.
- ✓ Provide alternative routes to avoid the danger of passing close to any suspicious device.
- ✓ Consult neighboring premises and emergency services.
- ✓ Gather all people in pre-designated "Assembly Areas" taking personal belongings with them.
- ✓ Do not use the car park as an assembly area.
- ✓ Check that everyone has left the premises.



## Attachment 2A - Bomb Threat Checklist

- Switch on tape recorder (if connected)
- Tell the caller which town/district you are answering from
- Record the exact wording of the threat
- Ask these questions
  - Where is the bomb right now? .....
  - When is it going to explode? .....
  - What does it look like? .....
  - What kind of bomb is it? .....
  - What will cause it to explode? .....
  - Did you place the bomb? .....
  - Why? .....
  - What is your name? .....
  - What is your address? .....
  - What is your telephone number? .....
- Record time call completed.....
- Keep telephone line open
- Where automatic number reveal equipment is available record number
- Inform the security focal point

Time informed.....

This part should be completed once the caller has hung up and the security focal point has been informed

Time and date of call.....

Length of call.....

Number at which call is received (Your extension number) .....

- ABOUT THE CALLER

Sex of caller? ..... Male ☐ Female ☐

Nationality? ..... Age? .....

- THREAT LANGUAGE

Well Spoken ☐ Irrational ☐ Taped ☐

Foul ☐

Incoherent ☐

Message read by threat-maker ☐

- CALLER'S VOICE

Calm	<input type="checkbox"/>	Crying	<input type="checkbox"/>	Clearing throat	<input type="checkbox"/>
Angry	<input type="checkbox"/>	Nasal	<input type="checkbox"/>	Slurred	<input type="checkbox"/>
Excited	<input type="checkbox"/>	Stutter	<input type="checkbox"/>	Disguised	<input type="checkbox"/>
Slow	<input type="checkbox"/>	Lisp	<input type="checkbox"/>	Accent	<input type="checkbox"/>
Rapid	<input type="checkbox"/>	Deep	<input type="checkbox"/>	Familiar	<input type="checkbox"/>
Laughter	<input type="checkbox"/>	Hoarse	<input type="checkbox"/>		

If the voice sounded familiar, who did it sound like?

.....

- BACKGROUND SOUNDS

Street noises	<input type="checkbox"/>	House noises	<input type="checkbox"/>	Motor	<input type="checkbox"/>
Animal noises	<input type="checkbox"/>	Crockery	<input type="checkbox"/>	Static	<input type="checkbox"/>
Clear	<input type="checkbox"/>	Voices	<input type="checkbox"/>	Music	<input type="checkbox"/>
PA system	<input type="checkbox"/>	Booth	<input type="checkbox"/>		
Factory machinery	<input type="checkbox"/>	Office machinery	<input type="checkbox"/>		

Other (specify).....

- REMARKS

.....

.....

.....

Signature.....

Date.....

This appendix may be freely photocopied

Letter and Parcel Bomb Recognition Points

- Foreign mail, air mail and special delivery
- Restrictive markings such as confidential, personal etc.
- Excessive postage

- Hand-written or poorly typed address
- Incorrect titles
- Titles but no names
- Miss-spellings of common words
- Oily stains or discolorations
- No return addresses
- Excessive weight
- Rigid envelope
- Lopsided or uneven envelope
- Protruding wires or tinfoil
- Excessive securing material such as making tape, string etc.
- Visual distractions

### **Attachment 3 - Terrorist threat or action against company Personnel or facilities**

Upon receipt of terrorist threat or action against company personnel or facilities, the senior company official will notify police/ RAB/ army for necessary actions. The following information can be used as a guide when reporting:

- a. Nature and circumstances of threat or incident including date, time, location, injuries and damages sustained.
- b. Fill data concerning affected employees including names and addresses of next of kin and whether they or other interested parties should be notified.
- c. Reports on contacts and assistance offers to next of kin, if made, if the next of kin is residing or located in the immediate area.
- d. If kidnapping/taking of hostages occurs, provide
  - 1. Location, number, and identity of victims
  - 2. Number and identity of terrorists involved, organizations, weapons used, other descriptive information.
  - 3. Terrorist demands or claims.
  - 4. The local assessment of the situation, including effect on business operations.
  - 5. Initial actions taken by host government to respond to terrorist threat/incident. If company personnel, dependents, and facilities are threatened or subjects of a terrorist attack describe efforts in arranging enhanced security, medical assistance with host country officials (police, foreign minister, etc.).
- e. Precautionary measures taken for other employees at the location of the incident and elsewhere in the host country.
- f. Name of person sending message along with complete address, telephone number, and telex number for future contacts.

