

Environmental Management Plan (EMP)

Mondol Intimates Ltd.

Shirir Chala, Bager Bazar, Gazipur, Bangladesh.



Conducted By:



GREENTECH TESTING COMPANY

Environmental Management Plan (EMP)

Mondol Intimates Ltd.

Factory: Shirir Chala, Bager Bazar, Gazipur, Bangladesh.



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Mondol Intimates Ltd.

Factory: Shirir Chala, Bager Bazar, Gazipur, Bangladesh.

Environmental Management Plan (EMP)

Report

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Mondol Intimates Ltd.



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Abbreviation

CEMP	Construction Environmental Management Plan
EMP	Environmental Management Plan
EMS	Environmental Management System
EIA	Environmental Impact Assessment
EMF Framework	Environmental Management
ERP	Emergency Response Plan
EMR Representative	Environmental Management
EIN	Environmental Improvement Notice
ECA	Environmental Conservation Act
ECC	Environmental Clearance Certificate
ECR	Environmental Conservation Rules
ECO	Environmental Control Officer
OEMP Management Plan	Operation Environmental
SOP	Standard Operating Procedure
ISO Standardization	International Organization for





CHAPTER: 1

Introduction

Mondol Intimates Ltd.

Factory: Shirir Chala, Bager Bazar, Gazipur, Bangladesh.

Introduction:

1. Background:

Mondol Intimates Ltd., is a 100% export oriented garments manufacturing factory which provides Manufacturing Facilities for Different type of ladies lingerie garments products. The company is established in 2013. The factory are situated at Shirir Chala, Bager Bazar, Gazipur, Bangladesh. The total floor area of the factory is 135047.86sft. Total factory is situated in this land area namely **Mondol Intimates Ltd.** The EMP has been conducted for **Mondol Intimates Ltd.**, the industry is adding to the present ready-made garment production of the country as well as providing employment to a substantial number of personnel. The total manpower of the company is 2300 including staff and workers. The Production capacity of this factory are 20,00000 (2 million) pieces per month.

An Environmental Impact Assessment (EIA) has been undertaken to assess & report the environmental & social Impacts associated with Mondol Intimates Ltd. According to the general procedures Required for getting environmental clearance certificate from DoE, or no objection certificate from DoE, a garment Manufacturing facility as it falls under **Orange –B** category according to inclusion list of ECR, 1997; schedule -1(clause C) does not require conducting EIA. It requires Initial Environmental Examination, but as the factory is already built and the factory proponent is wiling thus this EIA has been conducted.

This EMP report is prepared based on the impact identified in EIA of the factory. The Environmental Management Plan (EMP) is prepared provide additional guidance on the means, methods & mechanisms by which such mitigation measures will be implemented.

The EMP is one of the most important outputs of the environmental assessment process. The EMP is the synthesis of all proposed mitigate and monitoring actions, set to a timeline with Specific responsibility assigned and follow –up actions defined. The EMP can be prepared at different times of the project life. Usually these are prepared as:

- Construction Environmental Management Plan (CEMP)
- Operational Environmental Management Plan (OEMP)


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CEMP is developed to ensure that appropriate environmental practices are followed during a project's construction. OMEP is developed to ensure that appropriate environmental practices are followed during a project's operation & decommissioning. As the factory is already built OMEP is designed for this factory.

1.1 Objective of Environmental management plan:

The primary purpose of the OMEP is to provide an easily Interpreted reference document which ensures that the project environmental commitments, safeguards and mitigation measures from the environmental planning documents, project approvals, and the scope of Works and Technical criteria are implemented . It aims to minimize impacts associated with the operation of the project. The purpose of operational Environmental Management Plan is to:

- 
- Define details of who, what, where & when environmental management & mitigation measures are to be implemented.
 - Provide government agencies and their contractors, developers & other stake holders better on –site environmental management control over the life of a project.
 - Ensure that the commitments made as a part of the project's EIA are implemented throughout the project life.
 - Ensure the environmental management detail is captured & documented at all stages of the project.

This EMP documents aims to:

- Provide environmental management plans that minimize the environmental impact of the works and identify those responsible for its implementation.
- Define the monitoring program which assesses the implementation.

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1.2 Scope of EMP:

An EMP is a site or project specific plan developed to ensure that appropriate environmental management practices are followed during a project's construction or operation. As Mondol Intimates Ltd. are already built OMEP is prepared for this factory. The scope & content of EMP will be function of both the significance of a project's potential environmental Impacts and also a project's site. In case of EMP of Mondol Intimates Ltd. the study area covers the factory overview, environmental management plans, monitoring & review details.



CHAPTER: 2

Factory's description



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2. Factory's Overview

Mondol Intimates Ltd., is a Knit Manufacturing readymade garments industry situated Shirir Chala, Bager Bazar, Gazipur, Bangladesh. It provides all types of ladies lingerie products manufacturing facilities. The factory monthly production about 20,00000 (2 Million) Pcs per month of high quality different type of under-garments for 100% export oriented factory.

