ENVIRONMENTAL ASSESSMENT REPORT

INPROVEMENT OF POURA PARK AT THE SOUTH SIDE OF POURASHAVA COMPOUND

JUNE 2018

CHOWMUHANI POURASHAVA, BEGUMGANJ, NOAKHALI

Municipal Governance and Services Project (MGSP)

Bangladesh Municipal Development Fund (BMDF)

EXECUTIVE SUMMARY

Introduction: The Chowmuhani Pourashava is a "Category A" Pourashava as well as the main town and business center of Begumganj Upazilla having a total area of 20.70 sq. km. The Pourashava has been enhancing its infrastructural development for ensuring the necessary services to its inhabitants, meeting the growing demand of the people and facilitating trade and businesses to face the future economic challenges in this area. Recently, the Pourashava has prepared its Capital Investment Plan (CIP) for its infrastructural development following a participatory approach with the technical assistance from Bangladesh Municipal Development Fund (BMDF) and identified the improvement of the Poura Park at the South Side of the Pourashava Compound as a one of the priority work (CIP No.39) for for increasing recreational facilities for the inhabitants of the Pourashava at the Poura area, creating environment friendly space, enhancing trade and business, creating employment opportunities through new service and increasing revenue of the Pourashava. The estimated cost of the subproject is BDT 100 million and the duration of construction is one year starting in October 2018 and to be ended in December 2019.

Location of the subproject: The proposed subproject is located at South Side of Pourashava Compound is situated at Alipur area under the Ward No. 03 of Chowmuhani Pourashava and at the south side of the Pourashava compound. It is located at the heart of the town and near the Noakhali-Feni national highway at North side and old Begumganj Court area at the south side. It is surrounded by Poura Bhavan, Poura Auditorium and Poura Mosque, and Stock yard of R&H at the North side; Livestock Office and Begumganj Court (old) area at the South side; T&T Office and residential area of its office staff at the East; and Textile Engineering College and Technical School at the West. It is bounded by Ward # 1 and 2 at the West, Ward # 4 at the East, Begumganj Union at the South and Ward # 5 at the North. The coordinate of the proposed site is $22^0 56' 34.4''$ N and $91^0 6' 17.1''$ E.

Justification of selecting the subproject: The Chowmuhani Pourashava is the heart of Begumganj sub-district and the main center of trade and business of sub-district as well as of greater Noakhali region. It also serves as the main town of administrative work and other public services and facilities of the people. The people of the Pourashava areas have been increasing day by day and the most of the open place are going under the construction of residential building, commercial building and industrial uses thus it is limiting the open place for recreational facilities of the Poura citizen, place for spending leisure time of adult and old aged people, playing ground for children and opportunity to come closure to the nature. Therefore, the demand of park with natural beauties is increasing. However, there is only one Shishu Park at the Golabaria area of the Pourashava. But, the space of the park is not adequate and the overall condition of the Shishu Park is poor. Hence, people did not feel interest to visit the park with their children. In this situation, the Pourashava Authority felt the priority need of developing a Park for the citizens of the Pourashava. The Pourashava Authority has decided to improve the Begumganj Dighi, adjacent to the Pourashava Compound, and its surrounding areas for developing it as a park for all age categories of people giving emphasis the facilities for children and older aged people. The

Begumganj Dighi is the largest dighi of the Pourashava area and the area of the Dighi is 85005 sqm and the land area around the Pond as Park is 3451 sqm. Thus, the total area of the proposed Poura Park is 61456 sqm which is adequate for developing it as the Poura Park. In addition, due to the proximity of the Pourashava Compound, it is comparatively secured area and all the people including women and children will be able to move and enjoy the nature of the Pond, available recreational facilities to be built and surrounding natural environment more safely. The communication facility of the area is also good and all types of local vehicles are available to travel to and from this area.

Further, the proposed subproject area is legally owned by the Pourashava and no land acquisition is required. Again, it will not affect any people living at surrounding areas. Moreover, it will create the employment opportunity for the local people hence will help in reducing the unemployment problem of the people of Chowmuhani Pourashava. It will also create the revenue generation avenue for the Pourashava and will help the Pourashava in attaining the sustainability of the institution.

Considering the above mentioned situation, the decision of developing a poura park at Pourashava area and importantly, improving the Begumganj Dighi as Poura Park it rational.

Objective of the study: As per the environmental management framework of BMDF, it is required to conduct an environmental assessment of the proposed kitchen cum municipal market in accordance with the legal regulatory framework of the Government of Bangladesh and World Bank policies. The general objective of the study is to determine the major environmental impacts that might be happened due to the implementation of the subproject and to recommend possible mitigation measures to avoid or reduce identified adverse environmental impacts and to enhance positive impacts. The specific objectives include:

- Identifying existing environment condition at the sub-project areas for environmental components viz. air, noise, water, land, soil, biological and socio-economic aspects;
- Prediction and evaluation of positive and negative impacts that may result from the proposed sub-project;
- Undertaking public consultation and disclosure of project-related information;
- Formulation of an environmental management plan (EMP) to eliminate or minimize the adverse impacts of the project on the surrounding environment and affected communities;
- Preparing occupational health and safety to minimize any accident or emergency situation;
- Proposing plans for the post project monitoring, ongoing consultation and disclosure, EMP implementation, and institutional arrangement/organizational arrangement; and
- Suggestion and recommendation for abatement/mitigation/management measures to ensure environmental, biological, health and social compatibilities and also to comply with the National Environmental legal requirements and national Environmental Quality standards.

Methodology of the study: This is a qualitative study. However, both quantitative and qualitative data are collected and analyzed to achieve the objective of the study and show the baseline information of the study areas. Quantitative data are collected from secondary sources and qualitative data are collected from primary sources using different qualitative approach and methods. The approach and methods those are applied during the assessment include: (i) Consultation with stakeholders and community people; (ii) Focus Group Discussion; and (iii) Field visit and observation.

Findings of environmental impact assessment: The key environmental and social impacts, and benefits those are found and anticipated during environmental screening, field observation and community consultation are given as below:

Land use: Existing land use adjacent to the proposed Poura Park will not be changed as a result of the subproject but the land value might be increased.

Site cleaning work: The Pourashava has partially developed the land of the proposed site by their own-fund. Now, only 15 trees will be felled down to construct the boundary wall which has minor ecological impact. It will be minimized by planting three-times more trees within the Park premises.

Noise level: Temporarily, moderate adverse impact of noise level is anticipated to adjacent residential and commercial properties during construction works. During the operation, minor noise pollution may happen during the huge gathering at any especial religious ad national occasions. However, change in noise levels will not exceed State regulatory thresholds at any location.

Air quality: No remarkable impact on air quality is anticipated.

Water quality: The waste water to be generated from the restaurants may fall into local drain and ultimately to the outfall areas which have moderate impact on aquatic environment. However, the existing water quality of the outfall is badly polluted by the industrial effluents. Therefore, the impact of newly added waste water could have minor impact on it. However, proposed solid waste management system will reduce the chance of water pollution by the Park.

Threatened and Endangered Species: There is no threatened and endangered species in the subproject area. So, no impact is anticipated to threatened or endangered species habitat.

Drainage Congestion: Drainage congestion is minor. But, erratic rainfall may create drainage congestion for short term. However, the proposed drainage system all around the Park will help to avoid the drainage congestion during operational period.

Solid waste management: Improper collection and disposal of the generated wastes materials may degrade the quality of the surrounding environment and degrade the aesthetic value. However, proposed solid waste management system will reduce the chance of water pollution by the Park.

Tribal people: No minority or tribal populations exist on site or within the immediate area and, therefore, no impacts will fall on such populations.

Despite the above mentioned negative impacts, the subproject will bring some positive impacts which are given as below:

Recreational facility: The citizens of the Pourashava including children, women, girls, elderly people etc will get environment-friendly facility with available space for recreation and spending leisure time. It will help the people for their mental refreshment, social interaction and good health.

Employment and income generation: The Park has a positive impact on the local economy due to the generation of employment opportunity and will facilitate the trade and business of people living in the different parts of the Pourashava.

Conclusion and recommendations: On the basis of the findings of the environmental assessment, it could be concluded that the subproject is environmentally sound and sustainable. The potential environmental impacts seem very minimum and manageable, and it would be minimized by taking proposed mitigation measures. The Government of Bangladesh and World Bank have some legal and social safeguard compliances issues those are applicable during constructing and operating the proposed subproject. Considering the issues and findings of the study, following key recommendations are made for smooth construction and successful operation of the Park:

- The recommendation of the community people should be considered at the all stages of the subproject design, construction and operation;
- There should be a parking facility at the front of the entrance of the Park;
- A well-defined solid waste collection and disposal system should be in place;
- Drinking water supply facilities should be available at the Park;
- Safety and security of children should be ensured at the Park;
- All waste water should be discharged to the Municipal sewer system. In the absence of such system in the vicinity of the Park, the septic tanks should be constructed;
- Fire prevention and fighting equipment should be provided and maintained as well as official staffs and management committee should be trained in fire prevention and fighting;
- The Park should have facilities for prayer, toilet, toys, meals and snacks;
- Contractor will ensure availability of the PPEs and first-aid box, water supply and sanitation facilities to the workers;
- The surrounding people should be informed about the construction and operation of the Park; and
- Above all, the EMP should be followed and mitigation measures should be monitored as per EMP.

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ABBREVIATION

AP	Affected People
BBS	Bangladesh Bureau of Statistics
BDT	Bangladesh Taka
BMDF	Bangladesh Municipal Development Fund
BOQ	Bill of Quantity
CIP	Capital Investment Plan
DOE	Department of Environment
ECA	Environmental Conservation Act
ECoP	Environmental Code of Practice
ECR	Environmental Conservation Rules
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ES	Environmental Screening
FGD	Focus Group Discussion
GOB	Government of Bangladesh
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GW	Ground Water
IUCN	International Union for Conservation of Nature
MD	Managing Director
MGSP	Municipal Governance and Services Project
NGO	Non-Governmental Organization
OP	Operational Policy
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
RCC	Reinforced Concrete Cement
SPW	Supply Water
ULB	Urban Local Body
WB	World Bank

1. INTRODUCTION

1.1 Background of the Pourashava and the Sub-project

The Chowmuhani Pourashava is the main town of Begumganj Upazilla of Noakhali District and the core commercial center of greater Noakhali. It is the largest and oldest pourashava in the district. This "A" class Pourashava is established in 1973. The Begumganj Upazilla is located between 22°57′ north latitudes and between 91°6′ east longitudes and the Pourashava is bounded by Jamidar hat at East, Banglabazar at West, Bajra at north and Begumganj Sadar at South. The total area of this Pourashava is 20.70 square kilometer. The total area of the Pourashava is divided into nine administrative Wards and 23 Mahallas. (Source: The Pourashava Data 2018, Population and Housing Census 2011 and https://en.wikipedia.org/wiki/Begumganj_Upazila)

According to the Population and Housing Census 2011, the total households of the Pourashava are 13919 and the total population is 80001 of which 42062 are male and 37939. The average size of the household is 5.4. The population density of the Pourashava is 5517 per sq. km. However, the Pourashava data 2018 shows that the total population is around 117000.

Map 1: Location map of Chowmuhani Pourashava

As a "Category A" Pourashava as well as the main town and business center of the Begumganj Upazilla, the Chowmuhani Pourashava has been improving its infrastructural development for ensuring the necessary services to its inhabitants, and taking new initiatives to meet the growing demand of the people and facilitating the trades and businesses to face the future economic challenges in this area. Recently, the Pourashava has prepared its Capital Investment Plan (CIP) for its infrastructural development following a participatory approach with the technical assistance from Bangladesh Municipal Development Fund (BMDF) and identified the "Improvement of Poura Park at the South Side of Pourashava Compound" as one of the priority work (CIP No.39) for increasing recreational facilities for the inhabitants of the Pourashava at the Poura area, creating environment friendly space, enhancing trade and business, creating employment opportunities through new service and increasing revenue of the Pourashava.

The Pourashava has already submitted an application for sub-credit to BMDF seeking financial support in improving the Poura Park. The significant features of the subproject are given in **Table 1-1** as below:

Table 1-1: The significant features of the proposed subproject

Name of the Sub-Project	Improvement of Poura Park at the South Side of Pourashava Compound
Name of District	Noakhali
Name of ULB	Chowmuhani Pourashava
Location of the subproject	Alipur under Ward number 03.
Service Areas	The total area of the Pourashava and overall different unions under Begumganj Upazilla area.
Structural Design Option	RCC and CC structure mixed design.
Total Land Area	61456 sqm
Land Acquisition	Chowmuhani Pourashava is the legal owner of the land.

1.2 Justification of Selecting the Subproject

The Chowmuhani Pourashava is the heart of Begumganj sub-district and the main center of trade and business of sub-district as well as of greater Noakhali region. It also serves as the main town of administrative work and other public services and facilities of the people. The people of the Pourashava areas have been increasing day by day and the most of the open place are going under the construction of residential building, commercial building and industrial uses thus it is limiting the open place for recreational facilities of the Poura citizen, place for spending leisure time of adult and old aged people, playing ground for children and opportunity to come closure to the nature. Therefore, the demand of park with natural beauties is increasing. However, there is only one Shishu Park at the Golabaria area of the Pourashava. But, the space of the park is not adequate and the overall condition of the Shishu Park is poor. Hence, people did not feel interest to visit the park with their children. In this situation, the Pourashava Authority felt the priority need of developing a Park for the citizens of the Pourashava. The Pourashava Authority has decided to improve the Begumganj Dighi, adjacent to the Pourashava Compound, and its surrounding areas for developing it as a park for all age categories of people giving emphasis the facilities for children and older aged people. The Begumganj Dighi is the largest dighi of the Pourashava area and the area of the Dighi is 85005 sqm and the land area around the Pond as Park is 3451 sqm. Thus, the

total area of the proposed Poura Park is 61456 sqm which is adequate for developing it as the Poura Park. In addition, due to the proximity of the Pourashava Compound, it is comparatively secured area and all the people including women and children will be able to move and enjoy the nature of the Pond, available recreational facilities to be built and surrounding natural environment more safely. The communication facility of the area is also good and all types of local vehicles are available to travel to and from this area.

Further, the proposed subproject area is legally owned by the Pourashava and no land acquisition is required. Again, it will not affect any people living at surrounding areas. Moreover, it will create the employment opportunity for the local people hence will help in reducing the unemployment problem of the people of Chowmuhani Pourashava. It will also create the revenue generation avenue for the Pourashava and will help the Pourashava in attaining the sustainability of the institution.

Considering the above mentioned situation, the decision of developing a poura park at Pourashava area and importantly, improving the Begumganj Dighi as Poura Park is rational.

1.3 Policy Legal and Administrative Framework

There are some environmental laws and regulations under the environmental legal framework of Bangladesh for environmental protection and natural resources conservation. In addition, there are also some safeguard policies of World Bank to prevent and mitigate undue harm to people and their environment in the development process. All the subprojects to be prepared and implemented under the BMDF should be in compliance with these environmental laws and policies of Bangladesh and World Bank. The proposed subproject will also be prepared and implemented in compliance with these laws and policies. The environmental laws and regulations of Bangladesh and the safeguard policies those are applicable to this subproject are given as below:

National Environmental Laws and Regulations:

- National Environmental Policy 1992
- Bangladesh Environmental Conservation Act (ECA) 1995 amended 2002
- Environmental Conservation Rules (ECR) 1997 amended 2003
- National Land-use Policy 2001
- Bangladesh Labor Action 2006
- Bangladesh National Building Code

World Bank Safeguard Policies:

- OP/BP 4.01 Environmental Assessment
- OP/BP 4.04 Natural Habitats
- OP/BP 4.11 Physical Cultural Resources

Now, as per the environmental management framework of BMDF, it is required to conduct an environmental assessment of the proposed Poura Park in accordance with the legal regulatory framework of the Government of Bangladesh and World Bank policies. Therefore, the

Chowmuhani Pourashava has deployed an individual consultant to carry out the environmental impact assessment of the proposed Poura Park as a subproject.

2. OBJECTIVE AND METHODOLOGY

2.1. Objective of the study

The general objective of the study is to determine the major environmental impacts that might be happened due to the implementation of the subproject and to recommend possible mitigation measures to avoid or reduce identified adverse environmental impacts and to enhance positive impacts. The specific objectives include:

- Existing environmental condition at the sub-project areas for environmental components viz. air, noise, water, land, soil, biological and socio-economic aspects;
- Prediction and evaluation of positive and negative impacts that may result from the proposed sub-project;
- Consideration of alternatives;
- Undertaking public consultation and disclosure of project-related information;
- Grievance redress mechanism;
- Formulation of an environmental management plan (EMP) to eliminate or minimize the adverse impacts of the project on the surrounding environment and affected communities;
- Preparing occupational health and safety to minimize any accident or emergency situation;
- Proposing plans for the post project monitoring, ongoing consultation and disclosure, EMP implementation, and institutional arrangement/organizational arrangement; and
- Suggestion and recommendation for abatement/mitigation/management measures to ensure environmental, biological, health and social compatibilities and also to comply with the National Environmental legal requirements and national Environmental Quality standards.

