

ENVIRONMENTAL ASSESSMENT (EA) REPORT

Name of the Sub-Project: Construction of Kitchen Market & Modern Slaughter House at Fazlul Haque Road (CIP-68)



**Sirajganj Municipality
District: Sirajganj**

**Municipal Governance and Services Project (MGSP)
Bangladesh Municipal Development Fund (BMDF)**

December 2017

ENVIRONMENTAL ASSESSMENT (EA) REPORT

**Name of the Sub-Project: Construction of Kitchen Market & Modern Slaughter
House at Fazlul Haque Road [Package No: (CIP-68)]**

**Sirajganj Municipality
District: Sirajganj**

**Municipal Governance and Services Project (MGSP)
Bangladesh Municipal Development Fund (BMDF)**

December 2017

Table of Contents

	<u>Page No.</u>
1.0 BRIEF DESCRIPTION OF SUBPROJECT.....	1
1.1 Sub Project background	1
1.2 Location of the Sub-project.....	2
1.3 Layout of Sub-Project: (attached).....	2
1.4 Present status of the Sub-Project site.....	2-3
1.5 Objectives and justification of selecting of this Sub-Project.....	3
1.6 Key subproject activities and implementation process.....	3
1.7 Category of Sub-Project.....	4
2.0 DETAILED ENVIRONMENTAL AND LAND USE FEATURES.....	4
3.0 BASELINE ANALYSIS OF ENVIRONMENTAL CONDITION.....	4
3.1 Physical Environment.....	4
3.1.1 Geology, Topography and soils	4
3.1.2 Meteorology and Climate.....	5
3.1.3. Hydrology (surface water, ground water and rainwater).....	5
3.1.4. Flooding, water logging, and drainage pattern.....	5
3.1.5. Air quality and dust.....	5
3.1.6 Noise level.....	6
3.2 Biological Environment.....	6
3.2.1. Flora and fauna.....	6
3.2.2. Biodiversity status.....	6
3.3. Socio-economic environment.	6
3.3.1. Land use.....	6
3.3.2. Beneficiary population.....	7
3.3.3. Educational status.....	7
3.3.4. Tribal communities.....	7
3.3.4. Tribal communities.....	7
3.3.5. Land acquisition and resettlement.....	7

4.0	ENVIRONMENTAL SCREENING.....	7
4.1.	Potential environmental impact during construction phase.....	7-8
4.2.	Potential Environmental Impact during Operational Phase.....	8
4.3.	Summary of possible environmental impacts of the subproject.....	8-9
5.0	SPECIFIC IMPACT AND MITIGATION & ENHANCEMENT MEASURES TO SAFEGUARD ENVIRONMENT DURING CONTRUCTION PERIOD	
5.1	Labor Shed Construction.....	9
5.2	Earthwork.....	9-10
5.3	Construction Material Storage, Transport and Handling.....	10
5.4	Air quality and dust.....	10
5.5	Workers Safety and Security.....	10
5.6	Noise and vibration.....	11
5.7	Rain water harvesting reservoir.....	11
5.8	Solar Energy and Glass Wall.....	11
6.0	SPECIFIC IMPACT AND MITIGATION & ENHANCEMENT MEASURES TO SAFEGUARD ENVIRONMENT DURING OPERATION PERIOD	
6.1	Solid Waste Disposal	11-12
6.2	Waste Water Disposal	12
6.3	Drainage	12
6.4	Traffic Congestion.....	12
7.0	ENVIRONMENTAL MANAGEMENTPLAN (EMP).....	12
7.1	Access to information.....	12
7.2	Grievance redress mechanism.....	12
7.2.1	Grievance redresses committee.....	13
7.2.2	Grievance resolution process.....	13
7.2.3	Institutional arrangement for safeguard compliance.....	13
7.2.4	Capacity building.....	13
7.4	Environmental Management Plan (EMP) Matrix.....	14-17
7.5	Cost of Environmental Mitigation and Enhancement Works in BOQ.....	18
8.0	PUBLIC CONSULTATION AND PARTICIPATION	
8.1	Methodology.....	19
8.2	Issues raised by the participants.....	19
8.3	Feedback, suggestions and recommendations of the participants.....	19
9.0	CONCLUSIONS AND RECOMMENDATIONS.....	20

TABLES

Table –1: Approximate Mitigation Cost	18
---	----

APPENDIXES

Appendix 1: Lay out plan of proposed kitchen market.....	21
Appendix 2: Side views of the sub project.....	22
Appendix 3: Grievance Redress Committee of Sirajganj Municipality	23
Appendix 4: Flow Chart of Grievance Review Process.....	24
Appendix 5: Picture of community Consultation	25
Appendix 6: Format of semi structure survey.....	26

1.0 INTRODUCTION

1.1 Background Description

Sirajganj Municipality is one of the oldest municipality of Bangladesh, established in 1869 it is now recognized as first class Municipality (Category A), total area is nearly 28.49 sq. km consisting of 15 wards approximately total population 297930 among which 147315 are male and 150315 are female with the density of 10,446 per sq. km. Sirajganj Municipality areas indicating all of the 15 wards is shown in the Map (Ref. Sirajganj Municipality Map).

This is a proposed subproject relates to the establishment of a Kitchen Market & Modern Slaughter House under the Municipal Governance and Services Project (MGSP) by Sirajganj Municipality. The name of the subproject is the construction of Kitchen Market & Modern Slaughter House, has been proposed and adopted in the Sirajganj Five-Year Capital Investment Plan (2017-2022). The Sirajganj Municipality aims at providing the modern facilities and availability of daily necessities under the same roof to its citizens. Establishing of such a kitchen market permanently in the Municipality areas will facilitate the whole sale traders and a supplier from nearby region includes national level for trading their goods and commodities conveniently. Local producers and consumers will also have the opportunity of buying and selling their various seasonal agro productions in this proposed market at fair prices with safety and security under and healthy environment.

The significant features of the Sub Project are mentioned below:

The significant features of the Sub Project are mentioned below:

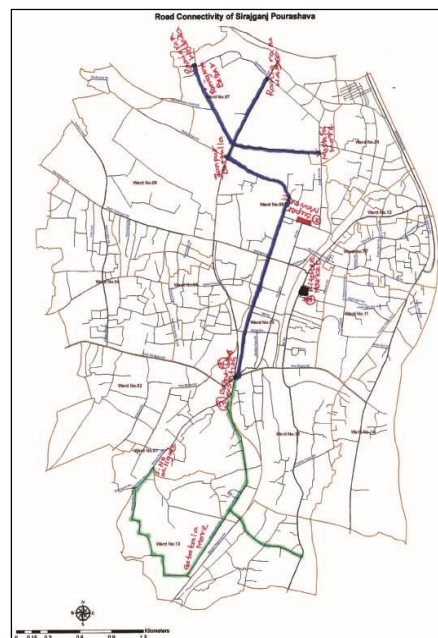
Name of the subproject	:	Construction of Kitchen Market & Modern Slaughter House
Sub-Project No	:	W-007-BMDF-MGSP-3P-SIRAJ-18-KM-SH/01
District Name	:	Sirajganj
ULB Name	:	Sirajganj Municipality
Market side Wards Number	:	Ward - 3, 10, 11, 12
Structural design option	:	RCC structure with bricks / stones built roof and walls.
Estimated visiting Population	:	5000 daily
Wards population	:	297930
Tribal people	:	None
Land acquisition	:	Owned by Sirajganj Municipality
Estimated cost	:	BDT 209.20
Sub-project duration	:	15 Months
Tentative start date	:	08-Jan-2019
Tentative completion date	:	31-Mar-2020