Mondol Intimates Ltd., is managed by a group of professional's aims at producing high quality garments through an effective quality control system right from sourcing of fabric to end product. The company has employed 2300 person. The basic data of the factory are furnished in Table 2.1 below:

Table 2.1: Overall information of the factory

Name of factory	Mondol Intimates Ltd.
Address	Shirir Chala, Bager Bazar, Gazipur, Bangladesh.
Year of Establishment	January, 2013
E-mail	momin@mondol.net
Factory Contact Person	Abdul Momin Mondol (Managing Director)
Ownership Type	Group of Industries
Office Time	8.00AM-5.00PM
Production Capacity	20,00000 (2 Million) pieces per month
Main Products	All kinds of ladies lingerie product
Total floor area of the factory	135,000 sq. ft.
Total Manpower	2300

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2.1 Factory Location:

Mondol Intimates Ltd., is a readymade ladies under garment manufacturing factory situated at Shirir Chala, Bager Bazar, Gazipur, Bangladesh. The site is about 61 km away from Dhaka Zero Point & 36.9 K.M from Hazrat Shahjalal International Airport without traffic congestion. The latitude of the site is 24°16'44.53" N and the longitude is 90°42'48.54"E. The location of the site is shown in figure 2.1a, 21b, 2.1c

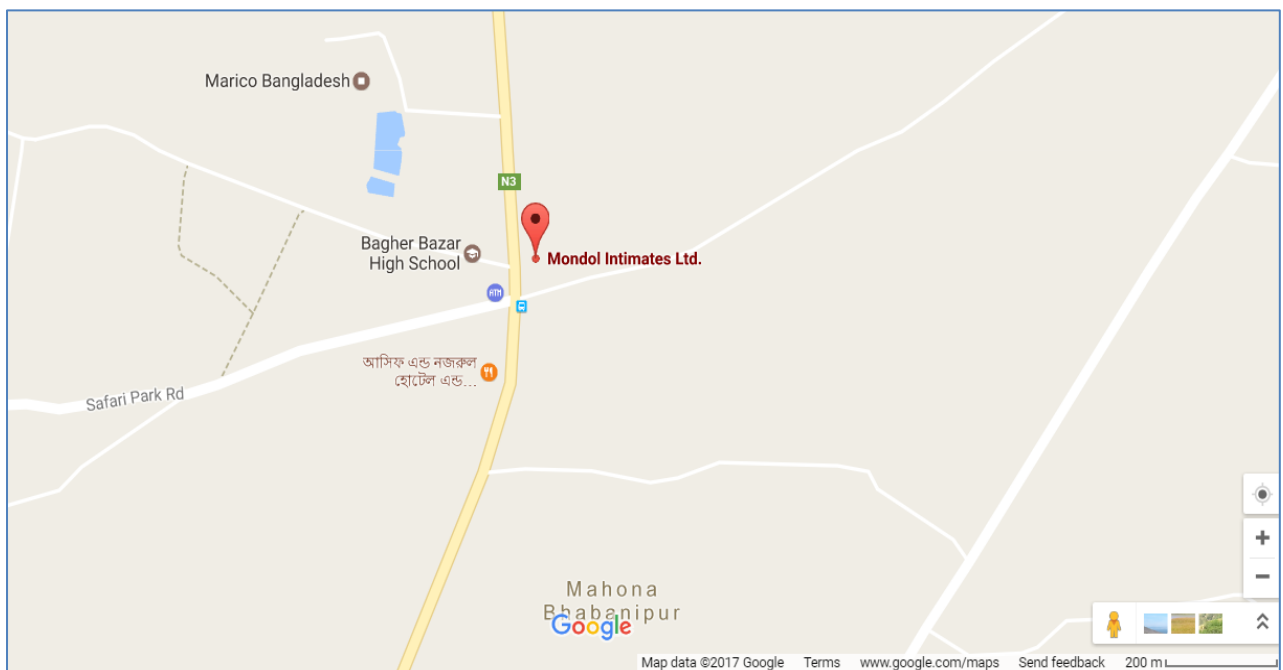


Figure 2.1a: Location of the factory in Bangladesh

Mondol Intimates Ltd.

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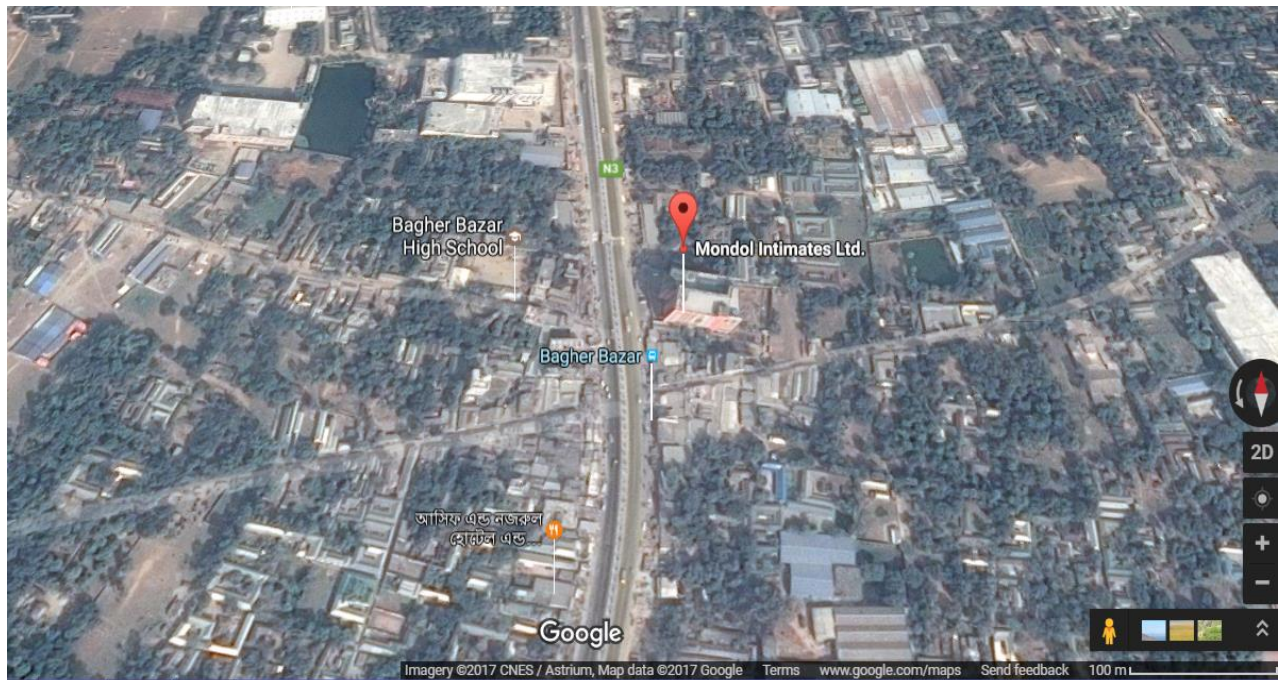


Figure 2.1b: Surrounding site picture from google map.