#### **Terrorist Incidents & Kidnappings**

##### **Immediate Action**

In the event of an actual or threatened terrorist incident or kidnapping, the Bangladesh Leadership Team shall be notified immediately. A sequence of events will occur at all locations; therefore, prompt detailed information is essential. The information above outlines what is needed in notification of this type of incident.

## **Checklists**

### Ransom Demand Telephone Checklist

Time of call: \_\_\_\_\_ Date: \_\_\_\_\_

Make every attempt to gain as much information from the caller as will furnish, but do not give the caller the impression you are reading questions from a checklist or that you are trying to keep him on the line so the call can be traced. Write down the responses of the caller word for word.

#### **If a Demand:**

Would you please repeat your statement?

\_\_\_\_\_

Who is making this demand?

\_\_\_\_\_

Why have you done this?

\_\_\_\_\_

#### **If a Kidnap:**

What is he/she wearing?

\_\_\_\_\_

Is he/she unharmed?

\_\_\_\_\_

Could you explain what you want?

\_\_\_\_\_

(Attempt to establish a time and date for next contact. Furnish a specific phone number.)

IF THE CALLER GETS INTO SPECIFICS ON PAYMENT, ASK:

What do you want?

\_\_\_\_\_

If money: What currency and how do you want it?

\_\_\_\_\_

Where and when should the ransom be delivered?

---

How should the payment be made?

---

End the call on a positive note by assuring the caller his demand will be communicated to the proper person in the company, as soon as possible. Leave the caller with the impression that his call has been understood and action will be taken. Make note of the following information.

Time call ended: \_\_\_\_\_

Background noises: \_\_\_\_\_

Sex of caller: \_\_\_\_\_

Approximate age: \_\_\_\_\_

Any accent: \_\_\_\_\_

What was the caller's attitude?

---

Was the caller sober?

---

Did the caller sound educated?

---

What did you notice about the call that you find unusual?

---

If the caller seemed familiar with the building or operation, indicate how:

---

---

Name of Person Receiving Call

---

Date

**IMPORTANT:** Pass this form to your supervisor immediately after completing call details.

# **Annexure 45**

## **Stakeholder Engagement Plan**



# STAKEHOLDER ENGAGEMENT PLAN (SEP)

A stakeholder engagement plan helps to identify project risk and give opportunity to the project related stakeholders to give their opinions. A stakeholder engagement plan includes identification, mapping, engagement plan and comment recording.

## 1.1 Identification of the Stakeholders

Identify the external (local people, workers, government officials etc. and internal stakeholders (project chairman, top management, head of EMS, HR, monitoring team, construction labourer, factory workers) related to this project. Disclosure of the all-project related information Infront of the stakeholders. List the stakeholders name, designation and their comments should be recorded.

## 1.2 Stakeholder Mapping

Mapping the list of stakeholders influence as per the **Table 1**. The scale of stakeholder influence involves 5 categories of stakeholder influence,

- **Very high:** A stakeholder with very high influence has a significant amount of control over key project decisions.
- **High:** A stakeholder with high influence can cause others to take action.
- **Medium:** A stakeholder with medium influence is often part of the decision-making process.
- **Low:** A stakeholder with low influence can offer opinions on decisions and express their concerns, but you may not always take their ideas into consideration.
- **Very low:** A stakeholder with very low influence can engage in the project when they desire, but they won't have control over any decisions.