Tentative Floor Plan of the Kitchen Market

Sl.	Floor	Use of each floor	Floor Area in sqm	Remarks
01	Ground	Car parking, Shops, Toilets and Slaughter house (available in architectural drawing)	2374.75	116 nos shop, 9 cars and others vehicles.
02	First	Drop off, Entry lobby for upper floors, Shops and Toilets.	2301.76	Shop area 1055 sqm
03	Second	Lobby for upper floors, Shops, Toilets, Office, Dormitory, Store and Prayer space	2374.75	Office area 402 sqm
04	Third	Lobby for upper floors, Food shops, Gift shop, Children play zone and Toilets.	2374.75	Food shop area 206 sqm
Total:			9426.01	

1.2 Location of the Sub Project

The project site is located within the Sirajganj Municipality under Ward no. 12 at SB Fazlul Haque Road. It is located between 24°22' and 24°37' north latitudes and between 89°36' and 89°47' east longitudes situated on the bank of the Yamuna, in the west of the Brahmaputra River, and about 140 kilometres North West of Dhaka. An area of 2.263 acres of the Sirajganj Municipality owned land has been identified and selected for the proposed project development. The proposed site is well connected directly with the Dhaka bund road via SB Fazlul Haque Road. The adjacent areas are Ward No. 3 (SS Road), 12 (Stadium road), 11 (Al Mahmud Avenue) where about 30-40 percent households of the municipality are situated in around the proposed Kitchen Market & Modern Slaughter House.



Location Map of Proposed Kitchen Market & Modern Slaughter House

Through the World Bank financial support and overall guidance of BMDF, Sirajganj Municipality intends to develop this sub-project and demonstrate a way to upgrade facilities of kitchen market items availability at this center. The sub-project will be designed to handle varieties of consumer goods need for daily consumptions with ensuring modern, hygienic and customers as well as environmental friendly infrastructural facilities.

This Environmental Assessment (EA) report presents the screening of potential environmental impacts of the proposed sub-project with the recommendations of potential mitigation and

enhancement measures in order to eliminate or reduce the negative impacts to an acceptable level, describes the institutional requirements, and provides a specific Environmental Management Plan (EMP).Location of proposed kitchen market site in the lay out plan attached in Appendix 1

1.3 Layout of Sub-Project:

The proposed sub project area is a vacate high land with the size about 150 meters length from east to west and about 100 meters width from north to south. In the nearby around 100 meters distant areas there is a urban community hospital in the south, district education office in the south east side, dwelling houses, a sweeper colony in the north with the adjacent S B Fazlul Haque road in the west.(Attached Layout Plan in Annex-1)

1.5. Objectives and justification of selecting of this subproject

The Capital Investment Plan (CIP) of Sirajganj Municipality lists a number of subprojects and placed this proposed Kitchen Market and Slaughter House as the priority one considering it's felt needs in the municipality. The PMU-MGSP of BMDF along with Sirajganj Municipality has visited and evaluated the existing geo physical, social and economic conditions of the proposed subproject site. Observed no any well facilitated Kitchen Market and Slaughter House in the Sirajganj Municipality to expedite the agro business and meets the present and likely increased demand of such trading. Considering reasonably the increasing demand and absence of any well-designed kitchen market the municipality proposed for such an improved market which will be very helpful to the urban dwellers, local producers and traders. Moreover, this market as the permanent sources of revenue will increase the volume of revenue of the Sirajganj Municipality. In all of these necessities, a well-designed kitchen market with required facilities is very much justified and essential for the Municipality. In fact, with the establishment of the proposed subproject will provide a well structural, customer, operational and environment friendly easy trading and shopping facilities for both male and female buyers and sellers in all the year round.

Analysis of Alternatives:

Analysis of alternative location:

The objective of this analysis of alternatives is to identify the suitable location for this proposed market. The objective was to reduce adverse impacts and smooth implementation of the project. This land is the most perfect for this purpose because it is the only Municipality owned land remaining. Any other site would have to be acquired. Additionally, the prominent location makes it very attractive for a commercial space.

Analysis of alternative design:

The alternative design may be proposed like steel truss market instead of RCC and brick. This is not feasible and economically viable in Bangladesh. The materials are not readily available in the market. On the other hand, skilled crew for fabricating and fixing steel members are not adequately available in Sirajganj.

In the proposed design, all facilities for disabled and female visitors have been provided like ramp, toilets, elevators etc.

1.6. Major activities of the proposed subproject and implementation process.

Major activities of this Kitchen Market & Modern Slaughter House subproject will include a) construction of a multi storied market building with necessary amenities for goods storage, shifting and weight measuring b) construction of slaughter house with livestock stop over shed and waste disposal i.e. recycling corner c) construction of bathing, latrines and urinals facilities convenient for market dwellers and other marketers and d) construction of labor sheds separately for man and women labors. In regards, necessary ground filling, raising and leveling through earth work, civil construction work with brick work, CC and RCC works will be undertaken.

Construction materials to be used for those and other key activities are soil in earth work, sand, bricks, brick chips, stone chips and reinforcement. Furthermore, diesel used vibrator machine, pilling machine for construction work and electricity for reinforcement, fabrication and domestic purposes will be used during construction period. Moreover, all other essentials equipment and machines like brick breaking or stone breaking machine, steel cutter, dump truck, water tanker, excavator and trucks for carrying construction materials and other essential uses during the construction period.

All construction activities will be undertaken following the standard rules and principles of competitive bidding process of the Municipality and country as well. Contractors' work will closely be supervised directly by assigned Municipality engineering team under the guidance and directive of the Executive Engineer of the Municipality. Quality standard of construction materials will be maintained through site supervision, observation and in necessary cases through laboratory tests. The work will be continued following a work schedule under the workman ship modality.

1.7 Category of the sub-project

A) According to ECR 1997 : Green/ Orange A/ **√Orange B**/ Red/ Not Listed
 B) According to WB Classification : **√Category B**/Category C

In view of the Environmental Conservation Rules (ECR 1997), the proposed sub project falls under the category 'Orange B', assumed to have moderately significant adverse environmental impacts due to the implementation of the proposed project activities. On the other hand, in consideration of the proposed sub project nature i.e. potential adverse impact on human and environment includes natural habitats it has been categorized as 'Category B' according to the World Bank Classification.