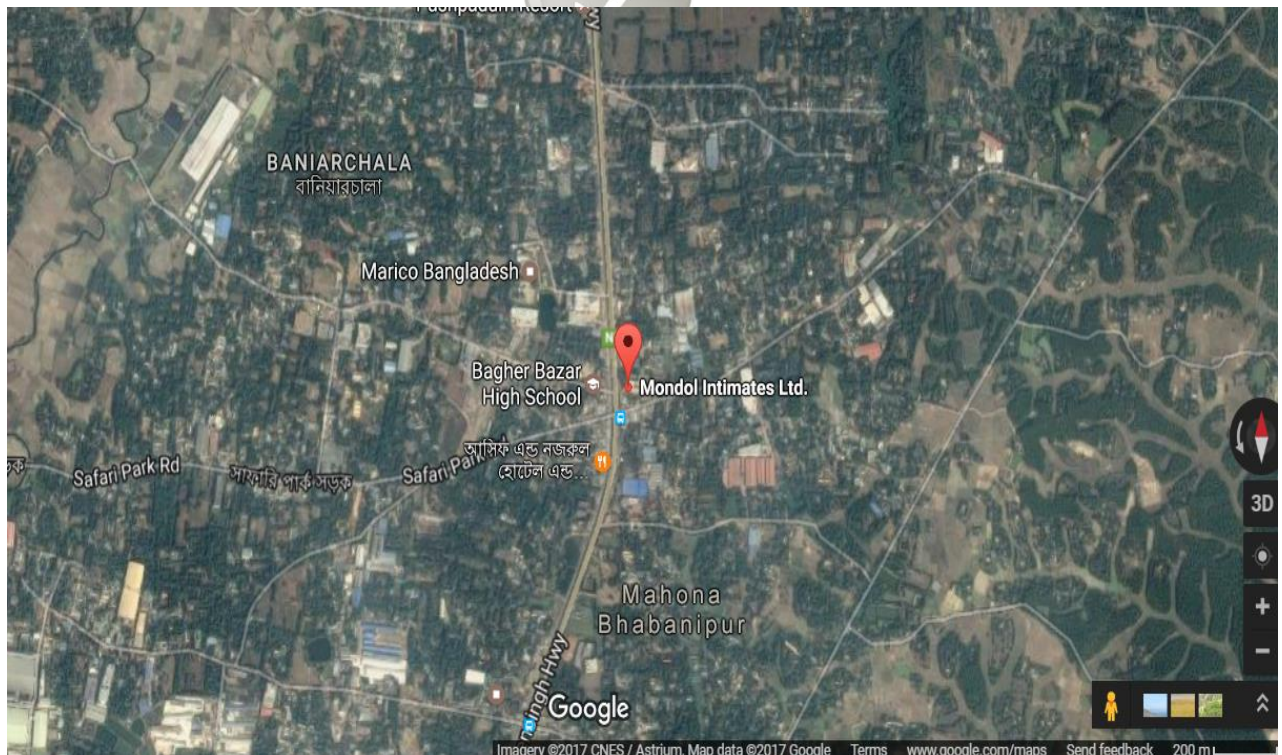


Figure 2.1c: Google satellite Map of the factory.

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2.2 Manufacturing Process:

The process flow diagram supplied by the factory management is shown in fig 2.1:

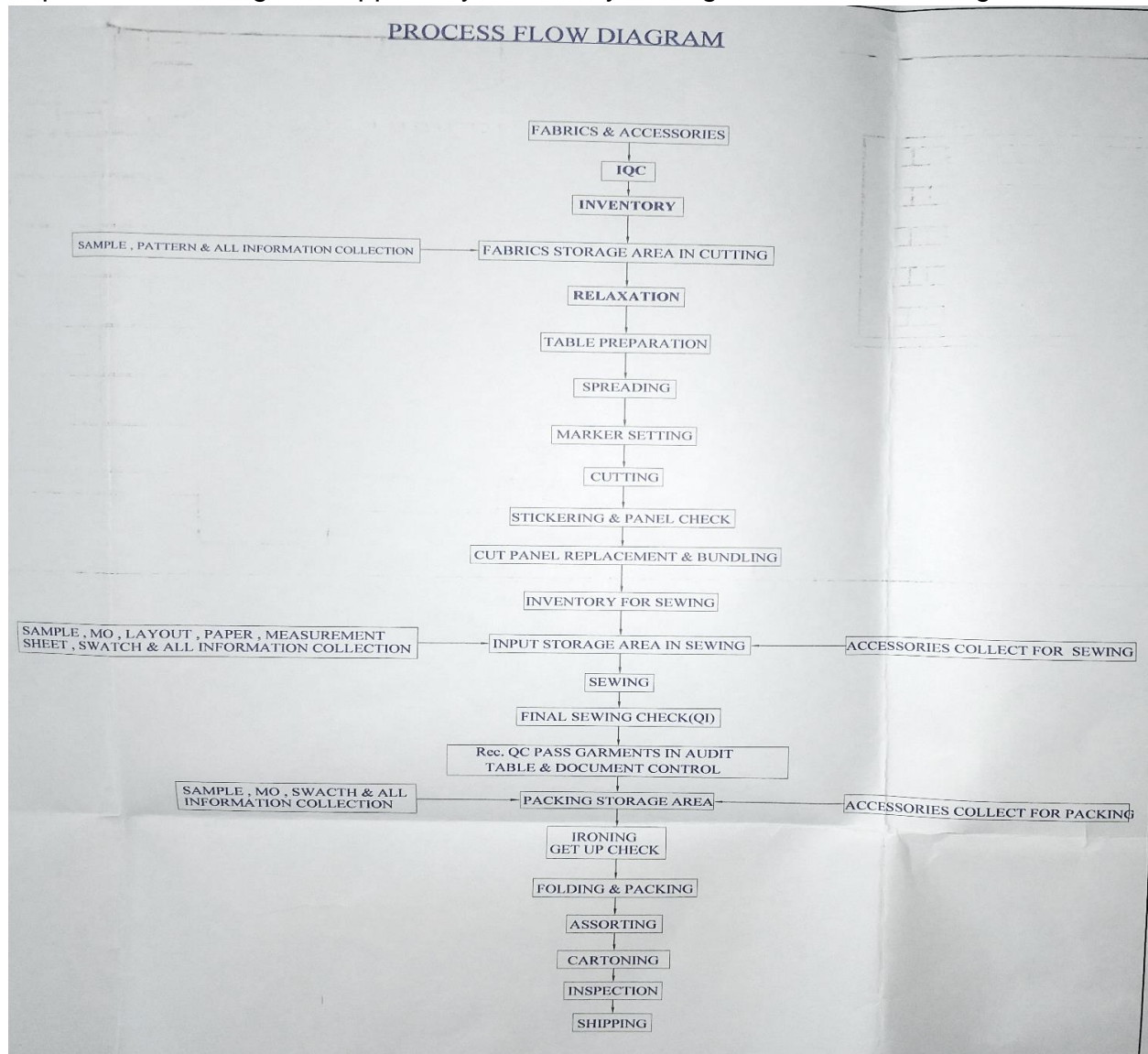


Figure 2.1: Production Process Flow diagram

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2.3 Raw Materials:

The main raw materials are-

- Fabric
- Label
- Sewing thread
- Hanger loop
- Button poly
- Hang tag
- Tissue paper
- Poly bag
- Carton
- Gum tape etc.

2.4 Current Status of the Factory:



Mondol Intimates Ltd., is production with all industrial and environmental facilities available. There are a lot of trees within 1 km of the factory. There are residential area, bare land, natural forest, educational institutions & other industries within approximately 1 km of the industry. The total Floor area is 135047.86 00 sft. **Mondol Intimates Ltd.**, are situated in mixed zone.

At the north side of the factory there is a natural forest. At south side of the factory there are road, at east side there are school area and other industries and at west side of the factory there are natural forest. **Mondol Intimates Ltd.**, are using ground water for both industrial & household (drinking & sanitation) purpose which is supplied by deep tube well. The maximum Energy consumption in Manufacturing is 13,796,609.07 (Average) TK bill per year. The factory also has generators for electricity generation. The fuel used in the industry is Diesel oil & Purchased electricity. The sanitary liquid waste of the factory is stored in septic tank.

The major pollution caused by the factory's operation are- water pollution by discharging liquid waste generated in wet process i.e air pollution by boiler/ generator's effluent gas emission, noise pollution created during the operation of boiler, generator and other

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vibration creation machines. Besides this the ambient air polluted by dust, due to the construction activities of extending Manufacturing.

Solid waste is generated at **Mondol Intimates Ltd.**, in the form of, kitchen/canteen water, air and chemical container and the liquid waste is waste water from knitting process. The solid waste such as sludge, broken machine parts is handed over to local waste buyer. Although the factory causes some pollution but also has a positive side and that is the factory has created employment for many people, due to this factory local community has built up daily.



CHAPTER: 3
**Environmental Management Plan &
Implementation Strategies**

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3.0 Environmental Policy:

A set of policies has been established guiding the execution of all work performed by the Mondol Intimates Ltd. Directorate. The policy that under pins the environmental activities is included in the following statement.

- The **Mondol Intimates Ltd.**, are a factory where the protection of the environment is given high priority.
- **Mondol Intimates Ltd.**, recognizes that it has a responsibility to ensure that through the implementation of good environmental management practices all the potential adverse impacts on the environment associated with this project could be appropriately mitigated.
- All works are conducted in compliance with all applicable environmental laws & regulation as well the standards which support the protection, preservation & enhancement of the environment.
- Perform top management reviews, at least annually , to ensure compliance with established policies, procedures and applicable environmental laws & regulation ;
- Maintain a commitment to waste minimization & pollution prevention and will incorporate these principles when defining project specification & conducting its activities.
- Identity, assess & manage environmental risks & endeavor to set & review quantifiable objectives & targets ; associated with its operation to minimize the likelihood of adverse environmental impacts.
- Be committed to building relationships with government, the scientific community and the public to promote the development and communication of innovative , cost effective solutions to environmental problems;
- Ensure a commitment to continual improvement of the Environmental Management system (EMS) wherever possible & sustainable.

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3.1 Potential Environmental Risk Assessment

A risk assessment has been accomplished for **Mondol Intimates Ltd.**, in the risk matrix, for each potential hazard, the strategy of examining the “consequence” prior to the “probability” is conducted to ensure the implications are not overlooked purely because a hazard is assessed as lower likelihood of occurrence. A simple assessment of L (Low), M (Medium), (High) is used for the assessment of probability of the occurrence.

Table 3.1: Risk Assessment matrix.

LIKELIHOOD	CONSEQUENCE				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	S	S	H	H	H
Likely	M	S	S	H	H
Possible	L	M	S	H	H
Unlikely	L	L	M	S	H
Rare	L	L	M	S	S

H	High Risk
S	Significant Risk
M	Medium Risk
L	Low Risk

The identification of environmental aspects and impacts is important to the selection of environmental safeguards and work methods for operational activities such as maintenance.