**Table 1: Stakeholder Mapping**

Sl no.	Target Stakeholder	Meeting methods	Influence Level	Frequency of meetings	Remarks
1	Department of Environment (DoE), Gazipur	Key informative interview (KII) / public meeting	High	Yearly	As the project activity can cause environmental pollution and waste water generation and DOE is responsible to look after this issue.
2	UNO Office	Key informative interview (KII) / public meeting	Medium	Yearly	As the project activity can cause environmental pollution which can affect the local people
3	Upazila parishad	Key informative interview (KII) / public meeting	Meduim	Yearly	As the project activity can cause environmental pollution which can affect the local people and this project implementation can improve socio economic condition.
5	NGO	Key informative interview (KII) / public meeting	Low	Yearly	No major involvement in the project yet. Possible inclusion during future stages of the project with respect to project related community welfare activities.
6	Local framers	Public meeting, Face-to-face meetings, Trainings/workshops and FGDs	low	Yearly	There are very few agricultural lands near the project site and no solid waste and waste water will be dumped in the agricultural field
7	Local community	Public meeting, Face-to-face meetings, Trainings/workshops and FGDs	High	Once in six months	Due to project activity local community around the project area can be affected
8	Factory workers	Public meeting, Face-to-face meetings, Trainings/workshops and FGDs	Very High	Quarterly	Factory Workers of the proposed project can be affected due to lack of occupational health & safety, sanitation and poor working condition
9	Women workers	Public meeting, Face-to-face meetings, Trainings/workshops and FGDs	Very High	Quarterly	As the proposed project will employ women workers in the project activity

*Comments of the engaged stakeholder is provided in chapter 11*

### 1.3 Review of Comments

The comments received from the stakeholder engagement activities will be gathered (written and oral comments) and reviewed, and reported back to stakeholders on the following process:

- Comments are received from stakeholders orally or in the written form at the project level. For any emergency outbreak comments can be received through means not engaging physical interactions (telephone, email etc.)
- The proponent will organize the meeting with respective stakeholders
- The field survey team on behalf of the proponent would respond to the comments by oral/written/digital means at the project level
- A written record of all these will be kept and maintained and uploaded in the relevant website for easy access of all.

### 1.4 Benefits of SEP include

- **Manages expectations:** Ensures stakeholders know the project activities in different project phase.
- **Builds trust:** Creates stronger relationships between project proponents and stakeholders.
- **Improves decision making:** Makes it easier to anticipate stakeholders' needs and desires related to proposed project.
- **Promotes synergy:** By communicating, proponents become able to collaborate and create more effectively.

**Annexure 46**

**KII and FGDs**

**Participation List**

# KII Participation list

Sl No.	Date	Name	Authority	Gender	Designation
<b>Government Officials (Gazipur District)</b>					
<b>1</b>	19.11.2023	Md. Nayan Miah	Department of Environment (DoE), Gazipur	Male	Deputy Director
<b>2</b>	19.11.2023	Jasim Sheikh	UNO Office	Male	Confidential Assistant Of UNO
<b>3</b>	19.11.2023	Boloram Das	Upazila Parisadh	Male	Admin officer
<b>4</b>	19.11.2023	Arifa Akter	Palli Development Bank	Female	Branch Manager
<b>NGOs</b>					
<b>7</b>	19.11.2023	Khaibur Rahman	ASA, Sreepur Branch	Male	Branch Manager

FGDs participation list

SL no.	Name	Occupation	Age	Gender	Village
<b>Local Community</b>					
1	Rakib Mia	CNG Driver	23	Male	Sreepur
2	Md. Ahsan	Shopkeeper	22	Male	Sreepur
3	Jaker Hossain	Farmer	47	Male	Sreepur
4	Rahmatullah	Businessman	52	Male	Sreepur
5	Md. Iklas Seikh	Private Job Holder	27	Male	Sreepur
6	Jomir uddin	CNG Driver	32	Male	Sreepur
<b>Local Farmer</b>					
7	Tawhid	Farmer	33	Male	Sreepur
8	Abdul Hakim	Farmer	45	Male	Sreepur
9	Ishaq Mia	Farmer	56	Male	Sreepur
10	Karim	Farmer	30	Male	Sreepur
11	Abdul Jobbar	Farmer	36	Male	Sreepur
12	Ratan	Farmer	32	Male	Sreepur
<b>Vulnerable Group</b>					
13	Rumkey	Student	16	Female	Sreepur
14	Sofura Begum	Worker	27	Female	Sreepur
15	Ruksana	Worker	32	Female	Sreepur
16	Rahima Begum	House wife	43	Female	Sreepur
17	Shahanara	Worker	37	Female	Sreepur
18	Sokila	House wife	40	Female	Sreepur
<b>Factory workers</b>					
19	Md. Niaz Mia	Worker	35	Male	Sreepur
20	Uzzal	Worker	32	Male	Sreepur
21	Faisal	Worker	20	Male	Sreepur
22	Labu	Worker	23	Male	Sreepur
23	Masud Mia	Worker	30	Male	Sreepur
24	Mamun	Worker	24	Male	Sreepur