2.0 DETAILED ENVIRONMENTAL AND LANDUSE FEATURES

Environmental Assessment Report prepared based on the field observation of key environmental features of approximately 1 km surroundings of the proposed sub project. Detail observation and assessment made on identified key features like drainage congestion, waste water discharge, solid waste disposal and management, water contamination, air pollution, soil degradation, odor spreading around and increased traffic movement etc. in and around the catchment or influenced areas (100 meters around) of the sub project. Moreover, land use pattern of the catchment areas were also observed and found no agricultural land around but offices, commercial, health, educational and residential areas as depicted in the below table. As an essential ingredient an engineering and topographical survey with soil test also done may adjusted minor during the construction phase.

Table 1: Land use pattern / environmental features around the proposed Kitchen Market

Sides/Direction	Major Land use / Environmental Features
North	Sweeper colony (1), Public Toilet (1), Dwelling houses (13), Pedestrian (E-W,100 M)
South	Urban Primary Health Care Hospital (1)
East	Mahogany and Eucalyptus Trees (few), Girls school (1), District Education Office (1)

West	SB FH Road (1), Electric line & pole (1), Covered drain (N-S,1), Jute/goods warehouse (1)
------	---

3.0 BASELINE ANALYSIS OF ENVIRONMENTAL CONDITION

3.1 Physical Environment

Sirajganj district located in the northern part of the country under the Rajshahi division may attribute as the gate way of north western region. The Sirajganj municipal city areas situated on the bank of Jamuna river belt and well protected through embankment in along the river side in the east.

3.1.1. Geology, topography and soils

Sirajganj site is located in the flood plain area of the Jamuna River with deltaic deposition. Surface sediment of the proposed sub-project site is mostly sandy clay with considerable amount of sand in the sub surface areas. Soil of the area is grey loam on the ridges and grey to dark grey clays in the river basins. Top soils are strongly acidic and sub-soils slight acidic to slight alkaline. General fertility level of the soil is medium with low nitrogen and organic substance.

3.1.2. Meteorology and Climate

The annual average temperature reaches a maximum of 34.6 °C and a minimum of 11.9 °C. The annual rainfall is 1610 mm (63.4 inches). The climate of the Sirajganj district areas characterized usually by sub-tropical monsoon of the country. North- west and north east monsoon dominates the rainy and summer seasons drives the dry in the winter season. Rainfall of the project area varies considerably depending on the season. The annual average rainfall measured at Sirajganj is 1610mm over the period of 1990-2014. On an average 60 to 70% of the annual rainfall of the project area occurs in the months of May, June, July and August. The post monsoon or transitional season, October to November, is warm and humid. The cool dry season during December-March is sunny with infrequent rainfall. The pre-monsoon between April-May is hot and characterized by thunderwith heavy rain in the region.

3.1.3. Hydrology (surface water, ground water and rainwater)

Surface water flow from the upstream of the Brahmaputra River is plenty throughout the monsoon and less discharge during the winter season in Bangladesh. In addition, surface water sources like offshore canals, beels, dead ditches or lakes and ponds are existed and passes through the Sirajganj Municipality with sufficient water flow in the monsoon period gradually drying in the winter. On the other hand, precipitation of rain as well as storage water occurs due to which ground water found available in a reasonable depth though shortage in the dry season. In view of safe drinking water, arsenic and other organic metals are moderately observed in the ground water around the peripheral of the city. Again, rain water during the monsoon increase the water volume and level in all surface water sources along with the increases of precipitation rates. Rain water harvesting is not in practice in the city but such an arrangement would meet the demand of safe water reasonably for a certain period during and even after the monsoon. Presently, approximate 90% households depends on hand tube well water for their drinking and daily uses purposes and the rest are uses pipe water and other sources.

3.1.4. Flooding, water logging, and drainage pattern

Moderate level flood or over flow along the river belt areas of Sirajganj usually occurs during the monsoon period either due to excessive rainfall for a certain days continuous or with the excess rain water flow of upstream especially from the Trans boundary region though as observed, no severe flood was in 1988, 1998, 2004 and 2007. Water congestion sometimes observed due to poor and insufficient discharging of heavy rain and flood water through existing canals and drains as those are mostly silted due to erosion, sediment deposition, and waste material accumulation. Storm drainage system of the city is not suffice and or functional to carry or discharge excess water from the city area timely but the sub project areas comparatively being in the higher areas adjacent to the road side drain in the west and discharge passage in the east no water congestion or any logging noticed by adjacent dwellers during the assessment.

3.1.5. Air quality and dust

During the assessment no dust at noticeable level is observed in and around the sub project areas and no any earth work, factory operation or huge traffic movement which may generate dust in the areas but possibility of dust spreading due to wind flow in the summer may not be avoided. Moreover, it has been assumed that dust flow would be observed during the construction period in the proposed site.

Air quality data of the municipality is not readily available nor found any of such record even with the concerned department (DoE, Rajshahi). Specifically the air quality assessment involved the determination of ambient levels of suspended particulate matter (SPM) may explore with the metrological department as will be required otherwise for any extended analysis.

3.1.6 Noise level

Noise is one of the major impediment for the quality of the environment and during the assessment no such exceeded decibel (dBs) than standard in the proposed sub-project area (Standard value (dBs) may referred for different categories at day and night respectively are a) 45 and 35 dBs for quiet place (hospitals, education), b) 50 and 40 for mainly Residential areas, 60 and for residential cum commercial and 70 and 60 for commercial and industrial areas). In the proposed area a moderate level multi vehicles like trucks, cars, auto and rickshaw are found moves through the adjacent FH road in the west and no other perceptible sources of noise generation such as factories or industries were found near the proposed Kitchen Market & Modern Slaughter House areas.

3.2 Biological Environment:

3.2.1. Flora and fauna

As observed no remarkable fruit, fire wood or timber trees found inside or neighboring or adjacent areas of the proposed sub project. The area is quite clear and vacant ground where there is only one coconut tree standing in the midst of the ground as aesthetic stake. In surroundings, a few trees over the dwelling hoses in the north seen on which natives makes breaks prior to reaching shelters. Except those no other endangered or critical species of both flora and fauna observed. Moreover, no possibility of having any aquatic species over but existence of species (frogs, rats, reptiles, creepy-crawlies, aquatic pests or algae) might have been in the south eastern side of the ground and maintain their livelihood (food, shelter and birth) from the pond and inside or surrounding environment.

3.2.2. Biodiversity status

Public consultations discussed the outcomes and there are no special or site specific terrestrial and aquatic ecosystems may disturb heavily with this market subproject. However, the population of floral and faunal species has degenerated generally even in the areas and hence in the region due to climate change (low rainfall, high temperature, high humidity, short winter period, and long dry season) owing to over exploitation, poor management, demographic pressure, natural catastrophes and gradual deterioration of general law and order situation.

3.3. Socio-economic environment.

3.3.1. Land use

The proposed kitchen market and slaughter house site presently vacant raised ground and local people revive that the area is vacant for at least 30 years but once there was bushes, shrub and small trees gradually eliminated through human interruption except the coconut tree survived for decades. A few temporary huts of local poor people have been observed at the edges around the vacant ground where the people occasionally deals with their produces like vegetables, potatoes, guards, chilies, onions and garlicks. During the discussion, peoples feel inspiration and praise for the proposal of establishing any kitchen market. Land use pattern of the catchment areas were also observed and found no agricultural except some offices, commercial, health, educational and residential areas.