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3.2 Mitigation /Benefits Enhancement measures


For effective and environmental friendly operation of an industry, a set for guiding tools and suggestions are necessary which need to be followed at various stages of plant installation, operation and maintenance. This plan generally has various components of management depending on the type of industry or plant activity and types of discharge and their pollution potential. This Environmental Management Plan (EMP) once prepared forms the basis of environmental management actions from the part of the plant authority may need modification or up- gradation because of changes in the plant operation and accurate pollution load/environmental problems detected afterwards. The plant authority may also be needed to expand the suggested outline of the EMP proposed in this report.

This a section describes the modalities provided in the project for the implementation of the proposed mitigation measures to its potential negative impacts. It proposes the institutional responsibilities for the implementation of the mitigation measures, the implementation indicators, the time frame for monitoring and follow –up and also the estimated cost for the implementation activities. The Environmental Management Plan of the plant is summarized in a table below:

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Table 3.2: Environmental Aspects, Impacts and Controls associated with the factory's Operational Phase.

Environmental Aspects	Potential Impacts	Identified risk	Risk Evaluation				Risk rating		Operational Mitigation / Control Measures
			SEVERITY		LIKELIHOOD		Score	Level of Risk	
			Condition	Score	Condition	Score			
Air Quality	Air pollution & Dust emission	Dust & other exhaust atmospheric emission i.e. emission of SO ₂ , NO _x , CO,SPM etc. occur due to the stack gas of generator & vehicular movement in the plant area.	<div> Minor</div>	2	Possible	3	6	MODERATE (Yellow)	<ul style="list-style-type: none">• The factory uses chimney through which the flue gas are emitted for reducing the impact of stack air emission on environment. The factory ensures that the chimney is in proper functional condition at all time.• The factory has planted trees in its premises to reduce carbon emission and thus minimize air pollution.• Stack gas emission level can be controlled by using gas generators with low NOx technology.• Provision of spraying water to reduce dust emission on road.• Ensuring vehicles, generators, compressors are well maintained.• Masks are provided to workers to avoid inhalation problem of workers due to dust & Chemical smells.• The factory ensure that workers wear masks during working in dusty area.


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Water Quality	Water contamination	<ul style="list-style-type: none"> Disposal of oil used for maintenance of machines sewerage discharge 	Minor	2	Unlikely	2	4	MODERATE (Yellow)	<ul style="list-style-type: none"> Machine is stored in a certain place within a container and the container need to handover to all supplier or waste buyer for recycling or proper disposal according to local laws and regulation. Verification of oil disposal by supplier might be done by the factory which would be a good practice. Flow Meter need to be installed at overhead tank.
Soil Quality	Soil erosion & sedimentation	<ul style="list-style-type: none"> Maintenance work that excavate soil leakage of oil from vehicle can cause soil contamination. 	 Minor	2	Rare	1	2	LOW (Green)	<ul style="list-style-type: none"> The solid waste generated from the operation of plant are segregated into biodegradable & recyclable waste and handed over to NGOs or local registered waste buyer for proper management. Contamination of soil is reduced by suitable management of oil & fuel.
Noise	Noise Pollution	Noise can generate from vehicle movement & especially from the operation of generator, compressor or any other vibrating machines.	Insignificant	1	Unlikely	2	2	LOW (Green)	<ul style="list-style-type: none"> Use of personal protective equipment (PPE) like ear plug/ ear muffs in the noisy workplace like generator area. Building noise insulated ensure satisfactory maintenance of relevant equipment. However as the factory already has lots of trees and around with natural forest which is very useful for reducing noise to make buffer zone.

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Waste Management/ Disposal	Surrounding environmental pollution & soil contamination	Incorrect disposal of waste	Minor	2	Possible	3	6	MODERATE (Yellow)	<ul style="list-style-type: none"> Disposal of solid sewage waste in own septic following the waste management plan. Solid waste need to collect in storage and handed over to registered local waste buyer. Medical waste generated by the factory is handed over to local hospital.
Ecological Environment (Flora & Fauna)	Loss of habitat of some flora & fauna and biodiversity reduction	Inappropriate control of weeds	Negligible	1	Rare	1	1	LOW (Green)	<ul style="list-style-type: none"> Maintain maximum vegetation Implementation of agro forestry techniques well adapted to the site.
Dangerous Goods / Hazardous Material Handling	Contamination of soil, surface, water, ground water & accident	Accidental spillage from fuel and chemical storage due to unconscious handling	 Unlikely	2	Rare	1	2	LOW (Green)	Proper inspection and Maintenance / storage of hazardous materials such as needle, fudge electric blubs, empty oil/ medicals waste etc.
Traffic Pattern	Increase of vehicular traffic as well as gaseous emission & Risk of increasing road accidents	Vehicle increase at plant area	Negligible	1	Possible	3	3	LOW (Green)	Vehicular movement would be restricted at day time and adequate parking facilities might be provided

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3.3 Environmental Management Plan:

The EMP for **Mondol Intimates Ltd.**, have been prepared to address potential issues based upon discussion with factory management, workers, local community 's view, stakeholder consultation and from the site visit of experts. The EMP is additional to and compliments the factory's safety management system.

The following environmental issues that require environmental management plans based upon the potential impacts of activities by for **Mondol Intimates Ltd.**, Are as follows:

- Air pollution / Dust Management plan.
- Noise & vibration Management plan
- Waste Management plan
- Hazardous chemicals or other substance Handling, storage and Disposal plan
- Energy Management Plan
- Soil Management plan.
- Drainage Management plan
- Ecological Flora & Fauna management plan
- Emergency Response & Disaster Management plan.



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Table 3.3.1: Air pollution & Dust Management plan.