2.2. Scope and methodology of the study

2.2.1. Scope of the study

This study includes different dimensions of environmental issues those need to be considered at different stages of selecting, implementing, and operating the subproject following the environmental policies of Government of Bangladesh and World Bank. Addressing the environmental issues in this subproject includes a series of tasks to be carried out by the study. The scope and methods of this Environmental Assessment includes:

- Baseline data acquisition of the both environmental and social to carry out the Environmental Assessment;
- Understanding the technical aspects of the proposed sub-project through gathering and analyzing primary and secondary data;

- Explore the present environment condition of subproject influence areas through reconnaissance survey and in consultation with community people;
- Identification of potential environmental impacts and evaluating the consequences through using given environmental screening format;
- Categorize the pollutions that may come out during pre-construction, construction and operation phases at subproject site and surrounding areas through key informant interview and field observation;
- Discuss with the people living in the sub-project area about the mitigation measures suggested to avert the negative environmental impacts and to enhance the positive environmental impacts through stakeholders' consultations and general public consultation; and
- Assess the institutional aspects, and develop Environmental Management and Monitoring Plan for the subproject in consultation with Mayor and other PIU members , and based on the findings of the study.

2.2.2. Methods of the study

The study is qualitative in nature and different qualitative methods are used to gather information. Both primary and secondary information are collected, analyzed and used to fulfill the requirements of the study. The primary information is collected following qualitative technique as given below:

- Consultation with stakeholders and community people;
- Focus Group Discussion; and
- Field visit and observation.

Consultation with stakeholders and community people: Consultative meeting with different stakeholders such as Ward Councilors, civil society members, representatives of business men, community leaders, representatives of children and representative of community people is done to exercise the environmental screening using prescribed form of BMDF and filled in the screening form as per their information and opinion. Before starting the screening exercise, the participants are informed about the details of the project information and the way of implementing the subproject. They are also asked to provide their opinion, feedback and suggestions on potential impacts and its mitigation and/or enhancement measures of the subproject.

Focus group discussion: Two focus group discussion (FGD) sessions are organized separately with male community participants and female community participants, mainly the people who are residing adjacent to the proposed subproject and coming to the Dighi to know their attitudes towards the proposed subproject, its potential impact and their feedback, and suggestions on mitigating the potential negative impacts and enhancing the positive impacts of the subproject.

Field visit and observation: Field visit and observation of different environmental features are done by the consultant to understand the overall environmental situation of the subproject areas and the potential impacts of the subproject on it during pre-construction, construction and operational stages.

In addition, some quantitative information is collected from secondary sources to complement the qualitative information. The secondary information is collected by reviewing national, district and Pourashava level document and different websites.

3. SUBPROJECT DESCRIPTION

3.1. Name of the subproject

The name of the subproject is "Improvement of Poura Park at South Side of Pourashava Compound".

3.2. Brief description of the subproject

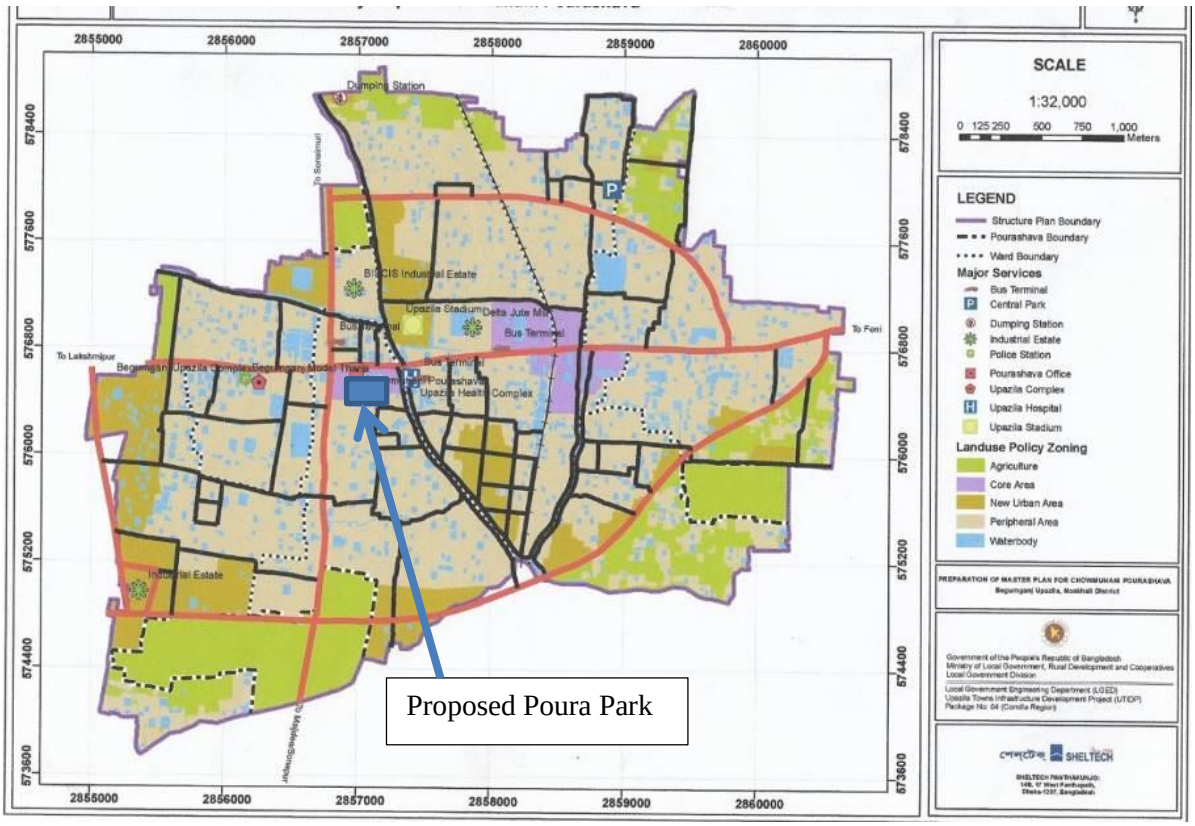
The proposed subproject named "Improvement of Poura Park at South Side of Pourashava Compound" is situated at Alipur area under the Ward No. 03 of Chowmuhani Pourashava and at the south side of the Pourashava Compound. It is located at the heart of the town and beside the Noakhali-Feni national highway and old Begumganj Court area. The in-depth interview with Executive Engineer reveals that the total area of the proposed site is 61456 sqm of which the Dighi or Pond covers 58005 sqm and surrounding area of pond which is under the park is 3451 sqm. The proposed Poura Park with all feasible amenities for all age categories of people will be developed here and the construction period will be 15 months starting from October 2018 and to be ended by December 2019. The estimated cost of the subproject is BDT 100 million. The proposed subproject will consist of following features and facilities:

- One entry and one exit way;
- Boundary wall at all sides with protection;
- Decorative boundary wall at south side;
- RCC drain all around the area;
- Monument of the father of the nation at the entry gate;
- One pedestrian/walk-way all around the boundary of the subproject;
- Foot over bridge at the south side of the Park;
- One mini gate at the south side of the park to facilitate the ablution for prayer of mosque on the pond of the park and a grill at two sides of the passage from the ghat of pond of the park to the mini gate on the way to mosque;
- Renovation of RCC ghat at the south side of the pond;
- One water fountain at the middle of the pond;
- One kid zone with slippers and cradles;
- Two canteen, two gift shops and two toy's shop at any two opposite sides of the Park;
- Separate toilets and washing basins for male and female at the entry of the park and its opposite side;
- Street lights and landscape lights;
- Drinking water supply; and
- Sitting benches at all sides of the Park.

3.3. Location of the subproject

The proposed subproject named Improvement of Poura Park at South Side of Pourashava Compound is situated at Alipur area under the Ward No. 03 of Chowmuhani Pourashava and at

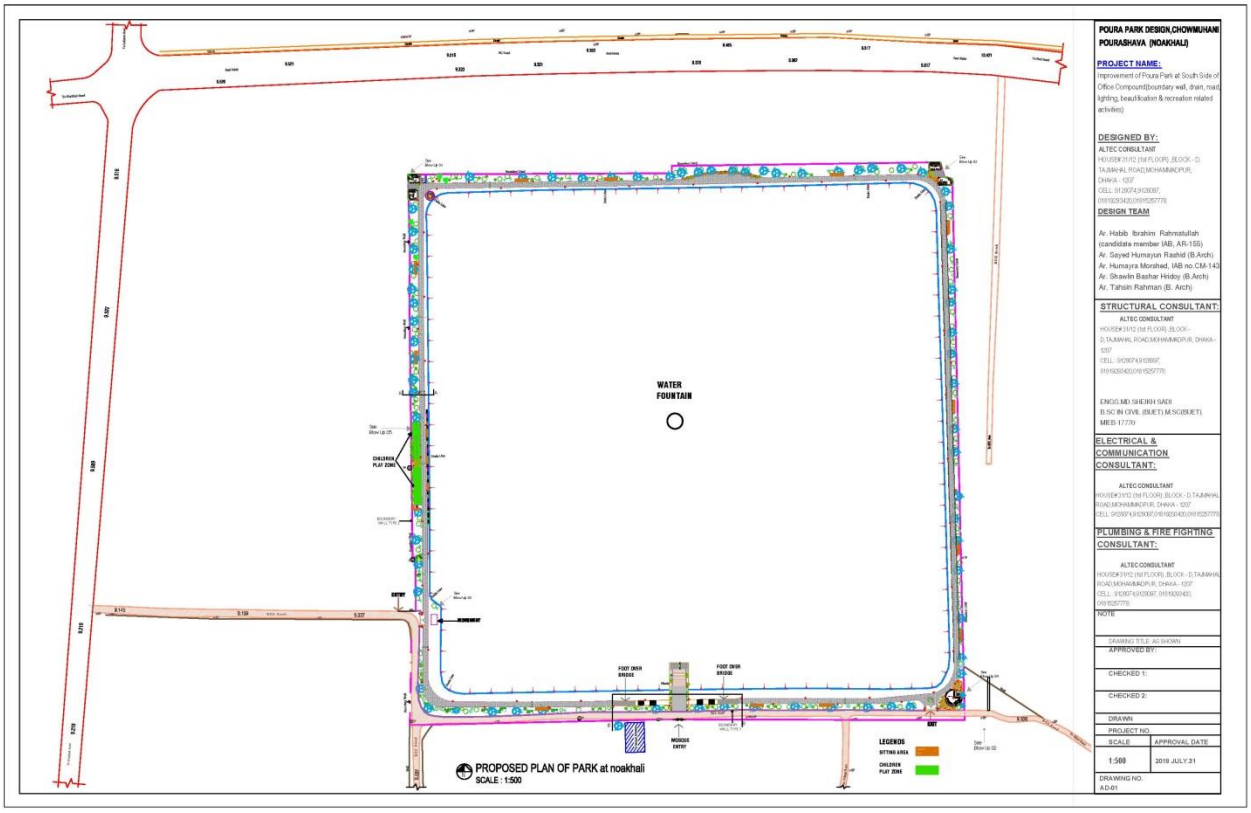
the south side of the Pourashava compound. It is located at the heart of the town and near the Noakhali-Feni national highway at North side and old Begumganj Court area at the south side. It is surrounded by Poura Bhavan, Poura Auditorium and Poura Mosque, and Stock yard of R&H at the North side; Livestock Office and Begumganj Court (old) area at the South side; T&T Office and residential area of its office staff at the East; and Textile Engineering College and Technical School at the West. It is bounded by Ward # 1 and 2 at the West, Ward # 4 at the East, Begumganj Union at the South and Ward # 5 at the North. The coordinate of the proposed site is $22^0 56' 34.4''$ N and $91^0 6' 17.1''$E. The location map of the proposed market is given as below:



Map 2: Location map of Proposed Poura Park

3.4. Layout of the subproject

The layout plan of the proposed Poura Park is given as below:



Picture 1: Layout plan of the proposed Poura Park

3.5. Ownership of the subproject land

The area of the proposed Poura Park, including Begumganj Dighi, is the property of Noakhali Zilla Parishad. However, the Zilla Parishad has given an office order to the Chowmuhani Pourashava to improve the area as Park and use the area. Hence, now, the legal owner of the proposed land is the Pourashava. The total area of the land is 61456 sqm which adequate for the Poura Park. Therefore, no land acquisition is required.

3.6. Present condition of the proposed subproject's site

The total area of the proposed site is 61456 sqm of which 58005 sqm is occupied by a renowned Pond (locally named as Dighi) named Begumganj Dighi and the rest of the area i.e. 3451 sqm is the embankment of the pond and its surrounding areas which will be improved for developing the Park.

Picture 2: The pond, based on which the Park will be developed

The pond is covered with indigenous aquatic flora, locally named Kuchuri Pana, and the depth of the pond is between 8 feet to 10 feet in dry season which extends 12 feet to 14 feet in monsoon season. At this stage, re-excavation is not required.

On the other hand, the Chowmuhani Pourashava has already renovated the embankment and ghat of the pond by CC work, and partially developed the embankment of the pond and surrounding areas by earth filling. However, there is more need of earth filling to develop the embankment and surrounding area suitable for the Park. There is a damaged boundary wall at the West side and a part of the South side of the site keeping the other sides open.

Picture 3: A part of the embankment to be developed by earth filling with recreational

Further, there is a RCC drain at the South-East corner of the site which is connected with the Noakhali khal. However, there is no drainage system all around the site. Thus, the storm water from the surrounding areas is discharged into the pond through the natural drain. In addition, there are significant numbers of indigenous trees all-around of the site. Furthermore, there is a damaged BC road of the Pourashava at the South side of the area which is connected with different local roads of that side.

Picture 4: RCC drain at the south-east corner of the site

Picture 5: A portion of trees to be felled down

Further, there are 15 trees those need to be felled down for the development of site for the park.

3.7.Key Activities of the Subproject

The activities to be carried out during pre-construction include:

- Removal of existing structures;
- Land filling for preparing the site for construction;
- Construction of the semi-pucca site office;
- Construction of semi-pucca separate labor sheds with toilet facilities for male & female workers;
- Construction of pucca platform for stocking construction materials; and
- Construction of temporary fence around the labor shed and stockyard.

The major activities to be carried out during the construction phase include:

- Layout and cast in-situ RCC piling works where necessary;
- Earthwork and excavation for RCC column;
- Construction of RCC structure with associated civil works;
- Construction of separate toilets for male and female inside the building;
- Construction of water tank, septic tank and soak well;
- Construction of solar energy facilities;
- Electricity connection and other ancillary works;
- Provision for workers' health and safety.

The activities to be carried out and continued during operational phase include:

- Solid waste collection and disposal;
- Waste water collection, treatment and disposal;
- Traffic control; and
- Fire safety, natural disaster and risk management.

3.8. Category of the subproject

Environmental Screening (ES) for the Poura Park has been conducted with the purpose of fulfilling the requirements of Government of Bangladesh (GOB) and the World Bank (WB). Environmental Screening ensures that environmental issues are properly identified in terms of extent of negative and positive impacts. The environmental screening of the Poura Park is done through the participation of Pourashava Councilors, Engineers and Official, and different professional categories of community people. The list of participants of this exercise is attached as **Annexure 1.** Environmental Screening Checklist, as adopted in Appendix C of the Environmental Management Framework (EMF) of the MGSP, was administered for identifying the impacts and their extents.

- According to ECR 1997: **Green** √□ Orange A □ Orange B □ Red □ Not Listed □
- According to WB classification: **Category B** □ √ Category C □

Considering the criteria of the subproject and its potential environmental impacts, the Poura Park can be considered as **Green** as per ECR-97*(Multistoried Commercial Building)*. According to the WB classification, it is of **Category B**.

3.9. Analysis of alternatives

The analysis of alternative of the subproject is done from three main perspectives such as location, design and technology or method of construction. The analysis of alternative of the subproject is given as below:

(a) Analysis of alternative location: This is a subproject where there is a Park and it will be improved for more recreational facilities for children, old aged people and others. In addition, the CIP which is developed with the technical support of BMDF and in a participatory way with the active participation of community people along with people from different professions identified the proposed Park for improvement. Therefore, the analysis of alternative location is not really applicable here.

(b) Analysis of alternative design: A user-friendly design is required for improving the Poura Park of the Chowmuhani Pourashava. The steel framed structure is more resistant to earthquake and wind, but it is costly form of construction and construction is cumbersome. On the other hand, the RCC framed structure design is comparatively less resistant to earthquake and wind than steel frame structure but it is comparatively less costly form of construction is simple than steel frame structure. Considering the above issues, the RCC frame structure design is preferred by the Pourashava.

(c) Analysis of alternative technology or method of construction: The latest construction technologies, equipment and materials are comparatively costly but it is preferable for long-term use and multi-storied building. The simple technological methods are usually preferred for domestic construction and frequently available materials in local markets are mostly used. However, the latest construction technologies, equipment and materials are desired. The technology to be used should not spoil the natural environment, and the materials to be used should be eco-friendly.

(d) No subproject scenario: If the subproject i.e. Poura Park is not implemented, the sufferings of the children and other community people due to lack of recreational facilities will continue. It will hamper the overall mental and physical development of the children and physical health of the old aged and young people. In addition, the Pourashava will loss the opportunity of earning more revenue through service delivery of the citizen.Thus, ultimately affect the attaining of sustainability of the Pourashava. Therefore, it is required to construct the proposed subproject.

Conclusion: The improvement of the Poura Park is then finally selected by the Chowmuhani Pourashava.

3.10. Estimated cost of the subproject

The estimated cost of the proposed Poura Park is BDT 100 million.

3.11. Schedule of implementation

The proposed subproject will be started on March 2019 and will be completed by the end of March 2020. Therefore, the subproject will be implemented within a period of 12 months.

4. BASELINE ANALYSIS OF ENVIRONMENTAL CONDITION

4.1. Physicochemical environment

4.1.1.Important environmental features

Important environmental features in influence areas (1 km around the subproject site) were observed through field observation. Detail observation and assessment were made on identified key environmental features like drainage congestion, waste water discharge, solid waste disposal and management, water contamination, air pollution, soil degradation, odor spreading and traffic movement etc. in and around the catchment or influenced areas of the subproject. Moreover, land use pattern of the influence areas was also observed and found human settlement, offices, commercial establishments, health care facilities, educational institutions, agricultural land, religious institutions, factories, and water bodies as depicted in **Table 4-1** as below. As an essential ingredient, an engineering and topographical survey was done that may need to be adjusted minor during the construction phase.