3.3.2. Beneficiary population

This proposed market is situated in Ward No.3 (SS Road), 12 (Stadium Road), 11 (Al Mahmud Avenue) and about 10,000 households are settled around the proposed Kitchen Market & Modern Slaughter House who will be benefitted directly from this proposed market. Moreover, peoples living in those areas (3 Wards) and generally from all over the municipality and peripheries will have the opportunities for selling their produces and purchasing their daily needs. In fact almost one lakh people including other whole sellers will have the benefit of the market.

3.3.3. Educational status

In Sirajganj Municipality, there are a numbers of medical colleges, girls and boys colleges, primary, kindergarten and secondary schools, Madrasa, Poly Techniques and Vocational Institutes and most of those are reputed and mainly established in the early eighteen through nineteenth centuries [Harina Baghbati High School (1866), BL Government High School (1869), Gyandayini High School (1884), Islamia College (1887), Victoria High School (1898) and Sirajganj Government University College (1940)] all of which together producing a numbers of scholars, educationists, politicians and civil servants since the centuries. Average literacy rate 47.44% with male 50.96% and female 43.6% in the city. In the subproject area, literacy rate among the population is 59.6 % higher than the national average of 51.8%.

3.3.4. Tribal communities

There is no tribal community around the proposed Market.

3.3.5. Land acquisition and resettlement

The total proposed 2.263 acre market area is owned by the Sirajganj Municipality and presently it is vacant, hence there is no need of additional land acquisition and resettlement for the implementation of this sub-project.

4.0 ENVIRONMENTAL SCREENING

Environmental Screening (ES) for the subproject has been conducted with the purpose of fulfilling the requirements of DoE and WB. Environmental Screening ensures that environmental issues are properly identified in terms of extent of negative and positive impacts. A field visit for preparing the ES was carried out on November, 2017 in the subproject area. Environmental Screening Checklist, as adopted in Appendix C of the Environmental Management Framework (EMF) of MGSP, was followed for identifying the impacts and their extents. The screening data and information for this subproject have been analyzed and are shown in below.

4.1. Potential environmental impact during construction phase:

(A) Ecological Impacts:

- Felling of trees : Significant ☐ Moderate ☐ **Minor** ☒
- Clearing of vegetation : significant ☐ Moderate ☐ **Minor** ☒
- Potential impact on aquatic species environment : Significant ☐ Moderate ☐ **Minor** ☒

(B) Physico-Chemical Impacts:¹

- 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 ☐

(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 ☐

4.2. Potential Environmental Impact during Operational Phase:

(A) Ecological Impacts:

- Potential impact on species of aquatic : Significant ☐ Moderate ☐ **Minor** ☒

(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** ☒

¹ Solid waste assumed are insignificant. The pourasaba has the capacities i.e. amenities, skills and scope to manage solid waste may generate from this market. In concern mitigation measures stated in sub section in 6.1 and 6.2

(C) Socio-Economic Impacts:

- Traffic : Improvement ☒ No-improvement ☐ **Adverse** ☐
- Safety : Improvement ☐ **No-improvement** ☒ Adverse ☐
- Employment generation : **Significant** ☒ Moderate ☐ Minor ☐

4.3. Summary of possible environmental impacts of the subproject

The environmental assessment of this sub project have been conducted and observed that there will be no significant adverse environmental impacts with the establishment of this project as proposed in present location. During the assessment, closely observed and shared all potential environmental features with local communities based on which adopted the screening process. Through the review and analysis of all observations and findings it has been assumed that the project if implement will not incur any negative impact neither on ecological nor on Physico chemical or any of the ingredients of those components. Moreover, the project will be helpful to enhance positive socio economic impact through the increasing of trading facilities, ensuring the availability and supply of daily needs as well as generating the income and employment of local people both in construction and operational phases. The screening process indicate that a few negative impacts may arise categorized as local in nature and low in magnitude, very minimal possibilities of adverse impacts on some of the parameters of the physical, biological or socio-economic environment of the sub-project area. The sub-project as stated is also expected to produce a large number of positive benefits on the overall community in respect of social and economic strengthening of the area.

However, as assumed those insignificant or moderate or minor adverse environmental impacts are subject to mitigation and would be addressed through proper mitigation and enhancement measures as will be appropriate earliest during the implementation as well as in operational period. The limiting of noise levels during construction and operation of the project, proper disposal of solid and other and waste materials through sewage system development, preservation of air quality by limiting dust and gas emissions from equipment to be used during construction and vehicle exhaust as well as ensuring community and workers health safety measures have been prescribed for the mitigation of likely impacts. Similarly, construction activities in close and active participation of local communities and capacity development initiative of concerned staff of the Municipality will be undertaken to implement appropriately all recommended mitigation measures.

5.0 SPECIFIC IMPACT AND MITIGATION & ENHANCEMENT MEASURES TO SAFEGUARD ENVIRONMENT DURING CONTRUCTION PERIOD

5.1 Labor Shed Construction

As per plan 2 (two) numbers of labor shed are needed to be constructed for both male and female (If any female workers) workers with separate accommodation and hygienic toilet facilities. A site office will also be arranged for work supervision and operational management. There would have safe water supply, enough light, ventilation, separate cooking places, security fence around with day night guarding system.

Common Mitigation Measures

Sanitary latrine facilities with adequate water facilities through installing a new arsenic safe tube well would be provided for workers separately for male and female at the south east areas of proposed kitchen market side. Moreover the public latrine and the tube-well presently existed at the north-west corner of the proposed market site that will also be used by construction labors during construction period. Provisions should be made for waste collection and disposed to the bins planned to be placed or constructed at the extreme south-west corner of the site and erecting no litter signs at different places. A well arrangement would be made for the regular collection of waste materials, feces, bone, blood and other residues of slaughter house and kitchen market for disposal and dumping to the banbaria land filled area at the outside of the Sirajganj Municipality. A brevet ware fence around the construction sheds will be made as security measures of workers. Sheds will be with sufficient light as workers safety and security measures.

5.2 Earthwork

The proposed kitchen market construction work consists of earth cutting, earth filling, land dressing and removal of unsuitable or any hazardous materials. These works lead dust blowing, noise and vibration which may be the discomfort to the adjacent sweeper colony dwellers, nearby school and adjacent residential areas includes pedestrians. All those including the excavation and trenching are hazardous nature of construction activities that involve soil removal.

Common Mitigation Measures

The contractor will keep heavy equipment away from trench edges and know where underground utilities (T&T), electricity, gas, water supply systems are located. Water spray will be continued during work / day time to control dust spreading. Inspection of the trenches will be at the start of each shift. Adequate safety barrier will be provided with clear visible signs to alert both drivers and pedestrians. Provide adequate lighting to the barriers and signs to make them clearly visible at night from a distance sufficient to respond. Facilitate temporary arrangement for pedestrian and vehicular traffic at site. Retain the excavated earth in safer places so that pedestrian can walk smoothly.