Objective	<ul style="list-style-type: none"> To minimize the adverse impact to air quality caused by stack gas emission from boiler, generator & also dust management generated from machineries operations. To comply with relevant govt. rules.
Performance Indicator	<ul style="list-style-type: none"> Nil complaints relating to air quality management. Extraction equipment maintained as per maintenance schedule.
Relevant Govt. Policies, Act & Rules	<ul style="list-style-type: none"> ECA1995, ECR1997 (Amended in 2005), Brick Burning Control Act 1989 ,(Amended 1992), Motor Vehicle Act , 1983
Management Plan	<ul style="list-style-type: none"> The factory use chimney with adequate stack height to ensure the proper dispersion of pollutants generated from the operation of boiler and generator for reducing the impact of stack air emission on environment. The factory ensures that the chimney is in proper functional condition at all time. Stack gas emission level can be controlled by using generated with low- NOx technology. The factory has planted a lot of trees in its premises which reduce the carbon emission by the factory & minimize the air pollution. The carbon reduction plan of the factory is given below by estimating the carbon sequestration by the planted trees. The factory will implement cogeneration system i.e it will use the flue gas emitted from generators to heat the boiler water. Periodic maintenance of boiler & generator is conducted. The factory keeps surrounding environment(side walls, roads) free of details to minimize dust .There is no open burning of construction/ waste materials at the site. Workers are provided mask during working in any dusty area
Monitoring & Reporting	<ul style="list-style-type: none"> Monitor the stack air emission quality biannually. Biannually monitor the ambient air quality (including dust level PM2.5, PM20)
Time Frame	Entire life span of the factory.
Estimated Annual cost	Approximately BDT 2,00000
Responsibility	<p>Management of the factory:</p> <ul style="list-style-type: none"> Head of maintenance- Total implementation of above of air pollution management plan production Manager- Air quality in the production area is good enough EHS Officer- Monitor the hygiene of air environment inside & surrounding the plant

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Table 3.3.2 Noise & Vibration Management Plan.:

Objective	<ul style="list-style-type: none"> To avoid nuisance noise to nearby residents generated from generator & other vibrating machineries. To comply with Noise standard of Bangladesh as well as OSHA.
Performance Indicator	<ul style="list-style-type: none"> Nil complaints relating to noise or vibration nuisance.
Relevant Govt. policies , Acts & Rules	<ul style="list-style-type: none"> ECR97, Osha guideline ,Bangladesh National Building code
Management plan	<ul style="list-style-type: none"> Building noise insulated generator room & ensure satisfactory maintenance of relevant equipment. Impose speed limit to truck / other vehicles & machineries at the plant area. Restrictions are imposed to factory vehicles about using horn outside the locality. Actions against vibration i.e. shock absorber, damper/isolator should be taken. Machine that could be creates vibration are installed at ground floor of the factory with appropriate vibration management system. Provide sufficient personal protective equipment's (PPE) at the work place All the related personnel will be provided proper training about the relevant issues.
Monitoring & Reporting	Monitor the work place noise level (d8) biannually
Time Frame	Throughout the project life
Estimated Annual Cost	Approximately 1,50,000 BDT/year
Responsibility	Manager (Compliance) <ul style="list-style-type: none"> TO hire govt. organization / independent third party testing laboratory for testing noise level. Ensure that all workers use PPE during operation.

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Table 3.3.3: Solid Waste Management Plan:

Objective	<ul style="list-style-type: none"> To minimize waste generation by developing strategies for the management and disposal of all waste in a manner that is sustainable and sensitive to the environment. To comply with govt. waste management policy
Performance Indicator	Nil complaints about waste storage or removal.
Relevant Govt. policies, Acts & Rules	ECA95&2010(amendment) ECR 97
Management Plan	<ul style="list-style-type: none"> The factory does not dispose any kind of solid waste on the factory premises or not dump in the surface water like local pond, canal or river etc. The solid waste is stored properly. Solid waste are stored separately in a certain location in proper manner such as jute waste need to collect at one place and poly/ carton waste should collect at another place, Metal/hazardous material waste such as fudge electric bulbs, empty chemical container are stored another in separate place of the waste storage. Solid wastes are Handover to local buyer for reuse or recycling and waste tracking record shall be kept. The metal or glass waste of electric bulbs is taken by the suppliers to recycle them. The dry sludge is handed over to local buyer. The factory should maintain record for tracking the sludge amount. The medical waste should keep separately with proper labeling like syringe, needle, infection waste (cotton, gauge), and general waste and need to keep them in separate bin. Medical waste generated by the factory is handed over to local hospital. Daily wastes are stored in clearly labeled container's and in such a manner that they are released to open land, water courses or or the atmosphere. .All the related personnel are provided proper training about the relevant issues.
Monitoring & Reporting	<ul style="list-style-type: none"> Daily wastes have to be collected & handover to govt. municipality agent. The inventory record of waste disposal will be maintained as proof for proper management as designed.
Time Frame	Entries Life span of the factory.
Estimated Annual cost	Approximately BDT 3,50,000
Responsibility	HR/ Compliance Manager

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- Responsible for overall site cleanliness and waste management.
 - EHS Officer
 - Monitoring of site through cyclical inspections
- All workers handling wastes
- Regular waste collection to minimize excessive waste storage.

Table 3.3.4 Hazardous Chemicals or other substances Handling, Storage and Disposal plan.

Objective	<ul style="list-style-type: none"> • Reduce the risk of contamination from fuels, oils and hazardous wastes. • .Response effectively to incidents such as spills and leaks.
Performance Indicator	<ul style="list-style-type: none"> • .Reduction in amount of hazardous chemicals used wastes • .Reduction in chemical accidents.
Relevant Govt. policies , Acts & Rules	<ul style="list-style-type: none"> • Nuclear safety and radiation Protection Ordinance , 2000,ECR 97
Management plan	<ul style="list-style-type: none"> • Temporarily storage on site of all hazardous or toxic substances is done in safe containers labeled with details of composition, properties and handling information. The hazardous substances are placed in leak –proof containers to prevent spillage and leaching. • Chemical are stored properly and the date of expire are tagged with chemical container .MSDS are provided at the storage location of each chemical. • Dispose of hazardous chemicals and containers in accordance with Occupational Health and Safety (OHS) and environmental requirements. The empty chemical containers will hand over to suppliers for recycle or appropriate disposal. • The chemical wastes are transported by specially licensed carriers and disposed in a licensed faculty. • The jar of taking individual chemicals need proper tagging on this surface and need to be kept in designated place. • Hazardous chemical used in washing & ETP are used properly by following user & safety instruction. • All the related personnel are provided proper training about the relevant issue.
Monitoring & Reporting	<ul style="list-style-type: none"> • all spills & accidental release of hazardous chemicals must be reported and documented immediately.