Table 4-1: Land use and important environmental features around the proposed Poura Park (1 km distance)

Sides/Direction	Important Environmental and Infrastructural Features
North	Poura Bhavan, Poura Auditorium, Poura Mosque, Stock yard of R&H, Feni Road, J.K. Model School, Rasshidia Madrasa, Kuripara Residential Area, Water Treatment Plan, Chowrasta Bus Terminal, Sweeper colony, Bangladesh Small and Cottage Industries Corporation (BSCIC) industrial area, Rural Electrification Board (REB) Office, Noakhali khal, Chataipaiya Khal, Mosque (4), Poura Mahashashan, Temple (1), Chowrasta Katcha Bazar, Temporary solid waste dumping ground of the Pourashava, Jamaipara, Truck terminal, Noada-Sonaimurhi khal, Gonipur residential area, Agricultural land, Fecal sludge management plant, Permanent solid waste dumping ground and Agricultural land.
North-West	Government Technical School, PDB Office, Abdul Malek Ukil Medical College and PGCB.
West	Textile Engineering College, Chowrasta Jame Mosque, Jalal Uddin College, Apon Nibash Housing, Begumganj Upazilla Complex, Begumganj Thana Complex, Port Go-down, Central Community Center, Begumganj Cultural Acaemy, Zilla Parishad Market, Samsher Ali Darbesh Majar, CNG filling station, Uttar Nasirpur residential area, Primary School, Mosque (3) and Agricultural land.
West-South	Agricultural Training Institute, Naimuddin Khal, ATI Dighi, Mosque (3), Pond (3), Momtajmia Government Primary School and Globe Head Office.

South	Livestock Office, Begumganj Court, Court Mosque, Kasem Mia Housing, Apon Nibash Housing, Technical School and College, Livestock Office, Lab Aid Diagnostic Center, Doctor Para Housing, Alipur Residential Area, Globe Factory, and Sabik CNG Station.
South-East	Noakhali Khal, Karimpur Residential Area, Government Primary School, Mosque (4) Slaughter House, Rail Line and Agricultural Land.
East	Residence of Officials of R&H, Noakhali khal, Poura Grave Yard, Mosque (11), Upazilla Health Complex, Bhandari Bus Stand, Karimpur Bazar Area, Karimpur Residential Area, Chowmuhani rail Station, Chowmuhani Bazar, Mosque (10) at Bazar Area, Dream Hospital, Sugandha Community Center, Marcus Mosque, Government Primary School (2), Life Care Hospital, Ram Thakur Ashram, Kalitala Temple and Bank Road Ashram.
North-East	Government Pilot High School, elta Jute Mills, Delta Jute Mills High School, Gonipur Residential Area, Porhabari Residential Area, Morshed Alam Market, Chowmuhani Public Hall, College Road Residential Area, Rabeya Hospital, Nabilla Hospital, Shishu Hospital, Patoyari Mosque, Khadbari Temple, Chowmuhani Government Saleh Ahmed College, Water Treatment Plant and Banijja Bitan Bus Terminal.

4.1.2. Transportation facilities, road network and traffic volume

Railway and road are the major mode of transportation in the Pourashava. There is no waterway within the Pourashava and its surrounding areas. There are 3.78 km railway track that passes through the center of Chowmuhani Bazar. The rail network has connected Chowmuhani Pourashava with Laksham, Maijdee and the rest of the country. There is about 0.5 acres railway terminal in Chowmuhani Pourashava near Chowmuhani Bazar.

According to the Pourashava sources, the length of the total road of the Pourashava is 134 km amongst which 45 km pucca road, 59 km cement concrete road, 0.25 km semi-pucca road and 29.75 km kutcha road. Besides, the Pourashava has 17 bridges and 78 culverts. In addition, there are 7.85 km road which is under R&H connecting Feni, Maijdee, Sonaimurhi and Laxmipur. There are one central bus terminal, two town level bus terminals, seven CNG stands and 26 rickshaw stands in the Pourashava area.

Two major roads that pass through the heart of the Pourashava form an intersection at the center of the town known as Zero Point or Chowmuhani Chowrasta. The intersection at Zero Point makes four routes at four different directions. The four routes coming from different directions are: Laksham-Sonaimurhi from North, Maijdee-Sonapur from South, Feni from East and Laxmipur from West. The Maijdee-Chowmuhani road from South and Feni-Chowmuhani road from East constitute Noakhali-Feni National Highway. The Laxmipur-Chowmuhani road and Begumgonj-

Sonaimurhi-Ramgonj road are the Regional Highways meet at Chowmuhani from West and North respectively.

Both motorized and non-motorized vehicles are operated in all the roads of the Pourashava. The motorized vehicles are mostly inter-district passenger buses carrying passengers from greater Noakhali to Dhaka, Chittagong, Sylhet, Rajshahi, Ranpur and Khulna divisions, and trucks and lorry mainly carry agro and industrial products. In addition, CNG driven auto rickshaws, private cars, motor cycles and battery-engine driven rickshaws are operated within the Pourashava areas to meet the local demand. The non-motorized vehicles mainly man-driven rickshaws and vans are operated mainly short distance and meet the local demand for carrying passengers and goods. (Source: Field Survey, 2018)

4.1.3. Climate

Lying South of the tropical of cancer, the Pourashava enjoys typical tropical monsoon climate with a very high humidity throughout the year. It is distinguished by its heavy rainfall and even temperature. In a year, there are three well marked seasons: winter from November to February, summer from March to May and rainy season from June to October. (Source: Master Plan of Chowmuhani Pourashava, 2013)

The **rainfall** data of Chowmuhani Pourashava is represented by that of Noakhali. The monthly average rainfall always lies between 200 mm to 300 mm. (Source: Master Plan of Chowmuhani Pourashava, 2013)

The **humidity** is very high throughout the year, never falling below 70 per cent. Taking the district as a whole, the annual percentage of the humidity is 83.4. Generally, the lowest humidity, that is 75 per cent, is recorded in the months of February and April, and the highest, that is 89 per cent, is recorded in July and August. (Source: Master Plan of Chowmuhani Pourashava, 2013)

The normal minimum **temperature** of the Pourashava lies between 13.5^0C and 25.6^0C whereas the coldest month is January. On the other hand, the maximum average temperature lies between 25.5^0C and 32.3^0C whereas the hottest months are of April and May. (Source: Master Plan of Chowmuhani Pourashava, 2013)

The whole district is particularly free from **drought**. However, it is a land of annual inundation of the rivers. But, water subsides rapidly and the damage caused is not very high. The whole Noakhali district including Chowmuhani Pourashava often faced **cyclones and floods** from the ancient times. The remarkable cyclones that occurred in these areas around the liberation of the country are in the year 1960, 1961, 1963, 1965, 1966, 1968, 1970, 1988, 1991, 1997 and 2008 overflows vast tracts, drowning men and cattle, destroying crops and often leaving them a residue of salt which interferes with cultivation for some times. (Source: Master Plan of Chowmuhani Pourashava, 2013)

4.1.4. Topography and drainage

The Chowmuhani Pourashava is mainly medium highland excepting some low lying strips including canals.Generally much of the Pourashava area is under agricultural area characterized by crop production. However, a significant portion of it is urbanized with scattered clusters. Here, the road level is not very high than the surrounding areas except Noakhali-Feni National High Way and Lakshmipur-Sonaimurhi/Laksam road passing through the heart of Chowmuhani Pourashava. The height of the road varies from 1 meter to 3 meters compared to the adjacent lands. Land level survey shows that almost all areas of the Pourashava has an average RL of 3.75 mPWD. These areas are free from normal flood. Only minor water logging is occurred during the rainy season that does not stay for long.

The lowest spot height is +1.81 mPWD at Ward number 01 and the highest spot height is +9.45 mPWD at Ward number 04 in Chowmuhani Pourashava. Average land height of the Pourashava is +3.75 mPWD.

The drainage system of the Pourashava can be classified into two parts namely natural and man-made drainage system. The natural drainage system, comprising the natural khals, has fall into nearby or far off rivers. Natural khals act as primary drain and drain out all storm and domestic water which finally discharged into Dakatia River which is the nearest river of Chowmuhani Pourashava and meets with lower Meghna at 15 to 20 km down to south. Existing 33.35 km natural khals and 1657 large ponds and ditches act as the local outfalls of the existing available drain. These also serve as storage and retention area for storm water during rainy monsoon.

The man-made drains are constructed by the Pourashava and a total of 12.442 km drain in Pourashava area is used to collect waste water from residential areas and commercial establishments.

4.1.5. Geology and soil

The Tripura Hills of India that spurs project into the east of the Noakhali district are of upper primary (Pleistocene) formation and generally of dull reddish color. Unconsolidated sediments underlie the rest of the district. They are mainly recent and sub recent in age. The major part of the new flood plain sediment was deposited by the old Brahmaputra River that charged its course to the west of the Madhupur Tract some 200 years ago. The rest of the sediments were laid down principally by the Meghna River and by minor rivers draining from the Tripura Hills. Silt and clay sized particles predominate in most sediment. The southern part of the district where the Chowmuhani Pourashava lies, has recent tidal sediments that are mainly silty in nature.

Almost all soils have young alluvial sediments of recent origin. The soil consists admixture of sand and clay in varying proportions. They occupy very gently undulating topography consisting of broad low flood plain ridges and shallow basins. Most ridge soils are silty which occur clays in the basins. The soils are seasonally flooded, mainly by rain water, but all, except a few basins, soils become dry during the summer.The range from olive to dark grey in color and most are finely mottled, but mainly become acid when dry. Lower layers are mainly neutral to moderately alkaline

in reaction with young tidal sediments and soils in the south and south-west are slightly calcareous and some are saline to vary degree. All soils appear to be rich in weather able minerals.

4.1.6. Hydrology and water resources

There are a numbers of small khals within the Chowmuhani Pourashava that drains out the storm and other water generated from households and commercial establishments. The khals are Noakhali khal, WAPDA khal and Chatarpaya khal which act as the natural drainage of the Pourashava. These khals are linked with Bay of Bengal through Dakatia and Meghna rivers. Most of the portions of the khals have lost their navigability due to sedimentation and narrowing by unauthorized encroachments. The total volume of the natural khals is 89.15 acres. In addition, there are 1657 ponds and ditches covering an area about 569.53 acres. These serves as storage and retention area for storm water during monsoon. (Source: Master Plan of Chowmuhani Pourashava, 2013)

4.1.7. Air quality and dust

The Chowmuhani Pourashava is one of the most developed area and many activities are performed inside the Poura areas. In the peak period, it remains very busy. The bazar and the market places remain over crowded in most of the time of the day. The profile of the Pourashava is mainly urban area, which has mix of semi-densely settlements and commercial areas. The major sources of air pollution noted within the area include normal vehicular pollution in roads as well as commercial activities, and domestic emissions. In some areas, poultry and livestock farming is observed that causes air pollution. In addition, some major industrial activities are also reported in the area. Energy supplies are not good in the area, and therefore, diesel-fired small power generating sets are common in the urban areas of the study area. There are no dust preventive measures and technologies in Paurashava area. Moreover, to evaluate the existing condition of air quality contractor will perform the air quality test prior to construction. Following **Table 4-2** shows the Bangladesh National Ambient Air Quality Standard comparing the WHO Guideline standard.

Table 4-2: Bangladesh national ambient air quality standard comparing the WHO guideline standard

Parameter	Environmental Conservation Rules,1997				WHO
	microgram/m^3				
	Industrial	Commercial and Mix use	Residential and Rural area	Sensitive area	
SPM	500	400	200	100	-
PM 2.5	65				10
PM10	150				20
SO_2	120	110	80	30	20
NO_2	100	100	80	30	40
Pb	.5				

4.1.8. Noise level

The proposed subproject is located at commercial area and surrounded by Chowrasta bus terminal, Hakar's Market, Poura Kitchen Market Zero point, Noakhali-Feni National Highway etc.The purpose of ambient noise level measurement is to determine sound intensity at the subproject locations. In these locations, traffic congestion is very high which creates noise pollution in the town. As a part of the baseline study, noise level measurement was done at different locations inside and around the proposed subproject site. The purpose of ambient noise level measurement is to determine sound intensity at the subproject locations. Noise level measurement was performed during daytime with a sound level meter. The 2-minute continuous noise level measurements were carried out at the selected locations in 'A' weighting and slow response mode with 1 sec interval, and the average noise levels (L_{ave}) as well as the maximum noise levels (L_{max}) were determined. **Table 4-3** shows the summary of noise level measurements carried out at different sides of the study area during daytime. It also shows the Bangladesh noise level standards for commercial areas.

Table 4-3: Noise level measurements during day time at the selected locations in and around of the Poura Park

Noise level measurement locations	GPS Co-ordinate	Day-time		Bangladesh standard for commercial area (dBA),L_{max}
		Average Noise level (dBA),L_{eq}	Maximum Noise level (dBA),L_{max}	
Outside of market (North)	$22^0 56' 33.2''$ N $91^0 6' 30.0''$ E	60.25	67.50	70
Outside of market (South)	$22^0 56' 30.8''$ N $91^0 6' 26.7''$ E	56.37	74.80	70
Outside of market (East)	$22^0 56' 34.6''$ N $91^0 6' 29.1''$ E	57.50	75.10	70
Outside of market (West)	$22^0 56' 34.4'$ N $91^0 6' 17.1''$ E	52.31	60.60	70

Source: Field Survey, April 2018

4.1.9. Water Quality

The surface water of pond and khals in the Pourashava is free from salinity. The ground water level is found between 40 ft to 50 ft during dry season and 30 ft to 35 ft during wet season. The ground water contains excessive of Iron and Arsenic (Source: DPHE, Chowmuhani 2009). It is reported that nearly 60% of the tube wells are arsenic contaminated and the provision of tube well is not possible because of the presence of salinity in the ground water at the power level. The sources of surface water (ponds, khals and ditches) are contaminated by industrial waste, domestic

waste, human waste and extensive use of fertilizer in the agricultural lands. However, the drinking water supply through the treatment at different water treatment plants shows different results. The result of water quality test of the Pourashava is given in **Table 4-4** as below:

Table 4-4: The results of water quality parameters of Choumuhani Pourashava

Sl #	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis method	LOQ
			GW			
01	Arsenic (As)	0.05	<0.001	mg/L	AAS	0.0001
02	Chloride	150-600	0	mg/L	Titrimetric	0.5
03	Coliform (Faecal)	0	0	N/100ml	MFM	0
04	Iron (Fe)	0.3-1	0.82	mg/L	UVS	0.1
05	Manganese (Mn)	0.1	<0.01	mg/L	AAS	0.01
06	pH	6.5-8.5	7.52	-	pH Meter	-

(Source: DPHE, 2018)

The urban dwellers of the Pourashava mainly depend on Ground Water. The ground water extracts by the Pourashava by deep production well and supplied by pipe water supply system after treatment in Water Treatment Plants. In some cases people install hand tube well for fulfilling their domestic requirements.

4.2. Biological Environment

4.2.1. Floral habitat and diversity (terrestrial and aquatic)

The plant life is confined generally to variations belonging to the lower gangetic plane and of other districts in the southern region of the country. There is no organized forestry in the district. However, all homesteads are usually covered by dense and lush green foliage of wide variety of trees. In the farmlands varieties of crops namely local Hybrid and HYV rice, jute, vegetables, spices, pulses, oilseeds, etc. are produced.

Most of the trees grown in homestead forests are fruits bearing. Mangoes, although poor in quality, grow in abundance. Almond or badam (Arachis hypogea) grow in unusually. Other common trees are gab (*Dioaspyros precatorius*), jack fruit *(Artocarpus heterophyllus)*, black berry *(Syzygium cumini)*, tamarind *(Tamarindus indica)*, jalpai (*Elaeocarpus tectorius*), bel (*aegle marmelos*), chalta (*Dillenia indica*), boroi, guava (Psidiumguagava), etc. banana (Banana musa sapientum) is seen almost everywhere but their quality is rather poor. Litchi (Litchi chinensis), Kamranga (Averrho karmbola), ata, haritaki (Terminalia chebula), amloki (Phyllanthus emblica), etc. grow abundantly. Indigenous timber trees include koroi, sheel koroi *(Albizia procera*). garjan(*Dipterocarpus turbinatus)*, jarul (*Iegerstroemia speciosa*), shimul (Bombax ceiba), etc.

however, various exotic trees like teak, mahagoni(Swietenia macrophylla), sissu (Dalbergia sissoo), etc. have been in produced as wayside trees as well as farm forestry. The luxuriant growth of palms is the most characteristic feature of the vegetation. Supari (Areca catechu) plantations are more and more abundant towards the north and the west of the district and grows almost in forest. Cocoanuts are grown abundantly throughout the district. Toddy palms or tal *(Borassus flabellifer)* and date palms or khejur are also very common.

Shady trees include banyan or bat *(Ficus benghalensis),* pipal *(Ficus religiosa)* and nim *(Azadirachta indica).* There are several varieties of cane, a good deal of bamboo of different varieties and thatching grass or chhan although their plantations are gradually decreasing steadily.

4.2.2. Faunal habitat and diversity (terrestrial and aquatic)

Owing to the absence of organized forest and other natural conditions, any kind of large or medium carnivores are no longer seen in the district. However, the following mammals are still seen the district although their number is gradually decreasing: jackel *(Canis aureus), f*ox *(Vulpes bengalensis),* large Indian civet or bagdas *(Viverra zibetha),* ottar or ud *(Lutra lutra),* lrrawaddy, kat biral *(Callosciurus pygerythrus),* bengal mongoose or beji *(herpestes edwards),* different kind of rats and several species of bats.