5.3. Construction material sourcing

The construction materials such as sand and bricks are normally obtained from the local vendors. Sand is collected from quarry operations to nearby rivers. Bricks are produced using clay and firing by coals and somewhere wood where there may be smoke emission. Conscious or unconscious purchase of these materials from non - licensed operators indirectly supports, encourages and promotes environmental degradation at the illegal quarry sites, creates air pollution from using energy inefficient technologies and cause medium to long-term negative impacts at source.

Common Mitigation Measures

Construction bricks materials will be collected from Shialkole, Baghdadi, Bhadrdaqhat; construction sands materials will be collected from the suppliers of kazipur nouka ghat areas adjacent to Jamuna River away and outside of the municipality areas who are officially valid license holder from the Government of Bangladesh.

5.4 Air quality and dust

During construction work of the Kitchen Market and Modern Slaughter house, will produce air pollution include land preparation, operation of diesel engines, burning and working with toxic

materials. All construction sites generate high levels of dust (typically from concrete, cement, wood, stone and silica) suffice to pollute the air quality at and adjacent areas.

Common Mitigation Measures

Control dust through clean water spray used to dampen down the site. Screen the whole site to stop dust spreading or alternatively, place fine mesh screening close to the dust source. Cover skips and trucks loaded with construction materials and continually damp down with low levels of water. Cover piles of building materials like cement, sand and other powders, regularly inspect for spillages and locate them where they will not be washed into drainage areas. Use non-toxic paints, solvents and other hazardous materials wherever possible. Cover up and protect all drains on site.

5.5 Noise and vibration

Construction sites usually produce noise and vibration, mainly from brick breaking machines, equipment and machinery. Site worker's crowd, radio sound are usual and common phenomenon in the construction site. Materials unloading is another disturbing exercise. Excessive noise is not only annoying and distracting, but can lead to hearing problem, high blood pressure, sleeping disturbance and extreme stress.

Common Mitigation Measures

Reduce noise pollution through careful handling of materials; modern, comparatively quiet power tools, equipment and generators; low impact technologies; and wall structures as sound shields.

5.6 Rain water harvesting reservoir

There will need huge quantity of water for markets especially for fish and vegetables traders, toilets etc.

Common Mitigation Measures

To reduce dependency on water supply system or tube well a required number of water reservoirs can be built on the roof of the proposed market to harvest rain water in rainy season following rain water harvesting procedure. There is possibility of generating bacteria in the stored rain water in the long run and to maintain reserved water quality a periodic monitoring and cleaning of reservoirs includes water quality test for pathogen contamination will be undertaken as essential for health and hygienic consideration.²

5.8. Solar Energy and Glass Wall

This is a common tendency of shop keepers having additional lights to exhibit and display their selling items more brightening even at day light and night time aiming to attract the customers. Moreover, including all other amenities, increased electricity demand will be generated in the market. Such an increasing demand can be reduced by using solar energy.

Common Mitigation Measures

² Necessary budget in regard may be included in budget as mitigation cost.

Installation of solar panel, regular maintenance of solar system, cleaning of glass is required for expected results. On the other hand, if glass wall use from certain heights at the top, sunlight can be reached where day time electric consumption comparatively will be reduced.

5.9. Workers safety

There is a general risk of accidental injury of workers, especially from working in open trenches. There is also a potential health risk from contamination at work sites.

Common Mitigation Measures

Implementation of adequate safety procedures and provision of safety equipment like helmet, hand gloves, musk and first aid. Appropriate removal techniques and safety procedures will mitigate or reduce risk and negative impacts on workers' health and life.

6.0 SPECIFIC IMPACT AND MITIGATION & ENHANCEMENT MEASURES TO SAFEGUARD ENVIRONMENT DURING OPERATION PERIOD

Solid Waste Disposal:

Considering the nature of the sub- project, it is expected that a considerable volume of organic waste will be generated at the sub-project area such as spoilt fruits, vegetables, fishes, chickens, discarded pieces from livestock skin, horn, bone at slaughters corner.

The lack of a suitable mechanism for proper disposal of this waste will lead to the development of breeding grounds for disease vectors, foul smells from decaying waste, drainage congestion and a deterioration in the aesthetic value of the entire area.

Common Mitigation Measures

Adequate number of bins would be placed inside the market premises where the traders and visitors can put the solid waste easily within short distance and time. The primary collector of waste materials will collect solid waste carefully from the bins and will deposit to a garbage near the market. The rickshaw van will collect the solid waste from the garbage and dispose to the nearest secondary dumping container. A covered truck will carry the solid waste from container to Banbaria landfill area under Sirajganj Municipality. Possibility of utilization of green waste being produced for biogas generation and compost will have to be explored. Market shop keepers will make aware of keeping their waste materials and residues properly and timely in the market bin to be placed in a specific corner. Moreover, the market place will keep clean with regular sweeping by assigned cleaners.

Waste Water including Slaughtering Blood:

Waste water will generate from vegetables, fish corner, and slaughter house, community toilets which will pollute adjacent environment if not properly cleaned and managed. It is assuming that waste water will generate from 20m³/day from the proposed market. Blood will be released from slaughter house which are needed to collect separately before discharge and mix with waste water.

Common Mitigation Measures

Soak pit will be constructed for disposing waste water which will be generated from floor cleaning, other sources like fish, vegetable shops etc. For blood collection from slaughter house, there is a proposal for a separate pit in the design which will be connected by separate pipeline. Collected blood can be utilized as fertilizer in agriculture field for enhancement of nitrogen, pH value, and as poultry feed after some specific processes.

Fecal sludge management:

Faeces from toilets will be discharged to septic tanks through separate pipe line. Possibility of bad odor and environmental degradation due to improper collection of fecal sludge from septic tank & improper handling, transportation and disposal of the fecal sludge. It is assuming that 40m³/year fecal sludge will be generated from the proposed complete market. Provision of septic tank system have been provided for the toilets (at BoQ Sl# 88, item code 7.11.04.01); avoid discharge of the waste water from the complex in to the existing drains.

Mitigation Measures:

There will be needed another septic tank to accommodate sludge for a year. For the interim period, the Municipality will collect sludge every after six month using vacuum truck/closed container till construction of another interconnected septic tank in the vacant space adjacent to proposed septic tank location. Ensure use of closed container/vacuum tanker with sucker machine for the collection of fecal sludge from the septic tank at regular interval; Disposal of the sludge at the existing dump site at Banbaria. There are possibility of recycling and treatment the sludge for reuse as manure.

Facilities for Disabled Persons:

In the proposed design, considering the needs in the kitchen market, disabled toilet has been kept in the ground floor only. The building is barrier free, disable ramp and elevator which can accommodate wheel chair have been proposed for vertical conveying system.

Foundation work:

There will be no basement for Sirajganj Kitchen Market and Slaughter House. This will be an isolated footing foundation building. Soil bearing capacity is 1.13kg/cm² at 2.44 m depth. There is no need of shore protection for this site. The soil will be excavated in a slope for foundation as there is enough space around the building area.