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	<ul style="list-style-type: none"> Workers are provided Occupational Health & safety Training On regular basis.
Time Frame	Throughout the factory operation
Estimated Annual Cost	Approximately 50,000
Responsibility	<ul style="list-style-type: none"> EHS Officer Ensure procedures are followed and incidents reported Organize OHSA training for workers. Store keeper Store & handle dangerous chemicals/ substances carefully. All workers handling hazardous substances. Should follow the written instruction for handling hazardous substance.

Table 3.3.5 Energy Management Plan.

Objective	<ul style="list-style-type: none"> The energy management is aimed at minimizing electricity use results from site equipment & workplace lighting. Comply with standards of energy use.
Performance Indicator	<ul style="list-style-type: none"> Annual energy savings for all departmental facilities Annual fuel savings for vehicle fleet Increased use of energy- efficient construction materials and appliances.
Management plan	<ul style="list-style-type: none"> A dedicated energy management team comprising personnel from relevant department is working to overview the overall energy management system. Energy saving lights are installed in different area of the factory for saving energy. Take energy rating into account when purchasing new equipment. All the related personnel are provided proper training about turn off the machine and light switch after work.
Monitoring & Reporting	<ul style="list-style-type: none"> Conduct annual energy efficiency audit to find out the scope for energy savings.
Time Frame	Once in a year throughout the factory life.
Estimated Annual Cost	Approximately 200000
Responsibility	<p>Management Of the factory;</p> <ul style="list-style-type: none"> To arrange energy audit technical personnel. To monitor & record electricity consumption & other electrical Issues & take necessary actions if any problem arises.

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Table 3.3.6 Soil Management Plan.

Objective	<ul style="list-style-type: none"> Maximize rehabilitation success Utilize best practice topsoil management techniques
Performance Indicator	Minimize the risk of introducing weeds and disease
Relevant Govt. policies , Acts & Rules	ECR97, National Conservation Strategy (NCS) 1992
Management plan	<ul style="list-style-type: none"> The contamination of soil is avoided by suitable management of oil and fuel used in machineries & vehicles. Care is taken to compact the soil after refilling so that, soil erosion and consequent soil import is avoided. Tree plantation surrounding the factory
Monitoring & Reporting	<ol style="list-style-type: none"> Daily visual inspections Monitor soil fertility , erosion rate by third part once in a year
Time Frame	Entire life span of factory
Estimated Annual Cost	Negligible
<ul style="list-style-type: none"> Responsibility 	<ul style="list-style-type: none"> Compliance Manager. Arrange site audit on sediment and erosion controls Environmental Officer. Visual inspection of windows to ensure they remain intact and weed free. Monitoring topsoil re-spread.

Table 3.3.7 Drainage Management Plan.

Objective	<ul style="list-style-type: none"> To protect groundwater dependent vegetation. Prevent pollution underlying groundwater sources
Performance Indicator	Implement an environmentally friendly sewerage system
Relevant Govt. policies , Acts & Rules	ECR95, ECR97, Environmental Court Act, 2000
Management plan	<ul style="list-style-type: none"> Make Sure that all drainage systems are covered & liquid wastes are disposed to drain after treatment to avoid soil pollution. Clean the drainages line periodically.
Monitoring & Reporting	<ul style="list-style-type: none"> Proper maintenance of drainage system will be conducted periodically.
Time Frame	Entire life span of factory
Estimated Annual Cost	Approximately BDT 40000
Responsibility	<ol style="list-style-type: none"> Compliance team Make arrangement for- Drainage design Construction of drainage structures Environment Officer Cyclical Environmental Checklist.

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Table 3.3.8 Ecological Flora & Fauna Management Plan.

Objective	<ul style="list-style-type: none"> • Biodiversity Conservation. • Compliance with site – specific landscape management plans.
Performance Indicator	Number of local native species of flora and fauna identified and protected.
Relevant Govt. policies , Acts & Rules	National Environmental management Action plan (NEMAP), 1995 Forest Policy (2013) Bangladesh Wildlife Preservation Act(1973, Amended in 1974)
Management plan	<ul style="list-style-type: none"> • All recognized natural habitats and protected areas in the immediate vicinity of the activity are not damaged or exploited, all staff are strictly prohibited from hunting, foraging, logging or other damaging activities. • For large trees in the vicinity of the activity, mark and cordon off with a fence large trees and protect root system and avoid any damage to the trees. • Adjacent wetlands and streams will be protected, from any construction site run off caused by the factory, with appropriate erosion and sediment control feature to include by not limited to hay bales, silt fleeces. • Avoid bush fires.
Monitoring & Reporting	Any incident involving death or injury to an animal is to be reported to a supervisor as an environmental incident.
Time Frame	Entire life span of factory
Estimated Annual Cost	Negligible
Responsibility	Compliance team <ul style="list-style-type: none"> • Review register of required fauna handling personnel • Environmental officer • Monitoring and reporting of fauna encounters.

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Table 3.3.9 Emergency Response & Disaster Management Plan.