Almost all varieties of birds that are seen all over Bangladesh are also commonly seen in Noakhali. Many kinds of clourful and singing birds are seen in the district. These include the national bird robin magpie *(Copsychus saularis), k*okil *(Cuculus microplerus),* halde pakhi *(Oriolus xanthornus),* kingcrow or finga *(Dicrurns adsimilis),* myna *(Sturnus malabarica),* shalik *(Acridotheres tristis)),* redvented bulbul *(Pycnotus cafer),* tuntuni *(Orthotomus sutorious),* shama *(Copsyehus malabaricus),* sparrow *(Passer domesticus),* flowerpecker *(Dicacum erythrochynchos),* babui(Plocus phillippinus) *famous for artistic nest building on the* several species of pheasants quails (Eudynamis scolopscea), pigeons and doves.

The reptiles include different species of snakes, lizards and tortoises. The snakes include different varieties of cobra, urgabora, dughadabora, kuchiabora and jinlabora, all poisonous. The lizards include gecko, calotis, wall lizard and monitor lizard. There are amphibnians like toad, frogs and tree frogs.

There are many species of sea and fresh water fish available in the district. The list of the varieties is too long to find place in this volume. The popular varieties include the carp tribe *(Cyprinidoes),* ruhi *(Labeo rohita),* katla *(Catla catla),* mrigel *(Cirrhinus mrigala)* and kalabaush *(labeo* calbasu). airh (Mystusaor), tengra (Mystus vittatus) of several types, magur (Clarias batrschus), singi (Saccobranchus *fossilis)* and koi *(Mystus vittatus)* are considered to be delicious, shoul *(Channa striatus),* boal *(Wallago attu), g*azar *(Channa marulius)* and pabda (Ompok pabda) are available in abundance. Prawn, cry fish *(icha)* and crabs are also found muralla, punti, khoksha, bain and chela are small fish and are found all over the district in abundance.

Exotic fishes like grass carp *(Cteopharyngoden idellus)*, silver carp *(Hypophthal micthys molitrix)*, telapia *(Oreochromis mossambicus)*, nilotica *(Oreochromis niloticus)*, etc. have also been introduced for commercial pisciculture in ponds and tanks.

4.3. Socioeconomic Environment

4.3.1. Status of land use pattern, housing and built-up infrastructure

According to the Master Plan of the Pourashava, the highest land use of the Pourashava goes to agricultural (39.65%). The second major land use is residential area and it occupies about 31.17% of the Pourashava areas. Besides, there are about 16.82% water bodies, about 2.92% circulation network, about 2.47% commercial establishments and otherwise about 1.65% lands are being used for education, green space, recreational facilities etc. In addition, vacant land is significance in percentage (2.36%).

According to the Population and Housing Census 2011, the highest percentage of general households by type of structure of the Pourashava is kutcha (49.6%). The percentage of other general household by the type of structure of the Pourashava are 26.3% percent semi-pucca households, 23.5% pucca households and only 0.7% jhupri households.

In addition, the average household size of the Pourashava is 5.4. The percentage of tenancy of households in the Pourashava area shows that 65.4% people live in own house, 32% people live in rented house and 2.6% people live in rent free house.

There are also markets, shops, educational institutes, private and government offices, business establishments, industries etc in the influence areas of the subproject.

4.3.2. Beneficiary population

All the people living in Chowmuhani Pourashava will be benefited by the Poura Park. Therefore, a total of 117000 people of the municipality will be benefited just after the construction of the Poura Park (Pourashava Data, 2018). Considering the current average growth rate of population in urban areas of the country as 3.2 percent per year, the estimated number of the people of the Pourashava will be 191880 in 2031 and 266760 in 2041. All these people will be benefitted from the proposed Poura Park in future. In addition, a significant number of people who will be travelling from the different Unions of Begumganj Upazilla to the Upazilla sadar will also be benefitted.

4.3.3. Educational status

As per the Population and Housing Census 2011, the literacy rate among the people aged 7 years and above of Chowmuhani Pourashava is 67.2. The literacy rate among the male is higher than the female. The literacy rate among the male is 68.3 whereas it is 65.9 among the female. There are four colleges (one government and three non-government colleges), eight high schools (two government and six non-government schools), 29 primary schools (15 government and 14 non-government primary schools), 30 madrasas, one textile engineering colleges, two technical institutes, one technical school and college, one art school, one cultural academy, one public hall,

one Fazil madrasa, and one agricultural training institute which are providing educational supports and services to the inhabitants in Pourashava areas.

4.3.4. Livelihood and economic situation

In Chowmuhani Pourashava, only 2.21% people are engaged in agricultural activities including farmers and laborers for their livelihood although 39.65% of the Pourashava area is under agriculture. Among the male income earner, over 24.65% are engaged in trading, 7.58% are working in private company, 2.06% are labor, 1.25% are in public services and 2.21% are day labor (agriculture).

The Pourashava is well known for industrial establishments in Noakhali region. Delta Jute Mills is the largest and oldest individual industry. The second largest industrial establishment is BSCIC. Besides, other small and processing establishments include Oil Mills (7), Printing Press (20), Rice Mills (40), Flour Mills (27), Ata Mills (15), Saw Mills, small scale factories etc.

The commercial activities of the Pourashava are dominated by both wholesale and retail business. The Pourashava is the largest wholesale market of the region. The major part of trade and commerce of the Pourashava is conducted through hat/bazar where agricultural produces, consumer items, merchandise for household and other farm and non-farm items are traded. The market/bazar performs significant role in the economy of the Pourashava.

4.3.5. Land acquisition and resettlement

The subproject site is situated on the land which is owned by Pourashava. Hence, land acquisition is not required. The proposed subproject will be constructed at the existing Park area where there is no settlement. Therefore, the issue of resettlement is absent here.

4.3.6. Tribal communities

There is no indigenous or tribal people settlement in the subproject area. Therefore, there is no need to take any kind of protective measures for indigenous peoples' safeguard.

4.3.7. Cultural heritage and protected areas

Within the influence area of the subproject, there is no protected area and no important historical sites identified during the field visit.

5. ENVIRONMENTAL SCREENING

Environmental Screening (ES) for the subproject have been conducted with the purpose of fulfilling the requirements of GOB and WB. ES ensures that environmental issues are properly identified in terms of extent of the impacts. Environmental Screening Checklist, as adopted in Appendix C of the Environmental Management Framework of the MGSP, was administered for identifying the impacts and their extents. A participatory approach is followed in identifying the impacts and the list of participants who attended in the screening exercise is attached as **Annexure 1**.The screening data and information for the **Poura Park** with allied works have been formulated and are shown as below.

5.1. Potential Environmental Impact during Construction Phase

(A) Ecological Impacts:

- Felling of trees : Significant □ Moderate □ **Minor** □√
  Number of trees : 15
- Clearing of vegetation : significant□ Moderate □**Minor** □√
- Potential impact on aquatic species environment : Significant □ Moderate □**Minor** □√

The improvement of the Poura Park needs to fell down 15 trees. There is no vegetation to be cleaned. There is a Khal named Noakhali Khal which is 300 m far from the proposed site and the proposed site is connected with this khal by a RCC drain. The Noakhali Khal is badly polluted by the industrial effluents, and market and household waste. The proposed subproject may generate waste water mixed with accidental leakage of oils of vehicles and machines to be used during construction and may discharge it through the drain into the Khal. However, the contribution of pollutants from the subproject is minimum with respect to the existing pollution level of the Khal. Hence, the impact of the subproject on aquatic species will be minor.

(B) Physico-Chemical Impacts:

- Noise pollution : Significant □**Moderate** √□Insignificant□
- Air pollution : Significant □Moderate □**Insignificant**□√
- Drainage congestion : Very likely □Likely□ **Unlikely** □√
- Water pollution : Significant □Moderate□ **Insignificant** □√
- Solid waste pollution :Significant □Moderate □**Insignificant** □√
- Construction wastes : Significant □**Moderate**√□ Insignificant □
- Water logging : Significant □Moderate □ **insignificant** □√

The subproject will have temporary and localized negative impact on physico-chemical environment during construction phase due to earth work, the construction of super structure, movement of vehicles for carrying construction materials and equipment, and using of welding

and drilling machine, winch machine, concrete mixer and vibrator machine etc. Hence, the anticipated impact on noise is considered as moderate. However, proper silencer and muffler are to be used in all categories of machineries during construction period to avoid uneven sounds. Construction activities such as transportation of sand, stones, brick cheeps etc may generate dust that may cause air pollution, and the anticipated impact of it might be insignificant. There is no existing super structure that needs to be demolished. Thus, the generated construction wastes will be minimum and it may cause temporary impact on drainage system if the construction waste and raw materials of the construction work fall dawn into the existing drainage system. There is no chance of water pollution by spills of oils and gasoline as there is no water body adjacent to the site as well as labor shed. However, the impact of solid waste to be generated from the labor shed will be insignificant as the Pourashava has proper solid waste management system in place and will have no significant impact on surrounding environment. In addition, there is well constructed and functional RCC drain at one side of the site which will ensure the removal of storm water and reduce the chance of water logging. Therefore, the chance of water logging at the construction site will be insignificant. However, water logging condition may happen during the pilling works which will be minimized by discharging water through the existing main drain. Primarily, the subproject will have no adverse impact on the other physicochemical components.

(C) Socio-Economic Impacts:

- Traffic congestion **:** √**Likely** □Unlikely □
- Health and safety : Significant □ **Moderate** √□Insignificant □
- Impact on archaeological : Significant □ Moderate □**Insignificant** □√
- Impact on historical : Significant □ Moderate □ **Insignificant** □√
- Employment generation : Significant □ **Moderate** √□ Insignificant □

The subproject is situated beside the Pourashava Bhavan. So, the subproject will likely have temporary negative impact in local traffic system due to transportation of the construction materials and equipment during construction phase. Therefore, proper traffic management is required during construction phases. The mixing and carrying construction materials will be performed with the conventional equipment and skilled laborers. In addition, brick work, plastering work, painting work, glass fitting work etc. may happen and cause negative impact on health and safety. Hence, the anticipated impact on health and safety is considered as moderate. However, the use of personal protection equipment will minimize the impact. There is no archaeological and historical site within the influence area. Hence, there is no question of creating impact on it. Further, the construction will create employment opportunity for the local labors as the labors for construction works will be hired locally and there is also a chance of installing canteen and tea stall around the subproject site during the construction work. Thus, the impact of employment generation is considered as moderate.

5.2. Potential Environmental Impact during Operational Phase

(A) Ecological Impacts:

- Potential impact on species of aquatic : Significant □ Moderate □**Minor** □√

During operational phase, the subproject activities will not have any likely impacts on the surrounding ecological environment. There will be a well-constructed drainage system surrounding the subproject site and connected with a khal through which the grey water to be generated at the Park area will be discharged into running Noakhali Khal and ultimately to nearby Dakatia river. It will reduce the impact on aquatic species.

(B) Physico-Chemical Impacts:

- Potential air quality & noise level : **Improvement** √□No-improvement□ Deterioration □
- Drainage congestion : **Improvement** √□ Minor Improvement □No Impact □
- Risk of water pollution : Significant □Moderate□ **Minor** □√
- Pollution from solid waste : **Improvement** √□No-improvement□ Deterioration □

During operational phase, there is no possibility to deteriorate the air quality as no dust and emission of carbon-dioxide will be generated from the proposed subproject but noise pollution due to public gathering and use of different mechanical toys at the Park area may create moderate noise nuisance. However, the potential air quality and level of noise will be improved due to lack of dust and significant numbers of trees around the Park as well as controlled operation of the mechanical toys respectively. Again, there is a provision of managing solid waste to be generated at the Park is in design and there will be a well-constructed RCC drain around the Park and connected with Outfall khal. So the drainage system will be improved and no drainage congestion will happen if, cleaning and maintenance of drain is ensured. The generated organic waste to be washed out from the restaurant and food shop will be settled at reserve tank and then will be discharged into the storm drain. In addition, the fecal sludge to be generated from the Park will be reserved into septic tank and will be discharged by vacuum cleaner into fecal sludge treatment plant. Thus, the risk of water pollution by the subproject will be minor. The proper management of solid waste using waste bins, collecting waste from bins and disposal of waste at landfill, as well as the maintenance of drainage system to be ensured during operational phase. Thus, pollution from the solid waste will be improved. However, there is a chance of not using the waste bins properly and solid wastes may be thrown here and there. Thus, it is anticipated that the generated solid waste may pollute the surrounding environment and no improvement of pollution from solid waste may happen.

(C) Socio-Economic Impacts:

- Traffic **:** Improvement □**No-improvement** √ □ Adverse□
- Safety : **Improvement**√ □ No-improvement□ Adverse □
- Employment generation : **Significant** √□ Moderate □ Minor □

The Proposed subproject will have a provision of proper traffic management in place which will have significant positive impact on reducing traffic congestion at the Park area as well as surrounding areas. However, it may create traffic congestion due to improper parking of the vehicles on the link roads ignoring the traffic rules. Hence, it is anticipated that no improvement of traffic system will happen. However, proper traffic management plan is required during operational phase. In addition, the Park will have a provision of proper security system with CCTV camera in and around the premises and security guard at the entrance which will improve the security and safety of children, women, shop keepers and other visitors. However, during operational phase, possible accidents and social risks due to causalities at the Park, fire hazard, short-circuit and other vulnerability may have negative socio-economic impacts. There is a provision of establishing different types of shops, playing equipments, and recreational facilities at the Park. Thus, the Park will have significant positive impact by providing job, business facilities and resource mobility.

5.3. Summary of Possible Environmental Impacts of the Subproject

The ecological impact is not significant due to the improvement activities of the Park but there may have some temporary impacts on the physico-chemical parameter of environment during construction period. Construction works may temporarily increase noise pollution at the surrounding environment and may create localized hazards. The anticipated impact on physicochemical components is mainly site specific and will be within the Subproject boundary.

During operational phase, noise pollution due to huge gathering of children, women, local community people, customers and visitors as well as use of recreational equipment may happen. However, it will be controlled by proper management system. The throwing of solid waste here and there may pollute the Park premises. But, it will be improved by placing waste bins at different places of the Park. Traffic congestion may also happen at the Park areas. But, it will be controlled by deploying community traffic police at the entrance of the Park. Solid wastes generation from packaging materials, residues of food, black water from restaurant and fecal sludge should be handled and disposed-off properly by placing waste bins inside the Park, and removing the waste water through functional septic tank, soak pit and drainage system. All these will improve the environmental condition of the Park area. Moreover, this subproject has positive impacts in terms of the generation of the employment opportunities due to construction activities, supplying of the materials at construction phase and by providing business facilities at operation phase.

6. IDENTIFICATION OF MAJOR SUBPROJECT ACTIVITIES

6.1. Major Activities during Pre-Construction Phase

The proposed subproject will be implemented at the existing Park area for improving its facilities and services. Thus, some pre-construction activities will be carried out for preparing the site ready for proposed construction activities. The major pre-construction activities to be carried out are as below:

- Earth work for preparing the site for construction;
- Construction of temporary separate labor sheds for men and women;
- Construction of separate toilet facilities for men and women labors;
- Providing temporary electric and water supply lines at the labor shed;
- Construction of temporary office for supervision of construction activities.

6.2. Major Activities during Construction Phase

During the construction phase, following major subproject activities to be carried out:

- Layout and cast in-situ RCC piling works where necessary;
- Construction of one-storied building with associated civil works;
- Construction of separate toilets for male and female inside the building;
- Construction of car parking site and road pavement for vehicles and customers;
- Construction of water tank, septic tank and soakage well;
- Construction of solar energy facilities;
- Electricity connection and other ancillary works;
- Provision for workers' health and safety.

6.3. Major Activities during Operational Phase

The major activities to be considered during operational phase are as below:

- Collection and disposal of solid waste;
- Management of waste water and its treatment;
- Maintenance of drainage system;
- Traffic control;
- Safety and security mechanism.

7. ASSESSMENT OF ENVIORMENTAL IMPACTS AND ITS MITIGATION & ENHANCEMENT MEASURES

7.1. Potential Significant Environmental Impacts and Its Mitigation & Enhancement Measures during Pre-Construction Phase

7.1.1. Impact due to labor camp and its sanitary latrine

Two separate labor camps, one for male and another for female to be constructed at the site before starting the construction activities. If the labor camps are not constructed with minimum raised platform and not cleaned properly, that will create health hazard to the laborers. Two temporary sanitary latrines, one for male and another for female will also be installed. Improper sanitary facilities may cause health hazards to the laborers and that may reduce the work efficiency. There is functional storm water drainage system all around the proposed site for labor shed that will facilitate easy surface runoff. Following measures should be taken to avoid or minimize the health hazard:

- Two labor camps with raised platform should be constructed at the separate sides of the site with separate toilet facilities to ensure the safety and security of female workers.
- The contractor will install separate sanitary latrines for male and female workers. The latrines should have washing facilities (availability of water and soap).
- The labor shed shall be with the facilities like; mosquito nets, cooking arrangement, water supply, waste bins, lighting etc.
- A temporary drain for the kitchen waste water is to be provided and rain water drainage around the camp site is to be provided for easy surface runoff.

7.2. Potential Significant Environmental Impacts during Construction Phase

7.2.1. Pollution from the construction materials and equipment

A wide variety of construction materials and equipment will be used during construction which required to be dumped at the site. Construction spoils such as accidental leakage of the oil, grease, and fuel in equipment yards might have a significant hazard. Surface water and soil quality might be polluted from these contaminants. Dumping of construction material such as sand, brick chips, cement etc might have a significant impact on air quality. The people to be engaged for the construction activities may also impede the physical and human habitats of the area.