The anticipated impacts due to the construction works are:

- Noise pollution due to use of the equipment;

- Potential occupational health and safety risks and accidents;
- Air and dust pollution due to black smoke emission from diesel based equipment.
- Avoid using of steel cutter, welding machine, concrete mixer machine, vibrator machine, rig machine and winch machine at night;
- Avoid prolonged exposure to noise (produced by equipment) by workers;
- Ensure use of the personal protective equipment's (helmet, goggles, gloves, safety boot);
- Availability and access to first-aid equipment and medical supplies in case of any accidents;
- Carefully operation of the steel cutter,
- Avoid operation of the concrete mixer and vibrator machine at night;
- Regular maintenance of the concrete mixer and vibrator machine to avoid any black smoke emission.

Parking:

Though Sirajganj is a small town and number of cars will not too much which can create traffic congestion. However, there will be an effective traffic management system fixing entry, exist area and basement parking. The existing parking area has the capacity of 15 number of Cars which conforms the BNBC 1993. Other than this, there is a designated area for parking rickshaw, motor bike etc. Community Police will be deployed by the market management committee in front of market who will manage all of traffic. Moreover, the market will be within walking distance of the local people, so it is assuming that 15 number of Car parking area is enough for Sirajganj Municipality.

Fire Accident:

The proposed building will contain Food Shops, Electrical and Electronic shops, Children play which will use stoves and electric items. This may cause a fire hazard and risk of lives.

Mitigation Measures: The area of the market is 9426.01 sqm. There will be a designed fire stair which can be used as emergency escape during fire accident. It satisfied the fire code Fire hose, fire detector and water hydrants, water reservoir only for firefighting have been kept in the design and cost estimated in the BoQ. Provide training on device use to the staffs who will be on duty at the building. Emergency numbers displayed at prominent locations. There could also be regular fire drills. Installation of smoke detectors at all strategic points.

7.00 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

7.1 Access to information

The environmental assessment (EA) report will be translated in Bangla and disseminated and shared with local communities. The copies of the report (both in English and Bengali) will be sent to all the concerned ULB Offices and BMDF. The final assessment report will also be made

available to the public and uploaded in the BMDF and the World Bank websites well before appraisals is completed.

7.2. Grievance redress mechanism

Sub-project specific Grievance Redress Mechanism (GRM) will be set up by the PMU-MGSP, BMDF to timely receive, ground Trotting and mitigate the solution of affected person/s as per EMF (virtually no persons / houses will be affected through the implementation of this proposed sub project). This will be transparent and time-bound approach where the affected people , if any, has scope to raise his / their voice or claim transparently without any fear or undue influence with facts and documents.³

7.2.1. Grievance redresses committee (GRC): A redress committee

A specific Grievance Redress Committee with 1 chairman (Mayor), 5 members from different diverse as local administration (1), Educational Institution (1), Local NGO (1), Civil Society (1), Ward councilor – female (1), Executive Engineer, ULB (1) as member secretary will be formed by Sirajganj Municipality for this proposed subproject. The Grievance Redress Committee of Sirajganj Municipality for the proposed subproject is given in Annex 3.

7.2.2. Institutional arrangement for safeguard compliance and Grievance resolution process:

Flow chart of Grievance resolution process for this proposed subproject is shown in Annex 4.

7.3 Capacity building

A training program has been developed by the PMU to build the capability of PIU of Sirajganj Municipality. This has been conducted by the PMU-BMDF. The training based on (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.⁴ The contractor will be required to conduct environmental awareness and orientation of the workers and other support staff before deploying to the work sites in order to achieve the expected standards.

7.4. Environmental Management Plan (EMP) Matrix.

Table: Environmental Management Plan (EMP)

Sub-project Activity	Potential Impact	Activity/ Issues	Proposed Mitigation & Enhancement Measures	Estimated Mitigation Cost	Frequency of monitoring	Responsible for monitoring	
						Implement	Supervision
A. Pre-Construction Phase							
Labor Shed Construction (Construction camp)	Improper waste disposal may affect the environment. Solid waste, waste water generation. Env. pollution; Workers health affect	Identify location of construction camps so that minimum disturbance. Camps shall not be located near settlements or near water supply source/ intakes. Camp place will be kept clean strictly to ensure good sanitary condition.	Gender friendly labor sheds (2) will be constructed at east side of the ground separate for male and female Construction of sanitary / Pit latrine with septic tank / Ring slab system - Erection of “no litter” sign and to manage waste. Install brevet ware fencing as security measures. Ensure no often defecation in the site or adjacent.	BDT 200000 (Approx.)	Ongoing (During Construction)	Selected Contractor	Environmental Specialist-PMU, MGSP, PIU/ULB
B. Construction Phase							
Earthwork	Slope erosion, dust Spreading	Proper care will be taken during earth cutting and filling so that slope of the foundation trench should not be eroded.	Provide adequate safety barriers. Keep heavy equipment at safer distance. Earth cutting; Earth filling; Slope protection measure, Foundation Trench Erosion control.	BDT 20000 (Approx.) (To be added to Tender BOQ)	During Construction	Selected Contractor	Environmental Specialist-PMU, MGSP, PIU/ULB

Construction material sourcing	Environmental degradation in case of procuring non licensed / local contractor / local sources.	Identify the licensed supplier of Construction materials specially Sand, Bricks at the local level.	Construction materials obtain from officially licensed and approved quarries and brick fields.	N/A	During Construction	Contractor	
Air, Water Quality and Dust	Air pollution, health and hygiene	Water should be sprayed to control the dust. Construction period and Operation period air and ground water quality should be measured for assessing SPM, Arsenic, Iron, and Salinity.	Water should be sprayed at certain interval to control the dust especially in day time.	BDT 100000 (Approx.) (Actual Cost will be added in the BOQ of the tender documents)	During pre-construction & construction period	Contractor	Environmental Specialist-PMU, MGSP, PIU/ULB
Noise and Vibration	Increase noise level. Increase vibration (construction site)	Noise level should keep within tolerance level of Bangladesh Standard (70dBA). Construction period status of noise level of the sub-project site should be measured.	Maintain proper material transportation schedule. Maintain off time for material transportation and offloading. All vehicles and equipment used in construction shall be fitted by exhaust silencers, maintain regularly to minimize noise level.	BDT 27000.00 (Approx.) (Actual Cost will be added in the BOQ of the tender documents)	During pre-construction, construction and operation period	Contractor	Environmental Specialist-PMU, MGSP, PIU/ULB