Objective	Reduce the risk of accidents at plant area
Performance Indicator	Establish a safe working environment
Relevant Govt. policies , Acts & Rules	Labor law 2006, ILO guideline
Management plan	<ul style="list-style-type: none"> The factory management has taken proper measures to handle any emergency situation like fire, earthquake. Flood & storm, accidental chemical exposure. provision and inspection of firefighting equipment and fire hydrant system in all the sections; A detail evacuation plan (fire exit, emergency exit door etc.) is established and communicated with workers. Periodic inspection of safety relief valve provided with pressure vessels and equipment; preventive maintenance; aware the workers about electric shock by necessary training. Regular fire drill operation is conducted. Workers are informed about what to do in earthquake like stay in a safe place such as under table of desk, not to try move outside during earthquake, workers who will be outside during earthquake shall remain stay out of the building, trees lamp post etc. Other relevant safety instruction of emergency situation It informed to workers by training. Workers are aware of dangers from physical hazards such as obstacles covered by flood water (storm debris, drainage opening, and ground erosion) and from displaced reptiles or other animals. Emergency core team who will involve in flood cleanup will avoid direct skin contact with flood water, wearing protective cloths and PPE. A medical team has been prepared for primary treatment. Prepare an emergency contact directory consisting contact numbers of nearest fire service, local police station, hospitals etc., & display it in a place that everybody can see it. Declaring the factory as a “no smoking zone” When plant runs at abnormal situation e.g. If emission level increases than its normal level then immediately inform to health & safety Officer as well as project manager. If any emergency situation arises then assigned person will turn on the emergency alarm to make all the worker alert. Build a safety committee which from firefighting team, rescue team. The committee arrange a meeting every month to discuss about five safety management. Ensure proper training of the employees about the disaster management, fire safety as well as occupational health & safety.
Monitoring & Reporting	<ul style="list-style-type: none"> Daily check fire extinguishers & Water hydrant in position. Daily 2 times inspect that all fire exits are open Fireman switch Testing daily Servicing Fire Extinguishers & Records of accidents, which is recorded on & around the entire facility.
Time Frame	Entire lifespan of factory

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Estimated Annual Cost	Approximately 2,00000
Responsibility	EMS Head <ul style="list-style-type: none"> • Arrange Fire training after every 3 months Environmental Officer • Responsible for fire control and response. • Monitoring daily danger warning, shire warning and bans

4.4 Environmental Monitoring Schedule at a glance:

Environmental issues	Parameter	Recommended Monitoring Frequency
Air Quality	<ul style="list-style-type: none"> • Dust deposition (PM10),PM2.5) • Stack & ambient air emission (CO2, CO, SO4, NOx, O2,NO) 	<ul style="list-style-type: none"> • During construction & biannual in operation phase • Biannually
Water Quality	<ul style="list-style-type: none"> • Effluent Wastewater quality • Wastewater quality (pH, DO, BOD,COD, TDS, etc) • Drinking water Quality test by third party 	<ul style="list-style-type: none"> • Daily in-house check • Biannually check by third party • Biannually (Recommended) • NOTE: According to Bangladesh labor rules 2015 Drinking water from any source should be tested at least annually
Noise	<ul style="list-style-type: none"> • Noise Level in decibel 	<ul style="list-style-type: none"> • . Biannually
Waste Management	<ul style="list-style-type: none"> • .Garbage collection • .Cleaning & Maintenance 	<ul style="list-style-type: none"> • Daily
Soil Site audit sediment and erosion controls	<ul style="list-style-type: none"> • Site audit sediment and erosion controls 	<ul style="list-style-type: none"> • Annually
Energy consumption	<ul style="list-style-type: none"> • Liters of diesels/ fossils fuel used for the 	<ul style="list-style-type: none"> • Monthly monitoring of energy
Emergency response Equipment	<ul style="list-style-type: none"> • Extinguisher's in position • Water Hydrants • Fireman switch testing • Servicing fire Extinguishers • Review Records of Accidents which is recorded on & around the entire facility • OHS training 	<ul style="list-style-type: none"> • Daily • Daily • Monthly • Quarterly • Quarterly • Biannual
Hazardous Material	<ul style="list-style-type: none"> • Site inspection of storage and distribution facilities • Emergency preparedness and personnel competence • Contamination investigation following any release of 	<ul style="list-style-type: none"> • Daily • Biannual • As- needed basis

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	hazardous materials to the surrounding environment	
Resources Usage	<ul style="list-style-type: none">• All water taps shut when not in use• Power to unused equipment shut at distribution panel	<ul style="list-style-type: none">• Daily• Daily



CHAPTER: 4

Conclusion & Recommendation



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4.0 Conclusion:

So recapitulate it can be said that the Environmental Management Plan (EMP) of **Mondol Intimates Ltd.**, focusses specifically on the required environmental management measures or creating environmentally friendly workplace. An EMP has been carried out for the factory according to the requirement of the proponent as it has been made mandatory but doe or garments manufacturing industry.

The important output is presented in the EMP of **Mondol Intimates Ltd.**, thus the factory management can take proper mitigation steps against adverse environmental impacts by following this EMP. The necessary measure to mitigate impact regarding different environmental parameter such as Air, Water, waste chemical, handling, noise level: 1 has been proposed in this EMP.

However, in the case of **Mondol Intimates Ltd.**, all necessary implementation measures to mitigate adverse environmental and health and safety impacts have already been taken to meet National Environmental Quality Standards. On the other, the plant has a positive impacts in terms of employment in the operation phase. Further, this will indirectly help in boosting up the national economic condition through foreign investment. An outline of EMP has been given in the present report to mitigate/ enhance the impacts, which occurs during operation phase of the plant.

4.1 Recommendation

This is recommendation that:

- All appropriate environmental management measures detailed in this report, together with any other environmental management commitments should be implemented throughout the entire life of the factory.
- Solid wastes (waste food) & liquid wastes need to dispose according to rules and regulation.
- Workers should be provided proper training & it should be ensured that workers use PPE during plant operation.