The impacts to be caused by construction materials and equipment can be avoided or minimized by adopting the following mitigation and enhancement measures:

- Safe transport, storage, and disposal of the construction materials, and the equipment have to be carried out in order to avoid the accidental spillage and loss;

- Raised platform (brick soling with neat cement finishing to keep the materials) shall be constructed prior to start working (to be included with environmental safeguard items in the bidding document).
- Leakage fuel and lubricants from equipment will be collected by separate container for reuse or safe disposal. So that it cannot be spread and pollute adjacent areas.
- The vehicles to be used for carrying construction materials should be covered by tarpaulin.

7.2.2. Impact due to solid waste disposal

There is a possibility to generate solid waste during construction works such as residues of mutter, concrete, slaughtering materials etc, and in the labor sheds and its kitchen. The improper solid waste management activities during construction period may block the local drains at both the construction site, labor shed areas and local environment.

The impacts to be caused due to solid waste generation can be avoided or minimized by adopting the following mitigation and enhancement measures:

- Within the construction site, a number of waste bins will have to be provided by the contractor; and
- The Contractor will be responsible to deposit the every generated waste in a safe place and that will be carried by conservancy unit of the Pourashava to the Gonipur dumping yard or landfill of Choumuhani Pourashava.

7.2.3. Impact due to installation of rides

At this stage, the Pourashava will not install any rides rather the four banks of the pond (Dighi) will be used as walk way for the urban dwellers. In future, if the Pourashava plan to install any rides, then there is a possibility of not following the instruction given by of manufacturers during installation of rides, maintaining adequate distance from entrance to playing areas, adequate distance from one piece of equipment to other equipment at kid zone, route direction from one piece of equipment to the next and improper layout of adult access to all areas in case of emergency. It may cause accident of children.

The impact to be caused due to installation of rides can be avoided or minimized by adopting the following mitigation measures:

Installation – Ensure equipment is installed in accordance with manufacturer's instructions and that clearance distances around equipment are adequate.

Entrance – Ensure moving equipment is sited away from the entrance to the play area to reduce the risk of collision.

Zones – There is a need for definite zones to segregate toddlers from older children to reduce the risk of collision/ bullying. Zones can also be used to separate moving equipment from that which does not move thus reducing the risk of accidental collision.

Routing – Children will take the most direct route from one piece of equipment to the next; this may create a risk of collision with other children/moving play equipment. Therefore landscaping, fencing etc should be used to direct them safely between equipment. However such features must be safe, e.g. no thorny bushes or fencing with sharp edges. Research shows that natural surroundings induce calm e.g. less stress / conflict.

Emergencies – The layout should permit adult access to all areas in the event of an emergency e.g. care should be taken with the design and siting of rides etc in case children get trapped.

7.2.4. Impact due to inadequate drinking water supply

Safe drinking water supply is important for the construction workers such as labors, engineers, supervisors during construction work. If sufficient drinking water is not supplied during construction, it may cause health damage to them.

The impacts to be caused due to inadequate drinking water supply can be avoided or minimized by adopting the following mitigation and enhancement measures:

- The contractor will install tube well or ensure pipe line water supply as considered in the BOQ (environmental safeguard component) prior to starting the construction works;
- The water quality will have to be tested for its quality judgment in a regular interval.

7.2.5. Planning for transportation before starting works

During construction phase, some additional traffic will be accumulated for bringing the construction material and equipment. This traffic may cause temporary congestion on the roads nearby subproject areas. It is anticipated that the subproject activities will not create any severe impact on the local traffic system, because movement of the vehicles and equipment will be only for a short time and as per requirement. The on-site subproject activities do not have any impact on the local traffic system during construction phase, because the works will be done in a confined area.

The impacts to be caused due to transportation of vehicles to be used for construction works can be avoided or minimized by adopting following measures:

- Any materials required for construction should be transported at night time (within 10.00 pm – 6.00 am) to avoid local traffic congestion;
- Proper vehicle movement schedule should be maintained in consultation with local people;
- Unloading of materials should be done inside project areas;
- Traffic control manpower will be deputed during construction and operation period;
- Control sign should be provided to regulate traffic movement;
- Safety arrangement should be inserted in the safeguard cost in BOQ.

7.2.6. Impact due to earth work

The proposed construction work will be consisted of earth cutting, earth filling, land dressing and removal of unsuitable or any hazardous materials. Some areas have to excavate for septic tank construction. In addition, some areas need to be filled with soil. These works lead dust blowing, noise and vibration which may cause air pollution, noise pollution and discomfort to adjacent community people. All those including the excavation and trenching are hazardous nature of construction activities that involve soil removal. If proper measures are not taken it may cause damage to construction site infrastructures and other underground utilities, if any. Following measures should be taken to avoid or reduce the impacts:

- Earthwork activities should be done in dry season;
- The contract should not be allowed to collect top soil to filling the low land. Local sand can be collected to fill the land;
- Water spray should be continued during work or day time to control dust spreading;
- Inspection of the trenches should be done at the start of each shift;
- Adequate safety barriers should be provided with clear visible signs to alert both drivers and pedestrians;
- Adequate light should be provided to the barriers and signs to make them clearly visible at night from a distance sufficient to respond;
- Temporary arrangement should be in place for pedestrian and vehicular traffic at site; and
- Excavated earth should be retained in safer places so that pedestrians can walk smoothly.

7.2.7. Clogging of water inside the construction site

During construction work, earth excavation is essential. This earth work may lead the chances of stagnation of storm water into the excavated pit resulting it as the mosquito breeding in the subproject area. Following measures should be taken to avoid or reduce the impacts:

- Earthworks should be done during dry season; and
- During construction work, temporary drainage system will have to be provided and should be connected with existing drainage system to run out the storm water. If necessary, a submergible pump should be there to pump out the water inside the pit.

7.2.8. Clogging of local drain water

There is a possibility to clog the local drain with construction materials kept at the subproject site as there is a drain at the South-East side of the proposed site.

The impacts to be caused due to clogging of local drain water can be avoided or minimized by adopting the following mitigation and enhancement measures:

- Construction materials should be kept within a corner of construction area;
- Contractor will ensure proper disposal of construction wastes and that should not be disposed to the local drains.

7.2.9. Impact on air quality due to dust and emission of carbon dioxide

Different construction activities such as earth cutting, machinery movement, handling of construction materials (stone/brick chips, sand, and cement), rod fabrication, movement of trucks with construction materials etc. may generate dust and damage the air quality. The air quality in the area can be affected by emission of carbon dioxide of the construction trucks and other equipment that uses gasoline, and the unpleasant smell of paint and thinners that will be used during painting. This might affect the health of the people passing by or living around and working within the area.

The impacts on air quality to be caused due to dust and emission of carbon dioxide can be avoided or minimized by adopting the following mitigation and enhancement measures:

- Water should be sprayed to control the dust at day time;
- The trimming activity using odorless paints should be minimized;
- The condition of combustion-engine powered machine should be maintained;
- Low-sulfur fuels should be employed;
- Construction material should be transported through truck covered by tarpaulin; and
- The condition of Air quality during construction period should be tested in laboratory.

7.2.10. Impact on noise level

Different activities during construction work such as movement of vehicles, concrete mixer machine and crushing bricks at site may generate a significant level of noise. Concrete casting, cutting of steel for reinforcement etc. may also cause noise hazard.

The impacts on noise level can be avoided or minimized by adopting the following mitigation and enhancement measures:

- Construction materials should be transported with scheduled time;
- All powered mechanical equipment and machinery should be fitted with noise abating gear such as mufflers for effective sound reducing device;
- The use of personal protective equipment like helmet, goggles, ear plug, gloves, safety boot etc. should be ensured;
- The crushing of bricks/ stones should not be allowed at the project site. Broken brick or stone chips should be collected from distanced source to the subproject site for construction purpose; and
- Separate batch plant might be used for concreting work (Ready Mix Concrete if available).

7.2.11. Impact on surface water quality

There is a large pond inside the subproject site and demolition of walls is required for the construction of the subproject. Hence, the demolition work and improper storage of different construction supplies such as fine sand, considerable gravel and alike may affect the quality of the nearby water body.

The impacts on surface water quality can be avoided or minimized by adopting the following mitigation and enhancement measures:

- Water should be sprayed to control the dust;
- Waste material in any form should not be thrown into the water body;
- Proper construction management including waste management, training of operators and workers will be provided to avoid pollution of water bodies or nearby habitants; and
- Waste bins are to be provided at different location of working and living places.

7.2.12. Contingency planning for any uneven situation

There are so many unwanted happenings may occur during construction periods. Proper contingency planning is required for overcoming any unwanted situation, otherwise, that will hamper the progress of works. As a precaution, proper contingency planning is essential for smooth progress.

In order to avoid or reduce the impact of any uneven situation, following contingency measures should be taken in advance as precaution:

- All the emergency telephone numbers of all the departments like Police station, fire service and civil defense, truck and bus stands, hospitals, clinics, etc. should be available at site;
- There should be standby transport facilities to deal any accidental case;
- There should be a provision for fast-aid box and emergency on-call physician.
- The storage of the construction materials should be done in such a way that it might not create obstacle for movement of vehicles and pedestrians.

7.2.13. Occupational health and safety

The occupational health and safety is an important issue for any construction activities. It primarily focuses on work equipment and protective gears to avoid or minimize the risks. The Contractor should give especial attention on workers' health and safety during construction work. The most important risks associated with the construction activities are listed below:

- Risks of using of the machineries in motion such as steel cutter, glass cutter etc.;
- Risk from the traffic collision or accidents during operation of the equipment such as steel cutter, welding machine and vehicles movement for the transportation activities of the subproject;
- Risks from head loads for carrying soil, construction materials and construction equipment;
- Risk associated to the sudden bad weather working conditions such as storm, thunder storm and earth quake etc.
- Exposure to the sunlight- workers are being exposed to the sun for long hours;
- Exposure to the high temperature, and humidity for a long time resulting in dehydration;
- Contact with the hazardous substances and wastes pose risks of the infections and diseases.

The key salient features of the general requirements for the workers' health and safety stated are presented in **Table 7.1**.

Table 7-1: General requirements for the workers' health and safety

Issues	Requirements
Health and Hygiene	• Protection against dust and furnace by using of the nose masks and covering of the head and body; • Laborers will use proper safety belts during work at high altitude • Ensure availability and using proper PPE (helmet, gloves, safety glass, safety shoes etc.) of all workers during work. • Provide construction workers with basic information on infectious diseases including HIV/AIDS • Proper scaffolding should be made available during construction • Proper disposal of the wastes and effluents; • Introduce waste bins for the solid waste management system.
Safety and Fast Aid Box	• Using of the personal protective equipment (helmet, gloves, goggles, nose mask, safety boots); • Precautions during work on or near machineries in motion; • Head loads are prohibited; • First aid facilities should be provided and maintained; • The first aid kit should include adhesive bandages, regular strength pain medication, gauze, and low grade disinfectant.
Compensation for Accidents at Work	• Contractors will bear medical treatment costs. If any sever accidents such as loss of hands, legs or loss of working ability or any case of death needs compensation-(the amount of the compensation should be fixed considering the type of accidents).
Dust and Fumes	• For any dust, fumes, or other impurities likely to be injurious to the workers, effective measures shall be taken to prevent their accumulation and its inhalation by the workers.
Over-crowding	• No labor room should be over-crowded, the labor camp should be provide 15 ft x 30 for male and 12 ft x 15 ft for female workers.

7.2.14. Impact on local community

The construction of subproject can cause air pollution and noise pollution during construction phase due to blow of dust and emission of gases during vehicle movement, generation of high sound during using equipment for mixing etc. that may affect community people, and officials living at surrounding areas and passing through the road beside the construction site. In addition, there might be a conflict with community people in any uncertain events.

Following measures should be taken to avoid or minimize the local community impacts:

- Community people should be oriented to use masks during their movement near construction site;
- Construction equipment and machineries should not be used at night;
- Orientation and training will be provided to the contractors, supervisors and workers, on health, safety and environment including sexual diseases control (as of BOQ);
- Liaison with the communities will be maintained throughout the construction phase;
- Grievance redress mechanism has to be established at the sub-project site.
- A detail disclosure on sub-project to be hanged at the visible side where community can see and read

7.2.15. Labor influx and anticipated impacts

The subproject has a positive impact on labor engagement since it will attract employment of local laborers. The most of the works will be done by the local laborers and there is very limited chance of engagement of outside laborers. So, the labor influx will be minimum in the construction of sub-project. There is a chance to avoid female workers from poor households to be employed in construction activities.

Following measures should be taken to avoid or minimize the impact on labor influx:

- Laborers from the local community should be employed in construction activities;
- Female laborers from poor households should be given highest priority to employ in construction activities.

7.3. Potential Significant Environmental Impacts and Its Mitigation and Enhancement Measures during Operational Phase

7.3.1. Safety of children and their attendants

Children love to play at park areas. It is a wonderful place to test one's physical abilities and to just have fun. For keeping children safe at park, requires some special precautions. Precautions are also required for the attendants of the children. Although there is no provision of installing electrical rides at the proposed park now, but electrical rides might be installed at this park in future. Therefore, considering the present provision of rides and future assumption of rides might be installed, some general assumptions on safety of children and for their attendants at Park are given as below:

General safety tips for child care during enjoying rides:

- Never leave children alone at rides;
- Teach children not to play near the Electric train, Ferris wheels, Pendulum ride, Water ride, Roller coaster; and
- Check the park play area routinely. Remove trash, sharp branches, tools, lawn equipment, and animal feces if any.

Safe set-up of the park environment:

- Be sure all play areas are fenced, especially near a road, parking lot, pond, well, or railroad track;
- Surround electrical appliances in the play area, such as electric connections, rail track with fences so children cannot reach them;
- Keep gates closed and deploy full time security guards; and
- Lock storage sheds and garages.

Safety with tricycles and other riding games:

- Require children to use helmets when using tricycles, bicycles, skateboards, roller skates, and ride-on toys; and
- Use safety straps to secure children in rides.

Common Safety at Park: The Park area is required careful planning and monitoring. Different age groups may need different playground equipment in areas separated by fences to ensure that playgrounds are safe and fun for everyone. Here are some guidelines to assess park area safety:

- Regularly inspect surface and playground equipment for broken, worn, or missing parts. Remove, repair, or replace items immediately;
- Provide some shade in the play space, either from natural sources like trees or from a tent, awning, or other shelter;
- Teach children to stay away from the front and back of the swing area;
- Keep play equipment at least 6 feet away from pavement, fences, trees, buildings, walkways, and other play equipment;
- Provide guardrails or barriers for platforms or ramps over 30 inches high;
- Cover all protruding bolts or screws with plastic safety caps;
- Never attach any ropes or cords to play equipment; and
- Safely anchor to the ground permanent outdoor equipment such as swing sets or climbers;

Tips for playground surfacing: To reduce the risk of injuries from falls, make sure all play equipment has soft surfacing underneath it. Materials such as sand, pea gravel, rubber mulch, and wood chips are soft enough to absorb falls. Grass and dirt are not soft enough to absorb the shock of a fall. Do not install loose-fill surfacing over hard surfaces such as concrete or asphalt. In addition, the following measures should be taken to keep the playground surface safe for the children:

Maintenance: Daily, weekly, monthly and annual checks should be carried out.

Glass: One of the most frequent checks should be for glass. Glasses, glass bottles etc. should not be allowed in or around the play area as any breakage creates a serious risk of injury and is difficult to clean up. Plastic glasses could be used as an alternative.

Bins: Sufficient bins should be provided together with information signs.

Abduction: There are a number of measures that can be taken to reduce the risk of a child being abducted from a play area. It is required for supervision of the play area by:-

- Staff/parents;
- CCTV cameras;
- Fencing; and
- Lighting.

7.3.2. Air quality degradation

The emission of carbon dioxide of the cars to be used by the visitors will be insignificant and there will be a parking place at the outside of the proposed subproject site which will avert the air pollution. However, unpleasant smell of paints and thinners that will be used during painting and bad odor from the solid wastes materials to be generated from the restaurant can affect the air quality. This might affect the health of the visitors and staff of the park.

The following mitigation and enhancement measures should be taken to minimize the air quality degradation:

- Odorless and lead free paints available in the market should be used;
- Control any likely bad odor generated from the waste materials; and
- Ensure effective solid waste management facilities.

7.3.3. Noise pollution

No electrical and noise producing rides will be installed at the park. Hence, there is no possibility of producing noise from the rides. However, the potential huge gathering of the visitors at the park during peak hours and special festival may create noise pollution. In addition, the use of hydraulic horns by private cars at the parking place can also create noise pollution. Use loud speaker in the park may also create significant noise nuisance.

The following mitigation and enhancement measures should be taken to minimize the noise pollution:

- The traffic control authority should control the use of hydraulic horn in cars and minimize the traffic congestion at peak-hours at the parking place;
- No loud speaker should be allowed at the park. Hand mike can be used in case of any emergencies.

7.3.4. Solid wastes generation and disposal

Solid wastes such as leftover food, foils, bottle and plastic from food and drink can be generated at Park premises by the visitors. It is assuming that after completion of the proposed park, approximately 2000 people will walk at morning and evening. As this will be used as walk way, so possibility of waste generation will be minimum. Assuming 10% of walker will generate solid waste at a rate of 100gm which will generate 20kg/day. If these generated solid wastes are not disposed properly, it will create unhygienic environment at the Park area and visitors will feel discomfort.

The following mitigation and enhancement measures should be taken to ensure proper solid waste disposal and minimize its impact on environment:

- Sufficient numbers of waste bins should be in place at Park premises.
- Solid wastes to be generated at the Park should be collected and disposed in garbage bin near the proposed park.
- Finally collect the solid waste from the garbage bin and carry it by Municipal dumping truck to the landfill by the Pourashava Authority.