Water Logging	Due to excessive rainfall and construction waste materials	Construction of drain and connecting outlet to city drainage system to discharge waste materials and excess water. Proper cleaning and maintenance of drains.	Identify the area of water logging at sub-project area Connect out let to ongoing drainage network system.	BDT 15000 (Approx.) (Actual Cost will be added in the BOQ of the tender documents)	During Construction and operation period	Contractor	Environmental Specialist-PMU, MGSP, PIU/ULB
Solar Energy and Glass wall	Chance of labor accident. Poor maintenance of the system May irregular solar energy saving during rainy day and hampered work.	Construct solar panel over the roof of labor shed / construction camp. Use transparent glass at the top part of walls to have more sunlight / solar light.	Establish solar panel as will be required. Maintain the system by regular servicing. Keep first aid box to serve any unwanted accidental case. Ladder and torch may require in site for system maintenance.	Actual Cost will be added in the BOQ of the tender documents	During Construction During operation.	Contractor	Environmental Specialist-PMU, MGSP, PIU/ULB
Workers safety	Environmental degradation Health hazard. Occupational Risks at work place / with equipment operation.	Construct required number of workers shed at a suitable place near the sub-project areas ensuring all environmental, health and safety measures.	Ensure labor shed for both male and female. Separate toilets for Male and Female. Procure personal protective equipment (PPE) (Helmet, Cap, hand gloves, eye protecting glass, gum boot, jacket etc.)	BDT100000 (Approx.) (Actual Cost will be added in the BOQ of the tender documents)	During Construction	Contractor	Environmental Specialist-PMU, MGSP, PIU/ULB
C. Operation Phase							
Solid Waste Disposal	Environmental degradation Odor spreading	Required number of small bin to dispose solid waste generated from storage and traded commodities Waste discharge by the traders/ visitors.	Construction or placement of waste /garbage bins in a distant corner inside the market. Establishment of an active market mgt. Committee	Maintenance cost will be carried out by Market Committee	During Operation phase	Market Mgt. Com.	PIU/ULB

		Ensuring dumping of collected solid waste to secondary dumping station near the market by the waste collectors in a shorter time and on regular basis.	with the involvement of Municipal representatives. Developed and ensure proper solid waste management system.				
Waste Water, blood and other watery Disposals.	Cause of Environmental degradation of market premises	Required number of pipes to drain out wastewater generated from toilets, floor cleaning, shops and visitors. Ensure the outlet of blood from slaughter house to the selected pit.	Ensure waste water disposal to the soak well in separate pipe line. Blood from slaughter house dispose to the separate pit by separate pipeline.	Maintenance cost will be carried out by Market Committee	During Operation phase	Market Mgt. Committee	, PIU/ULB
Fecal Sludge Management	Cause of Environmental degradation of market premises	Septic tank will be provided and ensure sludge collection from septic tank by vacuum truck and safe removal.	Ensure fecal sludge disposal to the septic tank by the separate pipe line. Collection of sludge from septic tank by vacuum truck with maintaining safety and hygiene manner..	Maintenance cost will be carried out by Market Committee	During Operation phase	Market Mgt. Committee	, PIU/ULB
Traffic Congestion	Create traffic congestion by both traders and visitors	Ensure motorized and non-motorized vehicle in the designated parking areas in the market premises.	Establish Market Management committee and ensure proper parking of vehicles in the parking areas for motorized and non-motorized vehicles.	Maintenance cost will be carried out by Market Committee	During Operation phase	Market Mgt. Committee	PIU/ULB
Air, Noise and Water	Monitoring air, noise and water quality	Air, noise and water pollution	Lab test of air, noise and water and taking measures to improve if require	Cost should include in the electrical cost in BoQ	During Operation phase	Contractor	PIU/ULB

C. Operation Phase							
Solid Waste Disposal	Environmental degradation Odor spreading	Required number of small bin to dispose solid waste generated from storage and traded commodities Waste discharge by the traders/ visitors. Ensuring dumping of collected solid waste to secondary dumping station by the waste collectors in a shorter time and on regular basis..	Construction or placement of waste /garbage bins in a distant corner inside the market. Establishment of an active market mgt. Committee with the involvement of PS representatives. Developed and ensure proper solid waste management system.	Maintenance cost will be carried out by Market Committee	During Operation phase	Contractor, Market Mgt. Com.	Environmental Specialist-PMU, MGSP, PIU/ULB
Waste Water, blood and other watery Disposals.	Cause of Environmental degradation of market premises	Required number of drains to drain out wastewater generated by the traders/ visitors. Ensure the outlet of drain connected to the ULBs existing drainage system.	Establish Market Management committee and ensure proper waste water management system. May initiate for drain water quality fecal E. coliform test once in a year.Regular fecal / sludge cleaning will be undertaken.	Maintenance cost will be carried out by Market Committee	During Operation phase	Contractor, Market Mgt. Committee	Environmental Specialist-PMU, MGSP, PIU/ULB
Traffic Congestion	Create traffic congestion by both traders and visitors	Identify the traffic congestion areas and causes	Establish Market Management committee and ensure proper handling of vehicles by separating area for motorized and non-motorized vehicles.	Maintenance cost will be carried out by Market Committee	During Operation phase	Contractor, Market Mgt. Committee	Environmental Specialist-PMU, MGSP, PIU/ULB ⁵

⁵ As stated Environmental Specialist-PMU, MGSP, PIU/ULB will be entrusted to monitor. However, in case of any external support may be taken from the market management committee.

7.5 Cost of Environmental Mitigation and Enhancement Works in BoQ

Table 1: Cost of Environmental Mitigation and Enhancement Works.

Item No.	Description of Activities	Approximate Costs (BDT in Million)
1	Construction of Labor shed, latrine, safe water supply	.20
2	Labor safety equipment procurement and operation	.02
3	Dust suppression measures like water spraying in and around the site	.02
4	Air, Water, Noise Quality test	.06
5	Water logging eradication – Drainage and cleaning	.01
	Total Cost (BDT)	0.31

8.0 PUBLIC CONSULTATION AND PARTICIPATION

8.1 Methodology

Public consultation and participation ensured through organizing a Focus Group Discussion (FGD) with locally available peoples. Besides, a semi structures questionnaire survey also conducted and obtained necessary information, identified environmental and other problems, issues, concern and suggestions from the local people about the proposed subproject. Reviewed all of those findings and observations at sites based on which the present environmental assessment report prepared. Community Consultation in Annex – 5 and Semi Structure Questionnaire attached in Annex - 6). This Kitchen Market Development & Slaughter House subproject was selected from the CIP where all stakeholders - ULB, Mayor, Counselors, NGO representatives, and Community people were spontaneously participated. In the CIP, some subproject was selected and this subproject was taken as priority action to implement in the proposed location during the FY 2018.

Stakeholders at the subproject were identified under three main groups: (i) beneficiaries in the subproject area; (ii) community leaders and Government officials and (iii) NGOs working at the local and regional levels. Stakeholder participation was completed in two steps: (i) firstly to collect and disseminate information through briefing and discussion meetings; and (ii) secondly to receive feedback for formulating appropriate mitigation measures against all potential adverse impacts.

In order to ensure the implementation of all appropriate feedback a range of information sharing techniques was used. Techniques used for different stakeholder groups included (i) Discussion with stakeholders (ii) Semi-structured interviews; (iii) Small group meetings with concerned officials in presence of stakeholders Site visits- stakeholder discussion in the field level .

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 & general mass regarding sub-project implementation was positive.