7.3.5. Traffic congestion

There is no such possibility of traffic congestion in front of the entrance of the Park regularly. However, there is a possibility of traffic congestion in special religious and national festivals in front of the entrance of the Park.

The following mitigation and enhancement measures should be taken to minimize the impact of traffic congestions:

- Local transportation vehicles should not be allowed to stay long time in front of the entrance of the Park.
- Direction/control sign for vehicle movement should be ensured in front of the entrance of the Park.

7.3.6. Accident due to fire hazard and electric short circuit

Fire hazard is a common threat to any establishments. Firing may occur due to negligence and poor understanding of safety systems. Fire hazard may come from short circuit or open burning of waste material at the Park.

The following mitigation and enhancement measures should be taken to minimize the accident due to fire hazard and electric short circuit:

- Fire extinguisher should be used and be placed at the building.
- Touching electrical appliances with wet hands should be prohibited with properly visible danger sign.
- Faulty or malfunctioning electrical products should not be used.
- Training should be provided to use firefighting equipment when necessary.

- Regularly checking and maintenance the electrical line of the market should be done.

7.3.7. Waste water disposal

The waste water to be generated from the restaurant, wash rooms due to used water, residuals of cooked foods and vegetables etc. might be discharged into the local drain and can pollute the water of outfall water bodies, and subsequently decrease the water quality. It is assuming that 7.5 m3/day waste water generate from the proposed food shops and It requires proper waste water collection, treatment and disposal facilities to minimize the water pollution.

Following measures should be taken to minimize the impacts:

- Provision of soak pit at the restaurant is to be ensured for the disposal of waste water to be generated. On the bottom of soak pit 1.5 m depth filter bed (Sylhet Sand and brick chips, 1:1 proportion) is preferable;

7.3.8. Fecal sludge management

Fecal sludge will be generated from toilets to be used by visitors, staffs and shop keepers of the proposed park. It is assuming that 12m3/year fecal sludge will be generated from the toilets at proposed park. There will be a septic tank which will accommodate the fecal sludge to be generated from the toilets. If the septic tank is not cleaned in regular interval, it can be overflowed and cause environmental pollution.

The following mitigation and enhancement measures should be taken to ensure proper fecal sludge management and minimize its impacts on environment:

- The Pourashava's conservancy unit will collect fecal sludge by suction pipe and to be carried out by vacuum truck.
- The collected fecal sludge must be transported to the places adjacent to land fill area at Gonipur.
- The sludge will be covered by the earth to stop spreading odor and diseases.

7.3.9. Impact on local community

The proposed subproject has a positive impact on the community people by creating business and employment opportunity during operational phase. The management of the Park will require considerable number of support staff. Thus, it will create employment opportunity of local people. In addition, the shops within the Park will be allocated among the eligible community people of the Pourashava thus creating business opportunity to generate income. It will also create employment opportunity for young people by engaging them in shops to be operated.

8. ENVIRONMENTAL MANAGEMENT PLAN

The objective of the environmental management plan (EMP) is to record environmental impacts resulting from the sub-project activities and to ensure implementation of the identified "mitigation measures", in order to reduce adverse impacts and enhance positive impacts. Besides, it would also address any unexpected or unforeseen environmental impacts that may arise during

construction and operational phases of the sub-projects. The identified environmental impacts and its mitigation and enhancement measures are given in **Table 8-1** as below:

8.1. Environmental Management Plan (EMP) Matrix

The anticipated environmental impacts and corresponding mitigation and enhancement measures have been outlined in **Table 8-1.**

Table 8-1: EMP matrix of the proposed Poura Park

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
Pre-construction phase						
Environmental clause in the contract	• Incorporate environmental clauses in bid and contract document	At the Chowmuhani Pourashava		Before bidding or contract	PIU of Chowmuhani Pourashava	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Construction vehicles and machinery	• Trial run of vehicles and machinery to be used to confirm that their conditions, level of emissions of pollutants and noise level will not cause serious damages to the surrounding environment.	At the construction site, or vehicle depot		Before the commencement of construction	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Labor camp and its Sanitary latrine	• Two labor camps with raised platform should be constructed at the separate sides of the site with separate toilet facilities to ensure the safety and security of female workers. • The contractor will install separate sanitary latrines for male and female workers. The latrines should have washing facilities (availability of water and soap). • The labor shed shall be with the facilities like; mosquito nets, cooking arrangement, water supply, waste bins, lighting etc. • A temporary drain for the kitchen waste water is to be provided and rain water drainage	At the Labor camp and construction site	200000.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	around the camp site is to be provided for easy surface runoff.					
Air, water and noise quality laboratory test	• The base line condition of Air, Water and Noise quality of proposed kitchen market should be tested in laboratory	Proposed site	120000.00	Pre-construction, during and after construction	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Construction phase						
Pollution from the construction materials and equipment	• Safe transport, storage, and disposal of the construction materials, and the equipment have to be carried out in order to avoid the accidental spillage and loss; • Raised platform (brick soling with neat cement finishing to keep the materials) shall be constructed prior to start working (to be included with environmental safeguard items in the bidding document). • Leakage fuel and lubricants from equipments will be collected by separate container for reuse or safe disposal. So that it cannot be spread and pollute adjacent areas.	At the Construction site	15000.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Solid waste disposal	• Within the construction site, a number of waste bins will have to be provided by the contractor, • The Contractor will be responsible to deposit the every generated waste in a safe place and	At the Construction site	90000.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	that will be carried by conservancy unit of the Pourashava to the dumping yard or landfill site.					PMU of MGSP under BMDF
Impact due to installation of rides	• Ensure equipment is installed in accordance with manufacturer's instructions and that clearance distances around equipment are adequate; • Ensure moving equipment is sited away from the entrance to the play area to reduce the risk of collision; • Ensure separate zones for toddlers and older children; • Landscaping, fencing etc should be used to direct the children safely between equipment; and • The layout should permit adult access to all areas in the event of an emergency.	At the Construction site		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Inadequate drinking water supply	• The contractor will install tube well or ensure pipe line water supply as considered in the BOQ (environmental safeguard component) prior to starting the construction works; • The water quality will have to be tested for its quality judgment in a regular interval.	At the Labor camp and construction site	60000.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
Transportation before starting works	• Any materials required for construction should be transported at night time (within 10.00 pm – 6.00 am) to avoid local traffic congestion; • Proper vehicle movement schedule should be maintained in consultation with local people; • Unloading of materials should be done inside project areas; • Traffic control manpower will be deputed during construction and operation period; • Control sign should be provided to regulate traffic movement; • Safety arrangement should be inserted in the safeguard cost in BOQ.	At the Construction site		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Earth work for construction works	• Earthwork activities should be done in dry season; • Water spray should be continued during work or day time to control dust spreading; • Inspection of the trenches should be done at the start of each shift; • Adequate safety barriers should be provided with clear visible signs to alert both drivers and pedestrians; • Adequate light should be provided to the barriers and signs to make them clearly visible at night from a distance sufficient to respond;	At the Construction site		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• Temporary arrangement should be in place for pedestrian and vehicular traffic at site; • Excavated earth should be retained in safer places so that pedestrian can walk smoothly.					
Clogging of water inside the construction site	• Earthworks should be done during dry season; • During foundation work, temporary drainage system will have to be provided and should be connected with existing drainage system to run out the storm water. If necessary, a submergible pump should be there to pump out the water inside the pit.	At the Construction site	50000.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Clogging of local drain water	• Construction materials should be kept within a corner of construction area; • Contractor will ensure proper disposal of construction wastes and that should not be disposed to the local drains.	At the Construction site		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Air quality due to dust and emission of carbon dioxide	• Water should be sprayed to control the dust at day time; • The trimming activity using odorless paints should be minimized; • The condition of combustion-engine powered machine should be maintained. • Low-sulfur fuels should be employed; • Construction material should be transported through truck covered by tarpaulin.	At the Construction site and surrounding areas	90000.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• The construction period condition of Air quality should be tested in laboratory.					
Noise level	• Construction materials should be transported with scheduled time; • All powered mechanical equipment and machinery should be fitted with noise abating gear such as mufflers for effective sound reducing device; • The use of personal protective equipment like helmet, goggles, ear plug, gloves, safety boot etc. should be ensured; • The crushing of bricks/ stones should not be allowed at the project site. Broken brick or stone chips should be collected from distanced source to the subproject site for construction purpose. • Separate batch plant might be used for concreting work (Ready Mix Concrete if available).	At the Construction site and surrounding areas		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Surface water quality	• Waste material in any form should not be thrown in storm drainage system; • Proper construction management including waste management, training of operators and workers will be provided to avoid pollution of water bodies or nearby habitants.	At the Construction site and surrounding areas		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• Waste bins are to be provided at different location of working and living places.					
Uneven situation	• All the emergency telephone numbers of all the departments like Police station, fire service and civil defense, truck and bus stands, hospitals, clinics, etc. should be available at site; • There should be standby transport facilities to deal any accidental case; • There should be a provision for fast-aid box and emergency on-call physician. • The storage of the construction materials should be done in such a way that it might not create obstacle for movement of vehicles and pedestrians.	At the Construction site and surrounding areas		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Occupational health and safety	• Protection against dust and furnace by using of the nose masks and covering of the head and body; • Labors will use proper safety belts during work at high altitude • Ensure availability and using proper PPE (helmet, gloves, safety glass, safety shoes etc.) of all workers during work. • Provide construction workers with basic information on infectious diseases including HIV/AIDS	At the Construction site and surrounding areas	100000.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• Proper scaffolding should be made available during construction • Proper disposal of the wastes and effluents; • Introduce waste bins for the solid waste management system. • Using of the personal protective equipment (helmet, gloves, goggles, nose mask, safety boots); • Precautions during work on or near machineries in motion; • Head loads are prohibited; • First aid facilities should be provided and maintained; • The first aid kit should include adhesive bandages, regular strength pain medication, gauze, and low grade disinfectant. • Contractors will bear medical treatment costs. If any sever accidents such as loss of hands, legs or loss of working ability or any case of death needs compensation-(the amount of the compensation should be fixed considering the type of accidents). • For any dust, fumes, or other impurities likely to be injurious to the workers, effective measures shall be taken to prevent their accumulation and its inhalation by the workers.					

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• No labor room should be over-crowded, the labor camp should be provide 15 ft x 30 for male and 12 ft x 15 ft for female workers.					
Impact on local community	▪ Community people should be oriented to use masks during their movement near construction site; ▪ Construction equipment and machineries should not be used at night. ▪ Orientation and training will be provided to the contractors, supervisors and workers, on health, safety and environment including sexual diseases control (as of BOQ), ▪ Liaison with the communities will be maintained throughout the construction phase. ▪ Grievance redress mechanism has been established at the sub-project site. ▪ A detail disclosure on sub-project to be hanged at the visible side where community can see and read.	At the Construction site and surrounding areas		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Impact on labor influx	• Laborers from the local community should be employed in construction activities. • Female laborers from poor households should be given highest priority to employ in construction activities.	At the Construction site		During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
Tree plantation		At the Construction site	31500.00	During construction period	Contractor	PIU of Chowmuhani Pourashava and PMU of MGSP under BMDF
Operation phase						
Safety of children and their attendants	**General safety for child care during enjoying rides:** • Never leave children alone at rides; • Teach children not to play near the Electric train, Ferris wheels, Pendulum ride, Water ride, Roller coaster; and • Check the park play area routinely. Remove trash, sharp branches, tools, lawn equipment, and animal feces if any. **Safe set-up of the park environment:** • Be sure all play areas are fenced, especially near a road, parking lot, pond, well, or railroad track; • Surround electrical appliances in the play area, such as electric connections, rail track with fences so children cannot reach them; • Keep gates closed and deploy full time security guards; and	At the Park		During operational period	Park management committee	PIU of Chowmuhani Pourashava

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• Lock storage sheds and garages. **Safety with tricycles and other riding games:** • Require children to use helmets when using tricycles, bicycles, skateboards, roller skates, and ride-on toys; and • Use safety straps to secure children in rides. **Common Safety at Park:** • Regularly inspect surface and playground equipment for broken, worn, or missing parts. Remove, repair, or replace items immediately; • Provide some shade in the play space, either from natural sources like trees or from a tent, awning, or other shelter; • Teach children to stay away from the front and back of the swing area; • Keep play equipment at least 6 feet away from pavement, fences, trees, buildings, walkways, and other play equipment; • Provide guardrails or barriers for platforms or ramps over 30 inches high; • Cover all protruding bolts or screws with plastic safety caps; • Never attach any ropes or cords to play equipment; and					

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• Safely anchor to the ground permanent outdoor equipment such as swing sets or climbers; **Playground surfacing:** • Daily, weekly, monthly and annual checks should be carried out; • Glasses, glass bottles etc. should not be allowed in or around the play area and plastic glasses could be used as an alternative; • Sufficient bins should be provided together with information signs; • There should be staffs/parents, CCTV cameras, fencing and lighting to reduce the risk of a children being abducted.					
Air quality degradation	• Odorless paints available in the market should be used; • Control any likely bad odor generated from the waste materials; • Ensure effective solid waste management facilities. • The operational phase condition of Air quality should be tested in laboratory.	At the Park		During operational period	Park management committee	PIU of Chowmuhani Pourashava
Noise pollution	• The traffic control authority should control the use of hydraulic horn in cars and minimize the	At the Park		During operational period	Park management committee	PIU of Chowmuhani Pourashava

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	traffic congestion at peak-hours at the parking place; and • No loud speaker should be allowed at the park. Hand mike can be used in case of any emergencies.					
Solid wastes generation and disposal	• Sufficient numbers of waste bins should be in place at Park premises. • Solid wastes to be generated at the Park should be collected and disposed in selected landfill by the Pourashava Authority from the garbage bin.	At the Park		During operational period	Park management committee	PIU of Chowmuhani Pourashava
Traffic congestion	• Local transportation vehicles should not be allowed to stay long time in front of the entrance of the Park. • Direction/control sign for vehicle movement should be ensured in front of the entrance of the Park	At the parking lot		During operational period	Park management committee	PIU of Chowmuhani Pourashava
Accident due to fire hazard and electric short circuit	• Fire extinguisher should be used and be placed at the stair-case site at the building. • Touching electrical appliances with wet hands should be prohibited with properly visible danger sign. • Faulty or malfunctioning electrical products should not be used. • Training should be provided to use firefighting equipment when necessary.	At the Park		During operational period	Park management committee	PIU of Chowmuhani Pourashava

Issues/ Environmental impact	Mitigation and enhancement measures to be taken	Location	Cost (BDT.)	Timing	Responsible organization	
					Implementation	Supervision/ Monitoring
	• Regularly checking and maintenance the electrical line of the bus terminal should be done.					
Waste water disposal	• Provision of soak pit is to be provided for disposal of waste water to be generated. On the bottom of soak pit 1.5 m depth filter bed (Sylhet Sand and brick chips, 1:1 proportion) is preferable; • The waste water, after filtration through the soak pit, will not be harmful either to ground water or to the nearby drains/ surface water. • The soak pit will have to be cleaned in a regular interval (at least in every three months).	At the Park		During operational period	Park management committee	PIU of Chowmuhani Pourashava
Toilet for Male, Female and Disable People	• Provision for toilets for male, female and disable people	At the Park		During operational period	Park management committee	PIU of Chowmuhani Pourashava
Fecal sludge management	• The Pourashava's conservancy unit will clean the septic tanks in regular interval; • The collected fecal sludge must be transported to fecal sludge treatment plant by using a vacuum truck. • The generated fecal sludge should be dumped at fecal sludge treatment plant at Gonipur of the Pourashava or other designated place of Pourashava.	At the Park		During operational period	Conservancy Unit of the Pourashava	PIU of Chowmuhani Pourashava

8.2. Environmental Monitoring Plan

The Environmental Monitoring is important to record environmental impacts resulting from the subproject activities and to ensure implementation of the mitigation measures identified earlier in order to reduce adverse impacts and enhance positive impacts from the subproject activities. The environmental monitoring should be done at both constructional and operational phases.

Environmental monitoring requires a set of indicators that could be conveniently measured, assessed and evaluated periodically to observe the trends of change in base line environmental quality.

The following environmental monitoring plan should be adopted to monitor the activities of both construction and operational phases mentioned in the environmental management plan.

8.2.1. Monitoring during construction phase

The mitigation or enhancement measures outlines in EMP should be monitoring during construction period with regular interval in order to ensure its effective implementation to avoid the adverse effect of subproject activities and to gain the positive impacts resulting for the activities. The environmental monitoring plan during the construction period is given in **Table 8-2** as below:

Table 8-2: Environmental Monitoring Plan during construction phase (visual observation)

Monitored Parameter/ Issues	Monitoring Method/ Key Aspects	Location of Monitoring	Frequency of Monitoring
Safety orientation and training of workers	Frequency of training & orientation of workers for safety	Subproject site	• Once in a month • Reporting: Once in a month
Personal Protective Equipment	Ensure every single person involved in the activities wear and use safety equipment	Subproject site	• Daily • Reporting: Once in a month
Worker's health	Monitoring process of worker's health	Subproject site	• Daily • Reporting: Once in a month
Sanitation & drinking water facility to the workers	Availability of safe drinking water and sanitation to the workers	Subproject site	• Daily • Reporting: Once in a month
Incident record and reporting	Documented record of all incident, accident, and its remedial process	Subproject site	• Daily • Reporting: Once in a month

Site security/ Fencing at the site	Isolation of site from general access by fencing, restriction of the un-authorized entry in the site.	Subproject site	• Daily • Reporting: Once in a month
Bulletin/ announcement boards/ prohibition signs	Visible in good condition or not	Subproject site	• Daily • Reporting: Once in a month
Equipment /vehicles	-Switched-off diesel engines when not in use; -Search any possible leakage; -Fuelling.	Subproject site	• Daily • Reporting: Once in a month
Solid waste generation	Quantity of solid wastes and disposal	Subproject site	• Daily • Reporting: Once in a month
Gender equity	Direct survey in the field by interviews with the women in order to ensure that there is no any gaps between man and women	Subproject site	• Daily • Reporting: Once in a month
Child labor	No child will be engaged in the activities	Subproject site	• Daily • Reporting: Once in a month
Handling of hazardous materials	Fuelling, storage, operation	Subproject site	• Daily • Reporting: Once in a month

The environmental parameters to be monitored during construction phases are given in **Table 8-3** as below:

Table 8-3: Environmental parameters to be monitored (during construction phase)

Monitored Parameter / Issues	**Monitoring Method/Key Aspects**	**Location of Monitoring**	**Period & Monitoring Frequency**
Air quality (SPM, PM_{10}, and $PM_{2.5}$)	• Visually-black smoke; • Sampling; • Analysis at laboratory; • analysis of merits determination by using quality standards;	Subproject site	• Two times during construction period; • Reporting: Immediately after analysis and once in a month as a regular basis

	• Through digital instruments.		
Noise level	• Through digital noise level meter	Subproject site	• Two times during construction period; • Reporting: Immediately after measurement and once in a month as a regular basis.
Water Quality	• Sampling; • Analysis at laboratory; • Analysis of merits determination by using quality standards; • Through digital instruments	Subproject site	• Two times during construction period; • Reporting: Immediately after measurement and once in a month as a regular basis.

8.2.2. Monitoring during operational phase

Environmental monitoring during operational phase is limited to a number of impact parameters to see the actual performance of the subproject. Monitoring of some issues might be necessary during the operational period of the subproject those are given in Table 8-4 as below.

Table 8-4: Environmental Monitoring plan during operation phase (visual observation)

SL No	Issue	Key aspects	Monitoring frequency per year
1	Complaint from local people	Any significant complain from local people and it's remedial procedure	4
2	Local drainage system	Maintaining proper drainage	4
3	Solid Waste Management	Proper management of solid wastes	4

The environmental parameters to be monitored during operational phase are given in **Table 8-5** as below:

Table 8-5: Environmental parameters to be monitored (monitoring frequency)

Parameter	Location	Monitoring frequency per year
Air quality (SPM, PM_{10}, and $PM_{2.5}$)	At the Park areas	2
Water quality (BOD, pH, DO, TDS, Turbidity, NH_3)	At the nearby, surface water, ground water and drain water	2
Noise and Vibration	At the Park	2

8.3. Grievance Redress Mechanism

The project-specific Grievance Redress Mechanism (GRM) will be established by the PIU of Chowmuhani Pourashava to receive, evaluate, and facilitate the solution of affected people's (Aps) concerns, complaints and grievances concerning the social and environmental performance of the subproject. The GRM is aimed to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the subproject.

The grievance mechanism is related to resolve the risks and adverse impacts of the subproject. It addresses APs' concerns and complaints promptly, using an understandable and transparent process that is also gender responsive, and culturally appropriate. It is readily accessible to all segments of the affected people at no costs and without retribution. The mechanism should not impede access to the country's judicial or administrative remedies. The affected people will be appropriately informed about the mechanism.

BMDF has its own Grievance Redress Procedure (GRP) and they operate it to address any dissatisfaction and complaints by the local people regarding its activities. This procedure is being applied to address any complaints or grievances through negotiations with the community leaders and representatives of the APs during implementation of the MGSP.

8.3.1. Grievance redress committee (GRC)

Chowmuhani Pourashava has formed a Grievance Redress Committee (GRC) headed by The Mayor. With the facilitation of Consultant, the Mayor nominated the GRC members and included representative from the Government Agencies, local NGO, and Civil Society. The GRC will nominate a focal person. Complaints will be received through drop box, by post, email and website of Pourashava. The grievance box will be set up at construction site to received complaints. The grievance response focal point will be available at the Pourashava for recording the complaints and necessary response to an aggrieved person. It will receive complaints or suggestions, and produce them to the GRC for hearing and resolution. If any complaint is not resolved at Pourashava level then the complaint will be produced to MD-BMDF. If it is not resolved by the MD-BMDF, then the subproject will be dropped.

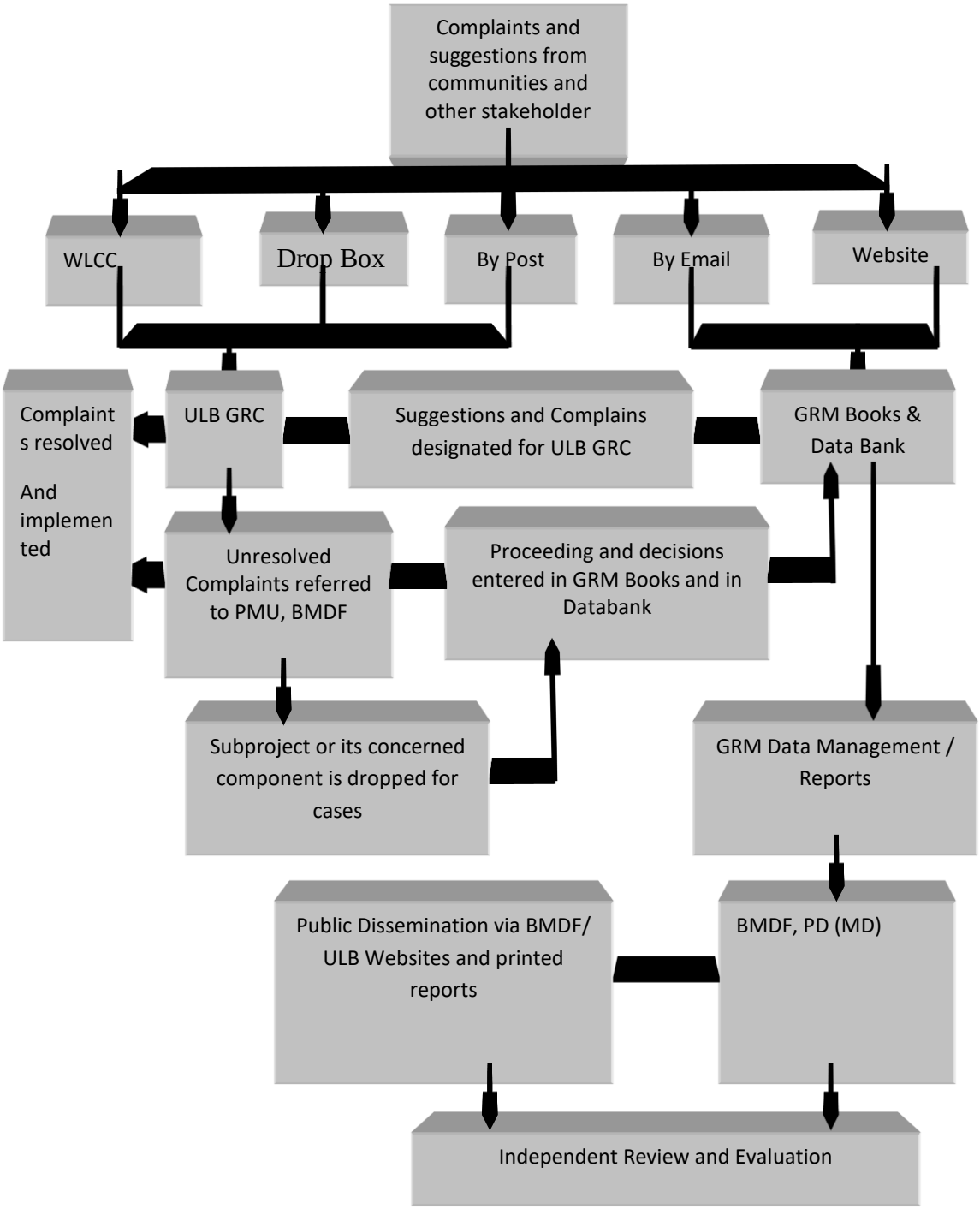
The structure of the GRC and membership are given as below:

Chairman	: ULB Mayor
Member-Secretary	: Head of the Engineering Section of ULB
Member	: Representative from local administration
	: Teacher from a local educational institution
	: Representative of a local NGO
	: Representative of civil society
	: Female ward councilor (of respective area)

The list of GRC members along with the notification from the Mayor is attached in **Annexure 2**.

8.3.2. Grievance resolution process

Given flow chart will be followed for grievance resolution process of this subproject.



Flow diagram 8-1: Grievance resolution process

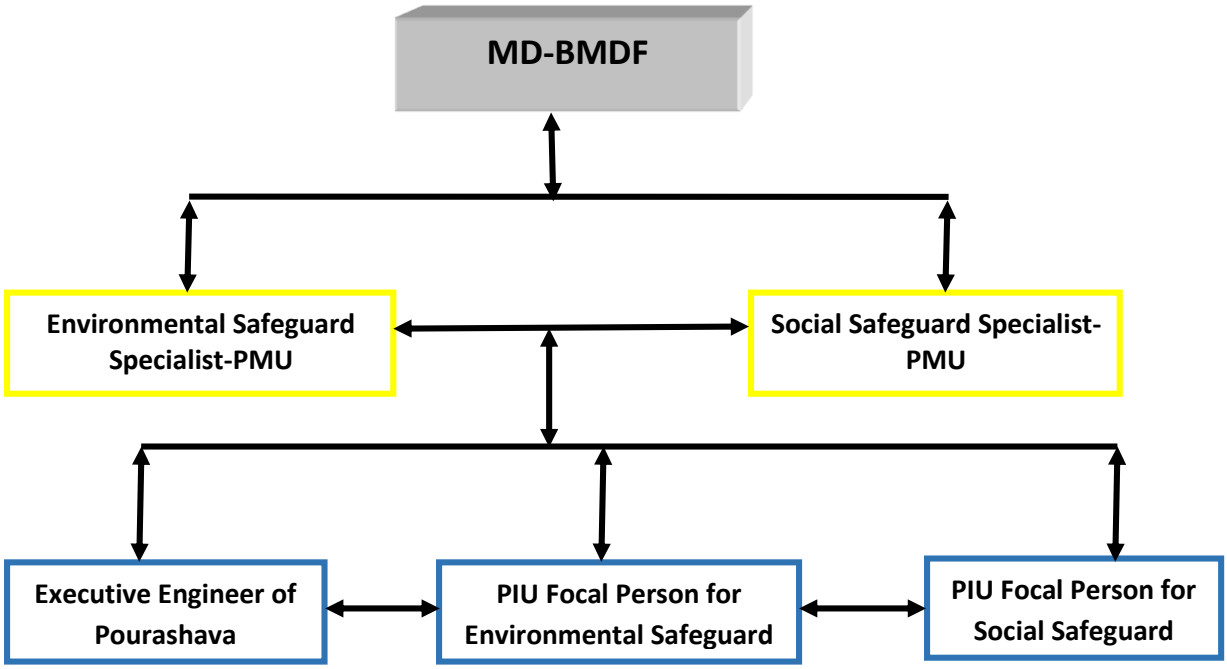
Note: If the appellant is still not satisfied, he or she has the right to take the case to the public courts. Chowmuhani Pourashava should also publish the outcome of the cases on the public notice

boards. All costs involved in resolving the complaints (meetings, consultations, communication, and information dissemination) will be borne by the Chowmuhani Pourashava. The Pourashava authority will try to resolve the issues (in most of the cases, in amicable settlement) within shortest possible time. However, the public court system is always open to resolve the issues.

8.4. Institutional Arrangement for Implementation of EMP

The Environmental Safeguard Compliance issues are directly vested the Pourashava Officials; especially the Executive Engineer will be responsible for supporting the construction supervision with the facilitation of BMDF. The civil works contractors will implement the environmental mitigation measures.

The BMDF, with the help of Environmental Safeguard Specialist will submit the monthly monitoring reports on Environmental Compliances to the World Bank.



Flow diagram 8-2: Institutional arrangement for implementation of EMP

8.5. Capacity Building

A two-day long training program in participation of PIU members of Chowmuhani Pourashava was organized by the PMU of BMDF to build the capability of PIU of Chowmuhani Pourashava. The Consultant, hired by the Chowmuhani Pourashava also participated in the training program. The PMU of BMDF organized this training program in order to enhance their capacity to conduct Environmental Assessment and Social Impact Assessment to be done for any proposed subproject. A series of sessions were conducted by the Specialists of the PMU of BMDF. The major sessions

includes: (i) Environmental Screening, (ii) EMP Implementation, including environmental monitoring requirements related to mitigation measures; and (iii) taking immediate action to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of the implementation. The PIU of Chowmuhani Pourashava will organized an orientation of contractor, workers and other support staff on environmental issues to be considered and mitigation measures to be taken during pre-construction, construction and operational phases before deploying to the work sites in order to achieve the expected standards.

8.6. Estimation of Environmental Safeguard Cost of EMP

Considering the environmental impacts and their mitigation measures for the subproject, several items are included in the BOQ for the environmental management. **Table 8-6** presents the estimated cost during construction phase and **Table 8-7** presents the estimated cost during operation phase for the environmental management. Cost during construction phase will be included in BOQ but Cost during operation phase will be bearded by Chowmuhani Pourashava.

Note: The environmental safeguard compliance issues and cost (like solid waste management, water supply, traffic management, drain cleaning, test of environment parameter etc.) are to be done by Park Management Committee and that is to be supervised by Chowmuhani Pourashava Authority.

9. COMPLIANCE WITH ENVIRONMENTAL CODE OF PRACTICES

The environmental code of practices (ECoPs) provides guidelines for environment management of the subprojects to be implemented in different urban local bodies (ULBs) under MGSP. The main objective of the ECoP is to manage construction operations in harmony with the environment in an effort to contribute to the well-being of the community and the environment by (i) minimizing pollution, (ii) sustaining eco-systems, (iii) conserving cultural heritage, and (iv) enhancing amenity. In compliance with ECoP, following issues associated with the proposed subproject are addressed during environmental assessment:

- Planning and design of the subproject;
- Site preparation;
- Construction camps;
- Waste management;
- Water bodies;
- Water quality;
- Drainage;
- Public health and safety;
- Material storage, transport and handling;

In this assessment, all the above mentioned issues are found relevant and are addressed properly in this report to comply with the environmental code of practices of MGSP.

10. PUBLIC CONSULTATION AND ACCESS TO INFORMATION

10.1. Introduction

Pubic Consultation is an effective tool for maintaining communication among the Pourashava authority, BMDF as funding authority, different stakeholders of the subproject and community people where the subproject will be implemented. It helps to facilitate and streamline decision making as well as fosters an atmosphere of common understanding among individuals, group and organizations that could be affected or be affected by the subproject. It also ensures the transparency of the subproject at all levels of planning, design, construction and operation. It is a continuous process by which opinion from public is sought on matters affecting them. Hence, as a part of IEE/EIA, an effective public consultation and access to information is important.

10.2. Objectives

The main objectives of the public consultation and access to information under this subproject are: (i) to generate public awareness by providing information about the subproject to all stakeholders, particularly the subproject affected persons (PAPs) in a timely manner, and (ii) to provide opportunity to the stakeholders to raise their opinions and concerns on different aspects of the subproject.

10.3. Methodology

Public consultation about the planning, design, implementation and operation is done at different stages following different participatory methods. The methods followed in public consultation are: (1) consultative meeting with different stakeholders, (ii) Focus group discussion with community people through the participation of male participants, and (iii) Focus group discussion with community people through the participation of female participants, girls and boys, and disable people.

Picture 6: Participants at stakeholders' meeting

One consultative meeting was organized at community level through the participation of concern Councilor of Chowmuhani Pourashava, local leaders, community elites and representatives of business men surrounding the subproject area. The participants were informed about the detail design and activities of subproject going to be implemented. Environmental screening of the subproject was also done in this meeting using

the prescribed form mentioned in EMF of BMDF. They were asked to share their opinion, feedback and suggestions on environmental and social impacts of the subprojects as well as the mitigation measures to avoid or reduce the potential impacts. They participated in the meeting spontaneously and provided their discrete opinions. The list of participants is attached as **Annexure 3**.

One focus group discussion was organized with male community participants from different professions residing surrounding the subproject site. The participants were informed about the detail design and activities of subproject going to be implemented and asked about their opinion, feedback and suggestions on environmental and social impacts of the subprojects as well as the mitigation measures to avoid or reduce the potential impacts. They participated in the meeting spontaneously and provided their discrete opinions.The list of participants is attached as **Annexure 4.**

Picture 7: Participants at FGD with male group

Another focus group discussion was organized with female community participants came to the market and living around the subproject site. The participants were also informed about the detail design and activities of subproject going to be implemented and asked about their opinion, feedback and suggestions on environmental and social impacts of the subprojects as well as the mitigation measures to avoid or reduce the potential impacts on women's point of view. In this session, boys and girls, and disable people were also present.

Picture 8: Participants at FGD with female

The list of participants is attached as **Annexure 5**.

Special efforts were made to include the elderly, women, and vulnerable groups and to allow them to express their views regarding the subproject implementation. In all cases, the impression of stakeholders and general mass regarding sub-project implementation was positive.

10.4. Issues Raised by the Participants

Following issues were raised during community consultation:

- Separate walk ways for male and female;
- Amusement train all around the Park;
- Different rides for children;
- Seating arrangement at certain interval;
- Paddle-boats on the Pond;
- Separate toilet for male, female and disable people at Park premises;
- Restaurant and toy shops at the Park premises;
- Drinking water supply;
- Proper solid waste management;
- Ramp and Toilets for disable people;
- Lighting and security at the premises including CCTV camera and security guard; and
- Quality of construction work.