8.2 Issues raised by the participants:

- Cleaning of ground inside the subproject site.
- Cutting and clearing the bushes and garbage
- Noise pollution during construction
- Traffic congestion
- Quality maintaining of the construction works
- Environmental friendly action

8.3 Feedback, suggestions, and recommendations of the participants.

Local people are very much interested and felt encouragement about the kitchen market establishment and they are absolutely hopeful that the market will be visible within the time frame. They are encouraged and ready to provide necessary social responsibilities in establishing the market at the selected site. They suggested making the market environment friendly considering and addressing all assumed adverse effects with the implementation of potential mitigation and enhancement measures. Participants requested the PIU-Sirajganj to maintain the quality of the construction work of the building. Neighboring peoples of the proposed site requested PIU-

Sirajganj to keep the noise level low, using quality construction materials and honoring the communities' comfort and over tranquility of the environment.

9.0 CONCLUSION AND RECOMMENDATIONS.

The proposed subproject is now a vision for the municipality because this subproject is taken as priority basis for the enhancement of revenue as well as to meet the requirements of Municipal dwellers with the increasing of income and trading facilities of their goods and services. This project has some special facilities like construction of modern slaughter house where hygienic meat will be available. No such valuable timber or fruit trees will need to be removed but as an enhancement of the aesthetic value and view of the proposed market necessary numbers of fruits, flowers and timber trees of indigenous varieties will be planted as if to generate a complete eco system of the areas.

Noise level, adverse impact and any sorts of disturbance by construction work would be reduced as much as possible. Emphasis will be given to make the market environment friendly during design and construction phase. Renewable energy would be installed and used as supplementary electric supply in water supply and energy use. Uses of solar energy and rain water harvesting would be ensured during the construction and operation periods. Environmental quality would be monitored and will make sure that natural environment would not be affected by this sub-project.

Appendix 2: Side views of the sub project



West side of Kitchen Market & Modern Slaughter House



East side of Kitchen Market & Modern Slaughter House



North side of Kitchen Market & Modern Slaughter House

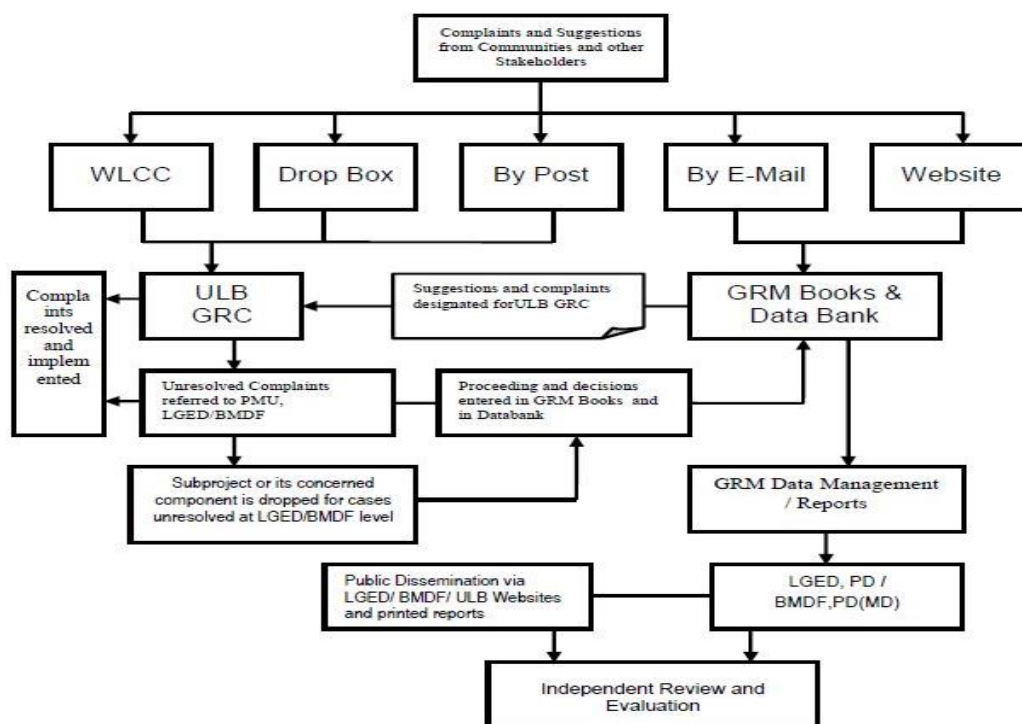


South side of Kitchen Market & Modern Slaughter House

Appendix 3: Grievance Redress Committee of Sirajganj Municipality

Sl.	Name	Designation	Designation
01	Syed Abdur Rouf Mukta	Chairman	Mayor Sirajganj Municipality
02	Abu Nur Shamsujjaman	Member	DDLG, Office of Deputy Commissioner
03	Nur-A-Alam Hira	Member	Assistant Teacher Sabuj Kanan School & College
04	Jahangir Alam Ratan	Member	Executive Director Dip Shetu
05	Abdul Bari Sheikh	Member	Civil Society
06	Mst. Romana Reshma	Member	Ward councilor – female
07	Md. Shahjahan Ali	Member Secretary	Executive Engineer Sirajganj Municipality

Annex 4: Flow chart of Grievance resolution process



Appendix 5: Picture of Community Consultation



Community Consultation



Community Consultation



Discussion / FGD – Local Womanhood

Appendix 6: Format of Semi Structure Survey.

পৌর মার্কেট নির্মাণ সম্পর্কিত জরিপ

বিশ্ব ব্যাংক এর আর্থিক সহযোগিতায় ও Sirajganj পৌরসভার তত্ত্বাবধানে সি এস দাগ নং, খতিয়ান নং, মৌজা: Sirajganj তে একটি পৌর মার্কেট নির্মাণ করা হবে। এই বিষয়ে আপনার অভিযোগ/আপত্তি, গুরুত্বপূর্ণ মতামত/পরামর্শ জানার জন্য নিম্নোক্ত তথ্য গুলো প্রয়োজন।

ক্রমিক নম্বর:

তারিখ:

১। নাম:

বয়স:

৩। পিতার নাম:

৪। ঠিকানা: বাসা:.....রাস্তা:.....
ওয়ার্ড:.....

৫। মোবাইল নম্বর:

.....

৬। পেশা:

.....

৭। প্রকল্প এলাকা থেকে দূরত্ব:

.....

৮। জমি সম্পর্কিত কোন অভিযোগ/আপত্তি: ☐ হ্যাঁ ☐ না

যদি থাকে:

.....

৯। মার্কেট নির্মাণ সম্পর্কিত কোন অভিযোগ/আপত্তি: ☐ হ্যাঁ ☐ না

যদি থাকে:

.....

১০। মার্কেট নির্মাণ সম্পর্কিত কোন মতামত/পরামর্শ: ☐ হ্যাঁ ☐ না

যদি থাকে:

.....

তথ্য দাতার

নাম:.....

জরিপকারীর

নাম:.....

স্বাক্ষর:তারিখ:.....

স্বাক্ষর:তারিখ:.....



Discussion / FGD with Local Womanhood