10.5. Feedback, Suggestions, and Recommendations of the Participants

Local people felt encouraged about the improvement of Poura Park at the south side of the Pourashava compound. They opined that there is no such environment friendly, secured and open space for the recreation of children, women, girls and elderly people in the Pourashava area. Thus, it will fulfill the requirements of recreational facilities of the Poura citizens. In addition, it will create more business opportunities and employment scope for the local people especially for young people. They suggested making the Park environment friendly considering and addressing all predicted adverse effects related to abovementioned issues with the implementation of potential mitigation and enhancement measures during both construction and operational phases. Participants requested the Pourashava authority to maintain the quality of the construction work of the building including other issues mentioned as above. Adjacent community peoples of the proposed site requested the Pourashava authority to keep the noise level low and keep the construction work stopped after 10:00 pm at night, restrict the workers to visit adjacent areas, use quality construction materials, ensure proper traffic management, ensure proper solid waste management to be produced from the restaurant and visitors, and honor the communities' comfort and over tranquility of the environment.

In addition, the female participants give emphasis on separate toilet for female, breastfeeding and prayer room, recreational facilities for children, drinking water supply and security at the Park

premises. They also gave emphasis of different rides with necessary safety measures for children and women.

10.6. Access to Information

The environmental assessment report should be translated into Bengali and disseminated locally. The copies of the report (both in English and Bengali) will be sent to all the concerned personnel responsible for subproject implementation. It will also be made available to the public. The final assessment report (both English and Bangla) will also be uploaded in the Chowmuhani Pourashava website, BMDF website and the World Bank website after approval.

11. CONCLUSION AND RECOMMENDATIONS

11.1. Conclusion

On the basis of the findings of the environmental assessment, it could be concluded that the subproject is environmentally sound and sustainable. The potential environmental impacts seem very minimum and manageable, and it would be minimized by taking proposed mitigation measures. The adverse environmental impacts from the subproject will mostly take place during the construction stage. No endangered or protected species of flora or fauna are reported at the subproject site. The benefits of the subproject will be significant by creating employment and business opportunities during the construction and operational phases. There is no significant cumulative adverse impact during operation that is identifiable at this stage. The proposed subproject activities have no significant adverse environmental impact so far as a time bound execution program with application of advanced construction technology is ensured. The mitigation measures are well within such codes and practices of construction and operation of the proposed subproject. However, the review of this document could be done, if required, for addressing the significant environmental impact to be happened at the time of construction and operational phases.

11.2.Recommendations

The attitude of the community people towards the Park with recreational facilities is positive as well as they have some recommendations to minimize some impacts of on the environmental and social environment during its construction and operation. The Government of Bangladesh and World Bank have some legal and social safeguard compliances issues those are applicable during constructing and operating the proposed subproject. Considering the above-mentioned issues and findings of the study, following key recommendations are made for smooth construction and successful operation of the Park:

- The recommendation of the community people should be considered at the all stages of the subproject design, construction and operation;
- There should be a parking facility at the front of the entrance of the Park;
- A well-defined solid waste collection and disposal system should be in place;

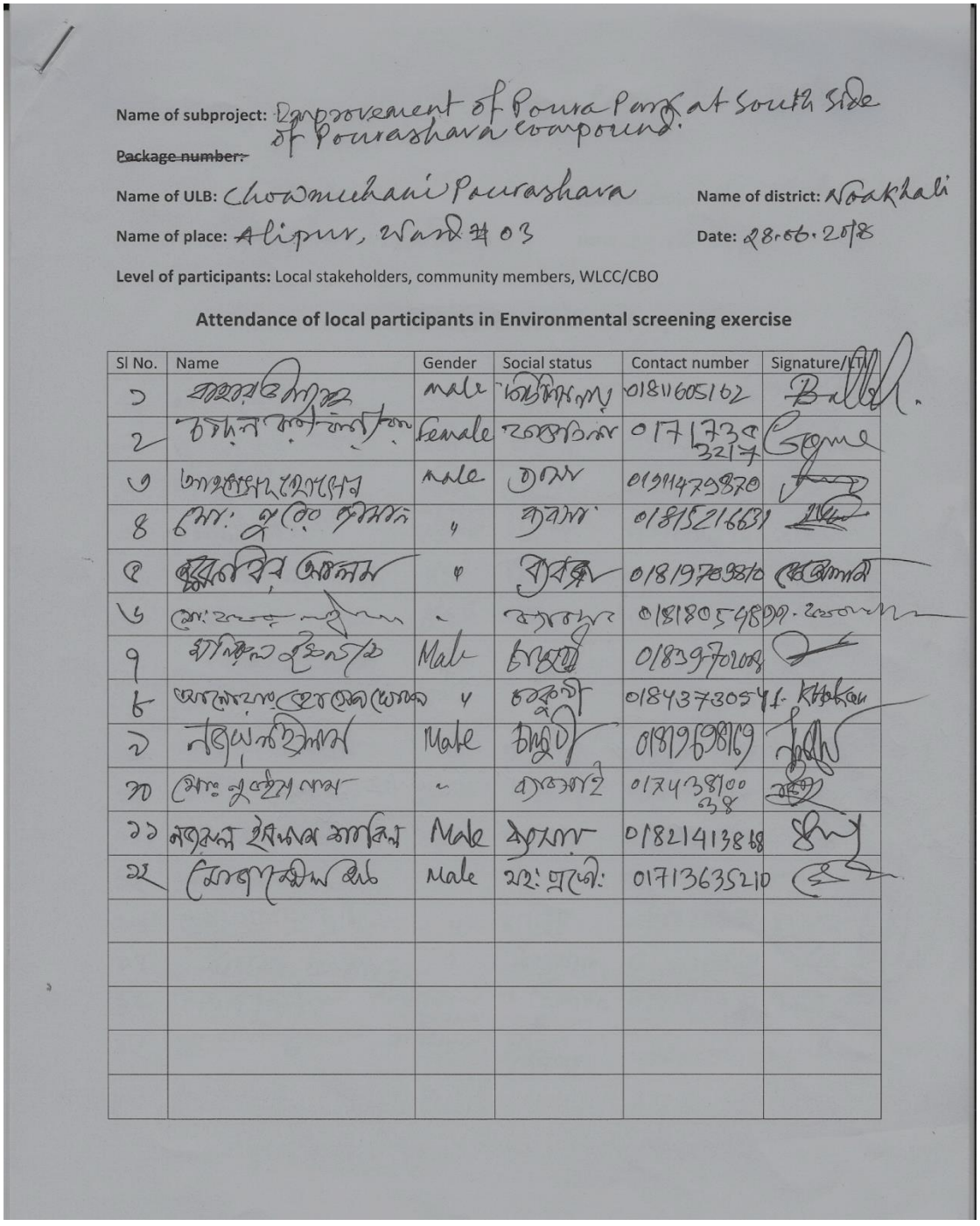
- Drinking water supply facilities should be available at the Park;
- Safety and security of children should be ensured at the Park;
- All waste water should be discharged to the Municipal sewer system. In the absence of such system in the vicinity of the Park, the septic tanks should be constructed;
- Fire prevention and fighting equipment should be provided and maintained as well as official staffs and management committee should be trained in fire prevention and fighting;
- The Park should have facilities for prayer, toilet, toys, meals and snacks;
- Contractor will ensure availability of the PPEs and first-aid box, water supply and sanitation facilities to the workers;
- The surrounding people should be informed about the construction and operation of the Park; and
- Above all, the EMP should be followed and mitigation measures should be monitored as per EMP.

REFERENCES

1. Bangladesh Bureau of Statistics. Bangladesh Population and Housing Census 2011. Community Report: Noakhali.
2. Bangladesh Bureau of Statistics. District Statistics 2011: Noakhali.
3. Bangladesh Municipal Development Fund. Environmental Management Framework, 2017.
4. Chowmuhani Pourashava Data, 2018.
5. Chowmuhani Pourashava. Municipality Development Plan, 2013.
6. https://en.wikipedia.org/wiki/Begumganj_Upazila dated on June 11, 2018.

ANNEXURES

Annexure 1: The list of participants attended at environmental screening exercise



Name of subproject: Improvement of Poura Park at South side of Pourashava compound.

~~Package number:~~

Name of ULB: Chowmuhani Pourashava Name of district: Noakhali

Name of place: Alipur, ওয়ার্ড # 03 Date: 28.06.2018

Level of participants: Local stakeholders, community members, WLCC/CBO

Attendance of local participants in Environmental screening exercise

Sl No.	Name	Gender	Social status	Contact number	Signature/LT
১	[illegible]	male	[illegible]	01811605162	
2	[illegible]	female	[illegible]	01717353217	
৩	[illegible]	male	[illegible]	01911479870	
৪	[illegible]	৷	[illegible]	01815216631	
৫	[illegible]	৷	[illegible]	01819789810	
৬	[illegible]	৷	[illegible]	01818054899	
৭	[illegible]	Male	[illegible]	01839701084	
৮	[illegible]	৷	[illegible]	01843730541	
৯	[illegible]	Male	[illegible]	01819598169	
১০	[illegible]	৷	[illegible]	01743810038	
১১	[illegible]	Male	[illegible]	01821413868	
১২	[illegible]	Male	[illegible]	01713635210	

Annexure 2: The list of GRC members along with the notification from the Mayor

চৌমুহনী পৌরসভা কার্যালয়

বেগমগঞ্জ, নোয়াখালী

Web : www.chowmuhanimunicipality.gov.bd

ফোন ঃ ০৩২১-৫২০৯৬, ৫১৮১২, ৫২৩৩৬, ৫৩৫৯৯ (অফিস), ৫২০৯৭ (বাসা)

উন্নয়নের গণতন্ত্র
শেখ হাসিনার মূলমন্ত্র

সূত্র ঃ চৌ: পৌ:/প্রকৌ: বি:/১৮/৯৪৩ তারিখ ঃ ২১/০৫/২০১৮ খ্রি:

অফিস আদেশ

বাংলাদেশ মিউনিসিপ্যাল ডেভেলপমেন্ট ফান্ড (BMDF) এর অর্থায়নে চৌমুহনী পৌরসভার বাস্তবায়নাধীন প্রকল্প সমুহের জন্য BMDF এর গাইড লাইন অনুসারে নিম্নবর্ণিতভাবে Grivance Redress Committees (GRC) গঠন করা হল;

ক্রঃনং	নাম	পদবী ও ঠিকানা	GRC তে পদবী
১.	আক্তার হোসেন	মেয়র, চৌমুহনী পৌরসভা	চেয়ারম্যান
২.	আবুল কাশেম	উপজেলা সমাজসেবা অফিসার, বেগমগঞ্জ (প্রতিনিধি UNO)	সদস্য
৩.	সৈয়দ আবদুল্লা ফারুক	প্রধান শিক্ষক, ডেল্টা জুট মিল্স উচ্চ বিদ্যালয় (শিক্ষক প্রতিনিধি)	সদস্য
৪.	আবুল কালাম আজাদ	বাপসা, আলীপুর, বেগমগঞ্জ (এনজিও প্রতিনিধি)	সদস্য
৫.	আবু বক্কর ছিদ্দিক টিপু	সমাজ সেবক (সিভিল সোসাইটি)	সদস্য
৬.	চন্দ্রন রানী রায়	কাউন্সিলর, সংরক্ষিত-০১, চৌমুহনী পৌরসভা (মহিলা কাউন্সিলর)	সদস্য
৭.	মোঃ জাকের হোসেন	নির্বাহী প্রকৌশলী, চৌমুহনী পৌরসভা	সদস্য-সচিব

উল্লিখিত কমিটি BMDF এর নির্দেশনা মোতাবেক যাবতীয় দায়িত্ব পালন করিবেন।

মেয়র
চৌমুহনী পৌরসভা
নোয়াখালী

স্মারক নং- চৌঃপৌঃ/প্রকৌঃ/১৮/ ৯৪০(৭) তারিখঃ- ২১.০৫.২০১৮ খ্রি

অনুলিপিঃ

১। জেলা প্রশাসক, নোয়াখালী
২। উপজেলা নির্বাহী অফিসার, বেগমগঞ্জ, নোয়াখালী
৩। কাউন্সিলর (সকল), চৌমুহনী পৌরসভা, নোয়াখালী
৪। নির্বাহী প্রকৌশলী, চৌমুহনী পৌরসভা, নোয়াখালী
৫। জনাব..
৬। অফিস কপি

মেয়র
চৌমুহনী পৌরসভা
নোয়াখালী

Pad.Latter

- 1 -

E-mail : chow.poura@gmail.com

Annexure 3: List of participants attended at stakeholders' meeting

Name of subproject: Improvement of Pourapark at South side of Pourashava Compound.

Package number:

Name of ULB: Chowmuhani Pourashava

Name of district: Noakhali

Name of place: Alipur, Ward # 03

Date: 28.06.2018

Level of participants: Community leaders, relevant government official, CBOs, and others

Attendance of Stakeholders' meeting

Sl No.	Name	Gender	Social status	Contact number	Signature/LTI
০১.	আবদুর রাজ্জাক চৌধুরী	male	[illegible]	01826065090	[illegible]
০২.	আবদুল গনি	"	[illegible]	–	আবদুল গনি
০৩.	হুমায়ুন কবির	"	[illegible]	–	হুমায়ুন কবির
০৪.	নূর হোসেন	"	ব্যবসা	01726-081733	নুর হোসেন
০৫.	আমির হোসেন	male	[illegible]	0174701860	[illegible]
০৬.	[illegible]	"	ব্যবসা	–	[illegible]
০৭.	মোঃ [illegible]	"	শ্রমিক	–	[illegible]
০৮.	[illegible]	"	[illegible]	0171195577 51	[illegible]
০৯.	[illegible]	"	"	–	[illegible]
১০.	নিজাম উদ্দিন	"	[illegible]	01819009223 16	[illegible]
১১	[illegible]	"	[illegible]	017156[illegible]	[illegible]
১২	[illegible]	"	[illegible]	01717383217	[illegible]
১৩	নুরুল ইসলাম [illegible]	"	[illegible]	01711600466 86	[illegible]
১৪	[illegible]	"	[illegible]	01811605162	[illegible]
১৫	মো: [illegible]	"	[illegible]	01711-703135	[illegible]

Annexure 4: Attendance of community people in FGD (male)

Name of subproject: Improvement of Pourra Park at South Side of Pourashava Compound.

Package number:

Name of ULB: [redacted] Chowmuhani Pourashava **Name of district:** [redacted] Noakhali

Name of place: Alipur, Ward #03 **Date:** 05.06.2018

Level of participants: Community people (Male group)

Attendance of Community People in FGD

Sl No.	Name	Gender	Social status	Contact number	Signature/LTI
১	নজরুল ইসলাম সাকিব	পুরুষ	ব্যবসায়	01821413868	[illegible]
২	সাইফুজুর রহমান ফাহিম	"	ছাত্র	01629367510	Fahim
৩	ওমর ফারুক	"	ছাত্র	01580222414	Omar
৪	আসিফ আল কাউছার	"	ছাত্র	0179679539	Asif
৫.	নাজমুল ইসলাম সিজান	"	ছাত্র	01796795491	Shezan
৬	মাহাওয়াত হোসেন নীরব	"	ছাত্র	01969092057	Nerob
৭.	আবদুল্লাহ আল আরিফ	"	ছাত্র	01580222863	Ak
৮.	মো: সাঈদ আনোয়ার	"	ছাত্র	01871066557	Sayed
৯	[illegible] আলম	"	[illegible]	01819703810	[illegible]
১০	[illegible]	"	"	01712078100	[illegible]
১১	[illegible]	"	[illegible]	01716925555	[illegible]
১২	প্রীতি [illegible]	"	[illegible]	01716859365	প্রীতি

Annexure 5: Attendance of community people in FGD (Female)

Name of subproject: Improvement of Poura Park at south side of Pourashava Compound.

Package number:

Name of ULB: [redacted] Chowmuhani Pourashava **Name of district:** [redacted] Noakhali

Name of place: Alipur, Ward #03 **Date:** 05.06.2018

Level of participants: Community People (Female group)

Attendance of Community People in FGD

Sl No.	Name	Gender	Social status	Contact number	Signature/LTI
০১.	লাভলী আক্তার	Female	গৃহিনী	01882720310	লাভলী আক্তার
০২.	ইয়াছমিন জান্নাত মুক্তা	"	চাকুরী	01854199541	ইয়াছমিন মুক্তা
০৩.	হোসনে আরা	"	গৃহিনী	–	[illegible]
০৪.	শেফালি বেগম	"	"	01882717584	শেফালি
০৫.	জান্নাতুল ফেরদাউস	"	ছাত্রী	01882258959	প্রিয়া জান্নাতুল ফেরদাউস,
০৬.	সামিয়া আক্তার,	"	ছাত্রী	01811371811	সামিয়া
০৭.	মুর্শিদা বেগম	"	বি.এস সি নার্স	01911701970	[illegible]
০৮.	মেহেরুন নাহার	"	চাকুরী	01916385444	[illegible]
০৯.	ফেরদৌস আরা [illegible]	"	চাকুরী	01725422808	[illegible]
১০.	রুনা লায়লা	"	চাকুরি	01891480700	[illegible]
১১.	রিজিয়া আক্তার	"	সমাজকর্মী	01849652370	[illegible]
১২.	[illegible]	"	সংস্কৃতিকর্মী	01729858976	[illegible]
১৩.	মৌসুমী আক্তার	"	Student	01788193104	[illegible]
১৪.					
১৫.					
১৬.					